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VOL. 17 No. 1

January 6, 1967

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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**



# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

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Washington, D. C. 20250

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ALFALFA WEEVIL increasing in Pontotoc County, Mississippi. (p. 3).

TURNIP APHID is heavy on turnips in Oktibbeha and Lowndes Counties, Mississippi; increasing in Houston County, Alabama. (p. 4).

COTTONY-CUSHION SCALE causing severe damage to some grapefruit in Yuma County, Arizona. (p. 4).

Detection

For new county records, see page 6.

Special Reports

State Survey Coordinators. (p. 8).

Cooperative Survey Entomologists. (p. 11).

The 1967 outlook for GRASSHOPPERS indicates less extensive infestations than in 1966, based on the 1966 adult survey. See map following page 12.

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Grasshopper Adult Survey, Fall 1966 (Map). Following page 12.

WEATHER BUREAU'S 30-DAY OUTLOOK

JANUARY 1967

The Weather Bureau's 30-day outlook for January 1967 is for temperatures to average below seasonal normals across the Nation except for near normal in south and north Atlantic Coastal States and also in the Great Lakes region. Precipitation is expected to exceed normal over the southern half of the Nation except for near normal totals over the central Pacific coast and parts of the southern Plains. Subnormal precipitation is called for in the far Northwest and also in the Great Lakes region while near normal amounts are indicated in unspecified areas.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

Weather of the week continued on page 7.

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (Schizaphis graminum) - OKLAHOMA - Ranged 0-12 per linear foot in Mayes County wheat. Extremely cold weather reduced numbers to very low level in Payne County. (Okla. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - MISSISSIPPI - Nymphs and adults light on alfalfa in Oktibbeha County; 5-10 aphids per square foot. (Dinkins, Dec. 23). OKLAHOMA - Heavy in localized areas of Mayes County. (Okla. Coop. Sur.).

### SMALL GRAINS

CHINCH BUG (Blissus leucopterus) - MISSOURI - Survey conducted in 11 counties; St. Clair County light, remainder noneconomic. (Munson). OKLAHOMA - Samples of overwintering habitats indicate less than 10 per square foot in Payne County. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Ranged 1-6 per linear foot in Mayes County wheat. (Okla. Coop. Sur.).

### TURF, PASTURES, RANGELAND

A BILLBUG (Sphenophorus phoeniciensis) - ARIZONA - Medium in many lawns in Salt River Valley. Adults have laid eggs and second and third instar larvae now feeding on roots. (Ariz. Coop. Sur.).

### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MISSISSIPPI - Moderate on alfalfa in Attala County; 5-10 larvae per square foot, mostly of first and second instar, week ending December 23. Increasing in Pontotoc County; larvae 20-25 per square foot. (Dinkins).

CLOVER LEAF WEEVIL (Hypera punctata) - OKLAHOMA - Low in Mayes County alfalfa. (Okla. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - MISSISSIPPI - Nymphs and adults heavy on alfalfa in Attala County; 30-40 aphids per square foot. (Dinkins, Dec. 23). OKLAHOMA - Heavy in localized areas of Mayes County; light on fall-seeded vetch. (Okla. Coop. Sur.).

### SUGARBEETS

BET ARMYWORM (Spodoptera exigua) - ARIZONA - Continues to show reduction in Maricopa and Pinal County sugarbeets. (Ariz. Coop. Sur.).

### COLE CROPS

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - ALABAMA - Adults numerous, feeding on turnip leaves throughout Houston County. No damage observed. (Roney).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Total of 1,088 collected from 100 cabbage plants at Sanford, Seminole County; 884 wingless and 204 winged. (Greene, Dec. 23).

TURNIP APHID (Hyadaphis pseudobrassicae) - ALABAMA - Increasing on commercial turnips in Houston County, and on turnips and mustard in home gardens throughout State. (Roney et al.). MISSISSIPPI - Very heavy on turnips in Oktibbeha and Lowndes Counties. Leaf damage severe on some plants. (Dinkins).

#### GENERAL VEGETABLES

TULIP BULB APHID (Anuraphis tulipae) - UTAH - Infesting carrots in storage pit at Providence, Cache County. (Knowlton).

#### DECIDUOUS FRUITS AND NUTS

BLACK PECAN APHID (Myzocallis caryaefoliae) - ALABAMA - Unusual and large numbers of adults observed clustering on branches and twigs of pecans in Houston County orchard. Grower considering control. (Roney).

SAN JOSE SCALE (Aspidiotus perniciosus) - ALABAMA - Dormant individuals light to heavy on peach trees in Lee County. Lighter on apple, pear and plum trees. (McQueen).

#### CITRUS

COTTONY-CUSHION SCALE (Icerya purchasi) - ARIZONA - Populations causing severe damage to some grapefruit in Yuma County. (Ariz. Coop. Sur.). CALIFORNIA - Medium on lemon trees in Placerville, El Dorado County. Mild weather has allowed vedalia to be active. (Cal. Coop. Rpt.).

GREEN SCALE (Coccus viridis) - FLORIDA - Adults infested 95 percent of orange trees in nursery at Winter Haven, Polk County. (Eisenschenk, Skipper, Dec. 14).

#### ORNAMENTALS

APHIDS - NEW MEXICO - Light to moderate on potted chrysanthemums and bedding plants in greenhouse at Tularosa, Otero County, and on chrysanthemums in Albuquerque. (Elson, Kloepfer). CALIFORNIA - Aphis nerii heavy on oleander along highway in Davis, Yolo County. (Cal. Coop. Rpt.).

A WAX SCALE (Ceroplastes ceriferus) - FLORIDA - All stages severely infesting 80 percent of 2,000 podocarpus plants in nursery at Davie, Broward County. (Shirah, Dec. 14).

AZALEA BARK SCALE (Eriococcus azaleae) - ALABAMA - Second-year planting of 25 azalea plants in Lee County heavily damaged; several specimens have died. Plants were infested prior to planting. Similar infestations observed in Dallas County. (McQueen, Dec. 23).

TEA SCALE (Fiorinia theae) - ALABAMA - Heavy on leaves of old camellias at many Tallassee homes in Elmore County. Weakened shrubs contain only 40-60 percent of normal leaves. Buds and flowering reduced considerably. (McQueen).

MEALYBUGS - NEW MEXICO - Unspecified species light to very heavy and apparently killing some Chinese evergreens in Albuquerque, Bernalillo County. (Heninger).

SPIDER MITES - NEW MEXICO - Light to very heavy on ivy, croton, schefflera and other greenhouse plants in Albuquerque area, Bernalillo County. (Heninger).

#### FOREST AND SHADE TREES

FOREST TENT CATERPILLAR (Malacosoma disstria) - MINNESOTA - Egg surveys indicate areas infested and egg mass levels appear about same as last year. Survey still in progress. (Minn. Ins. Rpt.).

RED TURPENTINE BEETLE (Dendroctonus valens) - CALIFORNIA - Locally heavy in pine at Los Gatos, Santa Clara County. (Cal. Coop. Rpt.).

SARATOGA SPITTLEBUG (Aphrophora saratogensis) - MINNESOTA - Surveys indicate infestation extends outside Pine Island State Forest southward to Northome area. (Minn. Ins. Rpt., Dec. 23).

APHIDS (Eulachnus spp.) - ALABAMA - Continue to feed and increase on pine needles in central section of State causing objectionable honeydew on cars parked below. (McQueen, Dec. 23).

A GALL MIDGE (Contarinia sp.) - CALIFORNIA - Causing varying degrees of defoliation to Douglas-fir in 6,000-acre stand in Bluff Creek area and 15,000 acres in Red Cap Creek drainage of Six Rivers National Forest. Shaded and depressed trees most severely affected. (Cal. Coop. Rpt.).

#### MAN AND ANIMALS

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Averaged 30 grubs per yearling steer in Payne County. Ranged 15-18 per animal on mature cows. Populations appreciably higher in animals slaughtered at Oklahoma City. (Okla. Coop. Sur.).

SCREW-WORM (Cochliomyia hominivorax) - Total of 4 cases reported in U. S. December 25-31 as follows: TEXAS - Starr 1, Webb 1. CALIFORNIA - Imperial 2. Total of 147 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 27, Sonora 89, Chihuahua 13, Coahuila 1, Nuevo Leon 8, Tamaulipas 10. Total of 7 cases reported from Mexico south of the Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 17,966,250, Arizona 6,864,000, Mexico 67,148,000, California 1,716,000. (Anim. Health Div.).

CATTLE LICE - ALABAMA - Bovicola bovis and Haematopinus eurytarnus detected in many herds of beef cattle in Wilcox County. (Farquhar). UTAH - Lice becoming numerous in Box Elder and Beaver Counties. (Knowlton, Esplin).

HOUSE FLY (Musca domestica) - ARKANSAS - Year around problem in new type "environmental controlled" laying houses throughout State. (Simco).

MOSQUITOES - CALIFORNIA - Populations dropped abruptly with advent of cool damp weather. Arthropod-borne encephalitis from July through September 1966 included 9 cases of western encephalitis and 8 of St. Louis encephalitis in northern and central areas. All but 3 cases were males from 2 months to 29 years old. (Cal. Coop. Rpt.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - MISSISSIPPI - Light to moderate on caged laying hens in Oktibbeha County. (Dinkins).

A BROWN SPIDER (Loxosceles reclusa) - OKLAHOMA - Causing concern in homes throughout eastern section of State. (Okla. Coop. Sur.).

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Larvae, nymphs and adults heavy (1,000-2,000) on horses in restricted areas of eastern part of State. Cattle less heavily infested, 100-500 nymphs and adults in scattered areas. (Okla. Coop. Sur.).

#### FEDERAL & STATE PLANT PROTECTION PROGRAMS

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Single male taken in trap at Anaheim, Orange County. This is fourth fly taken in area. Time lapse indicates possible slow emergence from single source. Fruit cutting continues negative. Up to 50 traps per square mile in vicinity of present catches. (Cal. Coop. Rpt.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Few dead adult flies found in cages where suspect fruits, Ceylon peach and mango, had been placed in June 1966, at Miami, Dade County. (DeHaven, Brewton).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Survey in San Diego County produced additional infested blocks. Treatment in known infested area progressing. Some extensions occurred in known infested areas of Sacramento, Sacramento County and Fresno, Fresno County. These infestations light. (Cal. Coop. Rpt.).

#### INSECT DETECTION

##### New County Records

A SNAIL (Rumina decollata) - CALIFORNIA - Adults light under lumber pile at Ojai, Ventura County. This represents northwesterly spread of 60 miles from Los Angeles; also known to occur at Bakersfield, Kern County. (Cal. Coop. Rpt.).

A BARK BEETLE (Xylosandrus compactus) - HAWAII - Collected on Hawaii Island. (p. 7).

AN ARMORED SCALE (Pseudaulacaspis major) - Collected at Lawai, Kauai. (p. 7).

#### LIGHT TRAP COLLECTIONS

GEORGIA - Tifton, 12/22-28, 1 blacklight trap, temperature 21-67°, precipitation 0.24 - Corn earworm (Heliothis zea) 1. FLORIDA - Gainesville, 12/27, 1 BL - Granulate cutworm (Feltia subterranea) 1, armyworm (Pseudaletia unipuncta) 3. Seminole - 12/19-21, 1 BL - Black cutworm (Agrotis ipsilon) 1, granulate cutworm 12, cabbage looper (Trichoplusia ni) 1. TEXAS - Brownsville, 12/17-23, 2 BL, temperature 41-80°, precipitation 0.09 - Black cutworm 31, salt-marsh caterpillar (Estigmene acrea) 1, granulate cutworm 35, corn earworm 3, variegated cutworm (Peridroma saucia) 16, yellow-striped armyworm (Prodenia ornithogalli) 12, armyworm 99, beet armyworm (Spodoptera exigua) 37, fall armyworm (S. frugiperda) 17, cabbage looper 25.

HAWAII INSECT REPORT

Turf, Pastureland - Populations of a BILLBUG (Sphenophorus venatus vestitus) remain light on Kikuyu grass pastureland in Kohala, Hawaii Island. Considerable damage to rhizomes occurred from previous infestations. Presently overwintering; serious damage may result in spring if rains cease. (LaPlante).

Fruits - A BARK BEETLE (Xylosandrus compactus) found established for first time on Hawaii Island. Adults damaging young custard-apple (Annona reticulata) at Waiakea Experimental Farm in Hilo. Acacia koa and several other plants also believed infested as emergence holes quite noticeable and terminals of some plants severely damaged. Surveys continuing. (Yoshioka). BARNACLE SCALE (Ceroplastes cirripediformis) remains serious on 200-acre passion-fruit farm at Kahului, Maui. Control application reduced adult population but nymphs remained extremely heavy in spotted areas. (Miyahira). An ARMORED SCALE (Pseudaulacaspis major) medium to heavy and causing considerable damage to young Litchi chinensis twigs in Lawai, Kauai. Scales congregated near terminals. This insect previously reported only from Oahu. (Au). Heavy populations of ORIENTAL FRUIT FLY (Dacus dorsalis) noted during November in Hilo, Hawaii Island; 1,045 guava fruits sampled from scattered areas yielded 3,929 pupae (41 percent parasitized) and 1,523 tropical-almond (Terminalia catappa) from Onekahakaha Beach yielded 10,444 pupae (65 percent parasitized). Parasitism mostly by Opius oophilus. (Hawaii Fruit Fly Investigations).

Miscellaneous - Larvae of a NOCTUID MOTH (Achaea janata) heavy on residential buildings in Kahului, Maui. Larvae light on graceful spurge (Euphorbia glomerifera) and adults medium in Hawaii and Kai areas, Oahu. (Miyahira, Nakao).

WEATHER OF THE WEEK ENDING JANUARY 2, 1967

HIGHLIGHTS: A week of cold temperatures in the central Rockies and the western Plains with heavy snow from the southern Rockies to New England, and generous rains in the Deep South.

PRECIPITATION: A storm developed over northeastern Arizona early in the week, clogging the highways of northern Arizona with snow and hampering traffic in northern New Mexico. After dumping heavy snow in the central and southern Rockies, the storm moved to the Great Plains, becoming the worst blizzard of this season. Winds reached 40-50 miles per hour while temperatures plunged to near zero. Snowfall ranged from 8 to 12 inches over parts of Nebraska and Kansas northeastward across southern Iowa and northern Missouri to southern Wisconsin and northern Illinois. Strong winds piled the snow in drifts several feet deep. South of the snow belt, freezing rain iced trees and wires, making for beautiful scenery but treacherous sidewalks, streets and highways from Missouri eastward to Kentucky and Virginia and northeastward across Maryland, eastern Pennsylvania and New York to New England. Generous rains fell over the Southland, visiting the lower Mississippi Valley early in the week and most of the Southeast on Wednesday, where numerous stations registered an inch or more. Locally heavy rains soaked the Deep South over the weekend with some areas from Louisiana to the Carolinas receiving several inches. The rains spread northward across Tennessee and Kentucky mixing with snow in the Ohio River Valley. Light rain occurred almost daily in the lower elevations in western Washington with snow at higher levels in the Cascades and eastward to the Rockies. Central and southeastern New Mexico and the western sections of Texas continued with little precipitation of consequence.

TEMPERATURE: Cold wintery weather gripped most of the Great Plains and the East as northerly winds continued to bring polar air from Canada in the far north. Subzero temperatures were common over parts of the northern and central Great Plains and at mountain stations to the west, with temperatures ranging down to -28° in the Colorado Rockies. Subfreezing temperatures occurred in 49 States on Wednesday. Readings in the 20's were reported as far south as southeastern Arizona, and in the Everglades of Florida. Over much of Utah, Colorado, Nebraska, Kansas, Arizona, New Mexico, Oklahoma and Texas, temperatures averaged 10° or more below normal. (Summary supplied by Environmental Data Service, ESSA).

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UNITED STATES DEPARTMENT OF  
 AGRICULTURAL RESEARCH SERVICE  
 PLANT PEST CONTROL DIVISION

results of cooperative grasshopper adult surveys made during the late summer and fall of 1967. Nymphal surveys, made in the spring, indicated that the severity of infestations for 1967. Nymphal surveys, made in the spring, indicated that the severity of infestations for 1967.

sted croplands will be handled by the farmers with technical assistance from the Plant Pest Control Division. Areas on the map are diagrammatic. Within these areas, infestations may be severe.

RANGELAND GRASSHOPPER INFESTATIONS – ACRES

(Areas Shown in Red)

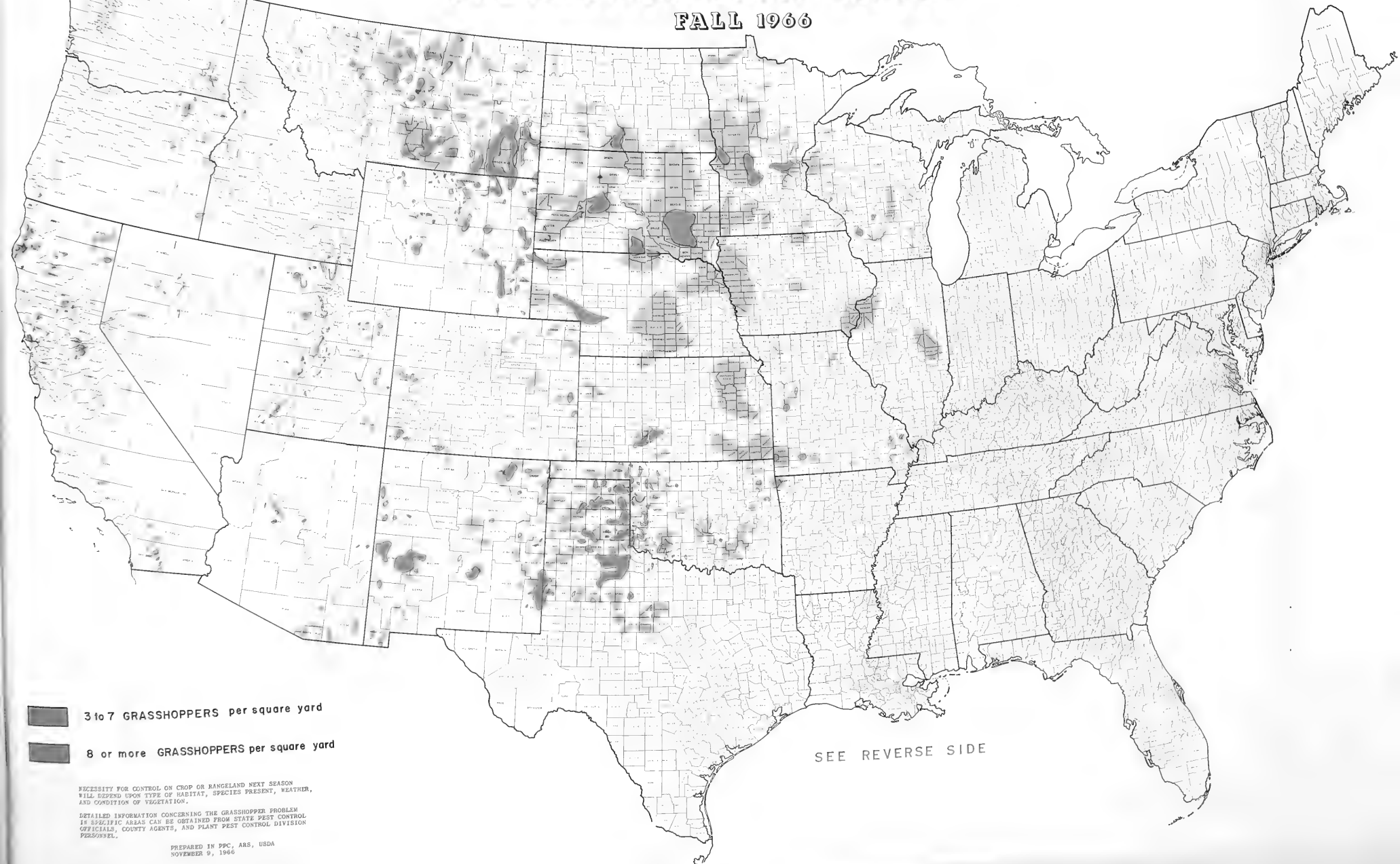
LANDOWNERSHIP – ACRES		TOTAL ACRES	REGION
Private Land	Public Domain		
50,000	--	50,000	NEW ENGLAND
98,000	2,000	100,000	
53,660	28,280	81,940	
1,300	4,400	5,700	SOUTHERN STATES
128,957	450	129,407	
5,000	1,000	6,000	
32,300	65,000	97,300	
123,000	350,000	3,573,000	
3,700	14,600	18,300	

Prepared by the Plant Pest Control Division, Agricultural Research Service, in cooperation with the State Agricultural Experiment Stations.



# GRASSHOPPER ADULT SURVEY

FALL 1966



3 to 7 GRASSHOPPERS per square yard

8 or more GRASSHOPPERS per square yard

NECESSITY FOR CONTROL ON CROP OR RANGELAND NEXT SEASON WILL DEPEND UPON TYPE OF HABITAT, SPECIES PRESENT, WEATHER, AND CONDITION OF VEGETATION.

DETAILED INFORMATION CONCERNING THE GRASSHOPPER PROBLEM IN SPECIFIC AREAS CAN BE OBTAINED FROM STATE PEST CONTROL OFFICIALS, COUNTY AGENTS, AND PLANT PEST CONTROL DIVISION PERSONNEL.

PREPARED IN PPC, ARS, USDA  
NOVEMBER 9, 1966

SEE REVERSE SIDE

## AGRICULTURE

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er and fall of 1966. The survey reveals where and how many grasshoppers infest  
etermine population densities, and indicate those areas where control may be neces-

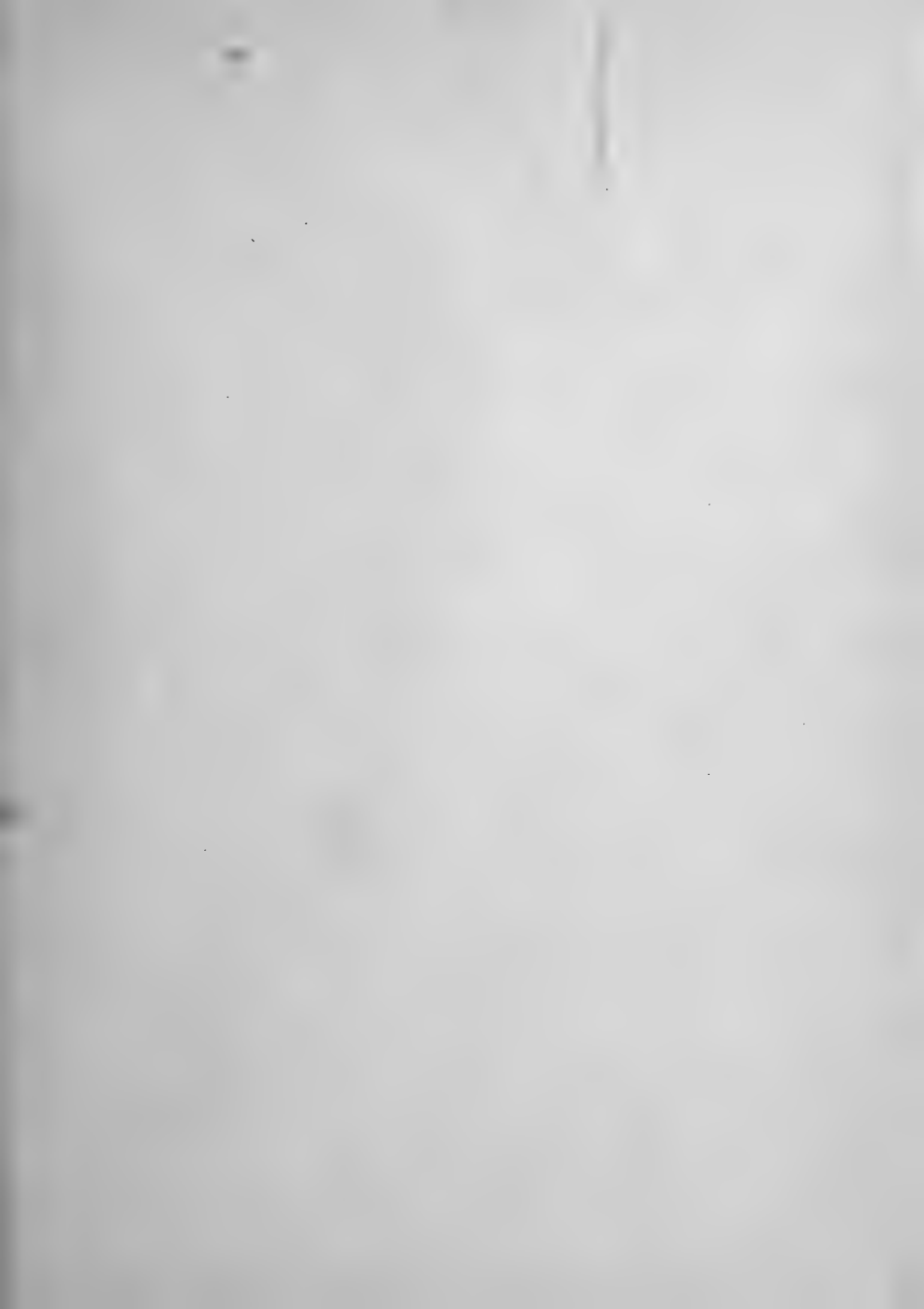
Division and State personnel. The infested rangeland areas total 11,393,387 acres  
y be solid or spotted.

### AGE BY REGIONS, FALL 1966.

REGION AND STATE	LANDOWNERSHIP - ACRES		TOTAL ACRES
	Private and State	Public Domain	
Mexico	1,471,700	562,300	2,034,000
Arizona	6,000	31,000	37,000
California	115,400	165,860	281,260
Idaho	26,000	800	26,800
Montana	1,504,400	206,600	1,711,000
Nebraska	1,500	--	1,500
Oklahoma	667,900	--	667,900
Texas	2,572,280	--	2,572,280

in cooperation with various State agencies concerned.





UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

TO COOPERATORS:

This map is based upon the results of cooperative grasshopper adult surveys made during the late summer and fall of 1966. The survey reveals where and how many grasshoppers infest an area, and indicates the potential severity of infestations for 1967. Nymphal surveys, made in the spring, determine population densities, and indicate those areas where control may be necessary in 1967.

Control on grasshopper infested croplands will be handled by the farmers with technical assistance from Division and State personnel. The infested rangeland areas total 11,393,387 acres in 17 Western and Midwestern States. Areas on the map are diagrammatic. Within these areas, infestations may be solid or spotted.

RANGELAND GRASSHOPPER INFESTATIONS – ACREAGE BY REGIONS, FALL 1966.

(Areas Shown in Red)

REGION AND STATE	LANDOWNERSHIP – ACRES		TOTAL ACRES	REGION AND STATE	LANDOWNERSHIP – ACRES		TOTAL ACRES
	Private and State	Public Domain			Private and State	Public Domain	
CENTRAL							
Kansas	50,000	--	50,000	New Mexico	1,471,700	562,300	2,034,000
Nebraska	98,000	2,000	100,000	Oregon	6,000	31,000	37,000
South Dakota	53,660	28,280	81,940	Utah	115,400	165,860	281,260
WESTERN				Washington	26,000	800	26,800
Arizona	1,300	4,400	5,700	Wyoming	1,504,400	206,600	1,711,000
California	128,957	450	129,407	SOUTHERN			
Colorado	5,000	1,000	6,000	Arkansas	1,500	--	1,500
Idaho	32,300	65,000	97,300	Oklahoma	667,900	--	667,900
Montana	3,223,000	350,000	3,573,000	Texas	2,572,280	--	2,572,280
Nevada	3,700	14,600	18,300				

The survey was planned and performed by the Plant Pest Control Division, Agricultural Research Service, in cooperation with various State agencies concerned.



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REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

All correspondence pertaining to additions, deletions and changes of addresses for the mailing list for this report should be sent to:

Service Operations Division  
Office of Plant and Operations  
United States Department of Agriculture  
Washington, D. C. 20250

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

NEOTROPICAL CORN BORER seriously damaging corn near La Feria, Cameron County, Texas. Reported for first time in U. S. during August, 1966. (p. 15).

Complex of insects building up throughout Rio Grande Valley vegetable-growing area in Texas. (p. 16).

CALIFORNIA RED SCALE poses major threat to citrus in Rio Grande Valley, Texas. (p. 17).

Detection

A FUNGUS GNAT new to Washington. (p. 16).

For new county records see page 18.

Special Reports

- ALFALFA WEEVIL Situation in the United States - 1966, Outlook for 1967. (p. 19).

Preparation of Notes for Cooperative Economic Insect Report. (p. 26).

Name Change

DIAMONDBACK MOTH is Plutella xylostella. (p. 16).

Reports in this issue are for week ending January 6 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING JANUARY 9, 1967

**HIGHLIGHTS:** Another bitter cold week over the central and southern Rockies and the central Great Plains. Hard freezes across the South.

**PRECIPITATION:** Heavy snow fell Tuesday in the northern Cascades. Snow depths reached 3-10 inches in the lower elevations before melting by the end of the week. Depths have reached 50-75 inches at 3,000 to 4,000 feet and 100 inches above 5,000 feet. Variable snow amounts fell across the northern States from the Rocky Mountains to New England; also in the central Rocky Mountains. A major snowstorm moved from Colorado to the Great Lakes and on Friday, accompanied by strong northerly winds and frigid temperatures, became the first blizzard of 1967. Minnesota reported six storm deaths and 2 - 18 inches of snowfall. Snow depths at Marquette, Michigan, reached 52 inches. Winds in Nebraska and Kansas reached 40-60 m.p.h. causing dust storms. The winds sandblasted western Texas carrying dust out over the Gulf of Mexico. The snow fell unevenly and drifted badly near the Great Lakes. Rain in the Southeast was moderate to heavy in some areas. Extensive glazing occurred over central and southern New England on Saturday afternoon. Heavy snow fell in southern Texas on Monday.

**TEMPERATURE:** For the second or third week in some areas, bitter cold pushed southward across the Great Basin, the Rocky Mountains, and the Great Plains. Temperatures dropped to the 20's across the Southland from southern Arizona to northern Florida. Tucson, Arizona, registered 20° on Saturday. Subzero temperatures reached the southern Rockies and minimums of 20 - 30° below zero were common in the central Rocky Mountains. Fraser, Colorado, registered -39°. On Sunday subzero temperatures occurred in 15 States from Montana to Arizona and northeastward to Michigan; Minnesota reported -15° to near -30°. (Subzero temperatures are normal over much of North Dakota and Minnesota at this season). Warm weather brought average temperatures of 5 - 9° above normal from the northern Rockies westward and in parts of New England. The central and southern Rockies and the central Plains averaged 6 - 12° colder than normal. In general this was the second cold week over the southern portions of this cold area. (Summary supplied by Environmental Data Service, ESSA).



## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

SPOTTED ALFALFA APHID (Therioaphis maculata) - MISSISSIPPI - Decreased in Pontotoc County due to recent rainy weather; averaged 20-25 per square foot in alfalfa. (Dinkins). ARKANSAS - Increasing prior to cold weather in December. Dead aphids observed in northwest area as result of low temperatures; however, some live aphids present indicate reproduction underway. (Boyer). ARIZONA - Light in 10 percent of alfalfa fields in Chandler and Gilbert areas of Maricopa County. (Ariz. Coop. Sur.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Ranged 0-5 per linear foot on wheat in Tillman and Kiowa Counties; averaged 1 or less per linear foot in Logan, Kingfisher and Payne Counties. (Okla. Coop. Sur.). ARKANSAS - Light, 0-10 per linear foot on small grains in northwest area probably due to -3° temperature in late December. (Boyer). ALABAMA - Heavy on oats at a farm near Wilmer, Mobile County. (Bourne, Dunn).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Light to moderate on barley in Dona Ana County. (Campbell, Elson).

BEEF LEAFHOPPER (Circulifer tenellus) - ARIZONA - Light on sugarbeets near Coolidge, Pinal County and Chandler, Maricopa County. Two fields in Coolidge area showed very heavy damage as result of curly top virus infection. (Ariz. Coop. Sur.).

TOBACCO BUDWORM (Heliothis virescens) - CALIFORNIA - Infesting geranium cuttings in Lodi, San Joaquin County. More prevalent and on wider host range this season. (Cal. Coop. Rpt.).

## CORN, SORGHUM, SUGARCANE

NEOTROPICAL CORN BORER (Zeadiatraea lineolata) - TEXAS - Larvae infesting entire field of corn near La Feria, Cameron County; 25-30 percent of stalks lodged. Larvae of Diatraea saccharalis also present. (Riherd).

## SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - MISSISSIPPI - Light on oats in Bolivar County, averaged 3-5 per square foot. (Dinkins). ARKANSAS - Low, 0-10 per linear foot on small grains in northwest area, probably due to -3° temperature in late December. (Boyer).

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Light to medium on winter wheat in Chaves County. (Mathews).

WINTER GRAIN MITE (Penthaeus major) - TEXAS - Light, noneconomic infestations. (Texas Coop. Rpt.). OKLAHOMA - Ranged 15-30 per linear foot on wheat in Tillman County. (Okla. Coop. Sur.).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - ILLINOIS - First and second stage larvae observed on alfalfa in southern section; most second instars dead. Ranged 2 per 40 stems to 1 per stem. (Armburst). MISSISSIPPI - Remains same as 2 weeks ago in Oktibbeha and Pontotoc Counties. (Dinkins).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Egg laying increasing in Buckeye, Goodyear and Baseline areas of Maricopa County. Adult populations

considerably smaller than this time last year. (Ariz. Coop. Sur.). CALIFORNIA - Active early, alfalfa plantings not affected so far. Adults light in garden area of La Mesa, San Diego County; also on office walls at Oxnard, Ventura County. (Cal. Coop. Rpt.).

CLOVER LEAF WEEVIL (Hypera punctata) - ARKANSAS - Occasional larva found on vetch in northwest area. (Boyer).

PEA APHID (Acyrtosiphon pisum) - MISSISSIPPI - Averaged 30-40 per square foot on alfalfa in Pontotoc County. (Dinkins). ARKANSAS - Remains same as before cold weather, 10-20 per square foot on vetch in northwest area. (Boyer). NEW MEXICO - Light to heavy on alfalfa in Chaves County. (Mathews).

#### SUGARBEETS

BET ARMYWORM (Spodoptera exigua) - ARIZONA - Continues light on sugarbeets in Pinal and Maricopa Counties. Light damage evident in nearly all fields. (Ariz. Coop. Sur.).

SOUTHERN GARDEN LEAFHOPPER (Empoasca solana) - ARIZONA - Heavy in sugarbeet fields in Mesa and Chandler areas of Maricopa County. Moderate in Casa Grande and Coolidge areas of Pinal County. (Ariz. Coop. Sur.).

#### POTATOES, TOMATOES, PEPPERS

A WHITEFLY (Aleyrodes spiraeoides) - CALIFORNIA - Heavy on bell peppers at El Cajon, San Diego County and light on large lot of Abyssinian banana nursery stock at Santa Ana, Orange County. (Cal. Coop. Rpt.).

#### BEANS AND PEAS

A FUNGUS GNAT (Bradysia impatiens) - WASHINGTON - Damaging pea seedlings at Mount Vernon, Skagit County; also found in volunteer peas in field causing similar damage. Det. by F. R. Shaw. New State record. (Eide).

#### GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Moderate sporadic populations pose continuous threat to vegetable growers in eastern section of Rio Grande Valley this season; no damage evident in western section. (Neff).

BET ARMYWORM (Spodoptera exigua) - TEXAS - Building up in spinach fields near Crystal City, Zavala County in early December; 1,500-2,000 acres treated. (Adams).

DIAMONDBACK MOTH (Plutella xylostella\*) - TEXAS - Moderate throughout Rio Grande Valley vegetable-growing area during November and December. (McMenemy).

GREEN PEACH APHID (Myzus persicae) - TEXAS - Rapid buildup on spinach near Crystal City, Zavala County in mid-December; some damage evident. (Fieldman).

#### DECIDUOUS FRUITS AND NUTS

PECAN WEEVIL (Curculio caryae) - TEXAS - Heavy in 25-acre native pecan grove near Jonah, Williamson County; 3-4 larvae present in many nuts throughout grove. (Wakefield).

A MEALYBUG (Pseudococcus obscurus) - CALIFORNIA - Nymphs and adults medium on persimmon trees at La Mesa, San Diego County. (Cal. Coop. Rpt.).

WALNUT SCALE (Aspidiotus juglansregiae) - CALIFORNIA - Heavy on English walnut trees at Hilmar, Merced County. (Cal. Coop. Rpt.).

#### CITRUS

CALIFORNIA RED SCALE (Aonidiella aurantii) - TEXAS - Moderate populations pose major threat to citrus in Rio Grande Valley. (McMenemy).

TEXAS CITRUS MITE (Eutetranychus banksi) - TEXAS - Sporadic, light populations increasing. (McMenemy).

#### ORNAMENTALS

OMNIVOROUS LOOPER (Sabulodes caberata) - CALIFORNIA - Larvae medium on ceanothus nursery stock at South San Francisco, San Mateo County. (Cal. Coop. Rpt.).

A PLUME MOTH (Platyptilia sp.) - CALIFORNIA - Infesting geranium cuttings at Lodi, San Joaquin County. Not as severe as past 2 years. (Cal. Coop. Rpt.).

A WHITEFLY (Aleyrodes pruinosa) - CALIFORNIA - Medium to heavy on toyon (Photinia arbutifolia) at La Mesa, San Diego County. (Cal. Coop. Rpt.).

ARMORED SCALES - ALABAMA - Phenacaspis pinifoliae light on isolated loblolly and slash pine in ornamental plantings in Lee County. (McQueen). CALIFORNIA - Aonidiella citrina heavy on cymbidium plants at La Mesa, San Diego County. (Cal. Coop. Rpt.).

COTTONY-CUSHION SCALE (Icerya purchasi) - CALIFORNIA - Medium on variegated ivy nursery stock at Willows, Glenn County. Vedalia probably not surviving winters this far north. (Cal. Coop. Rpt.).

#### MAN AND ANIMALS

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Moderate, up to 50 per head on hogs in Mayes County. (Okla. Coop. Sur.).

AN OESTRID (Cephenemyia sp.) - OKLAHOMA - Full-grown larvae heavy in sinuses of deer checked in Cherokee County. (Okla. Coop. Sur.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Light on cattle in Choctaw County. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - ALABAMA - Only 1 adult found in herd of 90 dairy cattle at Atmore, Escambia County during intensive individual inspection of 200 animals in three dairy herds in Houston, Escambia and Mobile Counties. (Bourne).

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U. S. January 1-7. Total of 199 cases reported in portion of Barrier Zone in Republic of Mexico December 25-31 as follows: Territorio sur de Baja California 7, Sonora 141, Chihuahua 17, Coahuila 6, Nuevo Leon 5, Tamaulipas 13. Total of 183 cases reported from Mexico south of the Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released January 1-7: Texas 16,646,250, Arizona 1,716,000, California 1,716,000, Mexico 81,904,000. (Anim. Health Div.).

TICKS - OKLAHOMA - Deer checked in eastern third of State averaged 90 percent Ixodes scapularis, 5 percent Dermacentor albipictus, and 5 percent Amblyomma americanum. (Okla. Coop. Sur.).

#### STORED PRODUCTS

LESSER MEALWORM (Alphitobius diaperinus) - WASHINGTON - Adults and larvae creating nuisance in poultry house litter in Thurston County. This is new county record. Det. by M. H. Hatch. (James, Retan).

#### FEDERAL & STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Cold weather during past few days reduced larvae in cotton fields of Dona Ana County; large numbers of larvae dead or dying in trash on top of ground. (Elson, Campbell).

#### INSECT DETECTION

##### New State Record

A FUNGUS GNAT (Bradysia impatiens) - WASHINGTON - Collected from pea seedlings at Mount Vernon, Skagit County. Det. by F. R. Shaw. (p. 16).

##### New County Record

LESSER MEALWORM (Alphitobius diaperinus) - WASHINGTON - Collected in Thurston County. Det. by M. H. Hatch. (p. 18).

#### LIGHT TRAP COLLECTIONS

SOUTH CAROLINA - Charleston - 12/19-25, 1 blacklight trap, temperature 27-70°, precipitation 0.89 - Armyworm (Pseudaletia unipuncta) 2, black cutworm (Agrotis ipsilon) 1. TEXAS - Brownsville - 12/24-30, 2 BL, temperature 38-48°, precipitation 0.02 - Black cutworm 30, granulate cutworm (Feltia subterranea) 18, variegated cutworm (Peridroma saucia) 17, yellow-striped armyworm (Prodenia ornithogalli) 23, tobacco hornworm (Manduca sexta) 1, armyworm 62, beet armyworm (Spodoptera exigua) 16, fall armyworm (S. frugiperda) 4, cabbage looper (Trichoplusia ni) 6.

# Alfalfa Weevil Situation in the U.S. - 1966

The alfalfa weevil, *Hypera postica* (Gyllenhal), has been known in the United States since 1904, when it was identified from specimens collected in Utah. Until 1952, the weevil had not been reported east of Nebraska. However, specimens were identified from Maryland that year, and the weevil was collected in Delaware, New Jersey, Pennsylvania and Virginia later the same year. Alfalfa weevil spread rapidly during the following years in the East and South. In the eastern half of the Nation the weevil is known to occur in 27 States. Maine and Florida are the only two States east of the Mississippi River not reporting this serious pest.

In the West, alfalfa weevil had spread to California and Oregon and eastward to western South Dakota and Nebraska by 1954. Since that year, the weevil has been reported in only three States, Kansas, North Dakota and Washington, making a total of 14 States infested in the western section of the Nation. The accompanying map gives the known distribution of alfalfa weevil in the United States. (See page 24).

A questionnaire was submitted recently to entomologists in each of the 41 States known to be infested, in an attempt to determine the impact of alfalfa weevil on the production of alfalfa in the East, South, and West. Responses were received from 32 of these States.

Alfalfa weevil infestations and damage were generally more severe during 1966 than 1965 and several previous years. The outbreak in Utah was the worst in 10 years in that State, and damage was the worst it had ever been in Arkansas. The situation was generally more serious in California, but did remain static in a few locations. The weevil was about the same in northwestern Wyoming as it was in 1965, but much less severe than usual along the eastern edge of the State. Infestations in Kansas were somewhat higher than last year, with some economic damage reported. Infestations were probably the lightest in 10 years in Nebraska, but damage was slightly more severe in western South Dakota. The pest has not been a problem in North Dakota; however, some infestations were heavier than usual in 1966. Although commercial damage to alfalfa was reported in Washington in 1965, none was reported in 1966.

In the East, alfalfa weevil populations and damage were equal to or worse than in 1965. Damage was more severe in western Pennsylvania, but was less so in the southeastern portion of that State. The situation was unchanged in Maryland. Although larval populations were lower in Tennessee during 1966 than 1965, numbers were sufficiently high to destroy the first cutting.

Alfalfa weevil is expected to continue as a serious problem during 1967 in most areas where it is now known to occur. The problem is decreasing in Alabama due to the decreasing acreage planted to alfalfa. At the present time there are about 2,000 acres of alfalfa grown in the State; the outlook for 1967 is for the situation to be about the same as in 1966 on this remaining acreage. No change in the problem is anticipated in Maryland in 1967. This pest was found for the first time in Michigan and Wisconsin during 1966. Although further spread is expected in these two States during the 1967 season, no serious problems are anticipated.

This weevil is expected to spread throughout Indiana in 1967 and become economically damaging in most areas in the southern half of the State. In Ohio, economic damage occurred in 45 counties in 1966 and is anticipated in an additional 15 counties during the 1967 season. Some economic damage is expected in Illinois as far north as Champaign in the east and St. Louis on the western side of the State. The outlook for 1967 in Missouri is for a gradual increase in the area having economic populations and for more severe injury to alfalfa in the extreme southeastern portion of the State. Continued spread and population buildup are anticipated in Arkansas. In the remaining States in the eastern portion of the Nation, the alfalfa weevil problem is expected to be as serious as it was in 1966 or more so during 1967. It is now considered the most important agricultural pest in New Jersey.

Alfalfa weevil may be found in southeastern Kansas during 1967 because of the proximity of infestations in Missouri, but it is not expected to occur in economic numbers. The weevil will probably continue as no serious problem to alfalfa in western Kansas. In western Nebraska, damage is expected only in some fields that have been in alfalfa for 4-5 years. The situation is expected to remain about the same in South Dakota. Infestations have not been a problem in South Dakota except in some irrigated areas in the western part of the State. No change is expected during 1967 except that infestations may occur in several new counties. Conditions are expected to be about the same in Montana in 1967, except some growers will cut alfalfa earlier and more of the crop will go for ensilage. Unless weather conditions change expectations in Utah, the outlook for 1967 is very serious. Losses are expected to continue to increase in Idaho during the 1967 season while the situation is not expected to worsen in Washington. In Oregon, however, it is anticipated that alfalfa weevil will be more serious than in 1966. The situation is expected to be serious during 1967 in California with weather conditions having considerable influence. The situation in Wyoming will probably remain about as it was in 1966.

Alfalfa weevil has had considerable impact upon alfalfa cultural practices. One of the major effects in Delaware is the lack of increase in total acres planted to alfalfa in the past 4-5 years. Also, many growers are harvesting the first cutting earlier, as they are in Maryland where there has been a 10-percent decrease in acreage since 1959. Growers are also cutting earlier in Massachusetts because damage occurs so late as to make treatments impractical. Early cutting of first crop alfalfa is the most single important cultural practice influenced by alfalfa weevil in New Jersey. In addition to early cutting, more alfalfa is being spring seeded without companion crops in Pennsylvania. So far, there has been no effect in Vermont, but if infestations continue at 1966 levels, many dairymen may reevaluate their dairy forage programs. The effect of this weevil in West Virginia is discouraging the planting of new fields of alfalfa.

Alfalfa weevil has caused a reduction of alfalfa acreage in Tennessee from 147,000 acres in 1964 to about 100,000 acres in 1966. During the period 1959-1966, the acreage in Alabama has decreased from 200,000 to about 2,000 acres. Many farmers in Mississippi have been forced to cease alfalfa production. It is difficult to establish new stands of alfalfa as extensive control measures are necessary. In Arkansas, alfalfa weevil has resulted in early cutting, spraying with insecticides and a limited amount of flaming.

Early cutting is the most noticeable effect upon cultural practices in Missouri. This eliminates additional weevil damage and an additional spray application. This undoubtedly has some effect upon the longevity of the stand, when linked with early harvest of either second or third cuttings to avoid destruction by garden webworm. Since infestations of alfalfa weevil were first found in Missouri three years ago, only a few hundred acres of alfalfa have been abandoned due to the weevil.

The weevil is found in the extreme western part of Kansas where it is of no particular importance at present. Consequently it has had no effect upon cultural practices. Although infestation in western Nebraska is more extensive than in Kansas, some alfalfa is infrequently cut earlier than usual to control the pest. Otherwise, there has been little change in cultural practices. In South Dakota, treatment costs with short residue chemicals are hampering ranchers in their efforts to compete with producers outside the infested areas. In North Dakota, however, there has been no effect upon cultural practices as economic infestations are not very common. In California, alfalfa weevil has resulted in more early cutting of alfalfa and more chemical treatment with cultural control.

Infestations have resulted in the early cutting of alfalfa in Montana, Wyoming, Colorado, Utah, Nevada, Idaho, Oregon and Washington.  
(Continued on page 24).

## ALFALFA WEEVIL IN THE UNITED STATES - 1966

Table 1.

State	Highest counts	Populations peaked	Estimated acreage treated	Number of control applications	Estimated dollar loss
EAST					
Alabama	Larvae 900 per sweep Adults no counts made	First week in April at Auburn	2,000	1-2	?
Arkansas	Larvae 10 per sweep Adults 8 per sweep	Larvae April 15-25 Adults May 20 (Mississippi Co.)	10,000	Mostly one; few large fields in northeast twice	40,000
Delaware	Larvae 96 per sweep	Larvae May 15 to June 7	5,000	1-2	125,000-150,000
Maryland	Larvae 200 per sweep	May 13	67,000	Average 1½	950,000
Illinois	Larvae 121 per sweep Adults 32 per sweep	Larvae April 25 to May 5 Adults May 15-20	5,000-10,000	Mostly once	---
Indiana	Larvae 134 per sweep	April 28 - May 5	30,750	Mostly once	1,987,550
Kentucky	Larvae 154 per sweep Adults 10 per sweep	May 10-20	400,000	One	6,000,000
Massachusetts	2,573 per 100 sweeps	June 14	10,000-15,000	1-2	---
Michigan	1-4 per 1,000 sweeps 5 per 2,000 sweeps	(Collections made on 4 days in November).	---	---	---
Mississippi	180-200 per square foot	Late March and early April	10-15 percent of total acreage	One	50-60 percent of yield

Table 1 continued.

State	Highest counts	Populations peaked	Estimated acreage treated	Number of control applications	Estimated dollar loss
Missouri	Adults 3-5 per sweep Larvae 20-50 per sweep	Early May	6,500	Once on 4,500 acres, twice on 2,000 acres	222,300 (to first cutting)
New Jersey	Larvae 6,100 per 100 sweeps Adults 178 per 100 sweeps	Mid to late May in south; late May to June in north	65,250	60,000 acres once, 5,000 acres twice, 250 acres thrice	750,000 to 937,000
Ohio	Larvae 160 per sweep Adults 6 per sweep	May 10 in south, May 25 in north	489,600	One in north, 2 in south	7,330,000
Pennsylvania	Larvae 500+ per sweep	---	500,000	1-2	9,000,000
Tennessee	35-40 per sweep	Mid-April	70,000	1-1½	1,000,000
Vermont	Larvae 40-50 per sweep Adults 4-5 per sweep	Early June	10,000	One	200,000
West Virginia	Larvae 50 per sweep Adults 15 per sweep	Larvae May 31 Adults June 15	90,000	One	2,000,000
WEST					
California	Larvae 40-60 per sweep (6-10 per stem) Adults 50 per sweep (6 per stem)	Variable; began in late March, increased progressively until August. Populations peaked in most areas in June.	22,000	Mostly one	558,000
Colorado	Larvae 1,000-1,500 per 100 sweeps in Pueblo Co. and western slope Cos.	May and June	100,000	One	500,000 to 1,000,000



Table 1 continued.

State	Highest counts	Populations peaked	Estimated of acreage treated	Number of control applications	Estimated dollar loss
Idaho	Larvae up to 200 per sweep Adults variable	Late May to mid-July	275,000	Mostly one; 2 or more common in some locations	12,000,000
Kansas	Larvae 4 per 10 sweeps Adults 5 per 10 sweeps	Larvae late May Adults June 18-24	None	Not applicable	None
Montana	Probably more than 100 larvae per sweep	Early June	40,000-50,000	One	8,000,000 to 10,000,000
Nebraska	Larvae 197 per 100 sweeps, adults 21 per 100 sweeps in Scotts Bluff Co.	June 10-15	?	One when necessary	None to negligible
Nevada	Larvae 400 per sweep Adults 27 per sweep	Larvae - south May 20 central June 10-15 north July 20-25	54,000	Mostly once; 2-3 in few instances	859,000
North Dakota	Larvae 1,000 per 100 sweeps Adults 30 per 100 sweeps	Larvae - week of June 20	None	---	Negligible
Oregon	Larvae 30 per sweep Adults 10 per sweep	Late May	100,000	Once; occasionally twice on first crop	Variable; 100,000 on 20,000 acres in one Co.
South Dakota	Larvae 3,440 per 100 sweeps Adults 172 per 100 sweeps	Larvae July 1 in Lawrence Co.	20,000	One	688,000

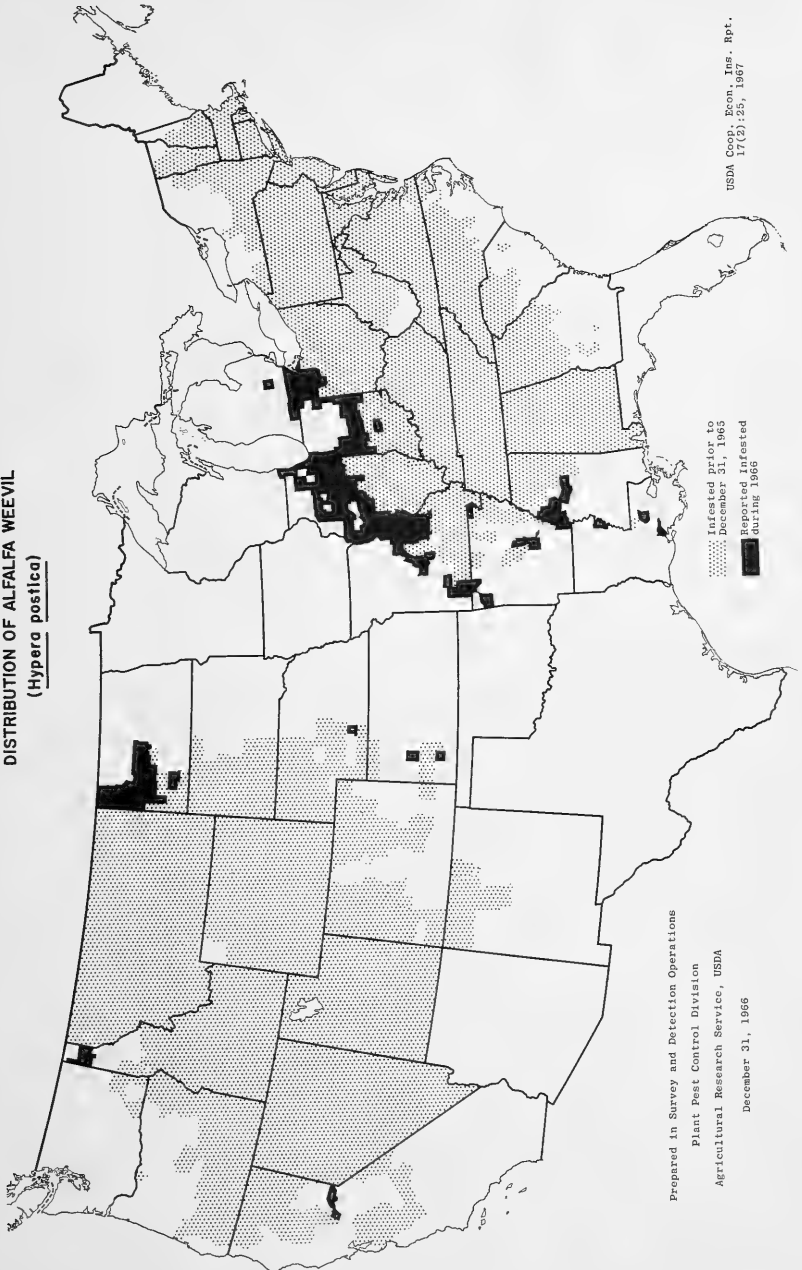
Table 1 continued.

State	Highest counts	Populations peaked	Estimated acreage treated	Number of control applications	Estimated dollar loss
Utah	Larvae 275 per sweep Adults 10 per sweep	Larvae mid to late June along main Wasatch front	325,000	Once on 276,250 acres, twice on 39,000 acres, three times on 9,750 acres	4,500,000 to 5,000,000
Washington	Extremely low	Normally peak late June in eastern section	No commercial fields treated	---	Negligible
Wyoming	Larvae 430-1,100 per 10 sweeps Adults 8-15 per 10 sweeps	Larvae June 27 Adults May 27	100,000	One	580,000

Continued from page 20.

Population intensities and economics of infestations in 30 of the 32 States responding to the questionnaire previously referred to are shown in the accompanying table. It is estimated that a total of 2,807,050 acres were treated and that alfalfa weevil caused an estimated loss of \$56,136,850 to growers in these 30 States during 1966.

DISTRIBUTION OF ALFALFA WEEVIL  
(Hypera postica)



Prepared in Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service, USDA  
December 31, 1966

USDA Coop. Econ. Ins. Rpt.  
17(2):25, 1967

### Preparation of Notes for Cooperative Economic Insect Report

Requests have been received relative to the type of information desired for the Cooperative Economic Insect Report and suggestions made for revision in the format.

The report will be reorganized on a principal crop basis. This will simplify present format and make the material more accessible and useful. It is hoped that this approach will also stimulate greater participation by pointing out lack of reporting on individual crop problems. Efforts will be made to evaluate and present the information in ways to make it more useful in insect control.

Forecasting statements will be developed wherever field reports support such action. Reporters are encouraged to include this vitally important information in their notes. Emphasis of the Cooperative Economic Insect Report will be on the important insect problems of a regional nature, notes on routine insect occurrence will be kept to a minimum. Routine notes submitted on common insects will be added to the National insect files as warranted, however.

The following guidelines are suggested for preparation of notes. It is realized that all of the information outlined will not be available in each situation, but give the following information when possible.

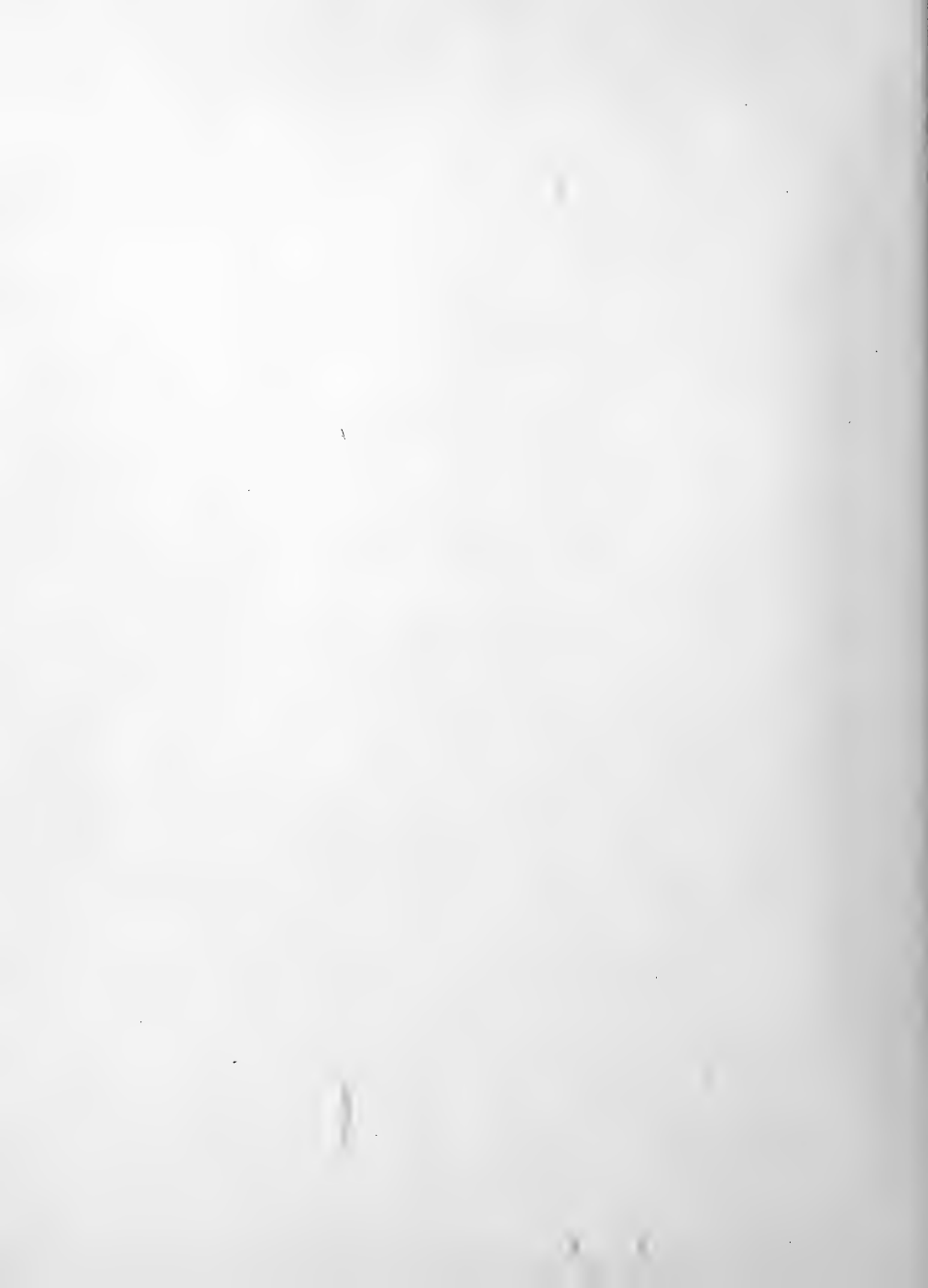
1. Common (if available) and scientific name of species involved. Stages of insect involved. (If a taxonomic problem exists, it should be noted).
2. Location (definite, recognized area within state, such as region, county or town), date, name of observer or reporter. If note is for period other than current reporting period, give date of observation.
3. Host involved, scope and extent of infestation in number of counties, acres, trees, animals, etc. Also stage of host.
4. Quantitative evaluation of infestation according to recognized survey methods. Where such methods are not available, give numerical data such as number per linear foot, per plant, per sweep or per animal. These data should be based on a representative sampling. An adjectival rating should be accompanied by a numerical rating.
5. Estimation of extent of injury or damage.
6. Comparisons with previous infestations, outlook or predictions for future infestations, unusual influences.
7. Status of natural or applied control.
8. When reporting new State, United States, or North America records, include the above information insofar as applicable, as well as name of taxonomist making determination.

Examples of notes including these data are as follows:

EUROPEAN RED MITE (*Panonychus ulmi*) - Egg populations have reached point where protective sprays are warranted in 10 percent of apple orchards in Knox County. Counts on June 30 showed 0 to 4.8 live mites per leaf and 0 to 37.6 eggs per leaf. Further increase and spread expected with continued favorable weather. (Jackson, July 2).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - Oviposition and hatch practically complete in central counties. Fifty egg masses per 100 stalks in northwest area. In southern counties, all corn 35 inches or taller, 70 to 100 percent infested with 2 to 22 larvae per stalk. Larvae from first to third instar. (Smith). USDA Coop. Econ Ins. Rpt. 17(2):26, 1967







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**ECONOMIC INSECT  
REPORT**

*Issued by*

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

All correspondence pertaining to additions, deletions and changes of addresses for the mailing list for this report should be sent to:

Service Operations Division  
Office of Plant and Operations  
United States Department of Agriculture  
Washington, D. C. 20250

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

SPOTTED ALFALFA APHID is heavy in Mayes County, Oklahoma, and southeastern Kansas. Continued dry weather may cause buildup in Arkansas. Early populations of PEA APHID on alfalfa in California may indicate heavy infestations this season. (p. 29).

Report of disease and parasitism of EUROPEAN CORN BORER in Illinois. (p. 29).

CITRUS RED MITE was at highest level since 1958 on Florida citrus during December 1966. Expected to decrease and continue low until late March. A SNOW SCALE (*Unaspis citri*) heavier than any prior month in 16 years of record on same crop. (pp. 30, 31).

Detection

New State records included two WEEVILS in Wisconsin (p. 33) and a STRATIOMYID FLY from Hawaii (p. 34).

Special Report

- Status of European Chafer - 1966. (p. 35).

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Reports in this issue are for week ending January 13 unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK

MID-JANUARY TO MID-FEBRUARY 1967

The Weather Bureau's 30-day outlook calls for temperatures to average below seasonal normals from the Rockies to the Appalachians and also over the southern plateau. Above normal temperatures are indicated for the Northwest as well as parts of Florida and New England, while near normal values are expected in unspecified areas. Precipitation is expected to exceed normal over southern border States from the southern plateau in the West to the Atlantic seaboard and also over the remaining east coast States. Western portions of the northern and central Plains are also expected to have above normal precipitation. Subnormal totals are called for over the Pacific Northwest, California and in the upper Mississippi Valley. Elsewhere near normal precipitation is indicated.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

WEATHER OF THE WEEK ENDING JANUARY 16, 1967

**HIGHLIGHTS:** Near record snowfall hit southern Texas; weather unusually warm in northern Rockies; blizzard raging in northern Plains as the week ends.

**PRECIPITATION:** An unusually heavy snowfall, the second heaviest in history for the area, blanketed southern Texas on Monday, January 9. Depths reached 5-7 inches from near Cotulla and Three Rivers southward to Hebbronville while depths up to 3 feet were reported in northeastern Mexico. Also early in the week, northwesterly winds blowing across the Great Lakes, caused heavy snow squalls over a band about 10 miles wide in the lee of the Lakes. Many areas received 2-6 inches, with a few spots up to 10 inches. The northern Appalachians also received new snow, while shortly after midweek, another storm deposited fresh snow in upstate New York and northern New England. Rains along the gulf and Atlantic coasts totaled up to an inch or more early in the week, with additional falls approaching 0.50 inch over the weekend. The northern Pacific coast received 3-4 inches of rain, mostly during the latter half of the week, while heavy snow fell in the Cascades with depths above 5,000 feet increasing to 100-140 inches. Heavy snow also fell

Weather continued on page 33.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

SPOTTED ALFALFA APHID (Therioaphis maculata) - MISSISSIPPI - Very light, 2-3 adults per square foot, on alfalfa in Oktibbeha County. (Dinkins). ARKANSAS - Less evidence of reproduction than last week. Continued dry weather may result in buildup. (Boyer). OKLAHOMA - Continues heavy in alfalfa in Mayes County; ranged 10-15 per square foot of crown in Kiowa County. (Okla. Coop. Sur.). KANSAS - Ranged 150-200 per square foot in seedling alfalfa in Elk and Wilson Counties. (Simpson).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Very light in Curry County wheat fields. (Mathews). KANSAS - Ranged 0-5 per linear foot on wheat in Neosho, Wilson, Elk and Greenwood Counties. None found in east-central district. (Simpson). ARKANSAS - Low in northern area. (Boyer).

## CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - ILLINOIS - Data collected on microsporidiosis for period 1961-1966 only indicates that disease occurs in O. nubilalis in most areas of State. Incidence heaviest in western and northern areas. Data insufficient to determine if disease is having any effect on rise and fall of borer populations. Data on Lydella sp. (a parasitic tachina fly) available for period 1944-1965. This parasite of O. nubilalis introduced into State and became established in the 1940's. From 1950 through 1958, Lydella sp. parasitized 50-75 percent or more of second-generation European corn borer larvae in some counties. Lydella sp. declined rapidly in 1959-1961; none found in State from 1962 to 1965. These data indicate lack of information on incidence of parasitism and disease of first-generation borers and on overwintered borers. Practically all available data are from fall collected borers. Studies will continue. (Petty, Jan. 6).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - OKLAHOMA - Larvae infesting 74 percent of dry cornstalks in 2 Harmon County fields. (Okla. Coop. Sur.).

WHEAT CURL MITE (Aceria tulipae) - MICHIGAN - Specimens collected in several southwest counties during November survey. This species is considered responsible for the kernel red stripe condition on corn that has been widespread throughout corn-growing area of Lower Peninsula since 1963. (Smith et al.).

## SMALL GRAINS

GRAIN MITES - KANSAS - Penthaleus major averaged 15-20 per linear foot in most wheat in southeast area. Wheat samples from experiment station at Hays, Ellis County, almost entirely infested with Aceria tulipae. (Simpson).

AN APHID (Rhopalosiphum rufiabdominalis) - KANSAS - Ranged 2-6 per wheat plant in east-central and southeast districts. (Simpson).

## FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - CALIFORNIA - Light on 10-acre alfalfa planting at Clovis, Fresno County. These early populations may indicate heavy infestations this season. (Cal. Coop. Rpt.). NEW MEXICO - Light to moderate on alfalfa near Ft. Sumner, De Baca County. (Mathews). KANSAS - Averaged 15-20 per square foot in most seedling alfalfa in southeast area. (Simpson). ARKANSAS - Lower on vetch than last week. (Boyer). MISSISSIPPI - Moderate, 20-30 adults and nymphs per square foot, on alfalfa in Oktibbeha County. (Dinkins).

ALFALFA WEEVIL (Hypera postica) - MISSISSIPPI - Larvae very light, 1 per square foot, on alfalfa in Oktibbeha County. (Dinkins).

CLOVER LEAF WEEVIL (Hypera punctata) - ARKANSAS - Occasional larva observed in vetch and alfalfa in northwest area. (Boyer).

#### COLE CROPS

APHIDS - FLORIDA - Populations high, 500+ per plant on unsprayed cabbage beginning to head at Sanford, Seminole County; Myzus persicae and Brevicoryne brassicae present. Sprayed plots free of aphids as are most commercial fields. (Greene, Jan. 6). CALIFORNIA - B. brassicae medium in 5 acres of cabbage in Clovis, Fresno County. (Cal. Coop. Rpt.).

CABBAGE MAGGOT (Hylemya brassicae) - CALIFORNIA - Larvae medium on roots of Chinese cabbage, turnips and rutabaga crops in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

LOOPERS - FLORIDA - Eggs of undetermined species totaled 36 on December 30, and 32 on January 6, per 100 cabbage plants. Larvae increased from 32 on December 30 to 48 on January 6; only one pupa found. (Greene, Jan. 6).

#### DECIDUOUS FRUITS AND NUTS

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Survival of full-grown larvae high in shucks under pecan trees in central area; 1-2 larvae per shuck not uncommon under untreated trees. (McQueen).

GIANT BARK APHID (Longistigma caryae) - TEXAS - Heavy on pecan tree near Taylor, Williamson County. This is unusual situation since peak populations usually occur during fall months. (Thompson).

#### CITRUS

Quarterly Citrus Insect and Mite Outlook in Florida - January through March - This outlook is based on the assumption that weather beyond the period of the current U. S. Weather Bureau's 30-day outlook will be normal. Therefore, the forecasts given below cannot be viewed with the same degree of confidence as those in the "Citrus Insect and Disease Summary" usually released twice each month.

CITRUS RUST MITE (Phyllocoptruta oleivora) expected to decrease gradually until mid-March; then increase. Mites will occur in normal moderate abundance during this period, but very few infestations will be destructive after January. CITRUS RED MITE (Panonychus citri) expected to decrease to normal low level after mid-January, then continue low until late March when buildup will be evident on young trees in scattered groves. Slight increase of TEXAS CITRUS MITE (Eutetranychus banksi) expected in January and late March. Population will be low throughout period; very few heavy infestations expected. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) expected to be present in destructive numbers through March. GLOVER SCALE (Lepidosaphes gloverii) slightly more numerous than average and at moderate to high level. PURPLE SCALE (L. beckii) will continue at normal low to moderate abundance. YELLOW SCALE (Aonidiella citrina) expected to increase gradually and be more numerous than average. BLACK SCALE (Saissetia oleae) will increase through January and then decrease. Although population expected to be in the low range, it will be higher than normal. Unaspis citri infestations will spread and intensify. APHIDS will become abundant early in March. (W. A. Simanton).

Citrus Insect Situation in Florida - End of December - CITRUS RUST MITE infested 60 percent of groves (norm 57 percent); 41 percent economic (norm 38 percent). Population recently dropped from high range and is slightly above normal levels of abundance for year end on both leaves and fruit. Little change expected. Important infestations will occur in all districts. Highest districts, west, south, and north. CITRUS RED MITE infested 45 percent of groves (norm 37 percent); 19

percent economic (norm 10 percent). Population increased in late November and by mid-December was at highest December level since 1958. Slight increase expected from current moderate level. All districts will have few important infestations. Highest districts, west and north. TEXAS CITRUS MITE infested 34 percent of groves (norm 39 percent); 10 percent economic (norm 16 percent). Population increased but is still below normal December level. Slight increase expected in January but only scattered infestations will be important. Highest districts, west and north. GLOVER SCALE infested 76 percent of groves; 11 percent economic. Population is above average and in moderate range. Slight increase expected. Highest districts, central and east. PURPLE SCALE infested 75 percent of groves; 8 percent economic. Population normal and in moderate range. Little change expected. Highest district east. CHAFF SCALE (Parlatoria pergandii) infested 48 percent of groves; 4 percent economic. Population below normal and in low to moderate range. Little change expected. Highest district east. YELLOW SCALE infested 66 percent of groves; 12 percent economic. Population above average and in moderate range. Little change expected. Highest districts, east and central. BLACK SCALE infested 35 percent of groves; 13 percent economic. Population increased to normal level for December. Further increase will occur unless subfreezing weather slows development, but infestations not expected to be important in winter. Unaspis citri infested 8 percent of groves; 3 percent economic. This scale is present in more survey groves and infestations are heavier than in any prior month in 16 years of record. WHITEFLY larvae will be moderately abundant on leaves but adults and eggs will be scarce until March. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred, Fla.)).

ARMORED SCALES - FLORIDA - Unaspis citri continues to be problem on various types of citrus nursery stock at several localities in Orange and Lake Counties. (Simpson et al., Dec. 29). All stages of Lepidosaphes gloverii generally infesting 30 percent of 2,000 citrus nursery plants at Clermont, Lake County. (Henderson, Dec. 29).

CITRUS MITES - FLORIDA - Phyllocoptruta oleivora and Panonychus citri adults infested 50 percent of 10,000 sour orange nursery plants at Riverview, Hillsborough County. (Simmons, McFarlin, Dec. 21). Eutetranychus banksi adults infested 90 percent of 4,500 sweet orange nursery trees at Bartow, Polk County. (Schmidt, Skipper, Dec. 28).

#### ORNAMENTALS

DOGWOOD BORER (Thamnospectica scitula) - ALABAMA - Larvae numerous under bark and feeding on cambium layer of ornamental dogwood trees in central area. Some feeding by flickers observed. Larvae 2-10 on larger trees. (McQueen).

PEACH TREE BORER (Sanninoidea exitiosa) - ALABAMA - Larval feeding at and below ground line on peach, laurelcherry and flowering peach during past 2 weeks of warm, balmy weather caused considerable amount of gum residue to accumulate around injured bark. (McQueen).

ARMORED SCALES - FLORIDA - Chrysomphalus aonidum severely infested 85 percent of 100 coontie (Zamia floridana) at nursery in Sanford, Seminole County. (Kipp, Dec. 20). Fiorinia theae severely infesting nearly all of 75 camellia plants at Clermont, Lake County. (Henderson). Gymnaspis aechmeae severe on leaves of 90 percent of 175 bromeliads and 50 percent of 675 orchids at a "gardens" in Groveland, Lake County. (Henderson, Dec. 29). All stages of Pinnaspis strachani moderate on 35 percent of 2,000 hibiscus nursery plants at Davie, Broward County. (Shirah, Jan. 3).

GREENHOUSE ORTHEZIA (Orthezia insignis) - CALIFORNIA - Nymphs and adults heavy on gardenia plants at San Diego, San Diego County. (Cal. Coop. Rpt.).

MEALYBUGS (Pseudococcus spp.) - CALIFORNIA - P. obscurus nymphs and adults medium on azalea nursery stock at San Marcos, San Diego County. P. microcirculus medium on orchids in an orchid house at Menlo Park, San Mateo County. (Cal. Coop. Rpt.).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - CALIFORNIA - Medium on Ilex vomitoria nursery stock in Valley Center, San Diego County. (Cal. Coop. Rpt.).

A EURYTOMID (Eurytoma sp.) - FLORIDA - Seriously damaged leaves of orchid plants at Orlando, Orange County. (Crews, Holley, Dec. 20).

#### FOREST AND SHADE TREES

A GRASSHOPPER (Dendrotettix quercus) - MICHIGAN - Adults collected from Lake and Newaygo Counties during late August. Few white oak trees in area were defoliated. Infestation was reported on nursery stock in Wayne County several years ago, but the 1966 infestation is first noted during recent years. (Flink, Cantrall).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - CALIFORNIA - Heavy on Monterey pine trees in Gilroy, Santa Clara County. (Cal. Coop. Rpt.).

#### MAN AND ANIMALS

TICKS - OKLAHOMA - Tick counts from white-tailed deer similar to last year at check stations in Cherokee, Muskogee, McIntosh, Sequoyah, Adair, Mayes, Delaware and Tulsa Counties as follows: Total of 1,179 ticks; 90.3 percent Ixodes scapularis, 6.1 percent Dermacentor albipictus, 3.5 percent Amblyomma americanum and 0.1 percent Amblyomma maculatum. (Okla. Coop. Sur.).

CATTLE LICE - MISSISSIPPI - Heavy on beef and dairy cattle in Oktibbeha County. (Dinkins).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Heavy on hogs in Ottawa County. (Okla. Coop. Sur.).

A LOUSE FLY (Stilbometopa impressa) - CALIFORNIA - Heavy populations infesting quail in San Andreas, Calaveras County. (Cal. Coop. Rpt.).

HOUSE FLY (Musca domestica) - MISSISSIPPI - Moderate in heated chickenhouses containing caged layers in several southern counties. (Dinkins).

MOSQUITOES - LOUISIANA - Larval collections in Jefferson Parish contained: Aedes vexans, Culex pipiens quinquefasciatus, Culex salinarius, and Culiseta inornata. Mosquitoes averaged 2.8 per night in 20 light traps reporting throughout parish. Dominant species were Culex salinarius and Culiseta inornata. (Stokes).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Moderate on cattle and light on horses in Comanche County. (Okla. Coop. Sur.).

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U. S. January 8-14. Total of 145 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 68, Chihuahua 12, Coahuila 3, Nuevo Leon 6, Tamaulipas 5, Baja California 9, Territorio sur de Baja California 42. One case reported from Mexico south of the Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 11,386,250, Arizona 100,000, California 1,616,000, Mexico 83,248,000. (Anim. Health Div.).



#### FEDERAL & STATE PLANT PROTECTION PROGRAMS

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Total of 381 adult specimens trapped in Dade County and 3 in Manatee County during last week of December. Early in January adults were trapped in small numbers at Sarasota, Sarasota County; 37 adults were trapped at Ft. Pierce, St. Lucie County, January 6. Three larvae collected from guava at Sarasota January 3. (Hiatt).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - ALABAMA - Mounds constructed during early fall throughout infested area of State appear taller than usual as grass, weeds and other growth disappear with midwinter conditions and increased foraging of livestock. (McQueen).

WHITE GARDEN SNAIL (*Theba pisana*) - CALIFORNIA - Heavy adult populations infesting roots of ice-plants in Manhattan Beach, Los Angeles County. Eradication treatment underway. (Cal. Coop. Rpt.).

Weather continued from page 28.  
in the northern mountains in Colorado. On Monday, January 16, the second blizzard of 1967 moved across the northern Great Plains to the Great Lakes. Winds gusted to more than 50 m.p.h., and visibility was reduced to near zero in some places. Wisconsin and Minnesota reported many roads blocked by one to two feet of drifting snow. It was a dry week in the Corn Belt, and dry weather continued from the Southwest to the southern Great Plains.

TEMPERATURE: Early in the week, icy northwesterly winds brought subzero temperatures to the northern Great Plains as far south as northern Missouri, and freezing temperatures to the northern portions of the Gulf States. Waco, Texas, registered 22°. At midweek, mild Pacific air flowed eastward across the Rockies into the northern Plains and afternoon temperatures in the 40's (15° or so above normal) were common east of the Continental Divide in Montana and Wyoming, due to Chinook winds 50-60 m.p.h. Southerly winds brought mild temperatures to the central Plains and Ohio River Valley. As the week ended, the second blizzard of 1967 brought bitter cold from the Dakotas to Michigan. Temperatures averaged cooler than normal from western Colorado southward to Mexico and from Texas eastward to South Carolina and northeastward to central Pennsylvania. Most of the Florida Peninsula and the northern half of the Nation averaged warmer than normal, with the northern Rockies averaging 10-18° warmer than normal. (Summary supplied by Environmental Data Service, ESSA).

#### INSECT DETECTION

A DUNG BEETLE (*Aphodius bicolor*) - FLORIDA - One adult collected in dung in a water oak hammock at Cedar Key, Levy County, by L. O'Berry, January 7, 1967. This is second specimen in the Florida State Collection of Arthropods. Det. by R. E. Woodruff. (Fla. Coop. Sur.).

#### New State Records

BLUEGRASS BILLBUG (*Sphenophorus parvulus*) - WISCONSIN - Collected in Dane, Racine, Rock and Walworth Counties September 10, 1965, and July 13 and 21, 1966. Det. by R. E. Warner. (Wis. Ins. Sur.).

A WEEVIL (*Sitona scissifrons*) - WISCONSIN - Taken on alfalfa in Dane, Grant, Rock and Walworth Counties, July and August 1966. Det. R. E. Warner. (Wis. Ins. Sur.).

A STRATIOMYID FLY (*Gobertina picticornis*) - HAWAII - Collected in Manoa Valley, Oahu, during October 1965. Det. by M. T. James. (p. 34).

## HAWAII INSECT RECORD

New State of Hawaii Insect Records - Two females of a STRATIOMYID FLY (Gobertina picticornis) were collected at light during October 1965 in Manoa Valley, Oahu. This species (subfamily Pachygastrinae) previously reported only from Africa. Many Nearctic Pachygastrinae larvae live under bark of dead trees; this species may have same habit. Det. by M. T. James. (Vockeroth).

Tomatoes, Beans, Cucumbers - On Oahu, GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) medium to heavy on snap beans and tomatoes in Nanakuli, Waianae and Makaha and medium on cucumbers and snap beans in Waialua. Rains and strong winds hampered spray operations. (Yamamoto, Funasaki).

Cole Crops - IMPORTED CABBAGEWORM (Pieris rapae) heavy in one acre of cabbage in Pulehu, and light in backyard plantings of broccoli in Puunene, Maui. (Miyahira).

Fruits and Nuts - A BARK BEETLE (Xylosandrus compactus) heavily infested Governors plum (Flacourtia indica) and lightly infested Spanishlime (Melicocca bijuga) on experimental farm at Hilo, Hawaii Island. Found in 30 different species of plants growing on and adjacent to experimental farm to date. Surveys at State Nursery in Hilo show medium to heavy infestations in potted plants of mahogany, custard-apple and nance (Byrsonima crassifolia). Heaviest infestation noted on custard-apple. (Yoshioka). COCONUT LEAF ROLLER (Hedylepta blackburni) larvae heavy on young coconut trees on military base at Kekaha, Kauai. Some trees sustaining 100 percent leaf damage. (Au). An ARMORED SCALE (Phenacaspis cockerelli) medium to heavy on kukui (Aleurites moluccana) and mango trees in Waianae, Oahu; most on dorsal surface of leaves. (Suzukawa).

Ornamentals - Medium to heavy adult populations of ORCHID WEEVILS (Orchidophilus spp.) damaged young dendrobium orchids in Hilo and Kainaliu. (Yoshioka).

Man and Animals - Total of 462 Aedes vexans nocturnus and 8,820 Culex pipiens quinquefasciatus taken in light trap on Oahu operated by Mosquito Control Branch, Department of Health. Culex spp. counts highest in Waianae and Nanakuli, Haleiwa, Ewa and windward side of island. Aedes spp. counts remained low in all areas. (Haw. Ins. Rpt.).

Beneficial Insects - Medium to heavy larval populations of a NOCTUID MOTH (Hypena strigata) caused 50-60 percent defoliation of lantana on Kauai from Lihue to Mana. (Au).

Miscellaneous Insects - Heavy larval population of a NOCTUID MOTH (Achaea janata) observed on buildings after causing almost complete defoliation to castor beans at Pukalani, Maui. (Miyahira).

## LIGHT TRAP COLLECTIONS

FLORIDA - Sanford - 12/28/66 and 1/3/67, 1 light trap - Black cutworm (Agrotis ipsilon) 8, granulate cutworm (Feltia subterranea) 21, corn earworm (Heliothis zea) 2, yellow-striped armyworm (Prodenia ornithogalli) 4, cabbage looper (Trichoplusia ni) 2. Gainesville - 1/11, 1 light trap - Black cutworm 2, armyworm (Pseudaletia unipuncta) 1, yellow-striped armyworm 3. SOUTH CAROLINA - Charleston - 1/2-8, 1 BL, temp. 31-69°, precip. 3.52 - Armyworm 2, yellow-striped armyworm 2, black cutworm 1, granulate cutworm 1. TEXAS - Brownsville - 12/31-1/6, 2 BL, temp. 33-77°, precip. 0.09 - Black cutworm 59, salt-marsh caterpillar (Estigmene acrea) 2, granulate cutworm 78, variegated cutworm (Peridroma saucia) 23, yellow-striped armyworm 66, armyworm 82, beet armyworm (Spodoptera exigua) 18, fall armyworm (S. frugiperda) 6, cabbage looper 7. Brownsville - 1/7-13, 2 BL temp. 33-68°, precip. 1.56 - Black cutworm 28, salt-marsh caterpillar 4, granulate cutworm 37, tobacco budworm (Heliothis virescens) 1, corn earworm 2, variegated cutworm 3, yellow-striped armyworm 85, tobacco hornworm (Manduca sexta) 1, armyworm 35, beet armyworm 10, cabbage looper 2.

# Status of European Chafer - 1966

European chafer (*Amphimallon majalis*) was first recorded in North America when grubs were collected in Wayne County, New York, during May 1940. The chafer was probably first introduced with plants from Europe sometime during the late 1920's or early 1930's. Since the original find, this scarab has been found in 31 additional counties in New York, two counties in New Jersey, two in Connecticut, one in West Virginia, four in Pennsylvania, four in Massachusetts, and one county in Ohio. The pest also occurs in Canada near Niagara Falls and at other locations in the Province of Ontario.

Damage by European chafer is caused by larvae feeding on plant roots. Larvae have been reported damaging lawn and pasture grasses, including bentgrass, ryegrass, and timothy in New York. White clover and ladino clover are also damaged. Winter wheat is a preferred host, and heavy populations may occur on oats, rye, and barley. Larval damage occurs on golf courses and in parks, cemeteries, and pastures, as well as in lawns.

Natural spread of European chafer is comparatively slow. During their brief life span, adults make an average of five mating flights which are short by comparison with some other species. Results of flight studies, however, indicate a theoretical flight distance of 3-4 miles could be traveled during the life cycle. Any long-distance spread of this chafer that has occurred, most likely is the result of movement of infested soil, plant material or other carriers, including various conveyances. Under State and Federal quarantine regulations, restrictions are placed on the movement, from designated regulated areas, of plants with roots, soil, grass sod, used machinery and equipment, other potential host articles and conveyances presenting hazards of spreading European chafer.

A survey was conducted from late May through July 1966 in the Northeastern States. In Connecticut, European chafer infestation continued active in Berlin, Hartford County, and in Meriden, New Haven County, with some local spread noted. The chafer was recorded for the first time in Massachusetts on June 27, 1966, at Malden. Subsequent survey revealed additional infestation in six towns in Middlesex County, three towns in Essex County, three towns in Suffolk County, and in one town in Worcester County.

Survey for European chafer in New Jersey resulted in the finding of three new infested sites. Two of the sites were in Bayonne, Hudson County, and the other was located in Newark, Essex County. These sites were in close proximity to areas previously found infested and might be considered as extensions. Survey conducted in counties other than Hudson and Essex proved negative.

The only known infestation of this chafer in Pennsylvania prior to June 1966 was in Erie County. Survey since that date revealed infestations in Bradford, Luzerne, and Lehigh Counties. Extensions of infestations were detected in Erie County beyond the treated area. The Bradford County infestation was found in and around the railroad yards in Sayre, and the light infestation in Luzerne County was in the Coxtown railroad yards. The infestation in Lehigh County was near the downtown section of Allentown in a railroad-industrial complex.

During the 1966 survey in New York, European chafer was recorded for the first time in Jefferson, Bronx, Montgomery, Schenectady, and Orleans Counties. Extensions of previously determined infestations were recorded in Cayuga, Chemung, Genesee, Livingston, Madison, Oswego, Schuyler, Onondaga, and Yates Counties.

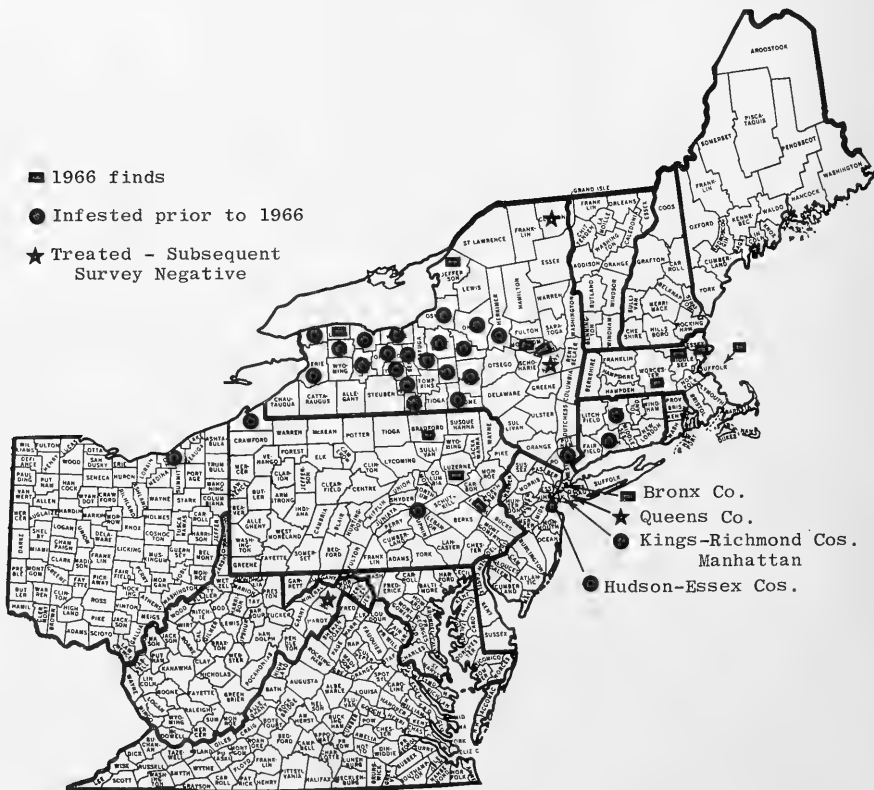
In addition to the operations described in the foregoing, appraisal investigations were made at selected points within the regulated area. The objective was to better evaluate conditions of infestation and to determine hazards of spread to outlying areas. Rail and other transportation centers were given primary consideration in this effort.

Surveys were negative in other Eastern States, including West Virginia, where particular attention was given to the previously infested area at Capon Bridge.

In Ohio, European chafer was first detected June 28, 1965, in Cleveland, Cuyahoga County. A total of 24 chafers was taken in seven traps during the year. Survey in 1966 showed the infestation remained light with 37 chafers being taken in one trap of 106 traps used in Cuyahoga County. No chafers were taken in any of ten other counties where traps were used in either 1965 or 1966.

During calendar year 1966, soil treatment was applied to a total of 6,848 acres in the Northeastern States as follows: New Jersey 1,210; New York 63; Pennsylvania 5,286; and Massachusetts 289. In Ohio, 2,303 acres were soil treated.

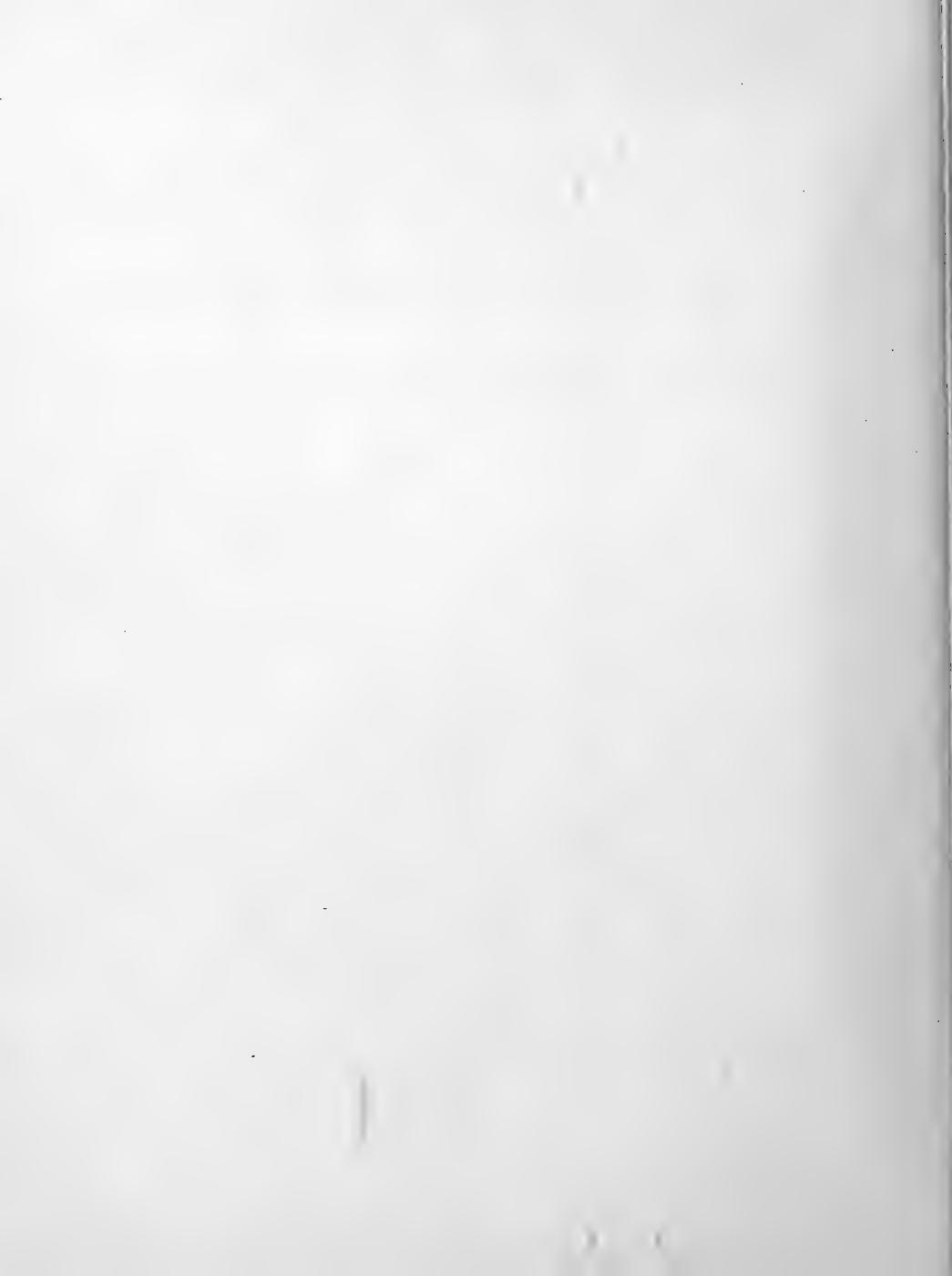
## Status of European Chafer - 1966



Prepared in Survey and Detection Operations  
Plant Pest Control Division  
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January 20, 1967

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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

CORN LEAF APHID appearing on small grains in Maricopa County, Arizona. BLACK CUTWORM and GRANULATE CUTWORM are potential problem to sugarcane in Palm Beach County, Florida. (p. 39).

CITRUS RED MITE continues high in Florida, more numerous than any January in past 5 years. (p. 40). Additional infestations of CITRUS WHITEFLY found in Sacramento; fifth ORIENTAL FRUIT FLY trapped in Orange County, California. (p. 43).

BLACK TURPENTINE BEETLE increasing in local areas in southeast Texas; may require controls in the spring. (p. 44). INDIAN-MEAL MOTH causing considerable losses to stored grains in Phoenix area, Arizona. Also reported from New Mexico. (p. 42).

Detection

LARGE DUCK LOUSE new to Hawaii. (p. 45). For new county records see page 43.

Special Reports

General abundance of EUROPEAN CORN BORER increased in all States reporting in 1966. Populations more than doubled those of 1965 in 9 North Central States. (p. 46).

BOLL WEEVIL hibernation survey for fall of 1966 shows higher numbers than the fall of 1965 in south-central South Carolina, north-central North Carolina, the Piedmont of North and South Carolina, the southern tier of counties in Tennessee and in central Texas. More weevils entered hibernation in central Texas than any year since 1959. Counts were lower in 1966 in the Coastal Plains of the Carolinas, all areas surveyed in Mississippi and in northeastern Louisiana. (p. 53).

Correction: Status of European Chafer - 1966, in CEIR 17(3):36-37, 1967. Dauphin County, Pennsylvania, erroneously shown as infested in map preparation. Delete this record. See corrected map on page 56 in this issue. Also Amphimalon should read Amphimallon.

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Reports in this issue are for week ending January 20 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING JANUARY 23, 1967

**HIGHLIGHTS:** Blizzard Northern Plains brought record cold followed by record heat. Mild in West with flooding rains in California.

**PRECIPITATION:** The big early week blizzard, in the Great Plains, moved across the Great Lakes, and into Canada. Snow, reaching a depth of 2 feet in Minnesota, clogged the roads and snow plows ceased operating until winds and snowfall diminished. Lighter snow, sleet, and freezing rain fell south of the big storm - from Arkansas to Tennessee and neighboring States and in the Appalachians farther north. A storm at sea began pounding the northern Pacific coast at midweek. Winds increased to hurricane force, reaching 93 m.p.h. at Cape Blanco, Oregon. Heavy rains fell along the coast with snow in the Olympic Mountains, the Cascades, and northern Sierras. Depths reached 200 inches above 5,000 feet in Washington. Heavy rains drenched the San Francisco area Friday night as showers and mountain snows spread over a seven-State area from the Pacific Ocean to the Rocky Mountains. Snow clogged highways and mountain passes. Lakeview, Oregon, received 27 inches of snow in 36 hours. Desert areas received heavy rains as semi-arid Susanville, California, received more than 2 inches on Saturday. Rains slackened Sunday leaving storm totals of 12.80 inches at Bush Creek Ranger Station, 10.10 inches at De Salba, and 9.47 inches at Blue Canyon, all in California. Gusty winds blew through the mountain passes and down the eastern slopes in Montana and Wyoming. Livingston, Montana, registered 81 m.p.h. winds on Thursday forenoon. In contrast, a large area from Arizona to Ohio continued a dry pattern of several weeks' duration. At the end of the period, a new storm is beginning to lash the Pacific coast.

Weather continued on page 45.

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Light on alfalfa in warmer areas of Maricopa County and in Queen Creek area of Pinal County. (Ariz. Coop. Sur.). KANSAS - Ranged 0-20 per square foot in Cowley County. (Simpson). ARKANSAS - Few found in northwest area, probably due to decreased growth. (Boyer). MISSISSIPPI - Light on alfalfa; adults and nymphs 3-5 per square foot in Oktibbeha County, 10-20 in Pontotoc County. (Dinkins).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Light in Curry County wheat fields. (Campbell, Mathews). KANSAS - Very light in south-central area. None found in majority of wheat fields although occasional field contained 1-3 per linear foot. (Simpson). ARKANSAS - This species and Macrosiphum avenae continue low due to weather conditions. (Boyer).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Appearing on small grains throughout Maricopa County. (Ariz. Coop. Sur., Jan. 13).

### CORN, SORGHUM, SUGARCANE

BLACK CUTWORM (Agrotis ipsilon) - FLORIDA - This species and, to lesser extent, Feltia subterranea are potential problem to 200-acre commercial field of recently planted sugarcane at Belle Glade, Palm Beach County. Cutworms currently heavy on ragweed in this field. Larvae may feed on sugarcane when no ragweed remains. Field treated for wireworms, but not specifically for cutworms. (Genung).

### SMALL GRAINS

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - ARIZONA - Scattered and light in grain fields in Mesa, Chandler, Gilbert and Tempe areas of Maricopa County. (Ariz. Coop. Sur., Jan. 13).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Light on wheat, 0-3 per linear foot in Kiowa County. (Okla. Coop. Sur.). FLORIDA - Increasing on rye at Gainesville, Alachua County. Nymphs and adults range 450-500 per 100 sweeps. (Mead).

LEAFHOPPERS - FLORIDA - Several species collected in 100 sweeps of rye at Gainesville: Graminella nigrifrons 23; Macrosteles fascifrons 7; Balclutha hebe 4; B. rosea 2. (Fla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - KANSAS - Ranged 5-10 per linear foot in Butler, Cowley and Sumner Counties. None found in other south-central counties. (Simpson).

### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MISSISSIPPI - Light in 40 acres of alfalfa in Leflore County; 3-5 third-stage larvae per square foot. (Dinkins).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Adults have not increased during past 2 weeks in Maricopa County alfalfa fields. Egg-laying activity light. (Ariz. Coop. Sur.).

ROUGH-SKINNED CUTWORM (Proxenus mindara) - CALIFORNIA - Larvae light in 10-acre planting of alfalfa in Fresno, Fresno County. This species on increase and has occurred throughout year. (Cal. Coop. Rpt.).

PEA APHID (*Acyrtosiphon pisum*) - ARIZONA - Very light numbers appearing in Maricopa and Pinal County alfalfa. (Ariz. Coop. Sur.). NEW MEXICO - Light to moderate on alfalfa in Chaves County. (Mathews). KANSAS - Ranged 25-50 per square foot on alfalfa in Cowley County. (Simpson). ARKANSAS - Continues with little change due to weather conditions. (Boyer). MISSISSIPPI - Moderate, 20-25 adults and nymphs per square foot, on alfalfa in Leflore County. (Dinkins).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - MISSISSIPPI - Light, 1-3 adults per square foot, on alfalfa in Pontotoc County. (Dinkins).

A LEAFHOPPER (*Cuerna costalis*) - FLORIDA - Nine adults taken in 100 sweeps of blue lupine at Gainesville. (Fla. Coop. Sur.).

#### SUGARBEETS

SOUTHERN GARDEN LEAFHOPPER (*Empoasca solana*) - ARIZONA - Beginning to increase on sugarbeets in Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

BET ARMYWORM (*Spodoptera exigua*) - ARIZONA - Continues light on sugarbeets in Chandler, Mesa and Buckeye areas of Maricopa County. (Ariz. Coop. Sur.).

CELERY LEAF TIER (*Udea rubigalis*) - ARIZONA - Light in 2 sugarbeet fields in Chandler area of Maricopa County. (Ariz. Coop. Sur., Jan. 13).

#### COLE CROPS

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - CALIFORNIA - Larvae feeding heavily on leaves of Chinese cabbage in truck garden in Santa Maria, Santa Barbara County. Populations widespread this year. (Cal. Coop. Rpt.).

DIAMONDBACK MOTH (*Plutella xylostella*) - FLORIDA - Larvae abundant on wild crucifers in Belle Glade area. Heavily damaging one-acre field of rutabagas at Springhead, Hillsborough County. (Genung, Vaughan).

CROSS-STRIPED CABBAGEWORM (*Evergestis rimosalis*) - FLORIDA - Severe on 5 acres of collards at Turkey Creek, Hillsborough County. (Vaughan).

#### GENERAL VEGETABLES

GREEN CLOVERWORM (*Plathypena scabra*) - TEXAS - Larvae light in spinach near Crystal City, Zavala County. (Raney).

AN ONION APHID (*Micromyzus formosanus*) - CALIFORNIA - Infesting onion sets at seed company in Anaheim, Orange County. (Cal. Coop. Rpt.).

#### CITRUS

Citrus Insect Situation in Florida - Mid-January - CITRUS RUST MITE (*Phyllocop-truta oleivora*) infested 67 percent of groves (norm 61 percent); 45 percent economic (norm 44 percent). Population increased into high range and will remain high; also is above normal abundance for mid-January on both leaves and fruit. Highest districts west, north and central. CITRUS RED MITE (*Panonychus citri*) infested 50 percent of groves (norm 37 percent); 21 percent economic (norm 10 percent). Population increased and expected to continue near current moderate level. More numerous than in any January in past 5 years, but less numerous than in most

years prior to that. Highest districts west, north and east. TEXAS CITRUS MITE (Eutetranychus banksi) infested 42 percent of groves (norm 33 percent); 12 percent economic (norm 11 percent). Population slightly above normal but in low range. Further increase expected which will cause few important infestations. Highest districts west and north. GLOVER SCALE (Lepidosaphes gloverii) infested 78 percent of groves; 13 percent economic. Population near normal and in moderate range. Slight decrease expected. Highest districts central, east and south. PURPLE SCALE (L. beckii) infested 78 percent of groves; 8 percent economic. Population normal and in moderate range. Little change expected. Highest district central. YELLOW SCALE (Aonidiella citrina) infested 66 percent of groves; 13 percent economic. Population above average and in moderate range. Little change expected. Highest districts east and central. CHAFF SCALE (Parlatoria pergandii) infested 50 percent of groves; 3 percent economic. Below normal abundance and in low range. No change expected. Highest district central. BLACK SCALE (Saissetia oleae) infested 40 percent of groves; 13 percent economic. No change expected from current low level normal for January. Highest district central. (W. A. Simanton, (Citrus Expt. Sta., Lake Alfred, Fla.)).

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Adults and nymphs moderate on 20 percent of 149,000 citrus seedling trees in nursery at Astatula, Lake County. (Simpson). Moderate on 5 percent of 6,000 mixed citrus seedlings in nursery at Chuluota, Seminole County. (Kipp).

CITRUS RUST MITE (Phyllocoptruta oleivora) - FLORIDA - This species and Panonychus citri moderate on 80 percent of 500 kumquat plants at Ft. Lonesome, Hillsborough County. (Vaughan).

TEXAS CITRUS MITE (Eutetranychus banksi) - FLORIDA - Severe on 85 percent of 2,000 citrus seedlings at Springhead, Hillsborough County. (Vaughan). Moderate on 40 percent of 3,000 sweet orange seedlings at Sanford, Seminole County. (Kipp).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U. S. January 15-21. Total of 59 cases reported in portion of Barrier Zone in Republic of Mexico January 8-14 as follows: Baja California 1, Territorio sur de Baja California 6, Sonora 42, Chihuahua 2, Nuevo Leon 5, Tamaulipas 3. Two cases reported from Mexico south of Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released January 15-21: Texas 13,486,250, Mexico 94,376,000. (Anim. Health Div.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Ranged 28-30 per head on steers and 17-20 per head on cows in Harper County; 8-10 per head on steers and 7-8 per head on cows in Payne County. Moderate in Mayes and Cotton Counties. (Okla. Coop. Sur.). KANSAS - Up to 15 grubs per animal on steers at Hays Experiment Station. (Harvey).

MOSQUITOES - LOUISIANA - Larval collections in Jefferson Parish contained Aedes vexans, Anopheles crucians, Culex restuans, Culex salinarius, and Culiseta inornata. Mosquitoes averaged 2.0 per night in 20 light traps throughout parish. Culex salinarius and Culiseta inornata dominant. (Stokes). TEXAS - During December, flights of Aedes sollicitans and Culex salinarius occurred in Jefferson County. Culiseta inornata was common. One flight of C. salinarius was noted after dark with temperatures of 45-50°. (Thompson).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Moderate on hogs in Mayes County. (Okla. Coop. Sur.).

CATTLE LICE - IOWA - Survey at 1 packing plant indicated populations were light; approximately 60 percent Solenoptes capillatus; 30 percent Bovicola bovis; and 10 percent Linognathus vituli. (Stockdale, Mast).

PACIFIC COAST TICK (Dermacentor occidentalis) - CALIFORNIA - Nymphs infesting quail in Grass Valley, Nevada County. (Cal. Coop. Rpt.).

#### STORED PRODUCTS

INDIAN-MEAL MOTH (Plodia interpunctella) - NEW MEXICO - Light to moderately heavy populations in feed and seed at Farmington, Aztec and Bloomfield areas, San Juan County. (Heninger). ARIZONA - Heavy numbers in commercial storage buildings in Phoenix area, Maricopa County, caused considerable losses to stored grains. Repeated control efforts necessary. (Ariz. Coop. Sur., Jan. 13).

#### FEDERAL & STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - OKLAHOMA - Two areas checked for egg pods in Beckham County; averaged 0.5 viable egg pod per square foot of sod in one area, negative in other area. (Okla. Coop. Sur.).

BOLL WEEVIL COMPLEX (Anthonomus grandis complex) - ARIZONA - Field inspections continued in the Colorado River Valley from southern Yuma County northward to cotton-growing area above Topock in Mohave County. These inspections failed to reveal presence of weevils in these areas this season. Observations in other parts of Yuma County, particularly in upper Gila Valley area, also failed to reveal the weevil this season, although weevils were generally present in considerable numbers in this area last year. Observations showed weevil development this season has been very late. At end of December 1966, 5 cotton-growing areas in western Maricopa County known to have weevil infestations were the Rainbow Valley, Tonopah, lower Gila Valley, Harquahala Valley, and northwest Buckeye. (PPC West. Reg.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Lint cleaner inspections during December 1966 readily revealed larvae from all cotton-growing areas of State except Greenlee, Chochise, Santa Cruz and southern Pima Counties. Largest number of larvae found continues to be in Salt River Valley area of Maricopa County; 94 inspections during month in eastern part of valley revealed more than 33,000 larvae. CALIFORNIA - Cumulative collections for 1966 season as follows: Imperial County - Imperial Valley 1,081 adults, 846 larvae; Bard Valley 677 adults, 1,449 larvae. San Diego County - Borrego Valley 25 adults, no larvae. Riverside County - Palo Verde Valley 3,133 adults, 15,043 larvae; Coachella Valley 79 adults, 22 larvae. San Bernardino County - Needles 145 adults, 9 larvae; Sandy Valley 1 adult, no larvae. Kern County - Cantil 2 adults, 2 larvae. Los Angeles County - Lancaster 4 adults, no larvae. One larva taken from Cantil cotton gin trash ginned at Thermal in Coachella Valley December 14. (PPC West. Reg.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Chemical Control Zone - Total of 85,070 trees inspected on 1,506 properties in 11 municipios in Tamaulipas, Nuevo Leon and Baja California; infestations found on 2 properties in Linares, Nuevo Leon. Total of 7,871 trees on 133 properties were sprayed in 2 municipios of Nuevo Leon. Biological Control Zone - Total of 9,033 trees on 10 properties in Municipios Hidalgo, Guemez, Cadilla, Mainero and Villagran, Tamaulipas, inspected. Light infestations were found in 732 trees on 5 properties in Hidalgo, Guemez and Padilla. Parasites (Amithus hesperidum) were collected at Guemez and released at an orchard in Padilla; also, 9,500 Prospaltella opulenta (a eulophid wasp) were released in another orchard at Padilla. (PPC Mex. Reg., Nov. Rpt.).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Additional infestations found in Sacramento, Sacramento County. Treatment in this area planned for spring. Treatment is underway in known infested area of San Diego, San Diego County. (Cal. Coop. Rpt.).



ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - One male taken in trap at Fullerton, Orange County. This is fifth fly trapped in Orange County. No larvae have been found. Eradication action continues. None taken in commercial orchards. (Cal. Coop. Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - First male fly of season taken December 28, 1966, in trap located in 10-acre grapefruit grove in Hidalgo County 2.5 miles north of Ware Road, McAllen. (PPC South. Reg.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Adults trapped at Key West, Monroe County, and Sarasota, Sarasota County. (Buchanan et al., Jan. 13).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - FLORIDA - Small areas of infestation found in Alachua, Orange and Union Counties. ALABAMA - Significant population buildup occurring in strip-mining area in Walker County. TEXAS - Approximately 43,000 acres found infested in Brazoria and Fort Bend Counties; smaller areas found in Colorado and Harris Counties. Many new mounds being found on road shoulders in San Antonio area. (PPC South. Reg., Dec. Rpt.).

#### INSECT DETECTION

##### New State Record

LARGE DUCK LOUSE (Trinoton querquedulae) - HAWAII - Collected from dead ducks at Lihue, Kauai, January 3, 1967, by J. Swedberg. Det. by R. C. Joyce. (p. 45).

##### New County Record

RUSTY PLUM APHID (Hysteroneura setariae) - CALIFORNIA - Collected from saltgrass at Fullerton, Orange County. (p. 44).

#### CORRECTIONS

CEIR 16(44):1035 - A MARGARODID SCALE (Kuwania querus (Kuwana)) should read Kuwania quercus.

CEIR 17(3):32 - NATIVE HOLLY LEAF MINER (Phytomyza iliciola) should read A HOLLY LEAF MINER (Phytomyza sp.).

CEIR 17(3):35 - Status of European Chafer, 1966 - Line 1: Amphimallon majalis should read Amphimallon majalis.

#### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 1/17, 1 light trap - Granulate cutworm (Feltia subterranea) 1. Sanford - 1/12-14, 1 light trap - Black cutworm (Agrotis ipsilon) 8, granulate cutworm 14, corn earworm (Heliothis zea) 1, yellow-striped armyworm (Prodenia ornithogalli) 3. SOUTH CAROLINA - Charleston - 1/9-15, 1 BL, temp. 29-68°, precip. 1.91 - Armyworm (Pseudaletia unipuncta) 1, yellow-striped armyworm 5, black cutworm 3, granulate cutworm 8.

## ORNAMENTALS

TWIG GIRDLER (Oncideres cingulata) - TEXAS - Moderate activity common on pecans, figs, and roses in Austin, Travis County. This unusual situation, as larvae usually spend most of winter in dead twigs previously girdled by female. (Thompson).

AZALEA LACE BUG (Stephanitis pyrioides) - FLORIDA - Adults and nymphs moderate on 25 percent of 314 Formosa azalea (Rhododendron indicum) plants at Frostproof, Polk County. Control required. (Keen, Wyles).

RUSTY PLUM APHID (Hysteroneura setariae) - CALIFORNIA - Nymphs and adults heavy on Distichlis spicata (saltgrass) in Fullerton, Orange County, and light on sugarcane in San Diego, San Diego County. First record for Orange County. (Cal. Coop. Rpt.).

TULIP BULB APHID (Dysaphis tulipae) - CALIFORNIA - Nymphs and adults infesting iris bulbs in nursery at Half Moon Bay, San Mateo County. (Cal. Coop. Rpt.).

A MEALYBUG (Chorizococcus californicus) - CALIFORNIA - Medium on highway plantings of Eremocarpus setigerus in Merced, Merced County. (Cal. Coop. Rpt.).

A PSYLLID (Euphyllura sp.) - CALIFORNIA - Nymphs, probably E. arbuti, medium on madrone trees in Los Gatos, Santa Clara County. (Cal. Coop. Rpt.).

ARMORED SCALES - FLORIDA - Fiorinia theae moderate to severe on camellia and Chinese holly at 3 nurseries in Seminole County. Chrysomphalus aonidum moderate to severe on 70 percent of 250 holly plants in nursery at Lake Monroe, Seminole County. (Kipp).

PRIVET MITE (Brevipalpus obovatus) - CALIFORNIA - Medium on Viburnum suspensum nursery stock in San Diego, San Diego County. (Cal. Coop. Rpt.).

TUMID SPIDER MITE (Tetranychus tumidus) - FLORIDA - Adults moderate in 20 percent of 2,200 young viburnum plants at Brandon, Hillsborough County. (Simmons).

AN ERIOPHYID MITE (Paracalacarus podocarpus) - FLORIDA - Adults severe on 90 percent of 20,000 podocarpus nursery plants at Lithia, Hillsborough County. (Vaughan).

## FOREST AND SHADE TREES

CALIFORNIA OAKWORM (Phryganidia californica) - CALIFORNIA - Larvae moderately infesting oak in Santa Cruz, Santa Cruz County. This area severely damaged past 3 years. (Cal. Coop. Rpt.).

A PHYCITID MOTH (Dioryctria abietella) - CALIFORNIA - Adults medium in Douglas-fir grafts in seed orchard at Placerville, El Dorado County. (Teillion, USFS).

BARK BEETLES (Dendroctonus spp.) - TEXAS - Survey during October 1966 indicated D. frontalis populations in Angelina, Chambers, Hardin, Jasper, Liberty, Newton, Orange, Polk, San Augustine, San Jacinto, Trinity, and Tyler Counties were slightly higher than at same time last year. D. terebrans populations and amount of tree mortality increased in local areas. Damage expected to continue in many areas and will necessitate control during next season. (Texas Coop. Rpt.).

ENGRAVER BEETLES (Ips spp.) - TEXAS - I. avulsus, I. grandicollis, I. calligraphus activity noneconomic in 12 southwest counties. (Texas Coop. Rpt.). CALIFORNIA - Adults, probably I. confusus, heavy in bark of pine trees at Cambria, San Luis Obispo County. (Cal. Coop. Rpt.).

PINE BARK APHID (Pineus strobi) - MARYLAND - Light to medium on several white pines at New Carrollton, Prince Georges County. (U. Md., Ent. Dept.).

HAWAII INSECT REPORT

New State of Hawaii Record

Nymphs and adults of LARGE DUCK LOUSE (Trinoton querquedulae) were found on native Koloa duck and immigrant pin-tail duck in Lihue, Kauai, January 3, 1967, by J. Swedberg. Specimens collected from dead ducks. Det. by R. C. Joyce. (Chong).

Turf

Light adult population of a BILLBUG (Sphenophorus venatus vestitus) noted at Kaanapali Golf Course on Maui. (Miyahira).

Fruits and Nuts

BARNACLE SCALE (Ceroplastes cirripediformis) nymphs extremely heavy in spots in 200-acre passion-fruit farm at Kahului, Maui. (Miyahira). MELON APHID (Aphis gosypii) heavy on flowers of potted macadamia plants in Hilo, Hawaii Island. (Yoshioka, Funasaki).

Forest and Shade Trees

Adults of a PLATASPID BUG (Coptosoma xanthogramma) heavy on hau trees (Hibiscus tiliaceus) on residential property at Kahaluu, Oahu. (Au). A BARK BEETLE (Xylosandrus compactus) - Light on Australian redcedar and 2 species of hibiscus at Waiakea Arboretum in Hilo, Hawaii Island. Light on tropical ash (Fraxinus uhdei) and mamaki (Pipturus sp.) at Waiakea reforestation area. On Oahu, heavy on some Kiawe trees and klu at Barbers Point. (Yoshioka, Davis). CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) light to medium on Chinese banyan in Hilo, Hawaii Island. A predacious anthocorid bug (Montandoniola moraguesi) numerous in curled, infested leaves. (Funasaki).

Miscellaneous Insects

CABBAGE APHID (Brevicoryne brassicae) extremely heavy on Brassica sp. in Pohakuloa area of Mauna Kea Forest Reserve, Hawaii Island. (Yamayoshi). Heavy larval populations of a NOCTUID MOTH (Achaea janata) defoliated castorbean plants in Makawao, Maui and Waianae, Oahu. (Miyahira, Suzukawa). SOUTHERN GREEN STINK BUG (Nezara viridula) building up in Ewa, Oahu, on weed hosts, particularly on asystasia. Numerous nymphal clusters observed. (Davis).

Weather continued from page 38.

TEMPERATURE: One could easily be misled by the weekly temperature map showing much of the Nation averaging within a few degrees of normal. Over the Middle and Eastern States, the first few days were bitter cold followed by a rapid warming trend. Nebraska, for instance, averaged 25° below normal on Tuesday and 30° above normal on Sunday. Pennsylvania averaged 15° below normal early in week and 15° above normal over the weekend. The Deep South had a similar pattern. The early week blizzard over the northern Great Plains was the worst since last March. Winds at Jamestown, North Dakota, reached 62 m.p.h. and the South Dakota Highway Patrol reported trucks blown off the roads. Hibbing, Minnesota, registered -47° Wednesday morning. Subzero cold extended to southern Illinois and subfreezing temperatures reached the Gulf of Mexico. By Sunday, April-like weather replaced the intense cold with temperatures reaching the 70's in Kansas, Missouri, and Virginia. Wichita, Kansas, registered 75°, a new January record. The warm gulf air brought heavy fog to much of the Southeast. A mild temperature pattern continued from the Rockies westward for the second week. (Summary supplied by Environmental Data Service, ESSA).

# Status of the European Corn Borer in 1966<sup>1/</sup>

**Introduction:** Cooperating agricultural agencies in 14 States reported on surveys conducted in their States to determine the abundance and distribution of European corn borer (*Ostrinia nubilalis* (Hübner)) in 1966. All survey data, summaries or records of field observations were submitted to Survey and Detection Operations in Hyattsville, Maryland, for final processing. Personnel of Entomology Research Division, Agricultural Research Service, kindly reviewed the material after completion.

The 1966 European corn borer survey was conducted during the late summer and fall of the year. The survey is designed to measure the fall populations of European corn borer larvae and is conducted during a favorable time to include a high percentage of late instars, wherever possible. In all cases, except for some minor differences in compiling data, the accepted survey methods were followed. The survey was continued on a district basis whenever possible in 1966. A district is usually a group of counties within a State, in most cases based on Crop Reporting Districts.

Several of the States reduced the number of districts and/or the number of counties within districts surveyed in 1966; however, the results are comparable with previous years. These changes are indicated in Tables 1 and 2 as footnotes.

**New Distribution:** European corn borer was reported for the first time from 18 new counties during 1966 according to ARS records; however, these new counties were found in States already known to be infested. This was 7 more than reported the previous year; 11 new counties were reported in 1965, all in South Carolina. This compares with 5 new counties in 3 States in 1964, 25 new counties in 1963, 4 in 1962, 15 in 1961 and 6 in 1960.

The new counties reported infested in 1966 were as follows: South Carolina - Abbeville, Anderson, Calhoun, Cherokee, Clarendon, Fairfield, Greenwood, Hampton, Jasper, Laurens, McCormick, Saluda and Spartanburg; North Dakota - Bowman, Golden Valley, Mountrail, Rolette and Slope.

**Abundance:** The general abundance of European corn borer larvae increased in all States reporting in 1966. Populations were more than double those in 1965 in 9 of the 11 North Central States included in the survey. Substantial increases were also noted in Delaware, Maryland, Indiana, Missouri and Arkansas. The number of borers per 100 plants in the North Central States averaged 120 in 1966 compared with 57 in 1965, an overall 2-fold increase. The largest single increase in borer numbers was in southeast Iowa where the population averaged 351 borers per 100 plants compared with 108 in 1965. Substantial increases in borer numbers were also noted in northeast Arkansas, northern Missouri, northeast Kansas and southeast Nebraska, as well as in southeast South Dakota and west central Illinois. Average populations were over 300 borers per 100 plants in Delaware and on the Eastern Shore of Maryland. There were 14 districts in the North Central States where counts of over 200 borers per 100 plants were found in 1966. In 17 districts, borer populations were more than 100 per 100 plants but less than 200. In the remaining 44 districts included in the North Central States, populations were less than 100 borers per 100 plants.

<sup>1/</sup> Survey data provided by State agricultural agencies. Data compiled and summarized by Survey and Detection Operations, Plant Pest Control Division, Agricultural Research Service, United States Department of Agriculture.

Table 1. Summary by States of European Corn Borer Abundance in Corn, Fall of 1966, Compared with Data for 1965

States	1965			1966			Comparable Districts or Counties Surveyed Both Years		
	:No. of : :Districts : :Surveyed : :100 plants :	:Average No. : :of Borer : :Counties : :Surveyed :	:No. of : :Districts : :Surveyed :	:Average No. : :of Borer : :Counties : :Surveyed :	:No. of : :Districts : :Surveyed :	:No. of : :Counties : :Surveyed :	:Borers per : :100 Plants : :1965 :	:Borers per : :100 Plants : :1966 :	
Eastern									
Delaware	1	209	3	307	3	1	209	307	
Maryland	3	117	21	185	13	3	117	185	
Total	4	24	4		16		163	246	
Average $\frac{1}{}$									
North Central									
Illinois	7	50	37	118	37	7	50	118	
Indiana	12	38	92	44	92	12	38	44	
Iowa	12	56	99	143	12	12	56	143	
Kansas	3	48	24	131	24	3	48	131	
Minnesota	7	67	67	56	34	7	22	56	
Missouri	2/	199	26	299	26	5	199	299	
Nebraska	3/	67	26	130	26	5	67	130	
North Dakota	4/	84	5	190	5	1	84	190	
Ohio	5	12	33	39	35	5	12	39	
South Dakota	6	44	35	146	6	6	44	146	
Wisconsin	9	6	52	27	52	9	6	27	
Total	72	496	496	72	463		57	120	
Average $\frac{1}{}$									
Southern									
Arkansas	5/	3	22	15	3	3	22	73	

1/ Weighted averages based on districts surveyed.

2/ Missouri figures for 1965 adjusted for comparison with those of 1966.

3/ Average for 1965 adjusted to coincide with extent of 1966 survey.

4/ Based on 1 district and 5 counties comparable to 1965 survey.

5/ Average for 1965 adjusted to exclude east central district, not surveyed in 1966.

Table 2 - European Corn Borer Abundance in Corn,  
Fall of 1966, Compared with Data for 1965

State (Districts or Counties)	:Average Number: :of Borers Per : : 100 Plants : :1965            1966:	State (Districts or Counties)	:Average Number :of Borers Per : 100 Plants :1965            1966
<u>Arkansas</u> (Ark. Ins. Sur.)		<u>Iowa</u> (State Dept. of Agr.; Ext. Ser.; Ent. Dept., Iowa State Univ.; ENT, ARS, USDA)	
Northwest	9            4	District I	46            134
North Central	13           0	District II	19            94
Northeast	<u>43</u> <u>215</u>	District III	4            61
Average	22           73	District IV	42           130
<u>Delaware</u> (Agr. Expt. Sta.)		District V	37           114
New Castle	106           126	District VI	68           49
Kent	249           437	District VII	37           152
Sussex	<u>273</u> <u>358</u>	District VIII	86           120
Average	209           307	District IX	95           174
<u>Illinois</u> (Natural History Survey, Ext. Ser.)		District X	30           142
Northwest	43           98	District XI	103           194
Northeast	21           47	District XII	<u>108</u> <u>351</u>
West	83           249	Average	56           143
Central	42           267	<u>Kansas</u> (Ins. Sur.)	
East	30           41	Northeast	93           274
West-southwest	63           74	North Central	19           38
East-southeast	<u>67</u> <u>47</u>	East Central	<u>31</u> <u>82</u>
Average	50           118	Average	48           131
(51) <u>1/</u>	(120) <u>1/</u>	<u>Maryland</u> (Agr. Ext. Ser., Ins. Sur.)	
<u>Indiana</u> (Ext. Ser., Expt. Sta.)		Eastern Shore	133           305
North-northwest	41           60	Southern area	115           121
North-northcentral	54           119	Western and Central area	<u>103</u> <u>129</u>
North-northeast	50           11	Average	117 <u>2/</u> 185 <u>2/</u>
Northwest	34           33	<u>Minnesota</u> (State Dept. Agr.)	
North Central	15           24	Southwest	21           66
Northeast	18           23	South Central	12           51
Southwest	23           26	Southeast	0.4           24
South Central	26           21	West Central	53           56
Southeast	24           25	Central	8           26
South-southwest	62           71	East Central	2           15
South-southcentral	55           61	Northwest	<u>55</u> <u>152</u>
South-southeast	<u>48</u> <u>59</u>	Average	22           56
Average	38           44		

1/ Average based on 36 counties surveyed in 1965 and 37 counties in 1966, rather than districts.

2/ Survey in 1965 taken in 21 counties; survey in 1966 taken in 13 counties.

Table 2 - (Continued)

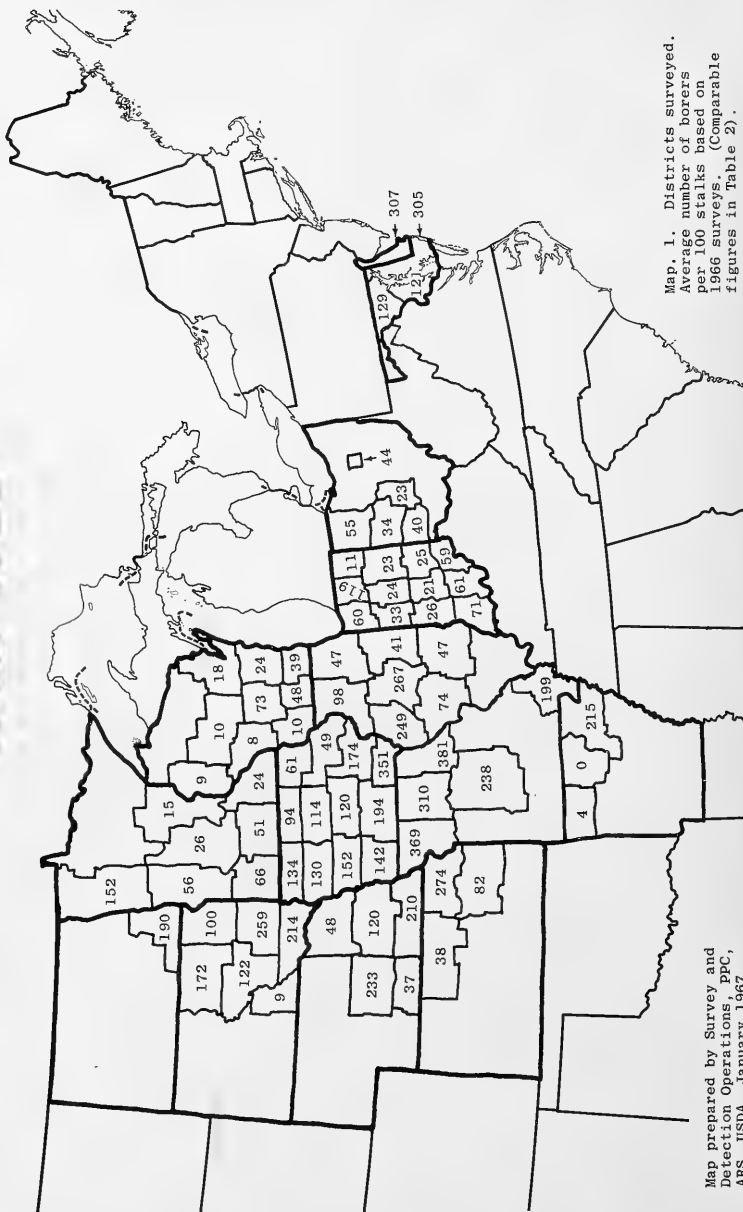
State (Districts or Counties)	:Average Number: :of Borers Per : : 100 Plants : :1965 1966:		State (Districts or Counties)	:Average Number :of Borers Per : 100 Plants :1965 1966	
<u>Missouri</u> (Ext. Ser., Ins. Sur.)			<u>South Dakota</u> (Agr. Expt. Sta., Ext. Ser.)		
District I	247	369	North Central	32	172
District II	180	310	Northeast	117	100
District III	199	381	Central	2	122
District V	70	238	East Central	41	259
District IX	<u>301</u>	<u>199</u>	Southeast	67	214
Average	199 <u>1/</u>	299 <u>1/</u>	South Central	<u>5</u>	<u>9</u>
<u>Nebraska</u> (Agr. Expt. Sta., Ext. Ser., Ins. Sur.)			Average		
				44	146
<u>North Dakota</u> (State Dept. Agr.)			<u>Wisconsin</u> (State Dept. Agr.)		
Northeast	13	48	Northwest	6	9
East	87	120	North Central	3	10
Southeast	156	210	West Central	4	8
Central	43	233	Central	11	73
South	<u>36</u>	<u>37</u>	Southwest	10	10
Average	67 <u>2/</u>	130 <u>2/</u>	South Central	8	48
<u>Ohio</u> (Ext. Ser.; ARS, USDA)			Southeast	2	39
			East Central	6	24
Northwest	11	55	Northeast	<u>6</u>	<u>18</u>
West Central	6	34	Average	6	27
Central	12	23			
Southwest	17	40			
Northeast	<u>16</u>	<u>44</u>			
Average	12	39			
	(11) <u>3/</u>	(42) <u>3/</u>			

1/ Figure for 1965 adjusted for comparison with 5 districts surveyed in 1966.

2/ Average for 1965 adjusted to exclude north and southwest districts not surveyed in 1966.

3/ Average based on all samples rather than district averages.

# EUROPEAN CORN BORER ABUNDANCE FALL 1966

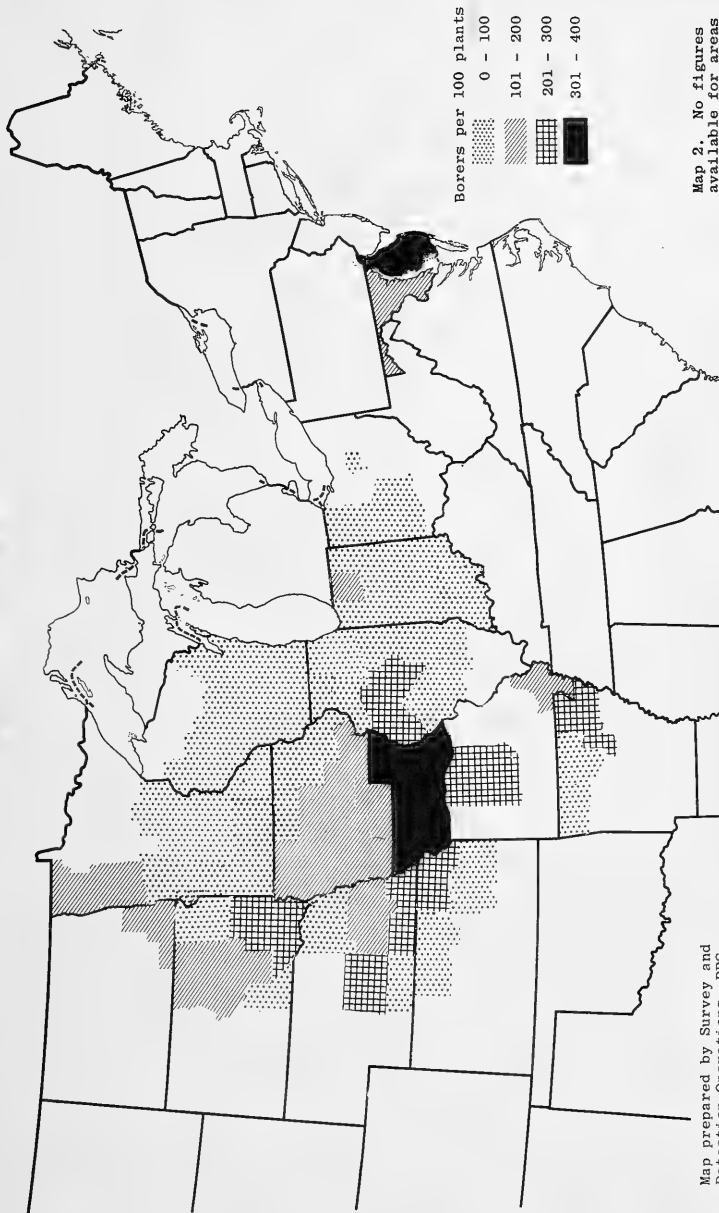


Map. 1. Districts surveyed.  
Average number of borers  
per 100 stalks based on  
1966 surveys. (Comparable  
figures in Table 2).

Map prepared by Survey and  
Detection Operations, PPC,  
ARS, USDA, January 1967



# EUROPEAN CORN BORER ABUNDANCE FALL 1966



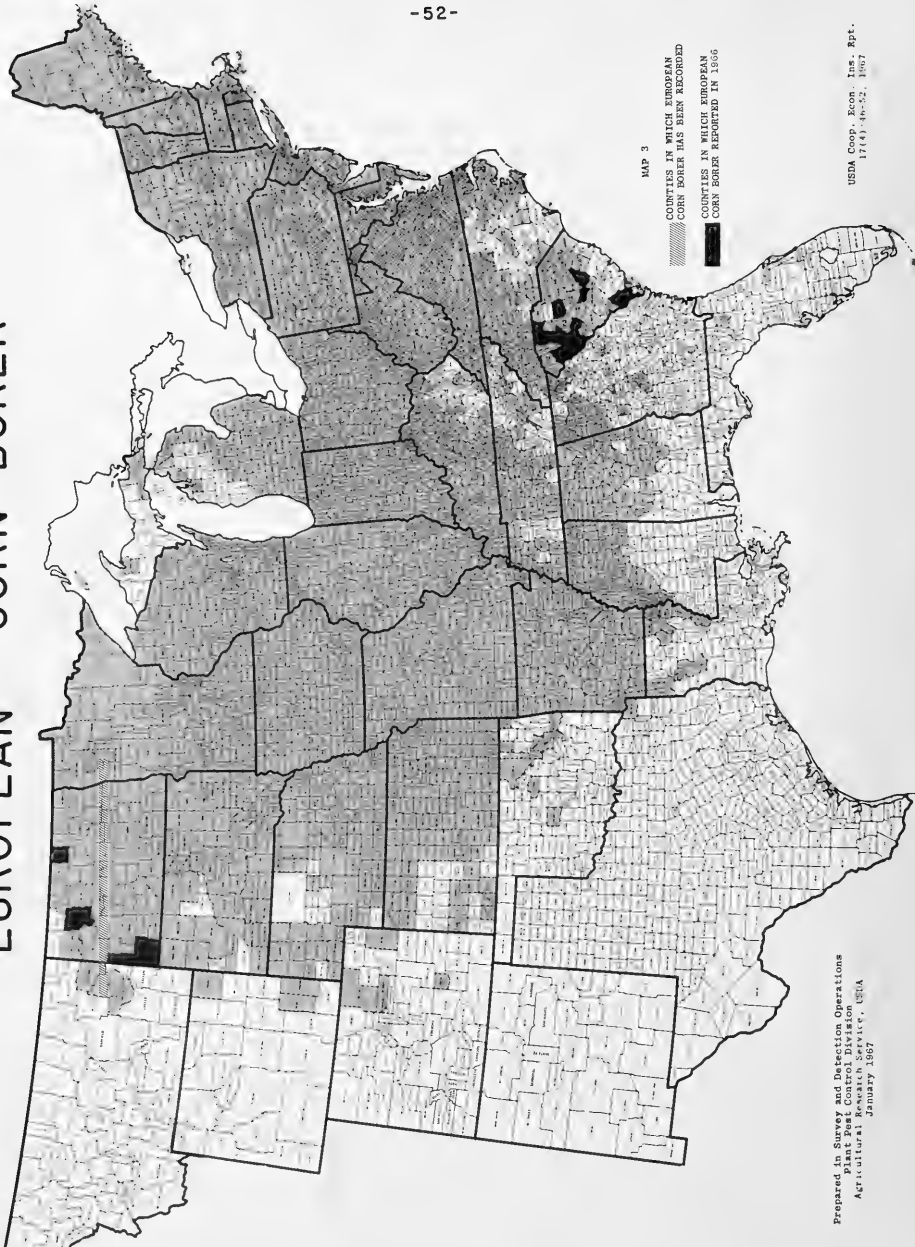
Map 2. No figures available for areas not shaded.

Map prepared by Survey and Detection Operations, PPC, ARS, USDA, January 1967

# EUROPEAN CORN BORER

MAP 3

COUNTIES IN WHICH EUROPEAN  
CORN BORER HAS BEEN RECORDED  
COUNTIES IN WHICH EUROPEAN  
CORN BORER REPORTED IN 1956



Prepared in Survey and Detection Operations  
Section, Plant Quarantine, Foreign  
Control Division,  
Agricultural Research Service,  
U.S. Department of Agriculture,  
Washington, D.C., USA  
January 1967

USDA Coop. Econ. Ins. Rpt.  
17(4)-46-52. (Rev. 1-56)

# Boll Weevil Hibernation Survey - Fall 1966

The fall collections of surface ground (woods) trash samples (two square yards per sample) have been completed in 6 Southern States by State and Federal agencies to determine the number of boll weevil (*Anthonomus grandis*) adults that went into hibernation. A total of 3 samples was collected at each location in the Carolinas, Mississippi, Louisiana and Texas; 10 samples were taken in Tennessee. In North and South Carolina, 30 locations were sampled in each area, with numbers of counties per area from which samples were taken varying from 3 to 6. In Mississippi, a total of 45 samples was taken from 15 locations in each of 4 areas; each area was composed of 2 counties. A total of 40 locations was sampled in north-eastern Louisiana; 20 locations in Madison Parish and 10 locations each in Tensas and East Carroll Parishes. In Texas, 75 samples were taken in either 6 or 7 locations in each of 4 counties.

Average counts (live weevils per acre) exceeded those of the fall of 1965 in south central South Carolina, north central North Carolina, the Piedmont of North and South Carolina, the southern tier of counties in Tennessee and in central Texas. Counts were lower in the fall of 1966 in the Coastal Plain of North and South Carolina, all areas surveyed in Mississippi and in northeastern Louisiana.

In Florence County, South Carolina, where fall examinations have been made since 1942 (except the fall of 1946), the number of weevils per acre (5,972) is the lowest since 1959.

In Tennessee, McNairy, Fayette and Hardeman Counties were surveyed as they supported the heaviest infestations during the 1966 season. The number of weevils per acre was 7,120 in these counties, compared with 1,211 in 1965, 807 in 1964, 1,089 in 1963, 3,633 in 1962 and 3,025 in 1961. The figures for 1965 through 1961 are for McNairy County only. Fourteen weevils were found in one two-square-yard sample, indicating that there are 33,880 weevils in hibernation around that field. This is the highest number of weevils ever found since this survey was initiated in 1950.

The 1966 State average for Mississippi was 2,956 live weevils per acre of ground trash compared with 7,325 in 1965, 4,545 in 1964, 3,010 in 1963, 6,213 in 1962 and 8,403 in 1961. There were fewer weevils present in every county in the fall of 1966 than in the fall of 1965.

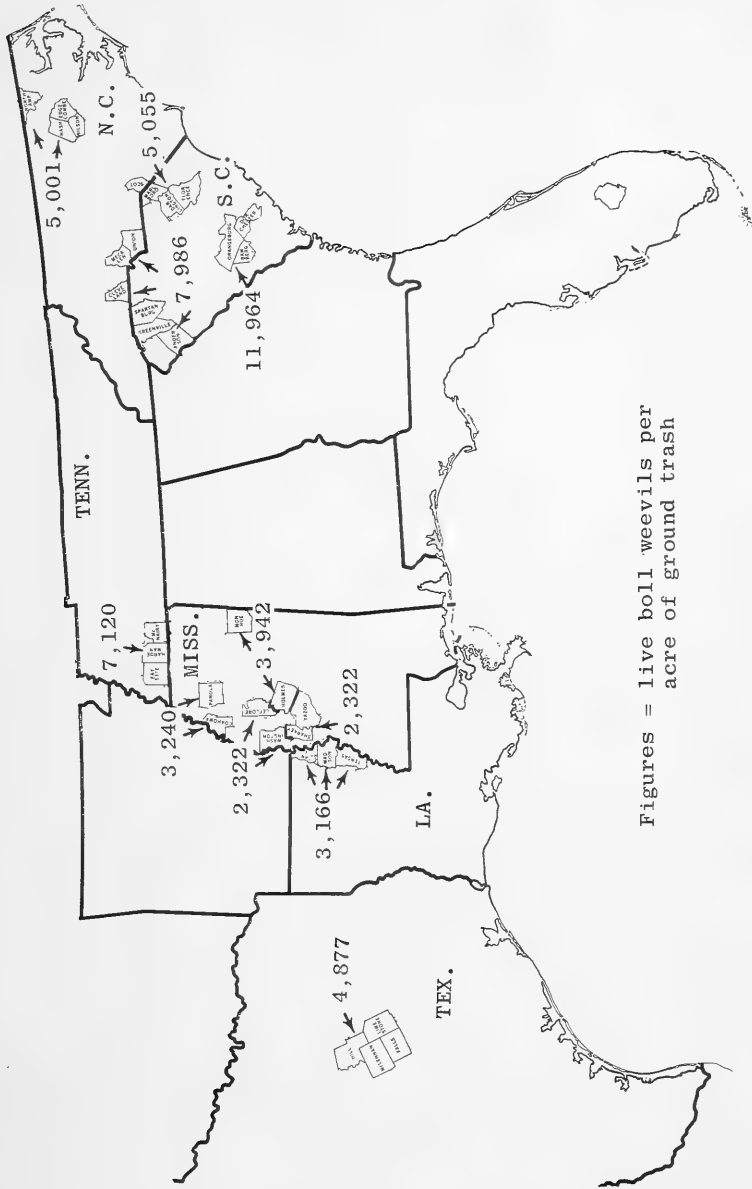
The average number of boll weevils per acre in the tri-parish area of northeast Louisiana was 3,166 compared with 3,349 in 1965. The average by parish was 4,640 in Madison, 1,372 in East Carroll and 2,017 in Tensas. During the past 11 years that these records have been made in the tri-parish area, the number of weevils per acre has ranged from 2,017 to 13,443 and averaged 5,434 in Madison Parish; 5,165 to 13,235 and averaged 8,125 in East Carroll Parish; and 0 to 17,593 and averaged 6,371 in Tensas Parish. Light frost occurred October 20, 26 and 27 with a minimum of 32 degrees recorded October 27. A hard freeze occurred November 3 with a minimum of 18 degrees. Heavy loss of late-maturing cotton resulted. Several dead weevils were observed in second-growth cotton. Trash collected was very dry as the result of only 1.6 inches of rain during 3-week period ending November 8.

In central Texas, the area average of 4,877 boll weevils per acre in the fall of 1966 compares with averages of 4,425 in 1965, 4,406 in 1964, 517 in 1963, 1,781 in 1962, 4,414 in 1961, 4,501 in 1960 and 6,631 in 1959. In the fall of 1966, more boll weevils entered hibernation than in any year since 1959. Heavy rains in the spring delayed planting which resulted in a considerable acreage of late-planted cotton. This was similar to the spring of 1965. Heavy rains during late August and throughout September resulted in heavy regrowth and fruiting. Harvest and stalk destruction were also delayed. Heavy boll weevil populations built up and moved into hibernation. (H. M. Taft, A. R. Hopkins, J. H. Locke, T. C. Cleveland, C. B. Cowan). See table and map on following two pages.

BOLL WEEVIL HIBERNATION SURVEYS - FALL 1966

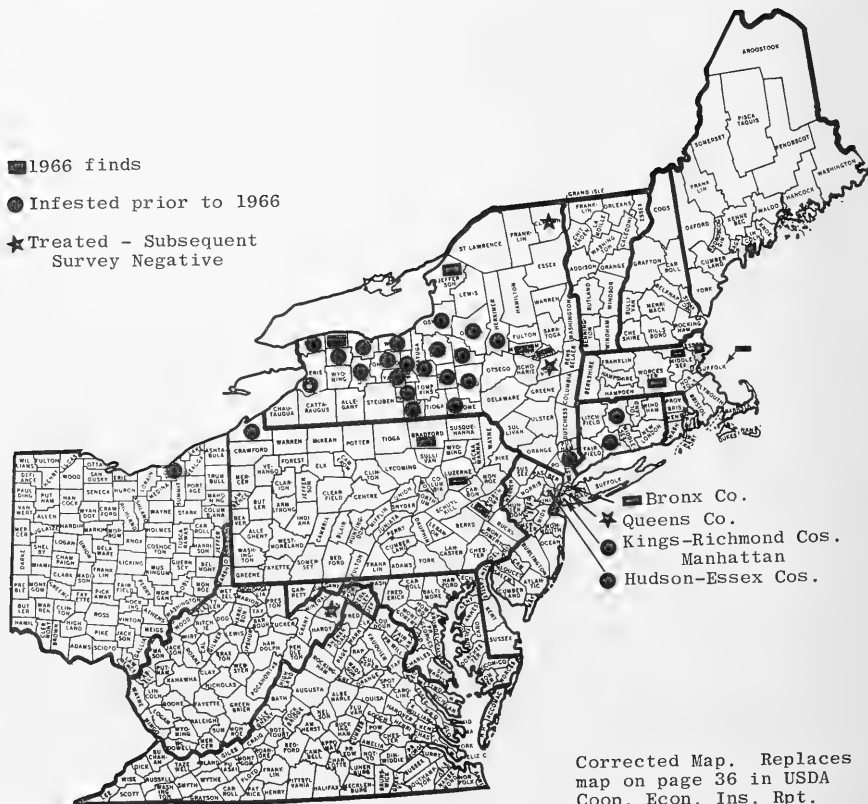
Area (County and State)	Number of Weevils Per Acre	
	1965	1966
<u>NORTH AND SOUTH CAROLINA</u>		
South Central South Carolina (Orangeburg, Bamberg and Dorchester Counties)	3,899	11,964
Coastal Plain of South and North Carolina (Florence, Darlington and Marlboro Counties, S. C.; Scotland County, N. C.)	15,273	5,055
Piedmont of South and North Carolina (Anderson, Greenville and Spartanburg Counties, S. C.; Mecklenburg, Cleveland and Union Counties, N. C.)	7,233	7,986
North Central North Carolina (Northampton, Nash, Wilson and Edgecombe Counties)	4,492	5,001
<u>TENNESSEE</u>		
Southern Tier of Counties (McNairy, Fayette and Hardeman)	1,211	7,120
<u>MISSISSIPPI</u>		
South Delta (Sharkey and Yazoo Counties)	6,696	2,322
Central Delta (Washington and Leflore Counties)	3,456	2,322
North Delta (Coahoma and Panola Counties)	6,480	3,240
Hill Section (Holmes and Monroe Counties)	12,798	3,942
<u>LOUISIANA</u>		
Northeastern (East Carroll, Madison and Tensas Parishes)	3,349	3,166
<u>TEXAS</u>		
Central (Falls, Hill, Limestone and McLennan Counties)	4,425	4,877

BOLL WEEVIL HIBERNATION SURVEYS - FALL 1966



Figures = live boll weevils per  
acre of ground trash

# Status of European Chafer - 1966



Prepared in Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service, USDA



UNITED STATES DEPARTMENT OF AGRICULTURE  
Hyattsville, Maryland 20782

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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

All correspondence pertaining to additions, deletions and changes of addresses for the mailing list for this report should be sent to:

Service Operations Division  
Office of Plant and Operations  
United States Department of Agriculture  
Washington, D. C. 20250

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

GREEN PEACH APHID increasing slowly on sugarbeets and lettuce in Maricopa County, Arizona. (pp. 59, 60).

WINTER GRAIN MITE necessitated some control on wheat in 5 north-central Texas counties; conditions appear favorable for continued buildups. Also moderate on wheat in Jackson County, Oklahoma. (p. 59).

EGYPTIAN ALFALFA WEEVIL active earlier than normal in desert areas of California. (p. 59).

CATTLE LICE generally light in Iowa and Arkansas. (p. 61). No SCREW-WORM cases reported in United States since January 1, 1967. (p. 62).

Detection

For new county records see page 63.

Special Reports

Summary of Insect Conditions in Hawaii - 1966. (p. 64).

Insect Detection in the United States in 1966. Twelve species new to Continental United States reported. (p. 67).

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Reports in this issue are for week ending January 27 unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK

FEBRUARY 1967

The Weather Bureau's 30-day outlook calls for temperatures to average above sea-level normals over the western half of the Nation, while below normal averages are indicated for the Middle Atlantic States, the Ohio Valley and most of the South. In unspecified areas near normal temperatures are predicted. Precipitation is expected to exceed normal over the Pacific Northwest and the central Pacific coast, as well as over the southeastern quarter of the Nation and along the Middle Atlantic Coast. Subnormal totals are called for over the southern Rockies, the southern Plateau, western portions of the southern Plains and the Great Lakes region. Elsewhere near normal precipitation is expected.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

WEATHER OF THE WEEK ENDING JANUARY 30, 1967

**HIGHLIGHTS:** Continued mild, wet, and windy in the Northwest. Severe snowstorm Chicago area and Lower Michigan; heavy glaze storm, Illinois to Ohio.

**PRECIPITATION:** The stormy pattern which has continued in the Pacific Northwest for several weeks brought substantial rains along the Washington, Oregon, and California coast and heavy snow to the mountain areas, often accompanied by gale-force winds. A major storm at midweek buried portions of the central Great Plains and the Great Lakes region in deep snow. Depths reached 2 feet from northeastern Illinois across northern Indiana to central Lower Michigan, and gales to 50 m.p.h. piled the snow in drifts 12-15 feet deep. It was the heaviest snowfall of record at Chicago; traffic was halted, businesses closed. In some areas, schools were still closed on Monday, January 30. Numerous early season tornadoes occurred on 24th in Missouri, Iowa, and Illinois, with a few in other nearby States. At least Weather continued on page 62.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Increasing slowly on small grains in Yuma, Maricopa and Pinal Counties. Warm, favorable climate could cause rapid increase. (Ariz. Coop. Sur.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Ranged 1-3 per linear foot in Wagoner County wheat. None found in Jackson or Kiowa Counties. (Okla. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Continues heavy in Mayes County alfalfa. Ranged 30-60 per 10 sweeps in Jackson County and 1-5 per square foot of crown in Wagoner County. (Okla. Coop. Sur.).

## SMALL GRAINS

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - ARIZONA - Larvae light in small grains planted on sandy soils in Maricopa County. (Ariz. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - MISSISSIPPI - Light on oats in Oktibeha and Lowndes Counties; only wingless adults observed. (Dinkins).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Noted in 10 of 17 fields checked in Denton, Collin, Tarrant, and Wise Counties; 5 of these fields heavy enough to warrant control. Conditions appear good for continued buildup. (Turney). OKLAHOMA - Ranged 10-50 per linear foot in Jackson County wheat. (Okla. Coop. Sur.).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - ARKANSAS - Square-foot samples of alfalfa stems yielded 100-200 eggs per square foot in northeast area; few counts as high as 300+ per square foot. (Miner).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Egg laying in alfalfa continues slow for this time of year in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). CALIFORNIA - Adults medium on weeds and grass in Oceanside, San Diego County. Weevil activity on alfalfa considerably earlier than normal in desert areas. (Cal. Coop. Rpt.).

PEA APHID (Acyrtosiphon pisum) - MISSISSIPPI - Wingless adults and nymphs light on alfalfa and vetch in Oktibeha County. (Dinkins). NEW MEXICO - Light to moderate on alfalfa in Eddy and Chaves Counties. (Mathews).

## SUGARBEETS

A LEAF ROLLER MOTH (Platynota stultana) - ARIZONA - Larvae light and scattered throughout sugarbeet fields in Maricopa County. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Light, but increasing slowly on sugarbeets in Maricopa County. (Ariz. Coop. Sur.).

## MISCELLANEOUS FIELD CROPS

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - ARIZONA - Larvae light in safflower on sandy soils in Maricopa County. (Ariz. Coop. Sur.).

#### COLE CROPS

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Severely infested one-acre of rutabagas at Springhead, Hillsborough County. (Vaughan, Jan. 18).

POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) - ALABAMA - Probably this species, light in five-acre field of maturing cabbage in Houston County; medium on root systems. (White, Farrar).

TURNIP APHID (Hydaphis pseudobrassicae) - MISSISSIPPI - Wingless adults and nymphs light on turnips in Oktibbeha County. (Dinkins).

CABBAGE APHID (Brevicoryne brassicae) - CALIFORNIA - Medium on collards in San Diego, San Diego County. (Cal. Coop. Rpt.).

#### GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Moderate; damaging and requiring controls on lettuce in Yuma County. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Light; increasing slowly on lettuce in Maricopa County. (Ariz. Coop. Sur.).

#### DECIDUOUS FRUITS AND NUTS

SAN JOSE SCALE (Aspidiotus perniciosus) - FLORIDA - Severely infested bark of 20 pear nursery trees at Macclenny, Baker County. (Collins).

#### CITRUS

TEXAS CITRUS MITE (Eutetranychus banksi) - FLORIDA - Adults severe on 75 percent of 8,000 citrus nursery trees at Medulla, Polk County. (McLeod, Skipper).

CITRUS RED MITE (Panonychus citri) - FLORIDA - Nymphs and adults moderate on 10 percent of 1,000 satsuma nursery plants at Macclenny, Baker County. (Collins).

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Crawlers and adults numerous on bark of sweet orange trees at nursery in Lake Wilson, Osceola County. (Ware, Jan. 16).

GRAY GARDEN SLUG (Deroceras reticulatum) - CALIFORNIA - Light in 20-acre citrus planting in Navalencia, Fresno County. (Cal. Coop. Rpt.).

#### OTHER TROP. & SUBTROP. FRUITS

SOUTHERN FIRE ANT (Solenopsis xyloni) - CALIFORNIA - Heavy on date fruit at date ranch in Calexico, Imperial County. (Cal. Coop. Rpt.).

#### ORNAMENTALS

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - OKLAHOMA - Pupae present in 80 percent of ornamental pines checked in Sequoyah State Park, Wagoner County. (Okla. Coop. Sur.).

APHIDS - CALIFORNIA - Aphis gossypii adults heavy on crassula at Escondido, San Diego County; beginning to show on citrus also. (Cal. Coop. Rpt.). OKLAHOMA - Cinara tujafilina continues problem on evergreens in several areas of State. (Okla. Coop. Sur.). ALABAMA - Eulachnus spp. continue to increase on pine needles in central section. Sooty mold developing on camellia foliage growing underneath pine trees. (McQueen).

WHITEFLIES - CALIFORNIA - Trialeurodes vaporariorum nymphs medium on chrysanthemums in Arroyo Grande, San Luis Obispo County. Aleurotrachelus jelinekii heavy on viburnum in Fresno, Fresno County. (Cal. Coop. Rpt.).

ARMORED SCALES - CALIFORNIA - Parlatoria oleae medium on rose bushes in Escondido, San Diego County. Aspidiotus hederiae heavy on ivy plants in Biggs, Butte County, and ivy and olive in Escondido. Very troublesome on ornamentals and shade trees during past year. (Cal. Coop. Rpt.). FLORIDA - Pseudaulacaspis pentagona moderate on several California privet plants at Sorrento, Lake County. (Simpson, Jan. 20). Crawlers and adults of Pinnaspis aspidistrae infested 50 percent of dwarf lily turf at nursery in Lake Land, Polk County. (Skipper, McLeod, Jan. 12). All stages of Pseudaonia duplex infested few plants of ligustrum at Lake City, Columbia County. This is new county record. (Miller, Jan. 19).

AN ERIOPHYID MITE (Paracalacarus podocarpi) - FLORIDA - Adults infested 50 percent of 2,700 podocarpus plants at Bartow, Polk County. (Schmidt, Jan. 13).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - MARYLAND - Mines conspicuous on American hollies in Hyattsville, Prince Georges County. (U. Md., Ent. Dept.).

SPIDER MITES - CALIFORNIA - Nymphs and adults of Oligonychus ilicis heavy on azalea nursery stock at Cypress, Orange County. (Cal. Coop. Rpt.). FLORIDA - Eotetranychus sexmaculatus adults infested 600 azalea plants at Bartow, Polk County. (Schmidt, Jan. 13).

#### FOREST AND SHADE TREES

BROWN SOFT SCALE (Coccus hesperidum) - CALIFORNIA - Heavy on redbud trees in Arcata, Humboldt County. (Cal. Coop. Rpt.).

GIANT BARK APHID (Longistigma caryae) - TEXAS - Infesting shade trees in Beaumont, Jefferson County, and Orange, Orange County. (Kachtik, Weaver).

#### MAN AND ANIMALS

CATTLE LICE - IOWA - Adults and eggs of Haematopinus eurysternus very heavy on animal from herd in Marion County. Adults light on animals examined in other herds in Marion, Polk and Dallas Counties. Linognathus vituli adults averaged less than 5 per examination in Marion, Polk and Dallas Counties. Adults and eggs of Solenopotes capillatus light on examined cattle in Marion, Polk and Dallas Counties except for high counts about face and eyes of one animal. Bovicola bovis adults light in Knoxville area of Marion County and Granger area of Dallas and Polk Counties. Averaged less than 10 per examination area. (Iowa Ins. Sur.). ARKANSAS - Of 13 herds examined in northwest area, S. capillatus light in 3, moderate in one and moderate to heavy in another; 8 herds uninfested. (Lancaster, Simco).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Heavy on hogs in Marshall County. (Okla. Coop. Sur.).

SHAFT LOUSE (Menopon gallinae) - IOWA - Adults heavy on chickens in Warren County. Less than 5 per bird on 2 other flocks in county. (Iowa Ins. Sur.).

STABLE FLY (Stomoxys calcitrans) - MISSISSIPPI - Light on cattle in Oktibbeha County; 6 per animal observed on 5 Hereford bulls in stables. (Dinkins).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Ranged 10-12 per head on cows in Tillman County; moderate in Mayes County. Adult activity noted January 22 in Ottawa County. (Okla. Coop. Sur.). ARKANSAS - Averaged 2.8, ranged 0-26, per head in 389 untreated cattle in northwest area. (Lancaster, Simco). IOWA - Fourth and fifth-stage larvae heavy; 32 on hide of yearling heifer at locker plant in Knoxville, Marion County; history of animal unknown. Cattle from 9 other farms showed no signs of grubs in backs. (Iowa Ins. Sur.).

MOSQUITOES - ALABAMA - Adults heavy and nuisance during evenings in central section. (Balch, Barwood, et al.). LOUISIANA - Larval collections in Jefferson Parish contained: Aedes vexans, Anopheles quadrimaculatus, Culex restuans, Culex salinarius, and Culiseta inornata. Culex salinarius and Culiseta inornata dominated light trap collections. Adult activity increased slightly throughout Jefferson Parish due to unseasonably warm weather. (Stokes).

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in the U. S. January 22-28. Total of 66 cases reported in portion of Barrier Zone in Republic of Mexico January 15-21 as follows: Territorio sur de Baja California 35, Sonora 21, Chihuahua 1, Coahuila 0, Nuevo Leon 5, Tamaulipas 4. One case was reported from Mexico south of the Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 14,768,000, Mexico 116,624,000. (Anim. Health Div.).

#### FEDERAL & STATE PLANT PROTECTION PROGRAMS

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Few adults collected in traps at Cortez, Manatee County, St. Petersburg, Pinellas County, and Sarasota, Sarasota County, week ending January 20. Two larvae were collected from a tangerine at Lauderdale-by-the-Sea, Broward County. (Bickner et al.).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Intensive trapping underway in Orange County. Traps 100 per square mile in first radial half mile, 50 per square mile in next radial half mile, 20 per square mile in next mile, and 1-5 per square mile in balance of Orange County. In Los Angeles County, 50 traps per square mile being maintained in 2-square mile area. (Cal. Coop. Rpt.).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Survey continued in Sacramento area, Sacramento County, with several new infestations recorded. Foul weather restricted inspection work. Spray treatment progressing in Fresno, Fresno County, and San Diego, San Diego County. (Cal. Coop. Rpt.).

PINK BOLLWORM (Pectinophora gossypiella) - MEXICO - Collected from gin trash at Caborca and Hermosillo, Sonora; these new county records. (PPC Mex. Reg., Nov. and Dec. Rpts.).

WHITE GARDEN SNAIL (Theba pisana) - CALIFORNIA - First treatment of 25-block area in Manhattan Beach, Los Angeles County, completed; second treatment will begin within 7 days. (Cal. Coop. Rpt.).

Weather continued from page 58.

5 persons were killed and there was considerable property damage. These tornadoes were about two months earlier than usual in that area. A glaze storm, the worst in many years, caused heavy damage to trees and power and communication lines from central Missouri to northwestern Ohio during the last half of the week. In Indiana, the ice accumulated to 0.75 inch, and the gale winds caused the cancellation of many activities. People were marooned in cars, trains, or homes without electricity. Stockmen were forced to haul water because electric pumps were inoperative.

TEMPERATURE: For the third consecutive week, mild weather continued west of the Continental Divide. East of the Divide, afternoon temperatures climbed to the 60's over most of the central Plains early in the week. In the East, Trenton, New Jersey, recorded the longest January mild spell in 101 years, with maximum temperatures ranging from 62° to 70° on the 23d to 26th. Arctic air from Canada rudely interrupted the unusual warmth in the Great Plains at midweek and in the East over the weekend. By the end of the week, however, warmer weather was returning to mid-America. (Summary supplied by Environmental Data Service, ESSA).



## HAWAII INSECT REPORT

Pineapples - Adults of an ARMORED SCALE (Melanaspis bromiliae) light in pineapple fields on Lanai; few fruits infested. (Higa, Sakimura).

Tomatoes, Beans - SOUTHERN GREEN STINK BUG (Nezara viridula) increasing on Oahu; all stages medium to heavy on tomatoes at Koko Head and medium on yard-long beans in Waimanalo. Nymphs heavy on cheeseweed in Pearl City and on asystasia and cheeseweed in Ewa. (Nakao et al.). All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) and CARMINE SPIDER MITE (Tetranychus telarius) medium to heavy on snap beans in Waianae, Oahu. (Yamamoto).

General Vegetables - SWEETPOTATO VINE BORER (Omphisa anastomosalis) heavy in sweet-potato plants at Koko Head and medium at Waimanalo, Oahu. (Suzukawa, Sato).

Fruit, Nut, Forest and Shade Trees - A BARK BEETLE (Xylosandrus compactus) heavy on mehamehame (Drypetes phyllanthoides) and grapevines; light on Entandra utile, partridge-wood (Andira inermis), macadamia and Indian-rhododendron (Melastoma malabathricum) on Hawaii Island. All new host records. (Yoshioka). All stages of COCONUT LEAF ROLLER (Hedylepta blackburni) heavy along Wailua beach area on Kauai causing 50-75 percent defoliation. Parasites and predators at low levels. (Au). An outbreak of RED-BANDED THRIPS (Selenothrips rubrocinctus), apparently the heaviest for east Kauai, occurred on guava trees at MoLoaa with up to 99 percent fruit damage. (Au).

Miscellaneous Insects - THREE-LINED POTATO BEETLE (Lema trilineata) adults medium on weeds on farm at Koko Head, Oahu. Numerous egg clusters observed on leaves. (Funasaki). Adults of a GRASSHOPPER (Schistocerca vaga) observed on slender mimosa, Desmanthus virgatus (a weed), in Waianae, Oahu. (Yamamoto).

### INSECT DETECTION

#### New County Records

CAMPHOR SCALE (Pseudanidia duplex) - FLORIDA - Collected from ligustrum at Lake City, Columbia County. (p. 61).

PINK BOLLWORM (Pectinophora gossypiella) - MEXICO - Collected from gin trash at Caborca and Sonora Counties, Sonora. (p. 62).

#### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 1/24, 1 BL - Black cutworm (Agrotis ipsilon) 1, granulate cutworm (Feltia subterranea) 1, armyworm (Pseudaletia unipuncta) 2. Sanford - 1/17, 19-21, 1 BL - Black cutworm 7, granulate cutworm 33, yellow-striped armyworm (Prodenia ornithogalli) 4, cabbage looper (Trichopusia ni) 2. SOUTH CAROLINA - Charleston - 1/16-22, 1 BL, temp. 33-76°, no precip. - Armyworm 1, black cutworm 1. TEXAS - Brownsville - 1/14-20, 2 BL, temp. 79-40°, precip. 0.04 - Black cutworm 115, salt-marsh caterpillar (Estigmene acrea) 2, granulate cutworm 58, corn earworm (Heliothis zea) 4, variegated cutworm (Peridroma saucia) 22, yellow-striped armyworm 121, armyworm 198, beet armyworm (Spodoptera exigua) 23, cabbage looper 5.

SUMMARY OF INSECT CONDITIONS IN HAWAII - 1966

Highlights

There were 18 species reported for the first time in the State during 1966, while others that were recently established spread to other islands. Some important new pests to the State include: BERMUDAGRASS MITE (*Aceria neocynodonis*) heavy on Bermuda grass on Kauai and Oahu in November; CLOUDY-WINGED WHITEFLY (*Dialeurodes citrifolii*) medium on citrus on Hawaii Island in March; WESTERN FLOWER THRIPS (*Frankliniella occidentalis*) on carnations on Kauai and Maui, and on beans, tomatoes, ornamentals and other plants from October to December on Oahu; light numbers of adults and nymphs of a GRASSHOPPER (*Trimerotropis pallidipennis*) along road shoulders and irrigation ditches of sugarcane fields on Oahu in September.

Turf, Pastures

A BILLBUG (*Sphenophorus venatus vestitus*) was light and widespread on Kikuyu grass on Hawaii Island in September. By December, 10,000-15,000 acres were infested; also infested Bermuda grass, zoysia and Tifgreen lawns on all major islands. LAWN ARMYWORM (*Spodoptera mauritia acronyctoides*) remained pest of Tifgreen and Bermuda grass on Oahu; damaged Bermuda grass at Lihue Airport and Kalapaki, Kauai, during late fall. A GRASSHOPPER (*Schistocerca vaga*) spread on Oahu and was found on Kauai for first time.

General Vegetables

GIANT AFRICAN SNAIL (*Achatina fulica*) was medium to heavy after heavy rains on Oahu and Maui. Light, scattered damage occurred on eggplants on Maui and on tomatoes and eggplants on Oahu. Controls were necessary to protect crops during October to December. A slight larval buildup of a BEAN POD BORER (*Maruca testulalis*) occurred on hyacinth-beans and light numbers prevailed on beans on all major islands. TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) caused medium foliar damage to eggplants and tomatoes on Oahu and Kauai. A PLANT BUG (*Cyrtopeltis modesta*) was medium and caused blossom-drop in tomato producing areas of Kauai during the fall. MELON FLY (*Dacus curcubitae*) was heavy on tomatoes, cantaloups and bittermelons during the fall on Hawaii Island, but light on other islands. LEAF MINER FLIES (*Liriomyza* spp.) and GREENHOUSE WHITEFLY (*Trialetrodes vaporariorum*) were 2 of the most troublesome pests in the State, especially on tomatoes, beans, cucumbers and watermelons. SOUTHERN GREEN STINK BUG (*Nezara viridula*) remained light on all islands compared with previous years. Eggs and adults were parasitized by introduced beneficial insects. No significant increase of a STINK BUG (*Thyanta accerra*) was noted on Oahu; *T. accerra* was first discovered in October 1965 at Ewa. CAR-MINE SPIDER MITE (*Tetranychus telarius*) was heavy on beans, eggplants and watermelons on all major islands. Intensive controls were necessary from spring to early fall. BEAN BUTTERFLY (*Lampides boeticus*) was light to medium in beans on all islands. IMPORTED CABBAGEWORM (*Pieris rapae*) was light to medium damaging cabbage and other crops, particularly on Maui. DIAMONDBACK MOTH (*Plutella xylostella*) was medium to heavy on cabbage and broccoli on Oahu during the summer, and was found for the first time on Maui in October at 1,500 feet elevation. Heavy populations of SEED-CORN MAGGOT (*Hylemya platura*) severely damaged cauliflower seedlings in the Volcano area of Hawaii Island during August. CABBAGE APHID (*Brevicoryne brassicae*) was light on broccoli, cabbage and daikon on Maui and Oahu. Heavy populations of SPOTTED GARDEN SLUG (*Limax maximus*) caused moderate damage to cabbage at 2,000-4,000 feet elevations on Maui in January and February. ONION THRIPS (*Thrips tabaci*) was light, with scattered medium to heavy buildups occurring on Kauai and Oahu. A TARO LEAFHOPPER (*Tarophagus proserpina*) was light due to parasites. SOUTHERN GARDEN LEAFHOPPER (*Empoasca solana*) caused heavy damage to endives and chichory on Kauai in February and was light on lettuce, beets, beans, and other crops. WEST INDIAN SWEETPOTATO WEEVIL (*Euscepes postfasciatus*) was heavy in sweetpotatoes on Kauai in September and caused over 50 percent damage. BEET ARMYWORM (*Spodoptera exigua*) was light to medium on green onions on

Oahu and Kauai. LEEK MOTH (Acrolepia assectella) was light in green onions on all major islands, with a slight buildup on Hawaii Island in July. Leek moth was reported for first time on Maui in October.

### Fruits and Nuts

COCONUT LEAF ROLLER (Hedylepta blackburni) was light and caused light to heavy damage to coconut trees on Kauai in February and March. A MEALYBUG (Pseudococcus obscurus) appeared heavy on passion-fruit farm on Maui in late May. Approximately 30,000 lady beetles (Cryptolaemus montrouzieri) were released on this farm in June, reducing mealybug populations by late August. Heavy populations of BARNACLE SCALE (Ceroplastes cirripediformis) appeared in passion-fruit on Kauai in January and on Maui in October and December. A LYGAEID BUG (Nysius sp.) was very heavy on young macadamia nut plantings in Kapoho, Hawaii Island, in mid-June. Scattered infestations of COTTONY-CUSHION SCALE (Icerya purchasi) ranged light to heavy on citrus throughout the State, with VEDALIA (Rodolia cardinalis) light to moderate in most infested areas. SOUTHERN GREEN STINK BUG (Nezara viridula) populations in macadamia orchards at Kohala and Kainaliu, Hawaii Island, increased during October; damage ranged 8-25 percent. ORIENTAL FRUIT FLY (Dacus dorsalis) was medium to heavy and damaged rose-apple, peach, citrus, guava, passion-fruit, mango, avocado and ripe papaya in scattered areas throughout the State. MEDITERRANEAN FRUIT FLY (Ceratitis capitata) caused serious damage to peaches at 3,500 feet elevation on Maui during July; usually serious pest below 2,000 feet in Hawaii.

### Ornamentals

ORCHID WEEVILS (Orchidophilus spp.) caused moderate to heavy damage to orchids on Hawaii Island in April and in Paia and Wailuku, Maui, during June. Damage was generally light the remainder of the year. A SPIDER MITE (Eotetranychus lewisi) was severe on poinsettias on Hawaii and Oahu Islands, requiring controls in November and December. A THRIPS (Thrips hawaiiensis) was heavy on gardenia blossoms during April and May on Oahu and Hawaii Islands. Heavy populations of THREE-LINED POTATO BEETLE (Lema trilineata) in March and July caused heavy damage to cup-of-gold (Solandra hartwegi) and angel-trumpet (Datura candida) on Maui, Oahu, and Hawaii Islands.

### Forest and Shade Trees

CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) was under control in most areas throughout the State. Occasional buildups occurred in scattered areas on Chinese-banyan but effective biological control agents reduced populations below economic levels. Larvae of a KOU MOTH (Ethmia colonella) caused heavy damage to kou on Oahu, Kauai, Maui and Hawaii. CITRUS MEALYBUG (Planococcus citri) damaged monkey-pod trees on Oahu during early May, and on Maui in July. Infestations on both islands were controlled by a LADY BEETLE (Cryptolaemus montrouzieri). A PLATYPODID BEETLE (Platypus externedentatus) was heavy on monkeypod trees on Kauai; numerous adults were embedded in sap exudations. Larval activity was heaviest during March and August, but damage was light. Larvae of a NOCTUID MOTH (Polypedesma umbricola) were medium to heavy on monkeypod trees in Honolulu, Oahu and Kona, Hawaii Island, in June. Defoliation was 25-75 percent on Oahu and 100 percent on Hawaii Island. A medium infestation of an APHID (Neophyllaphis araucariae) occurred on commercial Norfolk Island-pine on Hawaii Island. Aphids were confined to terminals. A LYGAEID BUG (Nysius sp.) was heavy on commercially grown Norfolk Island-pine trees on Hawaii Island in June. A PLANT BUG (Orthotylus iolani) was heavy during April on wiliwili (Erythrina sp.) on Oahu, causing 80-100 percent foliar damage.

### General Pests

A PLATYSPID BUG (Coptosoma xanthogramma) was medium to heavy on beans, ornamentals and shade trees, jade-vines, pigeon peas, cotton, sesban, African tulip-trees, maunaloa, coral-trees and ornamental fig trees on Oahu. CHINESE ROSE BEETLE (Adoretus sinicus) damaged various crops, ornamentals, and fruit trees on all islands, being heaviest on beans. FULLER ROSE BEETLE (Pantomorus cervinus) caused moderate to heavy damage to ornamentals, forest, shade and fruit trees, especially on Hawaii Island. A BARK BEETLE (Xylosandrus compactus) became established for first time on Hawaii Island in December and ranged light to heavy on ornamentals, fruit, forest and shade trees in Hilo. Some plants were severely damaged. Avocado trees and other plants on Kauai and Oahu were also damaged.

### Man and Animals

SHEEP KED (Melophagus ovinus) was medium on wild sheep in March on the slopes of Mauna Kea at 9,000 feet on Hawaii Island. CATTLE TAIL LOUSE (Haematopinus quadripertusus) severely infested dairy cattle in Waianae, Oahu, during March. Adults of a CATTLE GRUB (Hypoderma sp.) were very noticeable at Waimea, Hawaii Island, in April. A VINEGAR FLY (Drosophila sp.) was heavy during March at Pukalani, Maui, and caused annoyance to residents. Breeding source was field of old pineapples that had been plowed under. HORN FLY (Haematobia irritans) was heavy on ranches on Kauai during September. Heavy populations of BLACK WIDOW SPIDER (Latrodectus mactans) were observed during April under Australian saltbush (Atriplex semibaccata) at Ewa, Oahu, and under stones and boards in Kihei, Maui.

### Household and Structural Insects

New infestations of FORMOSAN SUBTERRANEAN TERMITE (Coptotermes formosanus) continued to appear on Maui. Live termites were found in scattered areas of Wailuku, Kahului, and Waikapu. First discovered on Maui in 1963.

### Beneficial Insects

Numerous cocoons of a BRACONID (Apanteles militaris) were found from May to July in the northwestern section of Hawaii Island. Light numbers of armyworm (Pseudaletia unipuncta) throughout the year suggest this wasp and other parasites and predators exerted strong pressure on armyworm populations. A CERAMBYCID BEETLE (Archlagocheirus funestus) larvae caused severe damage to acres of prickly-pear in Kawaihae area of Hawaii Island during early months of year. Many plants were topped to the ground. PUNCTURE-VINE STEM WEEVIL (Microlarinus lypriformis) severely damaged puncture-vine throughout the State. Found at Molokai in October 1965, on Lanai in August 1966 and on Hawaii Island in December 1966 although no releases were made on these islands. Previously found only on Oahu, Kauai and Maui. A CERAMBYCID BEETLE (Plagiohammus spinipennis) heavily damaged lantana on Hawaii Island. Adults were numerous from April to June and larval populations were heavy from September to December. A SCARAB BEETLE (Oniticellus militaris) was recovered for the first time on Hawaii Island in November, 1965. This beetle was introduced from southern Rhodesia in 1957 to inhibit horn fly breeding. A GALL MIDGE (Zeuxidiplosis giardi) increased on Klamath-weed on Hawaii Island in July and November. A SCOLIID WASP (Campsomeris marginella modesta) was heavy in open cane fields and gardens on Kauai in September. This is a predator of oriental beetle (Anomala orientalis), once numerous and destructive in cane fields. Adults of a SCIOMYZID (Sepedon macropus) were medium in taro fields on Maui in September and October. Generally light in taro fields on Kauai. Introduced to aid in the control of Lymnaea ollula, a freshwater snail and intermediate host of cattle liverfluke. A HELIODINID MOTH (Schreckensteina festaliella) caused moderate to heavy damage to blackberry on Maui and Kauai. Larvae of an ARCTIID MOTH (Selca brunella) heavily damaged Tibouchina spp. and Melastoma malabathricum on Hawaii Island.

INSECT DETECTION IN THE UNITED STATES - 1966

Twelve new Continental United States records were reported in the Cooperative Economic Insect Report during the year. These included four species new to North America. In addition, there were 120 new State records. Those States having 5 or more included Hawaii 18, Delaware 16, California 13, Wisconsin 8, Maryland 7, Utah 6, and Texas 5. Records included related arthropods and snails as well as insects.

NEW CONTINENTAL UNITED STATES RECORDS

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Probable Origin</u>	<u>Collected on</u>	<u>CEIR Page</u>	<u>Economic Importance</u>
<u>Aphis craccae</u> L. an aphid	Maine	Kennebec	Europe or Canada	wild vetch	1017	Not serious
<u>Ceratitis capitata</u> (Wied.) Mediterranean fruit fly 2/5/	Texas	Cameron	Central America	calamondin	588	Major
<u>Chrysopora stipeella</u> (Hbn.) 1/ a gelechiid moth	Maryland	Anne Arundel	Europe	light trap	471	Apparently none
<u>Hoplocampa brevis</u> Klug 3/ pear sawfly	New York	Orange	Europe	pear	62	Apparently minor in U.S. to date
<u>Kuwania quercus</u> (Kuwana) 1/ a margarodid scale	California	Yolo	Far East	blue oak	1032	Little data available
<u>Neoxaireta spinigera</u> (Wied.) a stratiomyid fly	California	Santa Barbara	Hawaii	greenhouse	713	Unknown, gen- erally a scavenger
<u>Stenotarsonemus ananas</u> (Tyron) 1/ a tarsonemid mite	California	Orange	Hawaii	<u>Aechmea fasciata</u>	313	Some importance on pineapple
<u>Stenodiplosis bromicola</u> Mar. and Aga. 1/ a seed midge	Nebraska	Lancaster	Unknown, described in 1962	bromegrass	283	Could be serious
<u>Theba pisana</u> (Müller) 2/ white garden snail	California	Los Angeles	Unknown	---	791	Serious, gen- eral feeder
<u>Tipula paludosa</u> Meig. European crane fly	Washington	Whatcom	Canada	light traps	946	Serious on grains and grasses in parts of Europe; local damage to turf, Canada

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Probable Origin</u>	<u>Collected on</u>	<u>CEIR Page</u>	<u>Economic Importance</u>
<u>Trachyphloeus aristatus</u> (Gyll) a weevil	Pennsylvania	Delaware Montgomery	Canada or Europe	residence	981	Hosts unknown
<u>Zeadiatraea lineolata</u> (Wlk.) neotropical corn borer	Texas (southern area)		Mexico	light traps	801	Can be economic on corn

1/ New North America record.

2/ New introduction; previous infestations eradicated.

3/ First specimens collected 1953.

4/ First specimens collected 1954.

5/ 1966 infestation eradicated.

ADDITIONAL NEW STATE RECORDS

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Aceria aloinis</u> an eriophyid mite	Hawaii	Honolulu	--	1120
<u>Aceria neocynodonis</u> Bermudagrass mite	Hawaii	Kauai Honolulu	Bermuda grass	946
<u>Aceria tulipae</u> wheat curl mite	Indiana	Lawrence	wheat	570
<u>Agrilus anxius</u> bronze birch borer	Utah	Cache	birch	1138
<u>Aleurothrixus floccosus</u> woolly whitefly	California	San Diego	citrus	1085
<u>Amalus haemorrhous</u> a weevil	Wisconsin	Rock	alfalfa	1158
<u>Amphimallon majalis</u> European chafer	Massachusetts	Middlesex Suffolk	--	710
<u>Anarhopus sydneyensis</u> an encyrtid wasp	Hawaii	Honolulu, Maui, Hawaii, Kauai	--	714
<u>Anthonomus grandis complex</u> boll weevil complex	California	Imperial	cotton	16
<u>Apanteles crambi</u> a braconid	Delaware	Sussex	pasture	418
<u>Aphis craccae</u> an aphid	New York	Essex Jefferson	--	1017
<u>Aphis ramona</u> an aphid	Utah	Box Elder	horsemint	906
<u>Apion longirostre</u> hollyhock weevil	Alabama New Jersey	Jackson Camden	hollyhock hollyhock	785 1148
<u>Argyresthia thuiella</u> arborvitae leaf miner	Delaware	New Castle	--	583
<u>Atractotomus mali</u> a plant bug	Connecticut	New Haven	apple trees	435
<u>Baris umbilicata</u> a weevil	Wisconsin	Rock Green	alfalfa	1158
<u>Barypeithes pellucidus</u> a weevil	Maryland	Allegany	--	981
<u>Brachyrhinus cribricollis</u> a weevil	Texas	Midland	--	583
<u>Calomycterus setarius</u> a Japanese weevil	Kansas	Johnson	--	1035
<u>Cardiochiles explorator</u> a braconid	Delaware	--	--	434

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Carphonotus testaceus</u> a weevil	New Mexico	San Miguel	spruce	1035
<u>Centrinopus helvinus</u> a weevil	Wisconsin	Dane	light trap	1158
<u>Cerococcus kalmiae</u> a pit scale	Maryland	Prince Georges	--	994
<u>Ceutorhynchus erysimi</u> a weevil	Wisconsin	Kenosha Walworth	alfalfa alfalfa	1158
<u>Cheumatopsyche analis</u> a caddisfly	Hawaii	Honolulu	light trap	124
<u>Cleonus trivittatus</u> a weevil	Montana	Carter	<u>Oxytropis sericea</u> (locoweed)	1138
<u>Conoderus falli</u> southern potato wireworm	California	Riverside	--	755
<u>Conotrachelus naso</u> a weevil	Wisconsin	Dane	light trap	1158
<u>Conotrachelus recessus</u> a weevil	Maine	Franklin	spruce	1106
<u>Coptotermes formosanus</u> Formosan subterranean termite	Louisiana	Orleans Parish	--	555
<u>Cosmobaris americana</u> a weevil	Oregon Wisconsin	Malheur Dane	sugarbeets <u>Chenopodium album</u> (lamb-quarters)	739 981
<u>Cryptochaetum iceryae</u> a cryptochaetid fly	Hawaii	Honolulu	--	820
<u>Cyrtepistomus castaneus</u> Asiatic oak weevil	Georgia South Carolina	Fannin Cherokee	timber oak	1035 1035
<u>Dialeurodes citrifolii</u> cloudy-winged whitefly	Hawaii	Hawaii	citrus	286
<u>Dioxyna sororcula</u> a tephritid fly	Hawaii	Honolulu	pigeon pea	502
<u>Ditropinotus aureoviridis</u> a torymid	California	Los Angeles	--	1051
<u>Doryctes parvus</u> a braconid	Hawaii	Honolulu	twigs	1068
<u>Eriophyes vitis</u> grape erineum mite	Ohio	Hamilton	hybrid grape	163
<u>Eucosma gloriola</u> an olethreutid moth	Michigan	Muskegon	--	439
<u>Frankliniella occidentalis</u> western flower thrips	Hawaii	Kauai Maui	carnations	906



<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Grapholitha eclipsana</u> an olethreutid moth	Delaware	New Castle	grass, shrubs in sweep net	175
<u>Gnorimoschema salinaris</u> a gelechiid moth	Delaware	New Castle	reared from galls on goldenrod	175
<u>Haematopinus asini</u> horse sucking louse	North Carolina	Wake	native horse	496
<u>Hemiberlesia cyanophylli</u> an armored scale	Ohio	Lake	pachysandra	906
<u>Heteromurus nitidus</u> a springtail	Utah	Box Elder	alfalfa potatoes	1035
<u>Homorus undulatus</u> a weevil	Maine	Franklin	birch	1106
<u>Hoplocampa brevis</u> pear sawfly	Rhode Island Connecticut Pennsylvania	Providence New Haven Lebanon	pear pear pear	412 387 558
<u>Hypera meles</u> clover head weevil	Oklahoma	Adair	--	1148
<u>Hypera postica</u> alfalfa weevil	Michigan Wisconsin	Livingston Kenosha	alfalfa alfalfa	558 1085
<u>Hypothenemus vulgaris</u> a bark beetle	Hawaii	Kauai Honolulu	--	1051
<u>Lecaniodiaspis prosopidis</u> a pit scale	Maryland	Anne Arundel	--	994
<u>Lecanium cerasorum</u> calico scale	Maryland	Prince Georges	silver maple	708
<u>Loewimyia n. sp.</u> an asteiid fly	Hawaii	Honolulu	--	124 151
<u>Loxosceles reclusa</u> a brown spider	Arizona	Pima	--	820
<u>Melanagromyza n. sp.</u> a leaf miner fly	Indiana	Washington	ginseng roots	1051
<u>Melanaspis bromeliae</u> an armored scale	Hawaii	Honolulu Kauai	pineapples	151
<u>Meterous n. sp.</u> a braconid	Hawaii	Maui	--	1068
<u>Microplitis croceipes</u> a braconid	Delaware	Sussex	lima beans	373
<u>Mnemonica auricyanea</u> an erioctraniid moth	Delaware	New Castle	--	392

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Moneilema armata</u> a long-horned beetle	Florida	Gilchrist	cactus	1106
<u>Myoleja limata</u> a tephritid fly	Texas	Harris	<u>Ilex vomitoria</u>	684
<u>Myzocallis walshii</u> an aphid	Virginia	Shenandoah National Park	red oak	1017
<u>Nalepella halourga</u> an eriophyid mite	Illinois	De Kalb	spruce	1106
<u>Neophyllaphis podocarpi</u> an aphid	Louisiana	Orleans Parish	podocarpus	500
<u>Nepticula slingerlandella</u> a cherry leaf miner	Michigan	Oceana	--	1051
<u>Niditinea fuscipunctella</u> a clothes moth	North Carolina	Wake	--	280
<u>Oidaematophorus inquinatus</u> a plume moth	Delaware	New Castle	porch light	175
<u>Olethreutes coruscana</u> an olethreutid moth	Delaware	New Castle	grass, shrubs in sweep net	175
<u>Ophyra aenescens</u> a muscid fly	New Hampshire	Carroll	rotting eggs, manure	101
<u>Oracella acuta</u> a mealybug	Florida	Alachua	pine	842
	Pennsylvania	Fulton	pine	786
<u>Ornithoica confluenta</u> a louse fly	Louisiana	East Baton Rouge Parish	cattle egret	994
<u>Oscinella formosa</u> a chloropid fly	Hawaii	--	coconut flowers	151
<u>Pachysomoides stupidus</u> an ichneumon wasp	Maryland	Prince Georges	<u>Polistes exclamans</u> (a vespid wasp)	19
<u>Pectinophora gossypiella</u> pink bollworm	Nevada	Nye	Frick trap	1017
<u>Pemphigus junctisensoriata</u> an aphid	Utah	Weber	cottonwood	906
<u>Pentamerismus taxi</u> a false spider mite	Maryland	Allegany	taxus	175
<u>Perilampus chrysopae</u> a perilampid wasp	Delaware	Kent Sussex	-- alfalfa lima beans	739
<u>Periplaneta fuliginosa</u> smoky-brown cockroach	California	Amador	house trailer	1035

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Phenacoccus solenopsis</u> a mealybug	Utah	Weber	tomatoes	1035
<u>Poecilogonalos costalis</u> a trigonalid wasp	Louisiana	Allen Parish	loblolly pine bolt	148
<u>Popillia japonica</u> Japanese beetle	Alabama	Jefferson	--	846
<u>Pristiphora abbreviata</u> California pear-slug	Rhode Island	--	--	581
<u>Prociphilus tessellatus</u> woolly alder aphid	Texas	Morris	white maple	820
<u>Proctorus decipiens</u> a weevil	California	Del Norte	<u>Sambucus</u> <u>racemosa</u>	1051
<u>Proteoteras aesculana</u> an olethreutid moth	Delaware	Sussex	maple	345
<u>Pseudexentera spoliata</u> an olethreutid moth	Delaware	New Castle	sweep net in woods	175
<u>Pseudocneorhinus bifasciatus</u> a Japanese weevil	South Carolina	Chesterfield	azalea	1035
<u>Psilopa leucostoma</u> an ephydrid fly	Oregon	Umatilla	--	84
	Idaho	Canyon	--	84
	Utah	Box Elder	--	84
<u>Psylla uncatoides</u> a psyllid	Hawaii	Honolulu	--	558
<u>Ptinus variegatus</u> a spider beetle	Georgia	--	--	223
	Kentucky	--	--	223
<u>Rhabdophaga swainei</u> a cecidomyiid midge	Illinois	Lake	black hills spruce	1158
<u>Rhinacloa forticornis</u> a fleaopper	Oklahoma	Jackson	cotton	204
<u>Rumina decollata</u> a snail	California	Riverside	miscellaneous ground cover	54
<u>Sereda lautana</u> an olethreutid moth	Delaware	New Castle	--	528
<u>Sitona hispidula</u> clover root weevil	Oklahoma	Adair	--	1148
<u>Sitona lineata</u> pea leaf weevil	California	Contra Costa	vetch	345
<u>Sminthurus packardi</u> a springtail	Oklahoma	Tillman	alfalfa	204

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Spilococcus geraniae</u> a mealybug	California	Sacramento	<u>Artemisia douglasiana</u>	713
<u>Stephanitis takeyai</u> a lace bug	Delaware	New Castle	<u>Pieris japonica</u>	528
<u>Stephanoderes birmanus</u> a scolytid beetle	Hawaii	Kauai	<u>Litchi chinensis</u>	345
<u>Sternochetus lapathi</u> poplar-and-willow borer	Delaware	New Castle	willow	558
<u>Tenuipalpus meekeri</u> a false spider mite	Florida	Highlands	sawfern	1158
<u>Tegeticula sp.</u> a prodoxid moth	Hawaii	Hawaii	seed pods of <u>Yucca sp.</u>	175
<u>Tetramorium caespitum</u> pavement ant	Washington	Yakima	--	1051
<u>Therioaphis maculata</u> spotted alfalfa aphid	New Jersey	Cumberland	--	1148
<u>Trichobaris trinotata</u> a weevil	Wisconsin	Green	grass	981
<u>Trichophaga tapetzella</u> carpet moth	Delaware	New Castle	goose feathers	928
<u>Trimerotropis pallidipennis</u> a grasshopper	Hawaii	Honolulu	--	928
<u>Trogoxylon prostomoides</u> a powder-post beetle	Illinois	Winnebago	oak flooring	280
<u>Zeadiatraea grandiosella</u> southwestern corn borer	Kentucky	Ballard Calloway Carlisle Fulton Graves Hickman McCracken Marshall	corn, light trap	1017







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The background of the document features a large, faint illustration of a butterfly with its wings spread, positioned centrally. Surrounding the butterfly are various other insects, including what appear to be beetles and flies, rendered in a light, sketchy style. The overall image is very faded and serves as a decorative backdrop for the text.



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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

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## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

GREENBUG counts high in Oklahoma. CORN LEAF APHID on small grains and SPOTTED ALFALFA APHID on alfalfa increasing in Arizona. (p. 77).

First-stage larvae of BEET ARMYWORM increased on sugarbeets and egg laying by CABBAGE LOOPER moths increased on lettuce, both in Arizona. Controls may be necessary if survival of cabbage looper larvae is high. (p. 78).

Single case of SCREW-WORM reported in Willacy County, Texas. This is first case in the United States since December 29, 1966. (p. 79).

SUBTERRANEAN TERMITES reported swarming in several areas. (p. 80).

Heaviest outbreak of COCONUT LEAF ROLLER since 1945 reported on Kauai Island, Hawaii; damage extensive. GIANT AFRICAN SNAIL taken for first time in 13 months on same island. (p.82).

Detection

For new county record see page 81.

Special Reports

Scientific name of PARSNIP WEBWORM has been changed to Depressaria pastinacella (Duponchel). (p. 82).

The Effect of Type of Plant Growth on Bollworm (Heliothis zea) Infestations in Soybeans in Arkansas. (p. 83).

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WEATHER OF THE WEEK ENDING FEBRUARY 6, 1967

HIGHLIGHTS: The third major storm in 2 weeks hit the northern Great Plains and the Great Lakes region. Temperatures averaged above normal over most of the Nation.

PRECIPITATION: The third major snowstorm in 2 weeks dumped several inches of snow over portions of the northern Great Plains and eastward to New England. Chicago, Illinois, was especially hard hit when 6-9 inches of new snow brought the 11-day total to 3 feet, a record for that city; this is more snow than usually falls at Chicago in an entire season. Strong winds piled the snow in drifts 12-15 feet deep. Snowfall totals of 6-12 inches were common from Chicago eastward to southern Maine. The precipitation that has persisted over the Far Northwest tapered off somewhat after dumping up to 7 inches of rain along portions of the Washington coast; snow fell in the higher elevations and eastward to the Rockies. At week's end, a storm centered over the Southeast was spreading snow from Birmingham, Alabama, to Philadelphia, Pennsylvania, with heavy thundershowers and rains reported along the southern Atlantic coast. Areas which received only light precipitation during the week include the Far Southwest, the southern Rocky Mountains, the western Great Plains (from eastern Montana and the Dakotas to the Rio Grande), and the Florida Peninsula.

TEMPERATURE: Mild weather continued for the fifth consecutive week in the Far Northwest; elsewhere west the Rockies, it was the fourth mild week. Above normal temperatures have been the rule in southern Florida for the past 5 weeks. Temperatures averaged slightly below normal from Lower Michigan to northern New England. Subzero temperatures occurred on 1 or 2 mornings from northeastern Montana to northern New England and as far south as the northern portions of Nebraska and Iowa. On Saturday, Chinook winds blowing down the eastern slope of the Rockies pushed the temperatures into the 50's and 60's. On Thursday, southerly winds in the East produced 70° temperatures east of the Appalachians as far north as Washington, D. C. (Summary supplied by Environmental Data Service, ESSA).

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (Schizaphis graminum) - OKLAHOMA - Counts high, 10-40 per linear foot, on wheat in Jackson County; 0-8 per linear foot in Logan, Oklahoma, Payne and Garfield Counties. (Okla. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Although present in small number of fields, existing populations increasing in alfalfa in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Increasing in most small grains in Yuma, Maricopa and Pinal Counties. Continued warm temperatures could result in economic population. (Ariz. Coop. Sur.). NEW MEXICO - Light on wheat in Lovington, Lea County. (Mathews).

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Light on wheat in Oklahoma and Logan Counties. (Okla. Coop. Sur.).

### CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - OKLAHOMA - Larvae infested 50 percent of dry cornstalks in Washita County field. (Okla. Coop. Sur.).

### SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Ranged 1-18 per linear foot in 50 percent of wheat in central and north-central areas. (Okla. Coop. Sur.). MISSISSIPPI - Very light on wheat in Chickasaw County. (Dinkins). FLORIDA - Adults and nymphs totaled 75 per 100 sweeps in 8-inch oats at Gainesville, Alachua County. (Mead).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Ranged 5-25 per linear foot on wheat in Tillman County. (Okla. Coop. Sur.).

### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MISSISSIPPI - Approximately 90-100 larvae per square foot causing very severe leaf damage in Pontotoc County field. (Dinkins). VIRGINIA - Eggs hatching in Rockbridge County due to unseasonably warm weather. (Woodside, Jan. 25).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Light larval numbers appearing in alfalfa in Yuma and Maricopa Counties. Populations lighter than at this time last year. (Ariz. Coop. Sur.).

CLOVER LEAF WEEVIL (Hypera punctata) - ALABAMA - Isolated larval populations, probably this species, feeding heavily on burclover and to lesser extent on crimson clover in central area counties. Damage usually not severe, but ragging of leaves apparently earlier and more pronounced than most years. May be due to several weeks of mild weather. (McQueen).

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Populations becoming more widespread throughout Maricopa County and areas of Yuma County; however, populations increasing very slowly for this time of year. (Ariz. Coop. Sur.). NEW MEXICO - Light to medium on alfalfa in Eddy and Chaves Counties. (Mathews). MISSISSIPPI - Adults and nymphs moderate on vetch in Pontotoc County. (Dinkins).

GREEN CLOVERWORM (Plathypena scabra) - ALABAMA - Moths emerging from hibernation and swarming at Limestone County location. Moths have been noticeable throughout State during winter. No egg laying observed. (Morrow et al.).

#### SUGARBEETS

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Increased numbers of first-stage larvae observed on sugarbeets in Mesa and Chandler areas, Maricopa County. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - Continues light on sugarbeets in Maricopa County (Ariz. Coop. Sur.).

#### COLE CROPS

DIAMONDBACK MOTH (Plutella xylostella) - FLORIDA - Total of 60 larvae and 11 adults taken in 100 sweeps of rape at Gainesville, Alachua County. (Mead).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Total of 14 taken in 100 sweeps of rape at Gainesville, Alachua County. (Mead).

#### GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Egg laying increasing on lettuce in Yuma and Maricopa Counties. Controls may be necessary if larval survival high after eggs hatch. (Ariz. Coop. Sur.). TEXAS - Larvae a problem on several vegetable crops in lower Rio Grande Valley. (Parker).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Moderate populations migrated to spring lettuce in Yuma County; controls required. (Ariz. Coop. Sur.).

#### DECIDUOUS FRUITS AND NUTS

WALNUT HUSK FLY (Rhagoletis completa) - WASHINGTON - Larvae recovered from walnut husk in Clark County October 28, 1966. This is new county record. (Shanks).

#### CITRUS

CITRUS RED MITE (Panonychus citri) - FLORIDA - Moderate to severe on 95 percent of 6,000 sweet orange nursery plants at Bereah, Polk County. (Schmidt, Jan 24).

TEXAS CITRUS MITE (Eutetranychus banksi) - FLORIDA - Heavy on 85 percent of 10,000 citrus nursery plants at Springhead, Hillsborough County. (Vaughan, Jan 9).

COTTONY-CUSHION SCALE (Icerya purchasi) - CALIFORNIA - Medium on citrus trees in Nipomo, San Luis Obispo County. (Cal. Coop. Rpt.).

LONG-TAILED MEALYBUG (Pseudococcus adonidum) - CALIFORNIA - Medium on citrus trees in Nipomo, San Luis Obispo County. (Cal. Coop. Rpt.).

#### SMALL FRUITS

GRAPE SCALE (Aspidiotus uvae) - VIRGINIA - Heavy on grapevines in Arlington County. Det. by M. Kosztarab. (Isakson).

#### ORNAMENTALS

APHIDS - CALIFORNIA - Myzocallis arundinariae medium on bamboo nursery stock in San Diego County. (Cal. Coop. Rpt.). NEW MEXICO - Cinara sp. light to heavy on ponderosa and pinyon pines in Albuquerque, Bernalillo County. (Heninger).

ALABAMA - Large numbers of Aphis spiraeicola eggs and some hatching noted on spirea in central and southern areas. Light to medium numbers of aphids feeding on leaves and some blossoms developing as result of extended mild weather. Eggs heavy on stems and branches of these ornamentals. (McQueen).

HEMISPHERICAL SCALE (Saissetia coffeae) - CALIFORNIA - Heavy on nursery palms in Chico, Butte County. (Cal. Coop. Rpt.).

MEALYBUGS - CALIFORNIA - Chorizococcus lounsburyi medium on agapanthus lily nursery stock in Menlo Park, San Mateo County; host plant currently popular as landscaping ornamental. Trionymus diminutus heavy on Phormium sp. nursery stock in Saratoga, Santa Clara County. (Cal. Coop. Rpt.).

#### FOREST AND SHADE TREES

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - NEW MEXICO - Light to heavy on ornamental plantings of ponderosa and pinyon pines in Bernalillo County. (Heninger, Kloeffer). CALIFORNIA - Medium on pine trees in Escondido, San Diego County. This scale insect has been very prevalent past year in many areas. (Cal. Coop. Rpt.).

A MARGARODID SCALE (Matsucoccus sp.) - CALIFORNIA - Medium on pine trees in Black Butte and Mount Shasta area, Siskiyou County, and on Monterey pine in Holy City area, Santa Cruz County. (Cal. Coop. Rpt.).

GIANT BARK APHID (Longistigma caryae) - ALABAMA - Large number of wingless females noted at location in Decatur, Morgan County; apparently leaving hibernation and seeking food source. This aphid heavy on oak trees at this location last year. (Rutledge).

TERMITES - CALIFORNIA - Zootermopsis sp. and Reticulitermes sp. medium in eucalyptus trees on Yerba Buena Island, San Francisco County. Termite infestations in trees and plants becoming more and more common. (Cal. Coop. Rpt.).

#### MAN AND ANIMALS

COMMON CATTLE GRUB (Hypoderma lineatum) - IOWA - Third to fifth-stage larvae light (averaged 10 per hide) at Montezuma, Poweshiek County. Past history of animals unknown. Fourth and fifth-stage larvae moderate (averaged 14 per hide) at Marengo locker plant, Iowa County. These animals purchased from sale barns and livestock brokers several months earlier. (Iowa Ins. Sur.). KANSAS - Ranged 0-20 per head on cows and 0-17 per head on steers in Lyon County. State-wide cattle grub survey underway. (Simpson, Jan. 27). OKLAHOMA - Counts per head ranged 8-12 in Stephens County, 3-5 in Garvin County; moderate in Mayes County. (Okla. Coop. Sur.). ARKANSAS - Ranged 2-5 per animal in 8 percent of cattle in 2 treated herds in Craighead County. Ranged 8-12 per animal in 35 percent of untreated cattle in same county. (Roberts).

SCREW-WORM (Cochliomyia hominivorax) - Single case reported in U.S. January 29-February 4 was in Willacy County, Texas. Total of 56 cases reported in portion of Barrier Zone in Republic of Mexico January 22-28 as follows: Territorio sur de Baja California 13, Sonora 26, Chihuahua 7, Nuevo Leon 3, Tamaulipas 7. Barrier Zone is area where eradication operations are underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released January 29 - February 4: Texas 22,008,000, Mexico 96,770,000. (Anim. Health Div.).

MOSQUITOES - LOUISIANA - Larval collections in Jefferson Parish contained Aedes vexans, Anopheles quadrimaculatus, Culex restuans, Culex salinarius, and Culiseta inornata. Mosquitoes averaged 2-8 per night in 21 light traps throughout parish, with Aedes vexans and Aedes sollicitans dominant. (Stokes).

FLORIDA - Collections from isolated pool in Gainesville area, Alachua County, contained Culex territans, Culex restuans, Anopheles crucians and Culex salinarius. (Mead). Culex salinarius, Anopheles crucians and Anopheles quadrimaculatus adults annoying about homes in unspecified suburban area; A. quadrimaculatus least abundant. (Mercer).

CATTLE LICE - IOWA - Linognathus vituli adults light (less than 5 per examination area) on all animals checked in Poweshiek and Iowa Counties. Solenopotes capillatus adults light on all cattle examined in Montezuma area of Poweshiek County and Morengo area of Iowa County; Bovicola bovis adults averaged less than 10 per examination in these same areas. ARKANSAS - S. capillatus light around eyes and on necks of 2 percent of cattle in 2 treated herds in Craighead County. (Roberts). UTAH - Unspecified species abundant on beef cattle in area of Kane County. (Knowlton).

HOG LOUSE (Haematopinus suis) - IOWA - None found on hogs from 3 farms in Poweshiek and Iowa Counties, or on hogs from 19 farms checked in January 1967. (Iowa Ins. Sur.). OKLAHOMA - Moderate on hogs in Mayes County, moderate to heavy in Garvin County. (Okla. Coop. Sur.). ALABAMA - Extremely heavy on market-size animal in Elmore County. (Bayles).

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Nymphs and adults continue heavy on horses in Cherokee County; moderate on cattle in Adair County. (Okla. Coop. Sur.).

AN ACARID MITE (Caloglyphus mycophagus) - CALIFORNIA - Nymphs and adults heavy in earthworm bed in El Modena, Orange County. (Cal. Coop. Rpt.).

#### HOUSEHOLDS AND STRUCTURES

SUBTERRANEAN TERMITES (Reticulitermes spp.) - OKLAHOMA - Winged reproductives swarming in a location in Payne County. (Okla. Coop. Sur., Jan. 29). ALABAMA - R. hageni winged forms emerged in Dallas County. Det. by T. E. Synder. (Hess) FLORIDA - R. flavipes reproductives observed in midday flights at University of Florida, Gainesville, Alachua County, January 23. (Hetrick). MARYLAND - R. flavipes swarmed inside home at College Park, Prince Georges County. (U. Md., Ent. Dept.).

AN EARWIG (Labiidura riparia) - CALIFORNIA - Medium at residence in San Diego, San Diego County. This species is slowly extending its range and is more and more frequently invading residences. In some ways, these are worse than cockroaches due to the odor. (Cal. Coop. Rpt., Jan. 27).

A POWDER-POST BEETLE (Dinoderus minutus) - UTAH - Taken from Malawi baskets at Logan, Cache County, December 8, 1966. Det. by T. J. Spilman. Baskets originated in Africa. (Knowlton).

#### STORED PRODUCTS

A MEALWORM (Alphitobius piceus) - FLORIDA - Larvae and adults collected from rice in storage bin at Sebring, Highlands County. (Denmark).

#### BENEFICIAL INSECTS

LADY BEETLES - ALABAMA - Few Adalia bipunctata adults emerged from hibernation in central area and feeding on aphids in pine trees. Few Psyllobora vigintimaculata adults noted on magnolia, laurelcherry and other trees in central area. (McQueen).



A FLOWER BUG (Orius insidiosus) - MISSISSIPPI - Adults feeding on pea aphids in Pontotoc County. (Dinkins).

DAMSEL BUGS (Nabis spp.) - OKLAHOMA - Light on wheat in north central and central areas. Only predator commonly seen. (Okla. Coop. Sur.).

A BETHYLID WASP (Cephalonomia tarsalis) - WASHINGTON - Reared from saw-toothed grain beetle (Oryzaephilus surinamensis) at Yakima, Yakima County. (Powell).

A BRACONID (Apanteles glomeratus) - OKLAHOMA - Reared from southern cabbageworm (Pieris protodice) collected in Mayes County during September 1966. A. glomeratus det. by W. R. M. Mason. (Okla. Coop. Sur.)

#### FEDERAL & STATE PLANT PROTECTION PROGRAMS

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Small numbers of adults continue to be trapped in several central and southern counties. (Fla. Coop. Sur.).

GRASSHOPPERS - OKLAHOMA - Egg pod counts per square foot in grassland averaged as follows: 0.25 at 16 locations in 4 northeastern counties, 0.75 at 11 locations in 3 southwestern counties, and 0.60 at 2 locations in one west-central county. Evidence of parasites and predators light in all areas. (Okla. Coop. Sur.).

KHAPRA BEETLE (Trogoderma granarium) - ARKANSAS - Survey of 14 properties in Hempstead, Hot Spring, Lafayette and Miller Counties negative. (Shotts, Jan. 20).

#### INSECT DETECTION

##### New County Record

WALNUT HUSK FLY (Rhagoletis completa) - WASHINGTON - Larvae recovered from walnut husk in Clark County. (p. 78).

#### CORRECTIONS

CEIR 17(4):41 - CATTLE LICE - IOWA - ... Solenoptes capillatus should read Solenoptes capillatus.

CEIR 17(5):60 - TURNIP APHID (Hyadaphis pseudobrassicae) should read (Hyadaphis pseudobrassicae).

#### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 1/31, BL - Black cutworm (Agrotis ipsilon) 1, granulate cutworm (Feltia subterranea) 3, armyworm (Pseudaletia unipuncta) 1. SOUTH CAROLINA - Charleston, 1/30-2/5, BL, temp 34-74°, precip. 0.01 inch - Armyworm 2, yellow-striped armyworm (Prodenia ornithogalli) 2, black cutworm 4, granulate cutworm 3. TEXAS - Brownsville, 1/21-27, 2 BL, temp. 42-80°, trace precip. - Black cutworm 117, salt-marsh caterpillar (Estigmene acrea) 1, granulate cutworm 52, tobacco budworm (Heliothis virescens) 1, corn earworm (H. zea) 10, variegated cutworm (Peridroma saucia) 22, yellow-striped armyworm 170, armyworm 118, beet armyworm (Spodoptera exiqua) 1, cabbage looper (Trichoplusia ni) 10.

HAWAII INSECT REPORT

Fruit, Nut, Forest and Shade Trees - Heaviest outbreak of COCONUT LEAF ROLLER (Hedylepta blackburni) since 1945 caused extensive damage along coastline in Wailua and Waipouli, Kauai. In Wailua, defoliation was heaviest in Lydgate Park (85-90 percent), golf course (75 percent) and Coco Palms Hotel (75 percent). Trees at Waipouli 50-75 percent defoliated. Outbreak appears to have been due to low temperature, rain and wind. (Au). CITRUS RUST MITE (Phyllocoptura oleivora) severely damaged tangerines and oranges in Pahoia, Hawaii Island. Scars or russetting on fruits abundant. (Haramoto). FRUIT FLIES - Adult survey conducted from October to December 1966 over 10 square miles in Waiohinu, Hawaii Island, at 1,050 feet elevation. Counts per trap day averaged 368 Dacus dorsalis, 70 D. cucurbitae and 0.01 Ceratitis capitata; 40 traps used for each species. Infestation of D. dorsalis found in fruit of olivo tree (Simarouba glauca) in windbreak at the Waiakea Experimental Farm at Hilo, Hawaii Island. This is a new host record. Parasitism by Opius oophilus, a braconid egg parasite of D. dorsalis, was 85 percent. (Hawaii Fruit Fly Investigations) BLACK TWIG BORER (Xylosandrus compactus) heavy on Rollinia emarginata and light on Cleopatra Mandarin orange (Citrus nobilis), pondapple (Annona glabra), Spanish-plum (Spondius purpurea), mockorange (Murraya paniculata), white sapote (Casimiroa edulis) and Inga paterno at Waiakea Experimental Farm in Hilo, Hawaii Island. These are all confirmed new hosts. Heavy in log of swamp-mahogany (Eucalyptus robusta) in forest reserve, upper Manoa Valley on Oahu, January 24. (Hoshioka et al.). Larvae of a NOCTUID MOTH (Polydesma umbricola) light on young potted monkeypod trees at county nursery in Hilo, Hawaii Island. Foliar damage very noticeable. (Davis).

Ornamentals - Adults of a FALSE SPIDER MITE (Tenuipalpus pacificus) medium on "Lawai" fern in Kalaheo, Kauai. Black markings on underside of leaves general following heavy feeding. (Au). All stages of a PLATASPID BUG (Coptosoma xanthogramma) heavy on maunaloa vines in Ewa, Oahu. This is first known report of this bug in Ewa. (Hironaka). Larvae of a GEOMETRID MOTH (Anacamptoides fragilaria) heavy on koa haole (Leucaena leucocephala) and light on slender mimosa and cheeseweed between Makua and Kaena Point on Oahu; light on rose plants at St. Louis Heights in Honolulu. Light on koa haole in early January in Waimea Valley on Kauai; no buildup occurred. (Davis et al.).

Beneficial Insects - Light adult numbers of a PTEROMALID WASP (Anysis alcocki) reared from barnacle scale (Ceroplastes cirripediformis) collected from Sand Island area of Oahu. This is first known recovery of this parasitic wasp, purposely introduced in 1964 from the Philippines to aid in control of wax scales. (Wong, Au).

Miscellaneous Pests - A live 3-inch GIANT AFRICAN SNAIL (Achatina fulica) collected in Poipu, Kauai. This is first specimen found on this island in 13 months. Baiting and inspection intensified. (Au).

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Change in Scientific Name of Parsnip Webworm

This economically important moth, formerly known as Depressaria heracliana (L.) becomes Depressaria pastinacella (Duponchel), according to J. Bradley (Entomologist's Gazette 17(4):213-235, 1966). Because the type specimens of heracliana represent the species which has been called Agonopterix applana (F.), it was necessary to change the name. The name pastinacella, which is a junior synonym of heracliana of authors, becomes the valid name for the species.

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The Effect of Type of Plant Growth on Bollworm  
(Heliothis zea) Infestations in Soybeans in Arkansas<sup>1/</sup>

W. P. Boyer<sup>2/</sup>

Extensive survey of bollworm (Heliothis zea) in soybeans in Arkansas during the past several years shows that the type of plant growth has a marked effect on infestations. As previously reported (1965), survey for bollworm in soybeans has been conducted in Arkansas since 1960. In 1962 and 1965, data were recorded on several factors other than insects, including variety, planting date, plant height, attractiveness and type of canopy.

Attractiveness to insects as used here, refers to plant vigor, color, and absence of stress in plant growth. Type of canopy refers to open or closed, depending on whether the plants lapped in the row middles or there was open space in the middle.

Insect numbers presented in Tables 1 and 2 were determined by the plant-shaking method (1963). Fields, surveyed weekly from late July to early September, were grouped by variety of soybeans as there is wide difference in degree of infestation (1965). Fields within a variety were grouped according to the magnitude of the infestation as expressed by bollworms on 30 row feet. One count is recorded when bollworms were found in one weekly survey, but when in more than one weekly survey, the two highest consecutive weekly counts are shown.

The effect of type of canopy on bollworm infestations is shown by the data in Tables 1 and 2. Soybeans of the Hill variety have never been known to have bollworm infestations when the beans were planted at average planting dates.

Survey of 20 fields in 1965 showed results similar to what was found in 1962 regarding type of canopy and bollworm infestations. This is illustrated by data presented in Table 2. All fields with medium to heavy infestations had open canopies while most of the fields with zero to light infestations had closed canopies.

Bollworm infestations tend to correlate with late planting as shown by data in Tables 1 and 2. Type of canopy, however, outweighs late planting, plant vigor and plant height in its effect on bollworm infestations in soybeans.

The question naturally arises: Does closed canopy favor bollworm predators or is it unfavorable to moth activity and egg deposition? The difficulty of evaluating egg populations in soybeans due to heavy foliage discourages study of egg deposition.

An attempt was made in 1965 to determine the effect of type of canopy on predators. Predator counts were taken while surveying by the plant-shaking method in 20 fields in four counties. Big-eyed bugs (Geocoris spp.) and nabids (Nabis spp.) were the only predators of importance present. Results are presented in Table 3 with bugs of both genera combined.

The data are quite clear regarding the effect of type of canopy on bollworm in soybeans but the reasons need further investigation. One method is the use of sugar bait sprays to determine moth numbers and activity in fields with open and closed canopies.

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<sup>1/</sup> Published with the approval of the Director, Agricultural Experiment Station.

<sup>2/</sup> Survey Entomologist, University of Arkansas

Table 1. Soybean Field Survey in Arkansas, 1962.

Field	Variety	Bollworm	Planting Date	Attractiveness	Plant Height	Type of Canopy
Arkansas Co. No. 5	Hill	0	Average	Average	Average	Open
Desha Co. No. 4	Hill	0	Average	Average	Average	Open
Arkansas Co. No. 7	Jackson	0	Late	Attractive	Average	Open
Desha Co. No. 9	Jackson	0	Late	Very Attractive	Rank	Closed
Chicot Co. No. 1	Jackson	5	Average	Average	Average	Open
Jeff. Co. No. 15	Jackson	3	Late	Attractive	Rank	Closed
Desha Co. No. 8	Jackson	7-2	Late	Attractive	Average	Open
Lincoln Co. No. 1	Jackson	32-10	Very late	Attractive	Average	Open
Arkansas Co. No. 1	Lee	0	Average	Average	Average	Closed
Arkansas Co. No. 2	Lee	0	Average	Average	Average	Closed
Arkansas Co. No. 6	Lee	0	Average	Average	Average	Closed
Desha Co. No. 1	Lee	0	Average	Average	Average	Closed
Desha Co. No. 3	Lee	0	Average	Average	Average	Closed
Jeff. Co. No. 8A	Lee	0	Early	Average	Rank	Open
Arkansas Co. No. 4	Lee	3	Late	Average	Short	Open
Desha Co. No. 7	Lee	1-1	Average	Average	Average	Open
Jeff. Co. No. 4	Lee	2	Average	Average	Average	Closed
Jeff. Co. No. 5	Lee	2-1	Average	Average	Average	Closed
Jeff. Co. No. 6	Lee	1-1	Average	Average	Average	Closed
Jeff. Co. No. 7	Lee	1	Late	Average	Average	Closed
Jeff. Co. No. 8	Lee	1	Early	Average	Average	Open
Jeff. Co. No. 9	Lee	3-2	Late	Average	Average	Open
Jeff. Co. No. 11	Lee	3-1	Late	Average	Average	Open
Chicot Co. No. 4	Lee	6	Average	Average	Average	Open
Desha Co. No. 2	Lee	5-4	Late	Attractive	Rank	Closed
Jeff. Co. No. 10	Lee	8	Late	Average	Average	Open
Desha Co. No. 6	Lee	29-11	Late	Average	Average	Open
Jeff. Co. No. 12	Lee	14-3	Late	Average	Average	Open
Jeff. Co. No. 13	Lee	9-20	Late	Average	Short	Open

Table 2. Soybean Field Survey, 1965.

Field	Variety	Bollworm	Planting Date	Attractiveness	Plant Height	Type of Canopy
Lee Co. No. 3	Lee	0	Average	Average	Average	Closed
Arkansas Co. No. 1	Lee	0	Average	Average	Average	Open
Arkansas Co. No. 2	Lee	0	Average	Average	Average	Open
Lee Co. No. 1	Lee	1	Late	Very Attractive	Rank	Closed
Lee Co. No. 2	Lee	1	Average	Attractive	Rank	Closed
Jeff. Co. No. 1	Lee	1	Average	Attractive	Rank	Closed
Jeff. Co. No. 2	Lee	1	Average	Attractive	Rank	Closed
Monroe Co. No. 1	Lee	6-6	Average	Average	Rank	Open
Monroe Co. No. 2	Lee	6-9	Late	Attractive	Rank	Open
Jeff. Co. No. 3	Lee	8-3	Average	Average	Short	Open
Lee Co. No. 4	Lee	5-24	Very late	Attractive	Average	Open
Monroe Co. No. 3	Lee	11-5	Average	Average	Average	Open
Monroe Co. No. 4	Lee	10-2	Late	Average	Average	Open
Jeff. Co. No. 4	Lee	2-15	Late	Attractive	Average	Open
Lee Co. No. 5	Jackson	14-16	Average	Average	Rank	Open
Arkansas Co. No. 3	Jackson	2-4	Average	Average	Rank	Open
Lee Co. No. 6	Hood	1	Average	Average	Average	Closed
Arkansas Co. No. 4	Hood	0	Average	Average	Average	Closed
Lee Co. No. 7	Hill	1	Average	Average	Average	Closed
Monroe Co. No. 5	Ogden	1	Average	Average	Average	Closed

Table 3. Predaceous Bugs and Types of Canopy

County	Variety	Predaceous Bugs Average	Canopy
Arkansas No. 3	Jackson	77	Open
Arkansas No. 4	Hood	73	Closed
Arkansas No. 2	Lee	41	Closed
Lee No. 7	Hill	35	Closed
Lee No. 6	Hood	26	Closed
Lee No. 1	Lee	23	Closed
Arkansas No. 1	Lee	23	Open
Lee No. 3	Lee	21	Closed
Lee No. 2	Lee	19	Closed
Lee No. 4	Lee	16	Open
Monroe No. 1	Lee	13	Open
Monroe No. 5	Ogden	12	Closed
Jeff. No. 1	Lee	11	Closed
Monroe No. 4	Lee	11	Open
Lee No. 5	Jackson	9	Open
Jeff. No. 2	Lee	9	Closed
Monroe No. 3	Lee	9	Open
Jeff. No. 4	Lee	6	Open
Jeff. No. 3	Lee	4	Open
Monroe No. 2	Lee	3	Open

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- Boyer, W. P. and Dumas, B. A. 1963. Soybean insect survey as used in Arkansas. USDA Coop. Econ. Ins. Rpt. 13(6):91-92.



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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMY CUTWORM appearing on wheat in Ford County, Kansas. Reported in Oklahoma last week. GREENBUG ranged light to very severe in 11 Texas Panhandle counties; light in New Mexico, Oklahoma, Arkansas and Kansas. (p. 89).

RANGE CRANE FLY larvae are very heavy in Sacramento, California, and could become damaging to lawns. (p. 89).

ALFALFA WEEVIL egg counts continue to increase in northeastern Arkansas; larvae detected for first time in northwest Louisiana. (p. 90).

DIAMONDBACK MOTH larvae damaging wild crucifers in Belle Glade area, Florida. (p. 90).

Detection

ORIENTAL WOOD BORER found established in U. S. Infesting mahogany and oak boards at a lumber yard and a millwork in Ft. Lauderdale, Florida. (p. 94). Background information on this pest page 95.

For new county records see page 94.

Special Reports

Survey Methods. Selected References 1965-1966. (pp. 97-112).

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WEATHER OF THE WEEK ENDING FEBRUARY 13, 1967

**HIGHLIGHTS:** Coldest week of the season in parts of the East. Worst blizzard in 12 months in the Northeast. Fifth warm week in northern Rockies.

**PRECIPITATION:** Generous rains fell over the Gulf States early in the week (about 7 inches in the New Orleans area Monday) while snow in the southern Appalachians spread northward to the Ohio River Valley and northeastward to New England. By Tuesday, a major blizzard was crippling the eastern seaboard, with 12-18 inches of snow from Maryland to southern New England and 6-8 inches farther north. Snow removal in New York City alone cost \$3.5 million. A second storm dumped heavy snow over portions of the East on Thursday, with up to 9 inches or more in the Piedmont of North Carolina, 5-13 inches in coastal portions of Virginia, Maryland, Delaware and New Jersey, and 2-3 inches farther north along the coast. Fortunately many large metropolitan areas escaped the heavy snow falls of this second storm; Washington, Baltimore, Philadelphia, New York, and Boston receiving only 2-3 inches. Trenton, New Jersey, with 16.9 inches, reported the snowiest week of the season. Scattered light snow also fell over the northern and central Rockies, the northern Great Plains, and the Great Lakes region on several days. Central and southern California were dry after three wet weeks. Except for coastal Washington and Oregon, very little precipitation fell west of the Rockies or in central Great Plains from Kansas to the lower Ohio River Valley. It was the sixth dry week in New Mexico.

Weather continued on page 96.

#### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Chorizagrotis auxiliaris) - KANSAS - Very light in wheat in Ford County field. (Simpson).

CORN EARWORM (Heliothis zea) - ARIZONA - Light on some sorghum at Yuma Valley, Yuma County. (Ariz. Coop. Sur.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Light on wheat in Chaves County. (Mathews). TEXAS - Averaged 0-10 per foot of row in 13 fields and as high as 68 per foot in one field in Wise, Montague and Cooke Counties. (Turney, Stafford). Survey conducted in 11 panhandle counties indicated aphids were mostly in irrigated wheat. Less than 5 per linear foot of row in Lubbock County to 1,500 per linear foot in one Swisher County field. Damage evident in Swisher County. Ranged 0-100 per linear foot in Potter, Hale, Castro and Crosby Counties. Ranged 25-1,000 per foot in 5 counties. Averaged 1,000 per linear foot in large border area of wheat field in Randolph County. (Daniels). ARKANSAS - Low but increasing slightly in northwestern area. (Boyer). OKLAHOMA - Counts per linear foot on wheat ranged 10-50 near Altus, Jackson County; 1-10 in Cotton, Greer and Tillman Counties. Light in Blaine and Caddo Counties. (Okla. Coop. Sur.). KANSAS - Occasional aphid found on wheat in few south-central area fields; none found in southwest district. (Simpson).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Very light on barley in Dona Ana County. (Campbell). ARIZONA - Light to moderate on sorghum in Yuma County, light in Maricopa County. Slight increases on barley noted in both counties. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - KANSAS - None found in any alfalfa checked in southwest or south-central area. (Simpson).

#### CORN, SORGHUM, SUGARCANE

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - ARIZONA - Adults moderate on sorghum in Maricopa County. (Ariz. Coop. Sur.).

#### SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Survey of 14 small grain fields in Denton, Wise, Montague, and Cooke Counties indicated mites averaged 0-10 per foot of row in 9 fields, 10-25 and above in 5 fields. (Turney, Stafford). OKLAHOMA - Damaging numbers on wheat in Porter area, Wagoner County. Ranged 40-50 per linear foot in Tillman and Cotton Counties. (Okla. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Ranged 50-500 per linear foot on wheat in Cotton, Tillman, and Kiowa Counties; moderate in Caddo County. Controls initiated in some areas but may not be warranted due to prevalent drought. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - MISSISSIPPI - Adults and nymphs light on wheat in Carroll County. (Dinkins). ARKANSAS - Remains low on wheat in northwestern area. (Boyer).

#### TURF, PASTURES, RANGELAND

A CHINCH BUG (Blissus insularis) - TEXAS - Moderate in several lawns of St. Augustine grass at Austin, Travis County. Early activity probably due to unseasonably warm weather. (Thompson).

RANGE CRANE FLY (Tipula simplex) - CALIFORNIA - Larvae heavy in rain gutters along concrete apron of freeway in Sacramento, Sacramento County. Crane flies appearing in several areas as result of more than normal rainfall. Continued wet weather may result in damaging infestations in turf. (Cal. Coop. Rpt.).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - LOUISIANA - First and second-stage larvae collected for first time from alfalfa at Bossier City, Bossier Parish, February 5, 1967. Infestation comparatively light, but feeding damage apparent. Previously known to occur only in eastern section of State. (Newsom). MISSISSIPPI - Increasing in northern counties; larvae 30-90 per square foot in several fields. (Dinkins). ARKANSAS - Egg counts in northeast area continue to increase; 562 eggs per square foot found in one sample which is equivalent to more than 24 million eggs per acre. A few second-stage larvae also recovered from stems. (Miner). PENNSYLVANIA - Collected in several homes in Fulton and Centre Counties during fall 1966. (Udine).

CLOVER LEAF WEEVIL (Hypera punctata) - ARKANSAS - Larvae continue low on legumes in northwestern area. (Boyer).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Larvae increasing on alfalfa in Yuma and Maricopa Counties; terminal damage moderate. (Ariz. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Light to medium on alfalfa in Chaves and Eddy Counties. (Mathews). OKLAHOMA - Averaged 10 per square foot of crown area in Jackson County alfalfa. (Okla. Coop. Sur.). ARKANSAS - Low on legumes in northwestern area. (Boyer). KANSAS - Light, 0-10 per square foot, in few south-central alfalfa fields. (Simpson).

#### SUGARBEETS

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - ARIZONA - Adults moderate on sugarbeets in Maricopa County. (Ariz. Coop. Sur.).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Continued light to moderate on most sugarbeets in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Light to moderate on sugarbeets in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

#### POTATOES, TOMATOES, PEPPERS

SEED-CORN MAGGOT (Hylemya platura) - ARKANSAS - Damaged tomato seed in hotbeds in southeast area. (Roberts).

#### COLE CROPS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - FLORIDA - Larvae severely infested mustard at Winter Garden, Orange County. (Ware).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Larvae moderate on untreated crucifers at Belle Glade, Palm Beach County. (Genung).

DIAMONDBACK MOTH (Plutella xylostella) - FLORIDA - Larvae common on wild crucifers in Belle Glade area; will probably damage commercial crucifers. (Genung).

## DECIDUOUS FRUITS AND NUTS

ARMORED SCALES - FLORIDA - All stages of Aspidiotus perniciosus moderate on 20 percent of 1,000 pear plants in nursery at Glen St. Mary, Baker County. (Collins, Jan. 30). ALABAMA - Pseudaulacaspis pentagona heavy in 3-year-old peach orchard of several acres; 4 trees dead. (Futral).

PEACH TREE BORER (Sanninoidea exitiosa) - ALABAMA - Larvae light to medium in many commercial peach orchards in Chilton County. Large amounts of gum deposit observed below ground line on trees in several home orchards in Lee County. Recent summer-like weather favored feeding by late-stage larvae, producing excessive gum residue. (Futral et al.). MARYLAND - Larvae killed 15 of 200 young peach trees in St. Marys County. (U. Md., Ent. Dept.).

## CITRUS

Citrus Insect Situation in Florida - End of January - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 70 percent of groves (norm 59 percent); 50 percent economic (norm 41 percent). Population much above average and in high range and will continue high with 25-30 percent of groves having heavy infestations. Highest districts west, south, north and central. CITRUS RED MITE (Panonychus citri) infested 51 percent of groves (norm 33 percent); 24 percent economic (norm 10 percent). Population in moderate range but much above average January level of recent years. Further increase expected. Highest districts west and north. TEXAS CITRUS MITE (Eutetranychus banksi) infested 44 percent of groves (norm 27 percent); 18 percent economic (norm 10 percent). This mite is in moderate range and above normal abundance for January. Slight increase expected. Highest districts west and north. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) is below average abundance and very scarce. GLOVER SCALE (Lepidosaphes gloverii) infested 81 percent of groves; 16 percent economic. Population above normal and approaching high range with further increase expected. Highest districts central, east and south. PURPLE SCALE (L. beckii) infested 79 percent of groves; 4 percent economic. Population near normal and moderate with little change expected. Highest district central. YELLOW SCALE (Aonidiella citrina) infested 68 percent of groves; 14 percent economic. Population above normal and in moderate range; increase expected. Highest districts central and east. CHAFF SCALE (Parlatoria pergandii) infested 57 percent of groves; 4 percent economic. Below average abundance and currently in low range; increase expected. Highest district east. BLACK SCALE (Saissetia oleae) infested 37 percent of groves; 16 percent economic. Population near normal low level for January; increase expected. Highest district central. WHITEFLIES are near average abundance; increase expected. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred, Fla.)).

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Infested up to 27 percent of sweet orange plants in nurseries in Lake, Orange and Hendry Counties. (Simpson et al., Feb. 2).

CALIFORNIA RED SCALE (Aonidiella aurantii) - ARIZONA - Detected on backyard lemon tree in Yuma. (Ariz. Coop. Sur.).

## SMALL FRUITS

A WEEVIL (Notolomus basalis) - FLORIDA - Adults of this species and Diachus auratus (a flea beetle) infested 30 percent of 100 blackberry plants at Groveland, Lake County. Assumed to be feeding on pollen, but damage not definite. (Henderson).

BROWN SOFT SCALE (Coccus hesperidum) - FLORIDA - Adults infested 50 percent of 100 blackberry plants at Homeland, Polk County. (Schmidt, Feb. 2).

## ORNAMENTALS

A WEEVIL (Artipus floridanus) - FLORIDA - Adults infested 150 jungleflame ixora (Ixora coccinea) at Hollywood, Broward County. (Hickman, Cervone, Feb. 3).

PINK SCAVENGER CATERPILLAR (Sathrobrotia rileyi) - CALIFORNIA - Larvae medium and boring in stems of bamboo nursery stock in Fallbrook, San Diego County. (Cal. Coop. Rpt.).

PEACH TREE BORER (Sanninoidea exitiosa) - ALABAMA - Larvae severely damaged several flowering peach shrubs in Lee County. (McQueen).

WHITEFLIES - ALABAMA - Nymphs extremely heavy, 100 per leaf, on all gardenia plants examined in Lee, Elmore and Montgomery Counties. (McQueen). CALIFORNIA - Trialeurodes vaporariorum medium on Eucalyptus citradora nursery stock in Pasadena, Los Angeles County. (Cal. Coop. Rpt.).

APHIDS - MARYLAND - Myzus persicae alates heavy on pansies in Berwyn Heights, Prince Georges County. (U. Md., Ent. Dept.). FLORIDA - Adults of M. persicae infested 50 percent of 500 chrysanthemums in nursery at Tampa, Hillsborough County. (Barber, Jan. 24). Aphis gossypii adults infesting 80 percent of 400 hibiscus plants in nursery at Clarcona, Orange County. (Ware, Feb. 3). NEW MEXICO - Cinara species medium to heavy on arborvitae in Las Cruces; honeydew covered sidewalks. ARIZONA - Macrosiphoniella sanborni heavy on ornamentals in yards throughout Yuma, Yuma County. (Ariz. Coop. Sur.).

ARMORED SCALES - FLORIDA - Odonaspis penicillata adults moderate on 100 bamboo nursery plants at Largo, Pinellas County. (Bingaman, McFarlin, Feb. 2). Chrysomphalus anidum severe on ivy at nursery in Apopka, Orange County. (Musgrove, Jan. 24). All stages of Fiorinia theae severe on 50 percent of holly nursery plants at Titusville, Brevard County. (Levan, Feb. 3).

PEA LEAF MINER (Liriomyza bryoniae) - CALIFORNIA - Larvae and pupae medium in leaves of chrysanthemum nursery stock in Leucadia, San Diego County, and light to medium in asters at Lomita, Los Angeles County. (Cal. Coop. Rpt.).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - ALABAMA - Larvae heavy on several hundred English boxwood plants at Birmingham, Jefferson County; spreading to nearby boxwood plants. This leaf miner has not been reported in State during past 4 years. (Gates, Thornhill).

SOUTHERN FIRE ANT (Solenopsis xyloni) - CALIFORNIA - Adults medium to heavy on limbs and trunks of juniper nursery stock in Vista, San Diego County. (Cal. Coop. Rpt.).

SPIDER MITES - FLORIDA - Tetranychus yusti adults infested 269 datura plants at nursery in Dade City, Pasco County. (Williams). ARKANSAS - Oligonychus ilicis infested holly in northwest Washington County. (Roberts).

## FOREST AND SHADE TREES

EASTERN TENT CATERPILLAR (Malacosoma americanum) - FLORIDA - Eggs hatching on wild plum and wild black cherry at Gainesville, Alachua County. (Hetrick, Feb. 1).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - Numerous pupae overwintering in 50 percent of loblolly and shortleaf pine tips that were damaged last year. No moths observed emerging at this time. (McQueen).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - ALABAMA - In a few large loblolly pines at Lee County, late-stage larvae and few adults were slightly active and feeding in galleries in cambium layer below ground. (McQueen).



## MAN AND ANIMALS

MOSQUITOES - LOUISIANA - Larvae collected in Jefferson Parish were Aedes triseriatus, A. sollicitans, A. vexans, Anopheles quadrimaculatus, Culex restuans, C. salinarius and Culiseta inornata. Aedes sollicitans and A. vexans increasing while C. inornata declined. Adults averaged 7.7 per night in 20 light traps. (Stokes). TEXAS - During January, flights of Aedes sollicitans and Culex salinarius occurred in Jefferson County. Culiseta inornata was also present. A. sollicitans noted flying after dark with temperatures of 48°F. (Thompson).

COMMON CATTLE GRUB (Hypoderma lineatum) - ALABAMA - Late-stage larvae light to medium in back and groin areas of 60 percent of slaughter cattle in Sumter County. Many have cut exit holes and entered soil for pupation. (Lashley). OKLAHOMA - Ranged 0-12 per head on steers in Noble and Payne Counties. Heavy on untreated cattle in Marshall County. Continued moderate in Mayes County. (Okla. Coop. Sur.).

SCREW-WORM (Cochliomyia hominivorax) - Single case reported in U. S. February 5-11 was in Jim Hogg County, Texas. Total of 75 cases reported in portion of Barrier Zone in Republic of Mexico January 29-February 4 as follows: Territorio sur de Baja California 26, Sonora 46, Chihuahua 1, Nuevo Leon 2. No cases were reported from Mexico south of Barrier Zone. Barrier Zone is area where eradication operations are underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released February 5-11: Texas 20,688,000, Mexico 89,282,000. (Anim. Health Div.).

CATTLE BITING LOUSE (Bovicola bovis) - OKLAHOMA - Low numbers infested 10 percent of steers in Payne County. (Okla. Coop. Sur.).

SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) - OKLAHOMA - Averaged 1 per hair part on steers in Payne County. (Okla. Coop. Sur.).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Heavy on hogs in Marshall County and moderate in Mayes County. (Okla. Coop. Sur.).

TICKS - CALIFORNIA - Ticks appeared early in January and numbers increased progressively. Dermacentor occidentalis reported on dogs and livestock with few on man. Livestock being treated in Amador, Calaveras, El Dorado and Nevada Counties. No paralysis reported in domestic animals, but few deer paralyzed. Recovery rapid after treatment. Tick counts on deer as high as 10 per square inch of hide; none occurred on head or ears. (Cal. Coop. Rpt.). OKLAHOMA - Annual tick survey on white-tailed deer in eastern half of State completed. Of 3,472 ticks checked, 85.19 percent were Ixodes scapularis, 12.85 percent Dermacentor albipictus, 1.93 percent Amblyomma americanum and 0.03 percent A. maculatum. (Okla. Coop. Sur.). PENNSYLVANIA - Dermacentor albipictus heavy on deer in Union, Franklin and Centre Counties during winter. Det. by R. J. Snetsinger. (Shaw et al.).

## STORED PRODUCTS

INDIAN-MEAL MOTH (Plodia interpunctella) - NEW MEXICO - Moderately damaged sacks of hegari at Hatch, Dona Ana County. (Hare).

CONFUSED FLOUR BEETLE (Tribolium confusum) - NEW MEXICO - Light on sacked barley and hegari at Hatch, Dona Ana County. (Hare).

BLACK CARPET BEETLE (Attagenus piceus) - NEW MEXICO - Infestation general on old sacks and debris at Hatch, Dona Ana County. (Hare).

## FEDERAL & STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - OKLAHOMA - At 18 grassland locations in Craig, Delaware and Mayes Counties, egg pods averaged 0.25 per square foot of sod; averaged 0.6 at 11

locations in Cotton, Greer, Jackson and Jefferson Counties. Most egg pods in good condition. All counts made where adult populations were economic in late summer adult survey. (Okla. Coop. Sur.).

PINK BOLLWORM (*Pectinophora gossypiella*) - NEW MEXICO - Of cocoons located on cotton stalks 1-3 inches below ground, 70-80 percent survived cold weather in Chaves and Eddy Counties. (Mathews, Judd, Bartholf).

BEEF LEAFHOPPER (*Circulifer tenellus*) - CALIFORNIA - Spraying of winter annual host plants initiated in Kings, Fresno, Merced, San Joaquin and Alameda Counties. Over 11,000 acres treated; post-spray checks indicated excellent kill of leafhoppers. Cold weather interrupting egg-laying. (Cal. Coop. Rpt.).

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Single larva collected from calamondin at St. Petersburg, Pinellas County; 7 larvae collected from guava at Sarasota, Sarasota County. Few adults caught in McPhail traps in these 2 cities. (Carroll, Frederick, Hiatt, Feb. 3).

ORIENTAL WOOD BORER (*Heterobostrychus aequalis* (Waterhouse)) - FLORIDA - Heavy infestations found in individual oak and mahogany boards at a lumber yard and a millwork in Ft. Lauderdale. Specimens first submitted in January. Subsequent surveys show adults, pupae and larvae present. Determined by R. E. Woodruff and T. J. Spilman. Intensified inspection of lumber and installation of black light traps have been initiated. Although this important pest has been intercepted or found on shipments of wood products from oriental countries on several occasions, this is the first evidence of an established infestation in the U. S. (Fla. Coop. Sur. and PPC). For background report, see page 95.

#### INSECT DETECTION

##### New United States Record

ORIENTAL WOOD BORER (*Heterobostrychus aequalis* (Waterhouse)) - FLORIDA - Collected from oak and mahogany boards at Ft. Lauderdale during January and February, 1967. Det. by R. E. Woodruff and T. J. Spilman. (p. 94).

##### New Parish Record

ALFALFA WEEVIL (*Hypera postica*) - LOUISIANA - Larvae collected at Bossier City, Bossier Parish, February 5, 1967. (p. 90).

#### CORRECTIONS

CEIR 17(5):63 - INSECT DETECTION - PINK BOLLWORM (*Pectinophora gossypiella*) - MEXICO - Should read "Collected from gin trash at Caborca and Hermosillo, Sonora. (p. 62).

CEIR 17(5):64 - GENERAL VEGETABLES - Line 9: *Dacus curcubitae* should read *Dacus cucurbitae*.

CEIR 17(6):81 - LIGHT TRAP COLLECTIONS - Last line: *Spodoptera exigua* should read *Spodoptera exigua*.

#### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 2/8, 1 BL - Black cutworm (*Agrotis ipsilon*) 1, granulate cutworm (*Feltia subterranea*) 1, armyworm (*Pseudaletia unipuncta*) 1. TEXAS - Brownsville, 1/28-2/3, 2 BL, temp. 40-79°, precip. 0.02 - Black cutworm 55, salt-marsh caterpillar (*Estigmene acrea*) 6, granulate cutworm 66, tobacco budworm (*Heliothis virescens*) 1, corn earworm (*H. zea*) 13, variegated cutworm (*Peridroma saucia*) 4, yellow-striped armyworm (*Prodenia ornithogalli*) 76, armyworm 27, cabbage looper (*Trichoplusia ni*) 2.

ORIENTAL WOOD BORER (Heterobostrychus aequalis (Waterhouse))

Economic Importance - The most common of the larger bostrichids boring in packing cases, boxes, chests, plywood, sapwood in furniture, and sal rafters of thatched bungalows in India is H. aequalis. It is frequently a pest of wood manufacturing industries. Adults bore through 1-2 inches of wood and even may make holes in the lead lining of boxes. When logs are severely attacked, the wood is reduced to a powder to a depth of 2-3 inches. Damage may extend deeper in soft woods, but in hard woods, it may be confined to the sapwood. The species, intercepted frequently in United States quarantine, mostly in wood packing cases, is now reported in Florida. See page 94.

Distribution - Burma, Ceylon, Cuba, India, Indonesia, Malagasy Republic, New Guinea, Philippine Republic, southeast Asia and Surinam. United States: Florida.

Hosts - Recorded from wood of more than 35 species of trees including mahogany, bamboo, sal (Shorea robusta), semul and para rubber tree. Mahogany and oak in Florida.

Life History and Habits - In India, the eggs are deposited on rough surfaces of sawed timber, logs, in holes, cracks or short tunnels made by the female in the wood. The larval tunnel may be one-quarter inch wide and extend 10-12 inches. As a rule, it is winding and tightly packed with undigested residue of wood eaten by the larvae. This fine dust in the tunnels is characteristic of the genus. Tunnels of pinhole and shothole borers contain no residue. Pupation occurs in a cell at the end of the tunnel. The adult remains in the wood for a variable period, then emerges through an exit hole, usually from June to October. At times, beetles will bore through a thickness of 1-2 inches to escape. Development from egg to adult requires a minimum of 1 year but many larvae need 2 or 3 years. A 5-year period was recorded in plywood and 6 years in chests of semul (Bombax malabaricum). In plywood panels, tunnels may be confined to one sheet of plywood by the intervening glued layer.

Description - Adult male - Elongate, cylindrical, uniformly reddish brown to brownish black, moderately shiny. Palpi, antennae and tarsi brownish yellow; dorsal surface of body glabrous. Head much narrower than pronotum. Pronotum widest at middle or posterior angles, strongly deflexed on apical half, arcuately emarginate in front; sides broadly rounded or parallel at middle; dense tubercles on apical half, those on basal half very much flattened to appear like scales on a fish. Wing surface densely, deeply, coarsely punctate, the punctures arranged in more or less distinct rows; each wing cover with two tubercles on apical declivity, the outer one straight, elongate, moderately elevated, inner tubercle long, arcuate, and more or less hooked at apex. Adult female - Differs from male in lack of large, arcuate tubercles on the apical declivity of the wing covers. Length of adult 6-13 mm., width about 3 mm. Length of larva approximately 11 mm.

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HAWAII INSECT REPORT

Vegetables - GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) was medium to heavy on snap beans, tomatoes, eggplant, okra and bell peppers in Nanakuli, Waianae, and Makaha, Oahu. A year-round spray program is necessary in these generally dry lowland areas. Rains occasionally hamper spray operations, thus allowing whitefly populations to build up. (Nakao). GREEN PEACH APHID (Myzus persicae) medium on Chinese cabbage and bell peppers and heavy on eggplants at Kahului, Maui. (Miyahira).

Fruit, Nut and Shade Trees - Heavy outbreak of COCONUT LEAF ROLLER (Hedylepta blackburni) occurred in vicinity of Wailua Beach, Kauai, apparently under control. A parasitic tachina fly numerous and very active. Normally, this leaf roller is held in check by more than 14 species of parasites and predators, but infrequently these are curbed by climatic and other factors, allowing this pest to attain outbreak levels. Coconut leaf roller is one of a few native insects that occasionally attains pest proportions. (Au, Thistle). On Kauai, an ARMORED SCALE (Phenacaspis cockerelli) light to medium on mango trees in Lihue, and heavy on kukui nut trees (Aleurites moluccana) at Puuopae, at 1,500 feet. (Au). A PLATASPID BUG (Coptosoma xanthogramma) heavy on maunaloa vines, sesban and coral trees in windward Oahu from Kaneohe to Kaawa. Apparently spreading northward, as one adult found on sunflower plant in Kahuku. (Funasaki, Krauss).

General Pests - SOUTHERN GREEN STINK BUG (Nezara viridula) caused noticeable damage to macadamia nuts in Kainaliu, Hawaii Island. On Maui, nymphs and adults increasing on wild weed hosts in Kahului; nymphs continue heavy on cheeseweed in Ewa and Pearl City; adults light on tomato and sunflower in Kahuku. On Kauai, trace numbers of nymphs and adults on bean varieties, but none on preferred weed hosts from Lihue to Kekaha. (Yoshioka et al.).

Man and Animals - Total of 553 Aedes vexans nocturnus and 4,265 Culex pipiens quinquefasciatus taken in 47 light traps operated by Mosquito Control Branch, Department of Health, on Oahu during January. Aedes spp. remained low in all areas. Culex spp. were highest in Nanakuli. (Haw. Ins. Rpt.).

Households - An ANT (Tapinoma melanocephalum) heavy in a building in Honolulu, Oahu, and caused considerable annoyance. This species is generally not a pest in dwellings. (Krauss).

Beneficial Insects - Larvae of a NOCTUID MOTH (Hypena strigata) were very heavy on several hundred acres of lantana in Kula area, Maui. (Miyahira).

Weather continued from page 88.

TEMPERATURE: Temperatures averaged above normal from the northern Pacific coast to the Missouri River Valley with the fifth mild week over and west of the northern Rockies. Temperatures averaged well below normal from the Missouri River to the Atlantic and south from Arizona eastward. Bitter cold arctic air blanketed the north-central portion of the Nation with subzero temperatures occurring on several mornings. On Saturday, maximum temperatures over northern Minnesota and nearby portions of North Dakota warmed only to about 10° below zero. Some of the coldest temperatures of the week were -41° at Hibbing, Minnesota, and -39° in the Adirondack Mountains in New York. Subzero temperatures Wednesday reached north-central Missouri and freezing temperatures reached the Gulf of Mexico. Mobile, Alabama, registered 25°. In much of the East, especially the Northeast, this was the coldest week of the season both for weekly averages and lowest minimums. Weekly temperature departures ranged from -12° in northern Minnesota, southern Michigan, Pennsylvania, and southern Mississippi to +15° in northern Montana (Summary supplied by Environmental Data Service, ESSA).

## SURVEY METHODS

### Selected References 1965 - 1966

#### Part I

##### Introduction

To provide a readily available reference source on scientific methods to measure insect populations, literature citations are presented for the years 1965 and 1966. It is believed that these will be helpful in establishing the present status of the work. The subjects covered in this part are population measurement, forecasting, rearing, equipment and techniques, traps, attractants, and pictorial keys. Additional lists will be issued as they are prepared. Separates of this list are available from Survey and Detection Operations.

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**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

GREENBUG is threatening in Cotton, Caddo and Garvin Counties, Oklahoma. Light in New Mexico, Arkansas and Kansas. BROWN WHEAT MITE ranged 500-600 per linear foot in Cotton County, Oklahoma; continues light in Kansas. (p. 115).

EGYPTIAN ALFALFA WEEVIL showing some signs of rapid increase in Arizona. PEA APHID is beginning to increase on alfalfa in Arizona and is heavy in Stephens County, Oklahoma. (p. 116).

Detection

New State records include COCONUT SCALE in Pennsylvania, (p. 117), LARCH SAWFLY in Maryland, (p. 117), and an ASTEIID FLY in Hawaii, (p. 119).

Special Reports

Summary of Insect Conditions in the United States - 1966.

Introduction. (p. 121).

Special Insects of Regional Significance. (p. 121).

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Reports in this issue are for week ending February 17 unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK

MID-FEBRUARY TO MID-MARCH 1967

The Weather Bureau's 30-day outlook for mid-February to mid-March calls for temperatures to average below seasonal normals east of the Continental Divide except for near normal over most of the gulf and south Atlantic coastal regions. West of the Divide above normal temperatures are indicated for the Great Basin and the Northwest. Elsewhere near normal temperatures are indicated. Precipitation is expected to exceed normal over western portions of the northern Plains, and from the central Plains eastward through the middle Mississippi Valley to the Appalachians and northward to the Great Lakes region. Subnormal precipitation is expected to be confined to northern and central portions of the West Coast States while near normal totals are called for in unspecified areas.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Buearu. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

For weather of the week, see page 119.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**GREENBUG** (Schizaphis graminum) - NEW MEXICO - Ranged 0-6 per foot of row on wheat in Curry and Roosevelt Counties. (Mathews, Nielsen). OKLAHOMA - Ranged 50-100 per linear foot in Cotton, Caddo and Garvin Counties on wheat; 20-30 per linear foot on Comanche County barley. Light in 16 other counties. (Okla. Coop. Sur.). KANSAS - Light on wheat in Labette, Neosho and Montgomery Counties; ranged 0-5 per foot of row, with up to 10 per foot of row in one field. None found in south-east, northeast and east-central districts. (Simpson). ARKANSAS - Light on wheat in Lincoln, Poinsett, Craighead and Jackson Counties. Reproduction underway. (Ark. Ins. Sur.).

**SPOTTED ALFALFA APHID** (Therioaphis maculata) - ARIZONA - Light in scattered areas of Maricopa County, mostly in Chandler and Buckeye areas. (Ariz. Coop. Sur.). KANSAS - Very light, less than 5 per square foot, in few fields of alfalfa in Elk and Wilson Counties. (Simpson). ARKANSAS - Survey negative in Faulkner County. (Ark. Ins. Sur.). MISSISSIPPI - Light on alfalfa in Lee County, with no damage apparent. (Dinkins).

**CORN LEAF APHID** (Rhopalosiphum maidis) - ARIZONA - Increasing rapidly on small grain in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

**ARMY CUTWORM** (Chorizagrotis auxiliaris) - OKLAHOMA - Ranged 2-7 per 10 linear feet in all wheat checked in Noble, Kay, Grant and Garfield Counties. (Okla. Coop. Sur.). KANSAS - Single larva found on alfalfa in Butler County. (Simpson).

## SMALL GRAINS

**BROWN WHEAT MITE** (Petrobia latens) - OKLAHOMA - Counts per linear foot in wheat ranged 500-600 in Cotton County; 50-150 in Beckham, Jackson and Garfield Counties. (Okla. Coop. Sur.). KANSAS - Continued light on wheat in Montgomery, Labette and Cherokee Counties; averaged less than 10 per foot of row. (Simpson).

**WINTER GRAIN MITE** (Penthaleus major) - KANSAS - Continued light on wheat in Montgomery, Labette and Cherokee Counties; averaged less than 10 per foot of row. (Simpson).

**ENGLISH GRAIN APHID** (Macrosiphum avenae) - ARKANSAS - Numbers low in wheat in Lincoln, Poinsett, Craighead and Jackson Counties; only occasional aphid found. (Ark. Ins. Sur.). FLORIDA - Populations appear unchanged on rye and oats at Gainesville, Alachua County. (Mead).

**LEAFHOPPERS** - FLORIDA - Several species increasing on rye at Gainesville, Alachua County; Graminella nigrifrons dominant with 70 adults per 100 sweeps. (Mead).

**GRANULATE CUTWORM** (Feltia subterranea) - ARIZONA - Light on small grain in scattered fields in Maricopa County. (Ariz. Coop. Sur.).

## TURF, PASTURES, RANGELAND

**AN OLETHREUTID MOTH** (Cactra verutana chrysea) - CALIFORNIA - Heavy populations on chufa flatsedge at Shafter, Kern County. (Cal. Coop. Rpt.).

**A MEALYBUG** (Chorizococcus rostellum) - CALIFORNIA - Locally medium on Bermuda grass at La Mesa, San Diego County. (Cal. Coop. Rpt.).

## FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - MISSISSIPPI - Moderate on alfalfa in Lee County. Larvae 30 per square foot, causing considerable damage to leaves. (Dinkins).  
VIRGINIA - In square-foot sample of alfalfa collected at Charlotte Courthouse, Charlotte County, 29 percent of eggs hatched. Of larvae present, 50 percent alive. (Woodside).

EGYPTIAN ALFALFA WEEVIL (*Hypera brunneipennis*) - ARIZONA - Larval populations show some signs of rapid increases on alfalfa in Maricopa County. (Ariz. Coop. Sur.).

GRANULATE CUTWORM (*Feltia subterranea*) - ARIZONA - Light on alfalfa in few Maricopa County fields. (Ariz. Coop. Sur.).

PEA APHID (*Acyrtosiphon pisum*) - ARIZONA - Beginning to increase on alfalfa in western Maricopa County and in Chandler area. (Ariz. Coop. Sur.). NEW MEXICO - Continues light on most alfalfa in Chaves County. (Mathews). OKLAHOMA - Heavy in overwintering alfalfa in Stephens County; averaged 350 per square foot of crown. (Okla. Coop. Sur.). KANSAS - Ranged 0-10 per square foot in alfalfa in Chautauqua, Montgomery, Labette, Neosho, Cherokee and Crawford Counties. (Simpson). ARKANSAS - None found in alfalfa in Faulkner County. (Ark. Ins. Sur.). MISSISSIPPI - Light on alfalfa and vetch in Lee County. (Dinkins).

## SUGARBEETS

BEEF ARMYWORM (*Spodoptera exigua*) - ARIZONA - New larval emergence moderate on sugarbeets in Chandler and Queen Creek areas of Maricopa County. (Ariz. Coop. Sur.).

GREEN PEACH APHID (*Myzus persicae*) - ARIZONA - Poses threat to sugarbeets throughout Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

## POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (*Myzus persicae*) - FLORIDA - Adults and nymphs 2-8 per leaf on potatoes at Homestead, Dade County. (Wolfenbarger).

## COLE CROPS

DIAMONDBACK MOTH (*Plutella xylostella*) - FLORIDA - Larvae and adults common on rape at Gainesville, Alachua County. (Mead).

ONION THRIPS (*Thrips tabaci*) - CALIFORNIA - Medium on cabbage plantings at Thermal, Riverside County. (Cal. Coop. Rpt.).

## CUCURBITS

AMERICAN COCKROACH (*Periplaneta americana*) - ARKANSAS - Damaged seedling watermelon plants in greenhouse at Fayetteville; cut off plants and fed on cotyledons. (Watts, Dec. 30). Same type of damage has been observed for several years on strawberry, tomato and cucurbit seedlings. (Roberts).

## CITRUS

CITRUS RED MITE (*Panonychus citri*) - FLORIDA - Adults severe on 75 percent of 100 sweet orange nursery plants at Goldenrod, Seminole County. (Kipp).

## ORNAMENTALS

BAGWORMS - ALABAMA - Numerous bags of Thyridopteryx ephemeraeformis observed throughout State contained large numbers of eggs. Parasitism appears low. (McQueen). NEW MEXICO - "Bags" of undetermined species very abundant on junipers at Portales, Roosevelt County. Some pupae parasitized. (Mathews, Nielsen). CALIFORNIA - T. meadi medium on native greasewood at Apple Valley, San Bernardino County. (Cal. Coop. Rpt.).

A PLUME MOTH (Platyptilia pica) - PENNSYLVANIA - Larvae damaged 30 percent of geranium cuttings at Mt. Pleasant, Westmoreland County. Reared adults determined during January by W. Yackley. (Yackley).

COCONUT SCALE (Aspidiotus destructor) - PENNSYLVANIA - Heavy on blue spruce at Havertown, Delaware County, November 12, 1966. Det. by M. Koszarab. This is a new State record. (Tetrault).

ARMORED SCALES - VIRGINIA - Fiorinia theae infested Burford holly in Franklin, Southampton County. (Pierce). ALABAMA - F. theae crawlers beginning to appear on undersides of leaves of camellia and holly in central and southern sections. (McQueen). FLORIDA - Aonidiella aurantii light on coontie at Fern Park, Seminole County. This is a new host record. (Kipp, Dec. 1, 1966). Pseudaulacaspis pentagona collected from poinsettia in nursery at Ocala, Marion County. This is new host record. (Holder, Graham, Dec. 13, 1966). CALIFORNIA - Epidiaspis piricola heavy on hollyleaf cherry at several locations in Sacramento, Sacramento County. Diaspis echinocacti heavy on cactus nursery stock at San Diego, San Diego County. (Cal. Coop. Rpt.).

## FOREST AND SHADE TREES

LARCH SAWFLY (Pristiphora erichsonii) - MARYLAND - Larvae medium on European and Japanese larch plantation near Grantsville, Garrett County, July 1966. New State record. Collected by D. M. Harman and det. by D. R. Smith. (U. Md., Ent. Dept.).

CITRUS MEALYBUG (Planococcus citri) - CALIFORNIA - Medium on redbay nursery stock at Hawthorne, Los Angeles County. (Cal. Coop. Rpt.).

DOGWOOD CLUB-GALL MIDGE (Mycodiplosis alternata) - ALABAMA - Galls heavy on native dogwoods throughout State. (McQueen).

## MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - OKLAHOMA - H. lineatum ranged 0-6 per head on yearlings and 0-8 on cows in Payne County. Heavy in Okfuskee County and light in Mayes County. (Okla. Coop. Sur.). KANSAS - H. lineatum counts per head on steers by county as follows: Atchison 0-3, Shawnee 0-3, Miami 0-5, Harvey 0-9, Sedgwick 0-17. (Simpson). UTAH - Hypoderma spp. appearing in backs of cattle in Cache County. (Knowlton).

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U. S. February 12-18. Total of 64 cases reported in portion of Barrier Zone in Republic of Mexico February 5-11 as follows: Territorio sur de Baja California 2, Sonora 46, Coahuila 2, Nuevo Leon 1, Tamaulipas 13. No cases in Mexico south of Barrier Zone. Barrier Zone is area where eradication operations are underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released February 12-18: Texas 16,648,000, Mexico 105,080,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - ALABAMA - Few adults emerged in Lee County during extended summer-like period in January; disappeared following freezing temperatures. (Bourne). MISSISSIPPI - Surveys negative in Oktibbeha and Lowndes Counties. (Dinkins).

MOSQUITOES - LOUISIANA - Larval collections in Jefferson Parish contained Aedes triseriatus, A. vexans, Culex restuans, C. salinarius, and Culiseta inornata. Adult activity low throughout parish. Culex salinarius and Culiseta inornata dominated light trap collections with very few floodwater species taken. (Stokes). CALIFORNIA - Due to few warm days, mosquitoes emerged to plague residents in most areas but were somewhat subdued by cool nights. Populations were heavier than past 3 or 4 years. (Cal. Coop. Rpt.).

CATTLE LICE - IOWA - Total of 25 cattle hides from Adair and Guthrie Counties examined. Bovicola bovis, Solenopotes capillatus, and Haematopinus eurysternus adults were light, less than 5 per examination on 24 hides but over 10 on one hide. (Iowa Ins. Sur.).

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Heavy on horses in Mayes County; 1,000+ per head. (Okla. Coop. Sur.).

#### HOUSEHOLDS AND STRUCTURES

SUBTERRANEAN TERMITE (Reticulitermes spp.) - OKLAHOMA - Swarming on warm days in Oklahoma and Canadian Counties. (Okla. Coop. Sur.).

BOXELDER BUG (Leptocoris trivittatus) - NEW MEXICO - Very abundant in and around homes in Mimbres Valley area, Grant County. (Elson, Hinrichs).

#### FEDERAL & STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Survey of cotton fields with standing stalks or shredded stalks not yet plowed under indicated high degree of larval survival in cocoons on roots of plants; 50-87 percent of larvae alive. (Bartholf, Judd, Mathews).

GRASSHOPPERS - OKLAHOMA - Egg pods per square foot averaged as follows by county: Cherokee - 0.2 at 3 stops; Coal - 0.33 at 4 stops; Delaware - 0.5 at 3 stops. Negative at 2 stops in Pittsburg County. (Okla. Coop. Sur.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Larva taken from tangelo fruit at Pompano Beach, Broward County. (Brien, Feb. 2).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - FLORIDA - Collected near Cross City, Dixie County, January 25, 1967, for new county record. Det. by H. A. Denmark, confirmed by D. R. Smith. (Tipton). NORTH CAROLINA - Collected in Columbus County during January for new county record. (PPC South. Reg.).



HAWAII INSECT REPORT

New State of Hawaii Insect Record - AN ASTEIID FLY (*Asteia n. sp.*) was collected in a light trap at Honolulu, Oahu, July 18, 1966. Det. by C. W. Sabrosky. This fly unlike any known species in Pacific area. (Joyce).

Sugarcane - NEW GUINEA SUGARCANE WEEVIL (*Rhabdoscelus obscurus*) caused heavy damage to old canes this season. A tachina fly (*Microceromasia sphenophori*) apparently not effective parasite in fields of mature canes. (Au).

Fruits and Nuts - Population increase of SOUTHERN GREEN STINK BUG (*Nezara viridula*) noted in Kona District, Hawaii Island. Introduced egg parasites currently ineffective as indicated by nymphal increase. Damaged 4-5 percent of macadamia nuts and expected to increase in next few months. Nymphs light but widespread on tomatoes, ornamentals and weeds from Kainaliu to Honaunau. (Yamayoshi, Himori).

Ornamentals - Second and third-stage larvae of a NOCTUID MOTH (*Achaea janata*) light on croton at Hana, Maui. Damage light on new growth. (Davis, Miyahira).

Forest and Shade Trees - A PLATASPID BUG (*Coptosoma xanthogramma*) medium at Kaneohe, Oahu Island, on indigo, apparently a new host. Adults and eggs continue heavy on sesban trees. Adults, eggs, and nymphs light on terminals of coral trees. (Bianchi, Funasaki). Light buildup of CUBAN-LAUREL THRIPS (*Gynaikothrips ficorum*) noted on Chinese banyan at Kapaa, Lihue and Eleele, Kauai Island. A predacious anthocorid bug (*Montandoniola moraguesi*) was active at Lihue and Eleele. Slight buildup of *G. ficorum* noted on Chinese banyan in Waialae area of Honolulu, Oahu Island. (Au, Nakao).

Beneficial Insects - All stages of a NOCTUID MOTH (*Hypena strigata*) very heavy on lantana at Ulupalakua, Auwahi, Makawao, Kahului, and Wailuku, on Maui. At Ulupalakua and Auwahi, approximately 25,600 acres of lantana 50-100 percent defoliated. (Miyahira, Davis, Takishita). Larvae of a TORTRICID MOTH (*Aptorma* sp.) medium on blackberry in Halemanu Valley, Kokee State Park, Kauai. This species first released during August 1964 and considered well established in blackberry infested areas of Kauai and Maui. (Au).

Miscellaneous Pests - GIANT AFRICAN SNAIL (*Achatina fulica*) was found for first time in over a year on Hawaii Island. All stages abundant at Hana, Maui. (Davis, Miyahira). A MUSCID FLY (*Graphomya maculata*) collected near Hilo Airport, Hawaii Island, December 6, 1966. This is first record from Hawaii Island; previously reported from Oahu and Maui. (Joyce).

WEATHER OF THE WEEK ENDING FEBRUARY 20, 1967

HIGHLIGHTS: Cold and windy northern Plains to New England.

PRECIPITATION: Spotty, heavy snow fell over the northern half of the U. S. on several days, with up to 10 inches accumulating in the Black Hills of South Dakota and 8 inches in portions of Minnesota. The Ozarks of Missouri and Arkansas received 10 inches of snow on Thursday with lesser amounts eastward across the Ohio River Valley, Kentucky and Tennessee to the Atlantic Coast and northward to New England. Freezing rain glazed the roads south of the snow area. Moderate rains fell in the Gulf States and the South Atlantic States. Precipitation totals along the coastal portions of Washington and Oregon ranged from 2-4 inches or more. Wide areas from southern California across Arizona and New Mexico to the western portions of Kansas, Oklahoma and Texas received little or no rain.

Weather continued on page 120.

## INSECT DETECTION

### New State Records

COCONUT SCALE (*Aspidiotus destructor*) - PENNSYLVANIA - Collected from blue spruce at Havertown, Delaware County, November 12, 1966. Det. by M. Kosztarab. (p. 117).

LARCH SAWFLY (*Pristiphora erichsonii*) - MARYLAND - Larvae collected from European and Japanese larch near Grantsville, Garrett County, July 1966. Collected by D. M. Harman and det. by D. R. Smith. (p. 117).

AN ASTEIID FLY (*Asteia* n. sp.) - HAWAII - Collected in a light trap at Honolulu, Oahu, July 18, 1966. Det. by C. W. Sabrosky. (p. 119).

### New County and Island Records

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - FLORIDA - Collected in Dixie County. NORTH CAROLINA - Collected in Columbus County. (p. 118).

A MUSCID FLY (*Graphomya maculata*) - HAWAII - Collected on Hawaii Island. (p. 119).

### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 2/15, 1 BL - Black cutworm (*Agrotis ipsilon*) 2, granulate cutworm (*Feltia subterranea*) 10. SOUTH CAROLINA - Charleston - 2/6-12, BL, temp. 32-64°, precip. 2.63 - Armyworm (*Pseudaletia unipuncta*) 1, yellow-striped armyworm (*Prodenia ornithogalli*) 2, black cutworm 2, granulate cutworm 11. TEXAS - Brownsville - 2/4-10, 2 BL, temp. 33-78°, precip. 0.15 - Black cutworm 164, salt-marsh caterpillar (*Estigmene acrea*) 5, granulate cutworm 98, tobacco budworm (*Heliothis virescens*) 2, corn earworm (*H. zea*) 51, variegated cutworm (*Peridroma saucia*) 15, yellow-striped armyworm 156, armyworm 85, beet armyworm (*Spodoptera exigua*) 6, cabbage looper (*Trichoplusia ni*) 13.

Weather continued from page 119.

TEMPERATURE: The northcentral States were in the deep freeze during the entire week. The highest temperature at Sault Ste. Marie, Michigan, was 32 degrees. The temperature at Fargo, North Dakota, stayed below zero from Wednesday until Saturday while Sioux City, Iowa, registered subzero temperatures on 3 mornings. Brief warming from northern Texas to southern Nebraska on Monday and Tuesday ended suddenly; Omaha's temperature dropped from 71 degrees on Tuesday afternoon to 28 degrees at midnight, and to minus 40 by midnight Wednesday. The northeast was cold at the beginning and end of the week but briefly warm at mid-week. In Washington, D. C., the temperature fell from 63 degrees Thursday afternoon to 28 degrees by Friday morning. Temperatures in northern New York and New England dropped to 30 degrees below zero or colder early and late in the week. Wanakena, New York, registered minus 48 degrees on Monday; Houlton, Maine, minus 36 degrees Saturday. Temperatures over the northcentral Great Plains and northern New England averaged 10 degrees to 15 degrees below normal. The Western States, from the Pacific Ocean to the Rockies, continued mild for the 6th consecutive week.

STRONG WINDS: Strong winds associated with the cold air outbreaks battered northern portions of the Country during the week. In the western Great Plains it caused soil erosion and crop damage. In Ohio, strong winds ranged from 30 to 81 m.p.h. and continued for 7 hours, left a trail of shattered windows, mangled trees and utility poles, dented automobiles, roofless homes and fallen wires. In New England winds reached hurricane force damaging trees, buildings, construction equipment and utility lines. (Weather supplied by Environmental Data Service, ESSA).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1966

INTRODUCTION

The summary of insect conditions, beginning in this issue, will be continued in several succeeding issues of the Cooperative Economic Insect Report. This was compiled in Survey and Detection Operations from annual summaries that were submitted by various State and Federal cooperators. A list of the individuals who assisted in assembling data, as well as a summary of the weather for 1966, will appear after the last section of this summary is published. Survey and Detection Operations appreciates the assistance of all individuals who have participated in the preparation of material for the 1966 summary.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

Highlights:

ARMYWORM damaged a variety of crops in California, Texas, Nebraska and South Dakota. Some controls were required in North Dakota, Minnesota and Wisconsin. Populations were heavier than in 1965 in Arkansas and Nebraska. CORN EARWORM populations were lighter than in 1965 in most States reporting; however, sweet corn was severely damaged in Pennsylvania, Virginia, and Florida. HORNWORMS were heavier than normal in Florida, Virginia, Maryland and Rhode Island. CORN LEAF APHID was normal in most States, but heavy populations were damaging in isolated areas. GREENBUG was heavy on small grains in several Southern States, but SPOTTED ALFALFA APHID was light in most States reporting. POTATO LEAFHOPPER populations were high in Maryland, Delaware and Vermont; relatively light elsewhere. SIX-SPOTTED LEAFHOPPER damaged vegetables in Michigan, Wisconsin and Colorado. BEET LEAFHOPPER damaged sugarbeets in Nevada and Colorado and destroyed some tomatoes in Utah.

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ARMYWORM (*Pseudaletia unipuncta*) was unusually abundant on sorghum and grain crops in CALIFORNIA, but remained normal throughout the season in UTAH. Damage was heavy to grain sorghum in the High Plains of TEXAS during early August. Heaviest damage was to pastures, small grains and lawns in several areas of Texas during early fall; however, lighter than in previous years. Populations were heavier than in 1965 in ARKANSAS with considerable wheat acreage requiring treatment. Armyworm moths were first collected in light traps at Portageville, MISSOURI, April 2; up to 200 larvae per square foot were reported in small grain in southeast area. Most damage was observed in the eastern half of Missouri with light damage reported in central and northwestern areas. Armyworm was noneconomic in KANSAS wheat. Scattered, heavy populations damaged some corn in August in Saunders and Dawson Counties, NEBRASKA, and some controls were applied. Populations were heavier than in 1965. Armyworm severely damaged corn in Clay County, SOUTH DAKOTA, by the end of July, and was collected from millet near Britton, Marshall County, during the first week of August. Scattered, isolated infestations were present in eastern NORTH DAKOTA; light to moderate damage occurred in barley and some controls were applied.

Armyworm flights were observed during June in MINNESOTA and some larval infestations in the west-central area required control. In WISCONSIN moths were collected in blacklight traps during mid-May with larvae heavy in grassy alfalfa in Walworth and Rock Counties by June 10. Sustained heavy moth flight occurred July 1 to July 22. Armyworm larvae were common in corn and oats, in July; and required some control. Moths and larvae were common from August 1 until frost, but noneconomic. Larvae first appeared in southern ILLINOIS May 3.

and by late May populations in wheat varied 0-12 per linear foot in southern areas. Approximately 111,916 acres of small grain and 12,438 acres of corn were treated. Moth flights were heavy in northern Illinois in late June and early July. Some leaf notching was observed in grassy cornfields. Damage to corn and small grains was very light in INDIANA. Populations were generally above normal in MARYLAND with over 800 acres of small grains treated during early June.

CORN EARWORM (*Heliothis zea*) was generally light throughout RHODE ISLAND, but damaged ears of late sweet corn generally over PENNSYLVANIA. Numbers in early and late corn were normal in MARYLAND, with heaviest ear infestations occurring in corn maturing during late August and September. Populations were light to moderate in corn and considerably lighter in soybeans in DELAWARE, compared with 1965. Corn earworm was scarce early this year in VIRGINIA, but caused considerable damage to late sweet corn, fall snap beans, late tomatoes, broccoli and peppers. Numbers were light on soybeans and peanuts. Corn earworm severely damaged sweet corn at Ruskin, Hillsborough County, FLORIDA, during late spring and was heavy on sorghum at Live Oak, Suwannee County, during September. This noctuid also infested watermelon rinds at Leesburg, Lake County. Populations were widespread in ALABAMA and damaged corn, sorghums, peanuts, soybeans, cotton, tomatoes and other crops. Corn earworm was a major pest of soybeans in southern Alabama and caused light damage in central and northern areas.

Adults were first trapped at Portageville, MISSOURI, May 24 and larvae damaged late-planted soybeans in southeast area where controls were required. Populations in ILLINOIS were heavier than in 1965. Corn losses in southern Illinois were 0.10 percent compared with 0.057 percent in 1965. This increase was partly due to drought. Infestations in INDIANA were much lower in 1966. The fall corn insect survey showed 2.6 percent of corn infested with corn earworm in 1966 compared with 11.6 percent in 1965. The heaviest infestations occurred in the southern quarter of Indiana. Very few corn earworm larvae were reported from southern MICHIGAN. The usual late summer moth flight from southern areas did not occur. Only 4 moths were taken in blacklight traps during the second week in September, thus seasonal catches for 1966 were the lightest recorded during recent years. Moths were first collected in blacklight traps July 29 in WISCONSIN. Moths and larvae were light and little damage to corn occurred.

Corn earworm was light in early sweet corn in eastern NEBRASKA with some light damage to corn observed in southeast and central areas. Populations were lower than usual on corn in most areas of KANSAS, and remained below economic levels throughout the season. Larvae were light on alfalfa in late summer and caused light damage to soybeans in the southeast area during August. Corn earworm infested up to 80 percent of sweet corn tassels in Sedgwick County during late June. Populations were variable in northeast Kansas and light in western areas. Activity was first noted in corn in south-central OKLAHOMA during mid-May. Infestations increased during June and moderate to heavy numbers damaged crops during early fall in many areas. Corn and grain sorghums were most heavily infested but larvae were also found in alfalfa, peanuts, and soybeans with activity common through mid-October.

Corn earworm was economic on corn in southeastern, western and northeastern COLORADO with some controls necessary. Populations in MONTANA were spotty in 1965 with fewer numbers than in 1966. It does not overwinter in Montana but migrates from areas farther south.

Corn earworm damage varied from minor to severe in late-maturing hybrid sweet corn in south-central and southwestern IDAHO. Some fields were 100 percent infested with 4 larvae per ear. Seed loss was 10 percent. Moths were collected in light traps May 3 at Prosser, and May 14 at Othello, WASHINGTON, a month earlier than previous records. Seasonal populations on corn were only moderate, however. Corn earworm was heavy as usual on sweet and field corn in eastern OREGON. Adults first appeared June 7 in Umatilla County and infestations reached 95 percent by August. Damage to sweet corn in the Willamette Valley remained low except in a few late plantings. Damaging populations appeared in May in

CALIFORNIA and persisted through the year, being severe on corn, beans and milo statewide. Continuous controls were necessary on spring truck crops, and moderate numbers damaged lettuce in the fall. Corn was severely damaged during May, June and July in California.

TOBACCO BUDWORM (*Heliothis virescens*) caused light damage on late beds of tobacco in FLORIDA, and was transferred to the field on transplants in several instances. Budworm infestations on cigar-wrapper tobacco increased as most growers reduced the number of insecticide applications after Hurricane Alma passed through the Gadsden County area. Tobacco budworm infested watermelon rinds in Lake County, and damage varied with the degree of control application as well as with other factors.

ARMY CUTWORM (*Chorizagrotis auxiliaris*) caused losses to sugarbeets in Larimer and Weld Counties, COLORADO, and was also reported on wheat. Spotty populations on alfalfa in Hot Springs, Washakie, Big Horn and Park Counties, WYOMING, in early May caused some loss to wheat in fields already damaged by winter kill. Larvae averaged 1-2 per square foot in most heavily infested fields. Army cutworm caused light to moderate damage to wheat in southwest and west-central KANSAS during April and May, with controls applied in some instances. Populations were very light throughout NEBRASKA, but sugarbeets were moderately damaged near Hunter, NORTH DAKOTA. Army cutworm was spotty on wheat in Yellowstone County, MONTANA, and infestations were reported in Lincoln, Big Horn, Dawson, Carbon and Chouteau Counties.

TOBACCO HORNWORM (*Manduca sexta*) was found in more tobacco fields in FLORIDA during 1966 than in previous 3 years; however, damage was light. Light trap collections were lighter than in 1965. In VIRGINIA, collections of HORNWORMS (*Manduca* spp.) were higher than in 1965. For the second consecutive year, a larger hornworm brood was observed on tobacco in Virginia and MARYLAND. TOMATO HORNWORM (*M. quinquemaculata*) was the heaviest on vegetable crops for many years in RHODE ISLAND. Adults were collected July 5 in Madison, WISCONSIN, and larvae were detected on tobacco in Dane County July 29, with pupation completed by August 12. Hornworms, mostly tobacco hornworm, were light on tomatoes in OKLAHOMA during July and August and on bell peppers in September. Tomato hornworm severely injured tomato plantings in Doniphan County, KANSAS, during September and early October. Hornworms ranged low to moderate on tomatoes in COLORADO, with light losses to the crop. Hornworms were common although seldom economic in MONTANA, but were widespread on tomatoes in CALIFORNIA.

MELONWORM (*Diaphania hyalinata*) was the most serious pest of cucumbers and cantaloups in ALABAMA, and PICKLEWORM (*D. nitidalis*) infested 35 percent of unsprayed summer squash at Gainesville, FLORIDA.

CORN LEAF APHID (*Rhopalosiphum maidis*) was in normal abundance throughout RHODE ISLAND, being more common on field corn than sweet corn. Infestations were heavy on corn in most areas of DELAWARE and continued to build up into late fall. Populations were light to medium on corn throughout VIRGINIA during July and August, and predators were numerous.

Corn leaf aphid was first observed in central, southeastern, and southwestern OHIO in late July, increased through August and declined as corn matured. Tassel damage to most corn was very light and only some undersized or late-planted corn harbored large populations. High predator numbers over much of Ohio, in addition to advanced corn conditions, resulted in only incidental interference with corn pollination. New colonies were common near tassels in corn-growing areas of MICHIGAN during late July. Timely rains permitted normal tasseling in all areas, except in droughty areas, where some fields harbored populations in excess of 1,000 aphids per plant through late September. In INDIANA, corn leaf aphid severely infested 4.0 percent of corn sampled, was moderate on 12.4 percent, and light on 29.6 percent. Maximum infestations occurred in the southern quarter of the State where an average of 73.3 percent of plants were infested. Species was

heavy and severely damaged field corn in ILLINOIS. Early in August, 15 percent of corn in western area was heavily infested. Approximately 79,649 acres of corn were treated in Illinois. Corn leaf aphid was observed on corn in MISSOURI.

Corn leaf aphid colonies began forming on corn the first week of July in Dane County, WISCONSIN, and increased rapidly with very high populations common through late August when populations collapsed due to heavy rains. Populations were high on corn by late July in MINNESOTA. Predators developed rapidly and reduced aphid population to low levels by mid-August. Corn leaf aphid ranged light to heavy throughout NORTH DAKOTA appearing in late July and continuing through October. Infestations were heaviest in late-planted corn. Populations were common in southeastern SOUTH DAKOTA corn from July to August and into late September on green cobs. By mid-July, 150-200 aphids per plant infested sorghum in Hutchinson and Yankton Counties. Although counts were high in some fields, no controls were recommended since parasites and predators effectively reduced populations to low levels. Corn leaf aphid began increasing on corn and sorghum in NEBRASKA in late June and was heavy by early July. The buildup was earlier and heavier than in 1965. Populations were heavy in grain sorghum in many areas of KANSAS and, in conjunction with drought, caused some damage. Controls were applied in many instances. Populations on corn in Kansas remained noneconomic.

Corn leaf aphid necessitated controls on corn in some areas of COLORADO while populations on sorghum were low to moderate and no controls were required. Colonies were first noted in southeastern WYOMING July 20 and were lower than in 1965. Approximately 15 percent of corn was infested; large numbers of predators were present. Migration from barnyard grass to hybrid corn in Canyon County, IDAHO, occurred during early June. Populations caused late-planted barley to yellow in Bingham, Power and Twin Falls Counties by August 10. Corn leaf aphid and ENGLISH GRAIN APHID (*Macrosiphum avenae*) began increasing in June and required controls in some areas of NEVADA, especially in Churchill, Lyon and Pershing Counties, through early August. Corn leaf aphid infested sweet corn locally in Fresno County, CALIFORNIA. Infestations were moderate on small grains in Maricopa, Yuma, Pinal and Pima Counties, ARIZONA, but lower than in 1965.

Corn leaf aphid was heavy on young grain sorghum in TEXAS. This aphid, thought to be a vector of maize dwarf mosaic, was found distributed throughout Texas in the same pattern as the virus. Corn leaf aphid was light in small grains in OKLAHOMA through March and from mid-October through December. Activity in sorghum began in mid-June with moderate to heavy numbers present and was heavy on late corn in scattered areas during August. Populations were heavier than usual throughout ALABAMA. Maize dwarf mosaic appeared more general throughout the State than previously. The increase in aphids may have been a contributing factor.

GREENBUG (*Schizaphis graminum*) was light on small grain in Quay, Curry, and Roosevelt Counties, NEW MEXICO. Populations were widely distributed on grain throughout the High Plains, Rolling Plains and north and central areas of TEXAS. Populations were generally light to moderate. Highest counts of 1,000-2,000 per square foot were noted during March and April in Swisher, Hill, Smith, and Bell Counties. Greenbug infestations were heavy in insolated areas of OKLAHOMA during late January and February but decreased during early March. Populations again increased during mid-March with damaging numbers present in scattered areas through early April. Highest counts, up to 3,000 per linear foot, were in eastern Major County, but counts of 500-1,000 per linear foot were present in several northwest and southwest Oklahoma areas. Activity continued through April. Fall activity began in the panhandle area of Oklahoma in mid-October and was light in most areas the rest of the year. Greenbug was noneconomic in ARKANSAS. Infestations required controls in coastal areas of ALABAMA, especially in Mobile and Baldwin Counties, and was light in small grains throughout the State. Greenbug was serious on barley and oats in Mathews County, VIRGINIA, during late November.

Greenbug overwintered in south-central and southeast KANSAS. By early January, populations had reached 1,000+ per linear foot in Chautauqua and Montgomery Counties. Numbers decreased in late January but again reached economic levels by early April; however, a hard freeze on April 21 damaged wheat to such an extent it became uneconomic to apply controls. Winged adults were found April 29 in eastern NEBRASKA and some economic damage to wheat in Nuckolls and Gage Counties occurred in May. Specimens of greenbug were collected from small grains in eastern SOUTH DAKOTA, and trace numbers evident in NORTH DAKOTA by late May, but no economic numbers developed. Greenbug populations were low by late April in MINNESOTA and were detected in WISCONSIN during mid-May after a strong southern air stream had passed through that State. A marked increase of greenbug during late May occurred on oats in southern and western Wisconsin counties causing concern over potential "red leaf" problems. Incidence of "red leaf" was low and most oats matured before significant infection occurred. Greenbug was widespread in ILLINOIS this year, but populations remained low.

SPOTTED ALFALFA APHID (*Therioaphis maculata*) became heavy on alfalfa in areas of Churchill and Pershing Counties, NEVADA, during the summer and required controls. Some buildup occurred at a few locations in CALIFORNIA. Spotted alfalfa aphid was low on alfalfa in Umatilla and Morrow Counties, OREGON, during early October. In IDAHO, spotted alfalfa aphid first noted August 19, two weeks earlier than usual, and was general throughout the Indian Cove area on third-cutting alfalfa. Late activity was observed as usual throughout southwestern Idaho. Spotted alfalfa aphid was less numerous in Laramie, Platte and Goshen Counties, WYOMING, than in 1965. First specimens of the season were noted June 28, and highest counts averaged 15-25 per 100 sweeps in Goshen County during September. Sexual forms were collected in Wyoming September 21. Spotted alfalfa aphid was a potential threat to newly seeded alfalfa in the Arkansas Valley of COLORADO and caused minor damage to alfalfa throughout NEW MEXICO. Spotted alfalfa aphid caused no economic damage in TEXAS during 1966, but was light to moderate in Brazos and Burleson Counties. Spotted alfalfa aphid populations ranged moderate to heavy on alfalfa in northwest OKLAHOMA from January through early May, then decreased through June in most areas. Moderate to heavy numbers again appeared over much of Oklahoma in July and early August. Numbers decreased on alfalfa during August and were light in all areas until mid-November. During late November and December, scattered heavy populations were present on alfalfa in northeast Oklahoma. Spotted alfalfa aphid became heavy during dry weather in June and early July in ARKANSAS, but was lighter the remainder of the year. Spotted alfalfa aphid was noneconomic on alfalfa during the summer in KANSAS, and predators held populations in check during August. Populations averaged 0.2-3 per 10 sweeps on alfalfa in southeast NEBRASKA from May through August, but increased to an average of 55 per 10 sweeps in the central area during August. Some damage to alfalfa was observed in western Custer County. Spotted alfalfa aphid ranged 3-25 per 100 sweeps in central SOUTH DAKOTA, and was recorded for the first time in Dewey, Ziebach, Corson, Harding, Butte and Codrington Counties. To the present, spotted alfalfa aphid has been known only in endemic numbers in South Dakota. Wingless forms were detected in June on alfalfa near Brodhead and Arena, WISCONSIN. Populations increased until late July when there was a marked increase. A sharp decrease occurred in mid-August after severe storms. Dispersal flights began one week later and egg-laying females were noted in mid-October. Spotted alfalfa aphid was first observed May 9 and by June 30 was found throughout ILLINOIS. Some damage occurred to alfalfa planted on sandy soils in the northwest area where populations reached 89 per sweep July 11-14 and in a few southern counties late in the fall. Spotted alfalfa aphid, found for first time in MICHIGAN in 1965, was widely dispersed throughout alfalfa-growing areas of the State in 1966, but remained at low levels. The first seasonal specimen was taken June 7 in Lenawee County. Collections were rare until early August, becoming common by mid-September.

POTATO LEAFHOPPER (*Empoasca fabae*) populations on alfalfa in all sections of MARYLAND were considerably above normal; counts of over 100 nymphs per sweep were common in many unprotected fields during July and August. Populations were above normal with extensive damage on late potatoes and conspicuous injury to unpro-

tected snap beans during June and July on the Eastern Shore. Nymphs and adults were very numerous on untreated beans during much of the growing season in DELAWARE. Potato leafhopper was generally low on alfalfa and light on potatoes in PENNSYLVANIA. Some alfalfa was damaged in VERMONT by populations of 3-5 per sweep.

Potato leafhopper was normal throughout the season in UTAH. Light populations were found in many alfalfa fields in northeastern KANSAS during mid-June but no damage was observed. Counts ranged 0.5-60 per 10 sweeps on alfalfa in eastern NEBRASKA from May to August and were generally light in central and southwest areas during August. No economic infestations were evident in NORTH DAKOTA. In WISCONSIN, adults were detected on alfalfa late in May, with reproduction evident by mid-June. Yellowing of alfalfa was observed early in July and was common although not severe most of the season. Populations on lima beans in Rock County were high and "hopperburn" on potatoes was noted early in August.

First potato leafhopper adults were observed in southern ILLINOIS during early May; populations peaked in late June and early July. Considerable yellowing was observed in second-crop alfalfa; 4,548 acres treated. Populations peaked in INDIANA during late July when adults and nymphs ranged 6-40 per sweep on alfalfa. Damage and highest populations occurred along with extreme hot weather from June 22 through July 18; some yellowing occurred. First adults of the season in MICHIGAN were collected in Monroe County May 20. Adults increased in July and peaked at 2.6 per sweep in the southeast area during late July. Statewide problems were relatively low this year. Potato leafhopper was not generally damaging to alfalfa in OHIO where counts ranged 3-20 per sweep in 15 counties from July to September.

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) adults were first collected May 6 in Livingston County, MICHIGAN, for an extremely early collection date and were numerous in Jackson County lettuce fields by early July. During July, the incidence of aster yellows on celery, lettuce, onions and carrots became high in practically all muck-vegetable areas of Lower Michigan. Six-spotted leafhopper was reported for the first time from 11 counties in INDIANA. Populations were light from May through August in the southern third of the State; however, during mid-September, counts ranged 22-116 per sweep in southwestern area alfalfa.

Six-spotted leafhopper adults were detected in small grain in WISCONSIN the first week of May, and populations increased gradually. Tests indicated a high percentage were viruliferous. Early in July, aster yellows virus infected 20 percent of early lettuce in some central counties. Six-spotted leafhopper migrated into MINNESOTA in early April with high numbers present from May to September. A low percentage of leafhoppers carried aster yellows, and economic damage was low. Migratory adults were present in late May in eastern NORTH DAKOTA. Six-spotted leafhopper was common on wheat in southwest OKLAHOMA during October but caused little damage. Populations were economic on onions in the Arkansas Valley of COLORADO and transmitted aster yellows virus to onions in Otero County, but losses were light. Lettuce in Otero County was moderately damaged. Six-spotted leafhopper was normal in UTAH during 1966.

BEEF LEAFHOPPER (Circulifer tenellus) transmitted curly top disease to sugarbeets in Pershing County, NEVADA, resulting in medium to heavy damage to some of the crop. In UTAH this leafhopper spread curly top which destroyed 25-35 percent of tomato plants and infected a larger than normal number of small sugarbeets and table beets in Weber County during the spring. Beet leafhopper caused losses to tomatoes in COLORADO, and was a major problem on sugarbeets in the Western Slope area and in the Arkansas Valley. Curly top symptoms were first noted during late July in WYOMING and were found in 12 percent of sugarbeet plants in Washakie and southern Big Horn Counties. Most serious damage was to late-planted sugar-



beets. The spring survey in Wyoming showed a population of 0.24 leafhopper per square foot of host compared with 0.23 in the spring of 1965. No control program was instigated as in previous 3 years. Beet leafhopper averaged more than one per square foot on 30,000 acres in IDAHO during March. The infestation increased to 42,000 acres following favorable weather conditions in May. Drought immediately followed control treatment and reduced populations outside the severely infested areas. Movement into cultivated areas of Idaho was very light during 1966.

POTATO PSYLLID (Paratrioza cockerelli) was moderate and occasional heavy infestations plagued potato growers in Maricopa and Pinal Counties, ARIZONA, during March and April. Overall populations were slightly higher than in 1965. Potato psyllid populations were below average during the season in UTAH. Numbers were moderate to high on Lycium sp. during early spring in COLORADO. Populations were moderate in a few fields of potatoes and required some control. No losses were attributed to this insect in Colorado in 1966. Although adult counts were lower in WYOMING than in 1965, yield of untreated potatoes and tomatoes declined in all areas. Eggs were first found on Lycium sp. May 20 in Goshen County. Adults were not found in northern areas until late June. Peak populations were reached in late July when adults in potatoes averaged 1.5-3 per 100 sweeps.





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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION  
AGRICULTURAL RESEARCH SERVICE  
UNITED STATES DEPARTMENT OF AGRICULTURE**



# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

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## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

GREENBUG increased noticeably in several areas of Texas. (p. 131).

SPOTTED ALFALFA APHID very heavy in Tipton area of Oklahoma. (p. 131).

TEXAS CITRUS MITE at highest February level in 15 years on citrus in Florida. (p. 133).

Forecast

BEEF LEAFHOPPER much higher than last year in desert breeding grounds. Movement to cultivated districts of southeastern California, central Arizona and central Utah expected to be light to moderate with possible moderate to heavy concentrations in southern Nevada, southern and eastern Utah and western Colorado. (p. 131).

Detection

A LEAF MINER FLY found established in California; first record for U.S. (p. 136).

A PYRALID MOTH reported for first time in Illinois. (p. 133).

Special Reports

Beet Leafhopper Survey in Desert Areas of Southern Utah and Nevada, Southeastern California and Central Arizona. (p. 131).

Summary of Insect Conditions in the United States - 1966

Corn, Sorghum, Sugarcane (pp. 137-142).

Small Grains (pp. 143-145).

Turf, Pastures, Rangeland (pp. 146-148).

Scientific Name Change

OLEANDER SCALE (Aspidiotus hederæ (Vallot)) has been changed to Aspidiotus nerii Bouche. See footnote on page 133.

Reports in this issue are for week ending February 24 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING FEBRUARY 27, 1967

**HIGHLIGHTS:** Mild in the West but stormy, windy, and cold east of the Rockies with heavy snows north and thunderstorms in the Southeast.

**PRECIPITATION:** Active storm centers moving through the Great Lakes area produced blizzards in the North from the Rocky Mountains to New England while cold fronts caused heavy thunderstorms from eastern Texas to the central Appalachians. Up to 18 inches of snow fell at some locations in northern New England. Traffic was hampered or stalled throughout the heavy snow and blizzard areas. Areas from northern Mississippi to eastern Kentucky recieved more than an inch of rain.

**WIND:** Westerly winds exceeded 50 m.p.h. in portions of the North Central States at midweek and over the Northeast during the weekend. Strong winds and low temperatures caused much discomfort over the Northeast on Saturday and Sunday. At Ogden Dunes, Indiana, the winds reached 82 m.p.h. Gales blowing across the Great Lakes produced snow squalls on the lee shores. In some areas, wind-blown snow reduced visibility to near zero and highway traffic was at a standstill. It was also windy farther west. Strong southwesterly winds over the western edge of the Great Plains raised clouds of dust causing considerable soil erosion and damage to winter wheat.

Weather continued on page 148.



SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

Beet Leafhopper Survey in Desert Areas of Southern Utah and Nevada,  
Southeastern California and Central Arizona

Surveys were conducted for beet leafhopper (Circulifer tenellus) during the period January 30 to February 14, 1967. If present conditions prevail, spring movement from the southern desert breeding grounds to cultivated districts of southeastern California, central Arizona, and central Utah is expected to be light to moderate. Movement to southern Nevada, southern and eastern Utah and western Colorado is expected to be moderate to heavy.

The southern breeding grounds, comprising approximately 50,000 square miles of potential weed host area, were considered to have an estimated 39-percent host plant cover at time of survey. Fall and early winter rains resulted in early development of annual weed hosts. These plants, however, were showing stress during the survey due to lack of later rains. Weed host plants were more general and in better condition in areas north of the 34° parallel than south.

The average number of beet leafhoppers found in areas where host plants were present was 0.09 per square foot in 1967 compared with 0.013 in 1966, 0.04 in 1965, 0.15 in 1964, 0.02 in 1963, 0.12 in 1962, and 0.02 in 1961. It is estimated from data collected during this survey that overwintering beet leafhoppers in the southern desert spring breeding grounds total 32.7 billion in 1967, compared with 6.5 billion in 1966, 12 billion in 1965, 112 billion in 1964, 7.7 billion in 1963, 6.1 billion in 1962, and 6.3 billion in 1961.

This report covers only the beet leafhopper situation in the area surveyed. It has no reference to populations that may have originated in local breeding areas in northern and eastern Utah or in western Colorado or western Nevada. (PPC, West. Reg.).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Treatment was completed north of Coalinga, Fresno County, and was made in Merced, Alameda and San Joaquin Counties. Prespray counts ranged 5-30 per 10 sweeps; postspray checks indicated 98 percent kill. Approximately 11,000 acres treated. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Light to medium on wheat in Chaves County. (Mathews). TEXAS - Infestations increased noticeably in several High Plains, Rolling Plains and north central county areas last 2 weeks; however, populations generally remain noncritical. Current infestations should be watched closely as peak populations usually not reached until March or April. Prolonged cool weather usually advantageous for buildups. (Rummel, Boring, Parker). OKLAHOMA - Ranged 0-15 per linear foot on wheat in Jackson, Cotton and Washita Counties; up to 50 per linear foot in Tillman County and light to moderate in Kingfisher County. (Okla. Coop. Sur.). ARKANSAS - Remains very low in northwest area. (Ark. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARKANSAS - Surveys negative in northwest area. (Ark. Ins. Sur.). OKLAHOMA - Ranged up to 700 per square foot of crown in 2 to 3-inch fall-planted alfalfa in Tipton area, Tillman County. (Okla. Coop. Sur.). ARIZONA - Light to moderate on most alfalfa in Yuma Valley and north Gila Valley of Yuma County. Moderate to heavy parasitism occurred in nearly all infestations. (Ariz. Coop. Sur.).

SMALL GRAINS

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Ranged 5-1,000 per linear foot on wheat in Cotton, 350-500 in Tillman, 50-600 in Washita and 10-80 in Beckham Counties. (Okla. Coop. Sur.). NEW MEXICO - Light to medium on wheat near Cotton City, Hidalgo County. (Campbell).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Infestations and damage remain same as last 2 weeks in Rolling Plains and in north and central areas. Controls being applied in several areas, but economics of applications questionable due to lack of moisture. (Turney, Parker). OKLAHOMA - Ranged 50-75 per linear foot in many wheat fields in Cotton and Tillman Counties. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - ARKANSAS - Remains very low in northwest area. (Ark. Ins. Sur.).

#### TURF, PASTURES, RANGELAND

RANGE CRANE FLY (Tipula simplex) - CALIFORNIA - Recurred in approximately same area in eastern Tulare County as the 1962 outbreak. Since many larvae have started to pupate, treatment was questionable. Infestation evident in several areas. Damage appearing in areas where cattle were pastured early before annual grass had sufficient growth to support both pest and animals. (Cal. Coop. Rpt.).

A CHINCH BUG (Blissus insularis) - TEXAS - Adult feeding noted in several lawns at Houston, Harris County. This early emergence probably due to unseasonably warm weather but could result in early buildups in advent of warm, late winter. (Hudson).

#### FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Light to moderate on alfalfa in Yuma County. Parasitism light in 80 percent of infestations. (Ariz. Coop. Sur.).  
NEW MEXICO - Generally light to medium on alfalfa in Chaves and Dona Ana Counties. (Mathews, Campbell). ARKANSAS - Remains low in northwest area. No significant increase expected until warmer weather. (Ark. Ins. Sur.). MISSISSIPPI - Moderate on alfalfa in Pontotoc County. (Dinkins).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Larvae light on alfalfa in northern Gila Valley, Yuma County. Adults very light in all areas. (Ariz. Coop. Sur.).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Larvae increasing rapidly on alfalfa; averaged 4 per terminal in Yuma County and 1-2 per terminal in Maricopa County. (Ariz. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - MISSISSIPPI - Numbers unchanged in Lee County; averaged 25-30 larvae per square foot in Oktibbeha County. (Dinkins).

#### GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Larvae light on 20 percent of lettuce in Yuma County; increase expected, since egg counts are moderate. (Ariz. Coop. Sur.).

#### CITRUS

Citrus Insect Situation in Florida - Mid-February 1967 - CITRUS RUST MITE (Phyllocoptura oleivora) infested 70 percent of groves (norm 57 percent); 53 percent economic (norm 36 percent). Population is much above the February average and is in high range, and will remain high. CITRUS RED MITE (Panonychus citri) infested 56 percent of groves (norm 31 percent); 29 percent economic (norm 13 percent). Population is above normal and near high range. Increase into high range expected. Highest districts north, west and central. TEXAS CITRUS MITE (Eutetranychus banksi) infested 44 percent of groves (norm 26 percent); 26 percent economic (norm 8 percent). Population is at highest level for February in 15 years of record.

It is in moderate range at present but further increase expected. Highest districts are west and north. Texas citrus mite is less abundant than citrus red mite. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) is still below average and very scarce. GLOVER SCALE (Lepidosaphes gloverii) infested 83 percent of groves; 18 percent economic. Population is above normal and in high range. Slight decrease expected. Highest districts are east, central and south. PURPLE SCALE (L. beckii) infested 78 percent of groves; 8 percent economic. Population is below average and in moderate range. Little change expected. Central district highest. YELLOW SCALE (Aonidiella citrina) infested 69 percent of groves; 15 percent economic. Population is above average and in moderate range. Slight decrease expected. Highest districts central and east. CHAFF SCALE (Parlatoria pergandii) infested 60 percent of groves; 5 percent economic. Population is much below normal and in low range; slight decrease expected. East district highest. BLACK SCALE (Saissetia oleae) infested 43 percent of groves; 16 percent economic. Population is above normal low level for February and will remain in low range. Highest districts east and central. WHITEFLIES are near average abundance with 64 percent of groves infested. MEALYBUGS are presently at low level and decreasing. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred, Fla.)).

#### ORNAMENTALS

A PYRALID MOTH (Herculia intermedialis) - ILLINOIS - Larva collected from juniper in Champaign, Champaign County, November 10, 1966, by J. Nordin; adult was reared. Det. by R. W. Hodges. This is a new State record. (Ill. Ins. Rpt.).

AZALEA LEAF MINER (Gracillaria azaleella) - CALIFORNIA - Medium on azaleas at Santa Cruz, Santa Cruz County; this is an early occurrence. (Cal. Coop. Rpt.).

GLADIOLUS THRIPS (Taeniothrips simplex) - UTAH - Moderate in gladiolus corms stored at Logan, Cache County. (Knowlton).

APHIDS - CALIFORNIA - Myzocallis arundinariae nymphs and adults heavy on bamboo at Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.). ARIZONA - Myzus persicae heavy on ornamentals in all areas of Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - Cinara sp. light to heavy on arbovitae in Albuquerque. Heavily infested plants show large amounts of honeydew. (Heninger). OKLAHOMA - C. tujaefilina continues light to moderate on evergreens in Payne County and moderate in Cleveland County. (Okla. Coop. Sur.). ALABAMA - Macrosiphum rosae heavy on numerous isolated roses in central area where early growth present. (McQueen). FLORIDA - Myzus persicae infesting roots of 10 percent of 1,000 aralia plants (Acanthopanax sieboldianus) at nursery in Clarcona, Orange County. (Ware, Feb. 7).

ARMORED SCALES - FLORIDA - All stages of Pseudaulacaspis pentagona infested 15 Chinese privet plants at Jacksonville, Duval County. (King, Feb. 16). Acutaspis morrisonorum light on leaves of a Canadian hemlock in nursery at Florahome, Putnam County. This is a new host record. (Graham, Feb. 10). CALIFORNIA - Hemiberlesia lantanae medium on rusty fig nursery stock at San Diego and heavy on dracena in a trailer park at Escondido, San Diego County. Aspidiotus nerii\* medium on oleander nursery stock at Thermal, Riverside County. (Cal. Coop. Rpt.).

A PIT SCALE (Cerococeus deklei) - FLORIDA - Collected on gardenia at Miami, Dade County, during January and on Barbados-cherry at North Miami, Dade County, February 16. These both new host records. (Wartman et al.).

\*The scientific name of oleander scale (Aspidiotus hederæ (Vallot)) has been changed to Aspidiotus nerii Bouché. See Morrison, H. H. and Morrison, E. R. 1966. USDA Misc. Pub. 1015:17.

A LEAF MINER FLY (Melanagromyza viridis) - CALIFORNIA - Medium in asters of seed production units at Santa Paula, Ventura County. Collected and reared by R. M. Jefferson. Det. by M. Wasbauer and confirmed by K. A. Spencer. (Cal. Coop. Rpt.).

ERIOPHYID MITES - ALABAMA - Acaphylla steinwedeni and Calacarus adornatus heavy on 25 young camellias in backyard planting in Auburn, Lee County. Browning progressive as mites increase. (McQueen). CALIFORNIA - Diptacus swensoni adults medium on English holly nursery stock at Millbrae, San Mateo County. (Cal. Coop. Rpt.).

CLOVER MITE (Bryobia praetiosa) - CALIFORNIA - Adults medium on ivy at San Francisco. Infestations at this time of year may indicate heavy household infestations. (Cal. Coop. Rpt.).

#### FOREST AND SHADE TREES

FOREST TENT CATERPILLAR (Malacosoma disstria) - TEXAS - Survey indicated very light larval infestations for Bexar, Guadalupe, Caldwell and Bastrop Counties. No egg capsules found at several sites in each county at 15 to 20 mile intervals. This year is the fourth year since a sporadic, heavy infestation has occurred. (Parker).

A BARK BEETLE (Phloeosinus sp.) - CALIFORNIA - Adults heavy on cypress at Lucerne Valley Park, Lucerne, San Bernardino County. (Cal. Coop. Rpt.).

ARBORVITAE APHID (Cinara tujafilina) - CALIFORNIA - Nymphs and adults heavy on juniper at Huntington Beach, Orange County. (Cal. Coop. Rpt.).

EUROPEAN ELM SCALE (Gossyparia spuria) - CALIFORNIA - Medium on elm at Escondido, San Diego County. (Cal. Coop. Rpt.).

A SPIDER MITE (Eotetranychus libocedri) - CALIFORNIA - Eggs and adults infested juniper at Highland, San Bernardino County. (Cal. Coop. Rpt.).

#### SMALL FRUITS

STRAWBERRY APHID (Chaetosiphon fragaefolii) - CALIFORNIA - Nymphs and adults medium on strawberry plantings in San Dimas, Los Angeles County. (Cal. Coop. Rpt.).

#### MAN AND ANIMALS

MOSQUITOES - LOUISIANA - Larval collections in Jefferson Parish contained Aedes triseriatus, A. vexans, Culex restuans, C. salinarius, and Culiseta inornata. Light trap collections increased in many sections of parish. Counts highest in Grand Isle area. Floodwater species increased slightly throughout parish. (Stokes).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - MISSISSIPPI - Light to moderate in commercial chicken houses in Oktibbeha County. (Dinkins).

EAR TICK (Otobius megnini) - TEXAS - Moderate on several cattle near Canton, Van Zandt County. (Dean).

CATTLE LICE - ALABAMA - Bovicola bovis and Haematopinus eurysternus were heavy on several cattle herds in Bullock County. Controls applied. (Stone).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Averaged 2-3 per head on steers and 4 per head on cows in Payne County, 2-20 per head in 40 percent of cattle in Marshall County and moderate in Cleveland and Mayes Counties. (Okla. Coop. Sur.).

SCREW-WORM (*Cochliomyia hominivorax*) - One case reported in U. S. February 19-25, from Medina County, Texas. Total of 59 cases reported in portion of Barrier Zone in Republic of Mexico February 12-19 as follows: Baja California 1, Territorio sur de Baja California 20, Sonora 30, Chihuahua 5, Tamaulipas 3. Three cases reported from Mexico south of Barrier Zone. Barrier Zone is area where eradication operations are underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 14,768,000, Mexico 85,058,000. (Anim. Health Div.).

#### HOUSEHOLDS AND STRUCTURES

SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) - IOWA - Collected in firewood at home in Leon, Decatur County. (Iowa Ins. Sur.).

SUBTERRANEAN TERMITES (*Reticulitermes* spp.) - MARYLAND - Winged forms swarmed in several homes in Prince Georges County. Workers damaged oak floors in home at Wheaton, Montgomery County. (U. Md., Ent. Dept.).

#### FEDERAL & STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - OKLAHOMA - Four rangeland stops in Ellis and Roger Mills Counties averaged 0.33 egg pod per square foot of sod; 15 rangeland stops in 4 south-central counties averaged 0.33 viable egg pod per square foot. No egg pods were found at 4 stops in Pontotoc County. Desiccated, fungus-infested pods were numerous in south-central area. (Okla. Coop. Sur.).

ORIENTAL WOOD BORER (*Heterobostrychus aequalis*) - FLORIDA - Special survey for this beetle is continuing. (Fla. Coop. Sur.).

FORMOSAN SUBTERRANEAN TERMITE (*Coptotermes formosanus*) - Inspections were made in Louisiana, Mississippi, South Carolina, Tennessee and Texas. Two properties were found infested in New Orleans, Louisiana; all other inspections negative. (PPC, South. Reg., Jan. Rpt.). Several inspections made in California; all negative. (PPC, West. Reg., Jan. Rpt.).

GYPSY MOTH (*Porthetria dispar*) - MICHIGAN - Survey for egg masses conducted in Clarence Township, Calhoun County. Approximately 1,070 acres checked; none found at 8 positive trap sites but very heavy numbers of egg masses were found in a swampy area within 40-acre infested area on northeast shore of Duck Lake. (PPC, Cent. Reg., Jan. Rpt.).

PINK BOLLWORM (*Pectinophora gossypiella*) - ARIZONA - Larvae collected in bolls on soil surface of 2 fields planted to grain and in fields that were plowed in Parker area, Maricopa County. (Ariz. Coop. Sur.).

CITRUS BLACKFLY (*Aleurocanthus woglumi*) - MEXICO - Chemical Control Zone - Total of 40,021 trees inspected on 1,792 properties in 9 municipios. One infestation was found in a backyard planting at Linares, Nuevo Leon. Total of 21,770 trees on 27 properties were sprayed in 2 municipios of Nuevo Leon. At Hualahuises, 21,530 trees were given second and/or third application and 240 trees were given initial treatment. (PPC Mex. Reg., Jan. Rpt.). TEXAS - Inspections of 115 trees at 5 properties negative in Hidalgo County. (PPC, South. Reg., Jan. Rpt.).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - FLORIDA - Adults collected at Lowell, Marion County. This is a reinfestation; previously found at Fellowship in December 1957, treated and considered eradicated. (Graham, Feb. 20).

## INSECT DETECTION

### New United States Record

A LEAF MINER FLY (Melanagromyza splendida) - CALIFORNIA - Medium populations found in stems of Helianthus sp. in August 1966, in seed production units at Santa Paula, Ventura County. Collected and reared by R. N. Jefferson. Det. by M. Wasbauer and confirmed by K. A. Spencer. M. splendida is a polyphagous species described from Hawaii and found in Jamaica. (Cal. Coop. Rpt.).

### New State Record

A PYRALID MOTH (Herculia intermedialis) - ILLINOIS - Larva collected from juniper at Champaign, Champaign County, November 10, 1966. Det. by R. W. Hodges. (p. 133).

## CORRECTIONS

CEIR 17(4):44 - TEXAS - ENGRAVER BEETLES (Ips spp.), I. grandicollis should read I. grandicollis.

## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 2/21, 1 BL - Black cutworm (Agrotis ipsilon) 1, granulate cutworm (Feltia subterranea) 1. SOUTH CAROLINA - Charleston, 2/13-19, 1 BL, temp. 33-76°, precip. 0.50 - Granulate cutworm 4, armyworm (Pseudaletia unipuncta) 1. TEXAS - Brownsville, 2/11-12, 2 BL, temp. 36-85°, no precip. - Salt-marsh caterpillar (Estigmene acrea) 7, black cutworm 46, granulate cutworm 130, armyworm 48, yellow-striped armyworm (Prodenia ornithogalli) 140, variegated cutworm (Peridroma saucia) 6, tobacco budworm (Heliothis virescens) 2.

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## HAWAII INSECT REPORT

Vegetables - IMPORTED CABBAGEWORM (Pieris rapae) adults and larval damage heavy on small cabbage plantings at Puunene, Maui. (Miyahira).

Fruits - Adults of a SCARAB (Protaetia fusca) medium on mango blossoms in Pukalani, Maui, and Waimanalo, Oahu. Adults normally common on mango this time of year when most trees are flowering. (Miyahira, Suzukawa). A BARK BEETLE (Xylosandrus compactus) light on coffee at residential property in Hilo, Hawaii Island; also medium on grape and heavy on avocado at same property. Heavy on koahaole (Leucaena leucocephala) seedlings and light on nohu (Tribulus cistoides) in Mokuleia, Oahu. These are new host records and most northwesterly occurrence on island. Medium on koa on Mt. Kaala, Oahu, at 2,500 feet elevation. This is also a new host record. (Yamayoshi et al.).

Ornamentals - An ARMORED SCALE (Phenacaspis cockerelli) medium to heavy on oleander and Rose-flowered jatropha (Jatropha hastata) in nursery in Waimanalo, Oahu. (Funasaki).

Beneficial Insects - A TEPHRITID FLY (Tetraeuaesta obscuriventris) adults medium to heavy on elephants-foot (Elephantopus mollis), a noxious weed and pasture pest, in Kalaheo, Lawai and Omoa, Kauai. Averaged 45 per 5 sweeps. This seed feeder was introduced from Fiji and became established in February 1962. (Au).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1966  
(continued from page 127)

CORN, SORGHUM AND SUGARCANE

Highlights:

EUROPEAN CORN BORER was heavier in practically all States reporting. In several North Central States, populations were more than double those of 1965. SOUTHWESTERN CORN BORER was similar to 1965; however, it was reported in several new counties. NEOTROPICAL CORN BORER was reported for first time in U.S., from Texas. BLACK CUTWORM was serious in young corn in Delaware and on the Eastern Shore of Maryland. FALL ARMYWORM was a problem on corn in Florida, Alabama and Arkansas. CORN ROOTWORMS continued to spread to new counties; however, damage was low this season. CORN FLEA BEETLE caused heavy damage to corn in Delaware, Maryland, and Ohio during the summer. CHINCH BUG was not a problem in corn this year. SORGHUM MIDGE caused severe losses to grain sorghum in several areas of Texas.

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EUROPEAN CORN BORER (*Ostrinia nubilalis*) was light to medium on corn this year in VIRGINIA. Populations were medium in the southwest area during early July and the lightest in 20 years in Rockbridge County. Populations were above normal in MARYLAND with whorl and stalk infestations ranging 20-80 percent during late June and early July in most sections. Moth numbers peaked in late August on the Eastern Shore. Infestations were moderate to heavy in DELAWARE, averaging 307 borers per 100 plants, a 32-percent increase over the 1965 fall population. This is the fourth consecutive year of borer increase in the State. Infestations were moderate to severe on sweet corn in NEW JERSEY and light in PENNSYLVANIA with only occasional fields damaged. A slight increase in damage over last year occurred in CONNECTICUT, and no change was noted in RHODE ISLAND. Percent of plants infested in VERMONT during 1966 was 14.0 compared with 5.6 in 1965. Corn in northwest Vermont was most heavily infested.

European corn borer occurred throughout northern ALABAMA in corn and grain sorghum, being most serious on late plantings. Borers damaged late corn as far south as Autauga County. Borers per 100 stalks increased over 1965 in ARKANSAS, also infesting late sorghum. Pupation was 100 percent complete in Pemiscot and New Madrid Counties, MISSOURI, by May 14. Damage averaged 11.6 percent in 2 northwest counties and was common throughout corn-growing areas of the State. Percent of infested stalks was 82.2 compared with 61.1 in 1965 and the number of borers per 100 stalks was 299.6 compared with 145.2 in 1965. Damage to corn this season was higher than in 1965 in KANSAS, particularly in the northeast area. Many fields were treated during August. Fall survey showed populations 2-3 times higher in northeast and east-central areas than in 1965. European corn borer was higher throughout NEBRASKA than in 1965. Overwintering larvae were at low levels in SOUTH DAKOTA, with less than 15 per 100 stalks. Six percent parasitism was attributed to a eulophid wasp (*Sympiesis viridula*) and 5 percent to an ichneumon wasp (*Diadegma punctoria*). Larvae damaged up to 10 percent of the whorls of corn in Lincoln, Hutchinson, and Charles Mix Counties, and 35-40 percent of the whorls in Yankton County. By mid-July, heavy damage occurred to untreated corn in northern Yankton County with 3-4 first-brood larvae per corn plant and 90 percent of plants infested. However, first-brood damage was lower than in 1965. The second-brood populations increased in most of eastern South Dakota, and except in a few south-central and southeastern counties, were at highest levels in the past 4 years. Mortality of overwintering larvae was 21 percent in NORTH DAKOTA compared with 27 percent in 1965. Pupation occurred June 13 compared with June 1 in 1965. The fall abundance survey indicated an increase in all counties with an average of 75 percent infested plants and 211 borers per 100 plants. Stalk breakage was evident in some heavily infested fields. European corn borer was found for the first time in Bowman, Slope,

Golden Valley, Mountrail, and Rolette Counties. Infestations were also found in potatoes and sorghum. Populations were normal at Glendive, MONTANA.

Overwintering mortality of European corn borer larvae ranged 0-4 percent in MINNESOTA, the lowest in many years. Cool weather delayed pupation and egg laying until late June. The first generation was low throughout the State, while an increased second generation started in late July. Fall abundance surveys indicated high numbers in the northwest district. Moderate populations represent a potential threat in southwest, south-central and west-central districts. Overwintering larvae were scarce in WISCONSIN. Population was noted May 27 and first moths of the season were collected in Walworth County June 10. Eggs began hatching July 1, and continued until mid-July. By late September all second-generation larval stages were present. Compared with 1965, larvae were more numerous, but of little economic importance except from the sanitation aspect of canning sweet corn. Winter survival was 10-15 percent higher than normal in ILLINOIS. Planting dates ranged from very early to very late in most areas of the State thus conditions for larval development were excellent. The first-generation survey showed an average of 4.77 borers per 100 plants or a 124-percent increase over 1965. Only 16.8 percent of larvae were infested with microsporidiosis. Second-generation surveys showed an average of 112 borers per 100 plants or twice as many as in 1965 with 20.9 percent of the borers infested with microsporidiosis. Other parasites were very low. An estimated 49,400 acres of corn were treated in Illinois. European corn borer was slightly higher in INDIANA during 1966 than in 1965. Statewide, 30.6 percent of the plants sampled were infested with 44.3 borers per 100 plants. Corn losses were 1.3 percent for 1966. In southwestern Indiana, first-generation larvae were heavier than in several years. Infestations ranging up to 68 percent were common in Posey, Vanderburgh, and Gibson Counties during late June. Adults were taken at blacklight traps during first week of June in MICHIGAN. Collections indicated a very heavy flight during mid-June. The first larval brood was the highest experienced in Michigan during recent years. Leaf-feeding injury by first-brood larvae was more common this season, especially on some corn hybrids. Second-brood adults started appearing in blacklight traps during late July. Losses were light, however, averaging less than 2 percent grain equivalent reduction. Hybrids with borer resistance and borer tolerance bred in, along with favorable weather and cultural practices, led to excellent corn yields in Michigan this year. Borer injury to peppers and potatoes occurred in some areas. Larvae were low during the spring in northwest OHIO. Infestations in sweet corn were common in the southeastern area during September. A survey of 23 corn fields in Van Wert County indicated light populations compared with the previous year. For Status of European corn borer, fall 1966, see CEIR 17(4):46-52.

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) was serious on corn in northwest and north-central ALABAMA, with light infestations observed as far south as Washington County. New county records included Wilcox and Marshall, making a total of 30 counties infested. Infestations were comparable with 1965 in AR-KANSAS with some late corn damaged. Southwestern corn borer was light on corn in southwestern OKLAHOMA during June, but overwintering larvae were again common in corn stalks in many areas during fall and winter months. Larvae heavily damaged sorghum fields in many areas of Maricopa, Pinal, Pima and Cochise Counties, ARIZONA. Populations peaked during August and September. Southwestern corn borer caused little damage this season in KANSAS. Adults were first trapped at Portageville, MISSOURI, June 2. Most damage in Missouri was confined to late-planted corn in the southeast area. New county records included Perry, Madison, and Bollinger. New County records in ILLINOIS included Jackson, Williamson, and Saline. Percent of girdled stalks in the 7 previously infested counties increased from 1.73 percent in 1965 to 3.66 percent in 1966. A few fields had over 20 percent of the plants girdled. Southwestern corn borer was present in every field examined in 5 Illinois counties.



NEOTROPICAL CORN BORER (Zenadiatraea lineolata) was collected for the first time in TEXAS and the United States during 1966. Neotropical corn borer and SUGARCANE BORER (Diatraea saccharalis) infested many fields of corn and grain sorghum in Cameron and Hidalgo Counties. Many fields contained heavy populations and damage by Neotropical corn borer appeared to be more severe than by either sugarcane borer or SOUTHWESTERN CORN BORER (Z. grandiosella). Southwestern corn borer was light and scattered in northern portion of State. Sugarcane borer remained confined to southern Texas, but damage was heavier than in recent years, especially along the gulf coast.

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) was associated with other corn borers in late corn in northern ALABAMA. Infestations were light as far south as Lee County. STALK BORER (Papaipema nebris) was observed on corn in MISSOURI and was light in many corn fields in southeast and east-central KANSAS during July, but no economic damage was observed. Stalk borer was light on corn and sorghum in NEBRASKA and damaged borders of corn fields in Lincoln County by July. LESSER CORNSTALK BORER (Elasmopalpus lignosellus) larvae heavily damaged late-planted sorghum during the summer in ARIZONA. Populations peaked during August in Yuma, Maricopa and Pinal Counties.

BLACK CUTWORM (Agrotis ipsilon) caused heavy damage to late-planted corn following flooding along the Black River in northeast ARKANSAS. The first adult of the season was trapped at Portageville, MISSOURI, on March 28. Larval damage was light and scattered throughout the State. Black cutworm caused little damage to corn this year in KANSAS, and no damage was reported in NEBRASKA. Moths began emerging May 20 in WISCONSIN, with larval damage to corn noted 3 weeks later. Damage to young corn was severe in a few widely scattered fields. Cutworms, mainly black cutworm, were not as abundant in ILLINOIS as in 1965. A total of 122,521 acres received postemergence treatments compared with 411,633 acres in 1965. Likewise, 146,493 acres were replanted this year compared with 265,320 acres in 1965. Black cutworm infestations occurred mainly in central INDIANA, with highest numbers in the west-central area. Generally, infestations were fewer in number and lighter during 1966 than 1965. Black cutworm was serious on young corn, especially after sod, on the middle and upper Eastern Shore of MARYLAND. Corn was heavily damaged in several areas of DELAWARE during June. Black cutworm was more serious on sweet corn during the spring of 1966 than in 1965 in FLORIDA.

VARIGATED CUTWORM (Peridroma saucia) and GRANULATE CUTWORM (Feltia subterranea) heavily damaged sorghum in Yuma, Maricopa, and Pinal Counties, ARIZONA, during April and May. Many sorghum fields were replanted. Economic numbers of PALE WESTERN CUTWORM (Agrotis orthogonia) occurred on corn in some parts of north-eastern COLORADO. WESTERN BEAN CUTWORM (Loxagrotis albicosta) adults were first observed in corn in Hall County, NEBRASKA, July 15, with larval populations building up in late August and September. Some controls were applied. Western bean cutworm was reported for the first time in Colfax County. Populations were higher in Hall County than in 1965. Variegated cutworm damage was very light during 1966 in INDIANA and adult trap collections were well below those in 1965. DARK-SIDED CUTWORM (Euxoa messoria) caused severe injury to several corn fields in southwestern PENNSYLVANIA. BRONZED CUTWORM (Nephelodes emmedonius) damaged some corn in VERMONT. GLASSY CUTWORM (Crymodes devastator) was unusually numerous in NEW HAMPSHIRE and caused 50 percent reduction in a stand of silage corn.

FALL ARMYWORM (Spodoptera frugiperda) severely damaged young sweet corn during the fall at Sanford, Seminole County, FLORIDA. This species was heavy on late corn and sorghum throughout ALABAMA and caused damage to late corn in ARKANSAS. Numbers were light to moderate in corn, sorghum, broomcorn and other crops from late July through early October in OKLAHOMA. Populations on corn were economic in southeastern and western COLORADO, with some controls applied. Fall armyworm was light throughout the summer in KANSAS and light in eastern and central NEBRASKA during August. Populations were observed on corn in MISSOURI and caused little damage in ILLINOIS. Infestations were moderate to severe on sweet corn in NEW JERSEY and damaged field corn at Foster and Lincoln, RHODE ISLAND.

YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) caused very little damage to sorghum in Lincoln and Dakota Counties, NEBRASKA.

CORN ROOT WEBWORM (*Crambus caliginosellus*) infested young corn planted after sod in all sections of MARYLAND and replanting was necessary in several instances. Larvae damaged corn in New Kent, Culpeper, Franklin, and Montgomery Counties, VIRGINIA, during June. This species attacked several fields of corn in Greene County, OHIO, and reduced the stand. Unspecified webworms were more common this year on corn in MINNESOTA, but damage was generally light. SOD WEBWORMS damaged corn at Terry, MONTANA, and were reported in lawns at Circle and Helena. SORGHUM WEBWORM (*Celama sorghiella*) was generally moderate in central TEXAS, but was heavy in Brazos, Williamson, Burleson, Gonzales, Falls, and Limestone Counties. Sorghum webworm damaged isolated grain sorghum fields in ALABAMA. Sugar-cane in the Belle Glade area of FLORIDA was heavily damaged by larvae of a LEAF-ROLLING PYRALID (*Marasmia trapezalis*) during September while cane was young.

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) did not increase in DELAWARE; only collections were in blacklight traps during August in New Castle County. Adults caused conspicuous injury to silks of field corn during early August in western Carroll County, MARYLAND, and were collected on silks in western PENNSYLVANIA. Adults were fewer than in 1965 in western and northwestern OHIO and incidence of stalk lodging was low in spite of much late-planted corn. SOUTHERN CORN ROOTWORM (*D. undecimpunctata howardi*) adults were common on tassels of field corn in Ohio, infesting up to 20 percent of silks, but were generally, not sufficiently numerous to cause serious damage. Northern corn rootworm was spotty this season in MICHIGAN and overall losses were lower than in recent years. Adults ranged 6-23 per ear in scattered untreated corn fields throughout central INDIANA and ranged 1-4 per ear in treated fields. Generally, populations were low in 1966, and little lodging occurred. Adults were abundant in ILLINOIS, ranging 0-34 per ear tip during early August. Only late fields were damaged and some lodging was caused by larvae. Resistance to chlorinated hydrocarbons is slowly increasing. WESTERN CORN ROOTWORM (*D. virgifera*) adults began emerging in Mercer County, Illinois, July 7. This species was recorded for the first time in Henry, Whiteside, Lee, and Woodford Counties bringing the total to 10. Infestations were heaviest in Rock Island, Mercer, Henderson, and Warren Counties. Northern corn rootworm adults were high in many fields in WISCONSIN during August, but western corn rootworm populations were low. Survey completed in August revealed adults in Polk, Dunn, St. Croix, Pierce, Buffalo, Pepin, Trempealeau, Vernon, Grant, Dane, and Columbia Counties. Eggs of northern and western corn rootworms hatched one week later than in 1965 in MINNESOTA. Larvae developed more rapidly in 1966 due to hot weather. Some lodging was observed by late July, after heavy rains. Adult surveys in the southern half of the State indicated an increase in percentage of western corn rootworm in 60 percent of the counties; however, the total population decreased. Northern corn rootworm remains dominant in Minnesota.

First-stage western corn rootworm larvae were first noted June 21 in Lincoln, Clay, Yankton, and Hutchinson Counties, SOUTH DAKOTA. During first week of August, adults reached peaks of 40-80 per stalk, with emergence well ahead of silking. Northern corn rootworm was light through most of July and began to increase in August, especially in Lake and Buffalo Counties. Corn rootworm adults began emerging in southern NEBRASKA in July and were 50-75 percent emerged by the end of July. Western corn rootworm was dominant. Corn rootworm damage was less than in 1965. Northern corn rootworm appeared more widespread than in 1965, while southern corn rootworm was lighter and less widespread than in 1965. Corn rootworms were light in most areas of KANSAS, and little damage was reported except for a few untreated fields in the northeast section. High numbers of western and northern corn rootworms, up to 25 per plant, were found in many east-central fields in August. First western corn rootworm larvae of season in MISSOURI were observed June 7 in Atchison County, and damage was observed in untreated fields throughout the northwest area. Sixteen new counties were found infested. Northern corn rootworm infested corn in Clay County, ARKANSAS, but is seldom found in State. In TEXAS, northern corn

rootworm spread into Gonzales, Nueces, Washington, Guadalupe, Fayette, Bee, and Austin Counties, all new records. Damage was economic in several instances. Northern corn rootworm is found in NEW MEXICO, but is still below economic levels. More problems are expected, however, because of the recent switch to continuous corn production. Controls on corn were necessary in some areas of COLORADO where adults and larvae of western corn rootworm were active in eastern and northeastern areas. First adults of northern and southern corn rootworms were collected in southeastern WYOMING, July 20. Damage to silks was not evident until August 3. Adults averaged 6-10 per plant in more heavily infested fields. Adult damage to silks and larval damage to roots were less than in 1965. WESTERN SPOTTED CUCUMBER BEETLE (*D. undecimpunctata undecimpunctata*) adults reduced sweet corn yields in Douglas County, OREGON, by feeding on silks.

CORN FLEA BEETLE (*Chaetocnema pulicaria*) adults were medium to heavy on young field and sweet corn during the summer in all sections of MARYLAND and caused heavy damage to young corn especially in New Castle County, DELAWARE. Young corn plants were severely damaged in many fields in OHIO with up to 20 or more adults per plant. Corn flea beetle was economic in Kosciusko, Randolph, Monroe and Green Counties, INDIANA, where adults ranged 2-5 per seedling corn plant during late May. Generally, populations were much lighter in 1966 than in 1965, especially in southern Indiana. Corn flea beetle was relatively light this year in ILLINOIS, with an estimated 5,117 acres treated compared to 35,951 acres in 1965. Adults damaged seedling corn up to 24 inches high throughout ALABAMA.

DESERT CORN FLEA BEETLE (*C. ectypa*) moderately damaged seedling corn and sorghum during late spring and early summer in ARIZONA, and necessitated replanting 3 percent of sorghum in Yuma and Maricopa Counties.

A FLEA BEETLE (*Systema frontalis*) infested weeds and corn in Lincoln County, SOUTH DAKOTA; although numbers were high, no economic losses were observed.

A SAP BEETLE (*Glischrochilus quadrisignatus*) was abundant and widespread in the northern two-thirds of ILLINOIS, apparently attracted to corn heavily infested by corn leaf aphid. Larvae were abundant in sweet corn infested with corn earworm in Umatilla County, OREGON, during September.

DUSKY SAP BEETLE (*Carpophilus lugubris*) larvae and adults were numerous in sweet corn during August in DELAWARE. BUMBLE FLOWER BEETLE (*Euphoria inda*) was a local problem on corn in MONTANA, being reported from Havre, Fort Benton, Billings, Chinook and Lewistown. A WEEVIL (*Hyperodes humilis*) caused heavy damage to some fields of sweet corn at Belle Glade, FLORIDA, during late August.

WIREWORMS caused serious damage to corn seed and seedlings at Little Compton and Warren, RHODE ISLAND, in mid-June with some fields being replanted. In CONNECTICUT, damage increased, probably because of continuous corn production. WHEAT WIREWORM (*Agriotes mancus*) was associated with the corn root webworm in some fields in PENNSYLVANIA. Another WIREWORM (*Melanotus communis*) damaged sweet corn in the spring at Belle Glade, FLORIDA, where control was not satisfactory. Wheat wireworm infested corn and milo more frequently during the spring in SOUTH DAKOTA. Infestations were spotty, as in previous years, but damage was more pronounced. Scattered, light infestations of unspecified wireworms occurred on corn in southwest MINNESOTA.

SOIL INSECTS were responsible for an estimated 5,443,197 acres of corn being treated during or before planting in ILLINOIS during 1966.

GRASS THRIPS (*Anaphothrips obscurus*) and a THRIPS (*Frankliniella tenuicornis*) were present in most corn fields throughout ILLINOIS and caused light silvering of lower leaves in many fields by late June.

BEAN APHID (*Aphis fabae*) was unusually abundant and damaging on corn in the Yakima Valley and Columbia Basin of WASHINGTON. CORN ROOT APHID (*Anuraphis maidiradicis*) was low in southeast SOUTH DAKOTA from mid-June through July;

however, populations were higher than in 1965..

CHINCH BUG (*Blissus leucopterus*) was not a problem on corn this year in OHIO, and was practically nonexistent in INDIANA. Adults and nymphs ranged 20-60 per border row corn plant (3-4 feet high) in east-central Indiana, with economic infestations reported in scattered areas of Allen, Whitley and Grant Counties. Chinch bug populations were very low in ILLINOIS, where approximately 2,443 acres of corn were treated compared with 45,184 acres in 1965. In MISSOURI, numbers were very low. Hibernation surveys showed populations to be noneconomic in 11 counties and light in one county. Chinch bug became active during early June in OKLAHOMA, and heavy populations damaged sorghums in scattered areas during late June, July and early August. Activity continued until early September in Oklahoma and was a potential threat to most corn and grain sorghum in the Rolling Plains, north, central, and gulf coast areas of TEXAS. Chinch bug was lighter than usual in central and southern ALABAMA.

Unspecified STINK BUGS were serious on grain sorghum in the Tucumcari area of NEW MEXICO.

CONCHUELA (*Chlorochroa ligata*) was widespread on grain sorghum in TEXAS with some control necessary.

SORGHUM MIDGE (*Contarinia sorghicola*) was found for the first time in Douglas, Jefferson, Leavenworth and Shawnee Counties, KANSAS, but not at damaging levels. Sorghum midge caused severe damage and high losses throughout central and gulf coast areas of TEXAS because of late planting of grain sorghum. This midge was reported for first time in the Trans-Pecos area of the State.

CARMINE SPIDER MITE (*Tetranychus telarius*) was light on corn in east-southeast ILLINOIS in June but caused no serious damage. *Tetranychus* spp. caused little or no damage to corn in KANSAS but were heavy on corn over most of NEBRASKA. Economic damage was observed in Cuming and Saunders Counties. This is the farthest east spider mite damage has been observed in Nebraska. Populations were much higher than in 1965. Spider mites were first noted in Platte and Goshen Counties, WYOMING, July 20. Populations steadily increased and in some instances caused the loss of the lower fourth and fifth leaves. Chemical control was only moderately successful. TWO-SPOTTED SPIDER MITE (*T. urticae*) populations were economic on corn in several areas of COLORADO, with some controls necessary. Populations were low to moderate on sorghum, with no controls applied. *Tetranychus* spp. were medium to heavy on corn in Churchill and Pershing Counties, NEVADA, during late summer and required treatment. Infestations were generally light in other counties except in Lincoln County where they were above the 1965 level. Two-spotted spider mite infested corn in most areas of CALIFORNIA with damage appearing late in the season. This spider mite continued as a severe problem on corn in WASHINGTON.

GARDEN SYMPHYLAN (*Scutigerella immaculata*) infested corn in west-central and southwestern OHIO from mid-June to mid-July. Infestations on field corn may have increased in 1966. In INDIANA, losses to field corn were observed for the first time. Infestations ranged 1-8 acres in Clinton, Shelby and Harrison Counties, with significant yield losses in each instance. Garden symphylan also damaged seedling corn in a few areas of CALIFORNIA.

SLUGS injured corn plants in Lenawee, Clinton, Shiawassee and Eaton Counties, MICHIGAN, during late June. Most severely damaged fields had an abundance of decaying organic matter nearby.

## SMALL GRAINS

### Highlights:

ENGLISH GRAIN APHID was common on small grains early in the season in several areas but populations either did not increase or declined and were noneconomic. Survival of first-generation CHINCH BUG nymphs was high in KANSAS due to a mild, dry spring. Survey indicated higher overwintering populations than in 1965 and that they were uniformly distributed throughout the eastern half of Kansas. HESSIAN FLY infestations ranged as high as 35 percent in some Ohio wheat fields but populations were slightly lower in Indiana than in 1965. Populations increased greatly in Illinois compared with the previous year. Hessian fly spread westward and southwestward in Kansas as the result of change from resistant to susceptible wheat varieties. Greater losses may be expected in this area of the State. Many severe infestations in early planted fields reduced fall pasture and will contribute to winter kill in many fields in Kansas. BARLEY THRIPS was economic throughout North Dakota. BROWN WHEAT MITE damaged small grains in Texas, Oklahoma and Kansas, with some controls applied; infestations occurred on small grains in widely scattered areas of Montana. WINTER GRAIN MITE damaged small grains in north-central Texas in late winter and early spring, and became moderate to heavy in several areas of Oklahoma during March and April. WHEAT STEM SAW-FLY infested 12.5-100 percent of fields in 20 western counties of North Dakota, but infestations were less severe in Ohio than in 1965.

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ENGLISH GRAIN APHID (Macrosiphum avenae) was present in wheat from January through April in OKLAHOMA, but counts seldom averaged above 40 per linear foot. Fall activity began in mid-October with light numbers present the rest of the year. This aphid was present but noneconomic in ARKANSAS, and remained very light throughout the season in KANSAS, causing no damage. English grain aphid was heavy on Wocus barley in Douglas County, OREGON, during May, but by the end of June, syrphid flies and other predators had reduced populations in unsprayed fields. Scattered infestations in Klamath County caused some difficulties in harvesting operations. Light populations were evident the first week of June in NORTH DAKOTA, but remained noneconomic. Populations were common on oats in eastern SOUTH DAKOTA during the spring, but overall counts and infestations were low. Winged forms were observed in grain fields in Racine and Rock Counties, WISCONSIN, by April 22, at which time reproduction was already underway. English grain aphid ranged 160-1,360 per 100 sweeps on wheat just starting to head in southern ILLINOIS in early May, but populations declined thereafter and no damage occurred. Populations were higher in OHIO this year than in 1965. Infestations did not build up until much of the grain was headed and beyond the point where serious damage would have occurred. Counts ranged 1-18 aphids per sweep. English grain aphid ranged light to medium on barley and wheat in all sections of MARYLAND in 1966.

APPLE GRAIN APHID (Rhopalosiphum fitchii) remained very light throughout the season in KANSAS, and caused no damage. In TEXAS, the usual light populations occurred throughout the High Plains, Rolling Plains, and northern and central areas on small grains with no economic damage reported. GREEN PEACH APHID (Myzus persicae) occurred in trace numbers on volunteer barley late in the season in NORTH DAKOTA.

AN APHID (Rhopalosiphum padi) was present on oats from January through April in OKLAHOMA. Counts averaged 300-550 per linear foot in scattered fields in the western two-thirds of the State, but most populations were much lighter. All counts were light except in Carter County, where numbers ranged up to 450 per linear foot in early November. R. padi was common on oats in eastern SOUTH DAKOTA during the spring. Overall counts and infestations were low. A subterranean APHID (Forda olivacea) was found in South Dakota for the first time since 1963. WESTERN WHEAT APHID (Brachycolus tritici) was present on barley in

north-central and far eastern MONTANA.

CHINCH BUG (Blissus leucopterus) populations were very low in ILLINOIS. An estimated 1,695 acres of small grains were treated compared with 13,523 in 1965. In KANSAS, survey in 1965 indicated light overwintering numbers. A mild, dry spring in 1966, however, resulted in high survival of first-generation nymphs. By mid-June, populations had increased to damaging levels on seedling sorghum in many fields in the eastern third of the State, and a large acreage was treated during July. Survey in 1966 indicated that overwintering populations were considerably higher than last year and were quite uniformly distributed throughout the eastern half of the State.

A FALSE CHINCH BUG (Nysius sp.) was heavy on wheat in Eureka County, NEVADA, during July and partially or completely destroyed heads on large acreages.

SAY STINK BUG (Chlorochroa sayi) infestations and damage were heavy on wheat in Eureka County, NEVADA, during July and partially or completely destroyed heads on large acreages. Say stink bug and GREEN STINK BUG (Acrosternum hilare) infested wheat in COLORADO during the year.

RICE STINK BUG (Oebalus pugnax) continued light in rice in ARKANSAS as widespread use of herbicides for grass control greatly reduced stink bug infestations.

MEADOW SPITTLEBUG (Philaenus spumarius) nymphs were unusually heavy on small grains during May in Douglas County, OREGON.

HESSIAN FLY (Mayetiola destructor) was active statewide in OHIO during 1966, with some fields being 35 percent infested. Field populations infesting resistant wheats in INDIANA were slightly lower in 1966 than in 1965. Of 317 certified fields sampled, 69 percent were infested in 1966 compared with an 84-percent infestation during 1965. Heaviest average infestations for W38 resistant wheat occurred in Knox County where 26.7 percent of the Monon, 41.7 percent of the Reed, and 24.0 percent of the Riley was infested. The annual survey of wheat stubble during July in ILLINOIS showed a remarkable increase in Hessian fly populations. The State average was 14.35 puparia per 100 tillers and 9.86 percent of the tillers infested. In 1965, the corresponding figures were 1.5 and 1.28. However, a follow-up survey November 8-10 in fall-sown wheat in the east-southeast district of Illinois did not reveal any infested fields. Hessian fly infestations were light throughout MISSOURI. Populations entering winter hibernation in the fall of 1965 were widespread but light in KANSAS. A general westward and southwestward spread was the result of the change from resistant to susceptible wheat varieties. Greater losses can be expected in this area of Kansas. Many severe infestations found in early planted fields this fall reduced fall pasture. This will contribute considerably to winter kill in many fields. Hessian fly damaged grain in 18 MONTANA counties in 1964, but activity diminished greatly in 1965 and still more in 1966. Trials for resistant wheat varieties were initiated in Big Horn County where a 5 to 15-percent loss occurred in 1965. No data were obtained in 1966 since Hessian fly did not appear in that area of Montana.

WHEAT STEM MAGGOT (Meromyza americana) was moderate in some wheat fields in north-eastern NEBRASKA during 1966 and caused white-heads to appear in wheat in NORTH DAKOTA during early July where infestations did not exceed 1 percent; however, wheat stem maggot occurred statewide in MINNESOTA, but was generally low in small grains.

A RICE LEAF MINER (Hydrellia griseola) caused some damage and required controls in rice-growing areas of CALIFORNIA. A TADPOLE SHRIMP (Triops longicaudatus) was generally light in growing rice in California during the 1966 season.

GREEN JUNE BEETLE (Cotinis nitida) larvae were very severe in barley in Franklin County, VIRGINIA, in early October. RICE WATER WEEVIL (Lissorhoptrus oryzophilus)

showed resistance to recommended and commonly used insecticides in ARKANSAS.

WHEAT WIREWORM (Agriotes mancus) was moderately heavy and caused yellowing of a field of oats in Erie County, PENNSYLVANIA. Unspecified WIREWORMS were noneconomic in most small grain fields in NORTH DAKOTA.

BLACK CUTWORM (Agrotis ipsilon) caused considerable damage to approximately 2,000 acres of small grains in Falls County, TEXAS, during early October. PALE WESTERN CUTWORM (A. orthogonia) caused light to moderate damage to wheat in southwest and west-central KANSAS in April and May. Controls were applied in a few instances. Pale western cutworm infested wheat in COLORADO. A CUTWORM (Euxoa sp.) required controls on spring barley in several areas of OREGON, and occurred on small grains throughout Gilliam, Sherman, and Morrow Counties in late April. VARIEGATED CUTWORM (Peridroma saucia) damage was very light in INDIANA during 1966 and adult trap catches were well below those of 1965.

GRASS THRIPS (Anaphothrips obscurus) infested barley in Daniels County, MONTANA. BARLEY THRIPS (Limothrips denticornis) occurred in economic numbers throughout NORTH DAKOTA. Migrations into barley began in mid-June and thrips were found in leaf sheaths 2 weeks later. Infestations occurred in wheat and stem breakage ranged up to 15 percent. A LEAFHOPPER (Dikraneura carneola) severely damaged 100 acres of wheat in Whitman County, WASHINGTON.

BROWN WHEAT MITE (Petrobia latens) populations reached usual damaging proportions on small grains in the High Plains of TEXAS during late winter and early spring. Populations damaged wheat in scattered areas of northwest OKLAHOMA during late March and April. Counts ranged 300-500 per linear foot in several areas and up to 2,000 per linear foot in Major County. Fall activity in Oklahoma began in late November, but continued light. Brown wheat mite increased to high levels of 1,000-2,000 per linear foot of row in some areas of western KANSAS during the spring, with controls applied in a few instances. Rains in mid-April caused populations to decline sharply and remain noneconomic the remainder of the season. Infestations were noted on wheat in COLORADO. Adults and nymphs were first noticed on winter wheat May 18 in Platte and Goshen Counties, WYOMING. Counts averaged 15 and 45 per linear foot of row respectively. Brown wheat mite infested small grain in Liberty and Pondera Counties, MONTANA, and in other widely separate areas of that State, and was abundant on wheat in Douglas County, WASHINGTON, in June. Brown wheat mite infested grain fields in Siskiyou County, CALIFORNIA.

WINTER GRAIN MITE (Penthaleus major) reached its usual damaging proportions on small grains in north-central TEXAS during late winter and early spring. Infestations were light in OKLAHOMA during January but increased in February, becoming moderate to heavy in several areas of the State during March and April. Some damage occurred to small grains in April. Fall activity began in early November and heavy numbers were present in scattered fields in the north-central area by mid-December. Winter grain mite was heavier than normal on wheat in southeast KANSAS in the fall of 1966, with some bronzing of leaves evident.

WHEAT CURL MITE (Aceria tulipae) infestations were very low in wheat in KANSAS. Few infestations became established in the fall of 1965 except for a small area in the southwest section. These infestations did not spread during the winter and severe spring drought masked mosaic symptoms so completely that no estimate of loss could be made.

WHEAT STEM SAWFLY (Cephus cinctus) surveys revealed infestations in 20 western counties of NORTH DAKOTA, with 12.5-100 percent of fields infested. The area average was 66.72 percent of fields infested. Cut stems ranged 0-12 percent, averaged 2.82 percent. Infestations were highest (13.09 percent infested stems) in northwestern counties and lowest (2.37 percent infested stems) in west-central counties of North Dakota. Wheat stem sawfly infestations were less severe in OHIO than in 1965.

## TURF, PASTURES, RANGELAND

### Highlights:

FALL ARMYWORM was usually severe on Bermuda grass in Florida and damaged pastures and lawns in Alabama and Texas. A SOD WEBWORM was particularly heavy in large areas of southern Florida. BILLBUGS and WHITE GRUBS were damaging in several areas. GRASS BUGS caused extensive damage to rangeland grasses in Utah. BERMUDAGRASS MITE continued to damage Bermuda grass in Oklahoma and was found in several new counties in that State.

FALL ARMYWORM (*Spodoptera frugiperda*) was unusually severe, particularly on Bermuda grass in FLORIDA, and probably other lawn grasses as well. Some damage occurred on centipedegrass, which is unusual. Infestations were light and sporadic on pastures during the year in central and southern ALABAMA. Fall armyworm damaged pasture grasses and lawns, as well as small grains, in several areas of TEXAS during early fall. Populations were lighter than in previous years, however.

GLASSY CUTWORM (*Crymodes devastator*) damaged lawns in Pershing County, NEVADA, in June and July. A GRASSWORM (*Mocis latipes*) was common throughout FLORIDA and heavy on several young St. Augustine grass pastures at Belle Glade. LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) was the principal pest that destroyed several hundred acres of young winter rye pastures in Sumter and Marion Counties, FLORIDA, during late October.

SOD WEBWORMS (*Crambus* spp.) were the most serious pests of turf in RHODE ISLAND during 1966. Populations were very heavy and damage severe to turf. These pests were moderate to heavy throughout NEW JERSEY. *Crambus* spp. infestations increased in FLORIDA, but generally remained unimportant. Unspecified webworms damaged all lawn grasses in Florida during 1966. The unusually severe infestations of the past summer damaged centipedegrass, which is unusual. *Pachyzancla phaeopteris* was heavy in large areas in the southern half of Florida during the summer. This was one of the worst 2 or 3 years in the past 15. Increases were probably due to the fact that parasitism by ichneumon wasps was adversely affected by almost continually wet turf.

WESTERN TUSSOCK MOTH (*Hemerocampa vetusta*) was heavy on bitterbrush in areas of Ormsby and southern Washoe Counties, NEVADA, in June. SAGEBRUSH DEFOLIATOR (*Aroga websteri*) varied light to heavy in northern counties but was most noticeable in Lander County during June.

PAINTED LADY (*Vanessa cardui*) adults migrated in all areas of WYOMING in mid-May. By June 10, larval damage was occasionally extensive on Canada thistle (*Cirsium arvense*). This was the second consecutive year larvae were numerous on this host in the State.

BILLBUGS (*Sphenophorus* spp.) damaged lawns in Pershing County, NEVADA, during June and July. Unspecified billbugs were more abundant and/or damaging to lawns in UTAH than normal. *Sphenophorus phoeniciensis* heavily damaged many lawns in Yuma and Maricopa Counties, ARIZONA, as well as annoyed homeowners in populated areas of these counties. BLUEGRASS BILLBUG (*S. parvulus*) damaged zoysia lawns in Johnson County, KANSAS, during August, and *S. venatus vestitus* damaged zoysia turf in the Kansas City and Wichita areas of that State. In NEBRASKA, bluegrass billbug damaged bluegrass in Lincoln, Lancaster County, a new county record. Adults and larvae of unspecified billbugs caused serious damage to zoysia turf in Montgomery and Prince Georges Counties, MARYLAND, during the summer of 1966. Billbugs were not an economic problem in FLORIDA where chemical controls were used, but were occasionally severe on zoysia and Bermuda grass.



A FLEA BEETLE (Chaetocnema magnipunctata) caused damage to and killed dichondra lawns in southern CALIFORNIA.

WHITE GRUBS (Phyllophaga spp.) caused severe damage to lawns, pastures and other hosts in scattered locations over MINNESOTA, with some lawns and pastures being destroyed. Adult flights peaked June 10 in WISCONSIN, and reports of severe larval damage to lawns and gardens were common throughout the summer. Larvae were a severe problem where corn and potatoes were planted in fields which had been in sod previously. In NEBRASKA, larvae of Phyllophaga anxia averaged 1.7 per square foot in grassland in some parts of Cherry County with some light damage noted in localized areas. Light infestations of unspecified WHITE GRUBS caused light damage to lawns in Hancock County, MAINE. However, skunks digging for grubs caused intensive injury and in some instances very heavy damage in mid-June.

NORTHERN MASKED CHAFER (Cyclocephala borealis) adults were unusually heavy at lights in Prince Georges County, MARYLAND, during late June and early July.

CHINCH BUG (Blissus leucopterus) infested lawns in South Kingstown, RHODE ISLAND, in July and August. Chinch bug damaged home lawns in central and northern NEW JERSEY counties, where populations peaked during August and September. Populations in western and southeastern PENNSYLVANIA caused severe damage to many lawns. Infestations in FLORIDA were generally much smaller early in the year than in recent years, but by late summer, there was some general increase. Low numbers were probably due to unusually unfavorable wet conditions and widespread use of insecticidal treatments. In recent years, chinch bug has damaged only St. Augustine grass in Florida.

A SPITTLEBUG (Prosapia bicincta) infested Bermuda grass during the spring in central and southern ALABAMA, but was lighter than in 1965. This spittlebug was a severe summer problem in pastures in FLORIDA on Pangolagrass in Manatee County, on St. Augustine grass primarily, Bermuda grass and Pangolagrass in the Belle Glade area of Palm Beach County. Populations at Belle Glade had 2 main peaks. Adults averaged over 5,000 per blacklight trap per night in June and over 4,500 per trap night in late August and early September.

MEADOW SPITTLEBUG (Philaenus spumarius) nymphs were unusually heavy on grass during May in Douglas County, OREGON.

GRASS BUGS were very destructive to range grasses in UTAH during 1966. Approximately 200,000 acres of planted range grasses and 3,000 acres of wheat and other small grains were severely damaged. Wheat was damaged in Millard, Juab, Iron, Box Elder, and Sevier Counties and less extensively in other counties. Damage by Labops hesperius was particularly severe to several thousand acres of crested and intermediate wheatgrass plantings. L. hesperius, Irbisia brachycerus and I. pacificus caused extensive damage during each of the past 5 seasons, especially to crested wheatgrass. L. utahensis and I. shullii were also among the more damaging of the grass bugs in Utah. I. shullii damaged ryegrass from Monte Cristo to Huntsville and severely discolored intermediate wheatgrass in the Peterson area of Morgan County at an elevation of 7,000 feet. Stenodema pilosipes damaged grasses north of Fountain Green and Trigonotylus dohertyi infested planted grasses in the Alton area, both in early June.

GRASS THRIPS (Anaphothrips obscurus) damaged timothy pastures in Lyon and Douglas Counties, NEVADA, during May. Other THRIPS (Chirothrips spp.) caused moderate damage to Bermuda grass in the Wellton and Roll areas of Yuma County, ARIZONA, where controls were necessary to prevent extensive damage. Also in ARIZONA, a WHITEFLY (Aleurocybotus occiduus) damaged Bermuda grass seed and necessitated controls in seed-producing areas of Yuma County.

A CRICKET (Nemobius fasciatus) continued as a major pest of crimson, white and other clovers in pastures and sod during the fall in ALABAMA, especially in central and western sections.

RHODES-GRASS SCALE (Antonina graminis) ranged medium to heavy and damaged lawns in Graham, Maricopa, Pinal and Yuma Counties, ARIZONA. This scale is of particular importance to turf grasses of golf courses.

BROMEGRASS SEED MIDGE (Stenodiplosis bromicola) averaged 56 per 100 sweeps on brome grass during late May in Saunders County, NEBRASKA. Diapausing larvae were found in brome grass fields in Lancaster, Gage and Cass Counties in mid-July. Populations appear to be widespread in the State. EUROPEAN CRANE FLY (Tipula paludosa), a serious pest of grass, was collected at Blaine, WASHINGTON, during 1966 for a new United States record.

BERMUDAGRASS MITE (Aceria neocynodonis) was serious on some local plantings of Bermuda grass in FLORIDA, but is not a major pest statewide. There was no indication of increased infestations over previous years. Bermudagrass mite continued to damage Bermuda grass lawns in OKLAHOMA, with several new counties found infested during the summer and fall. This mite severely damaged Bermuda grass lawns in Yuma, Maricopa, Pinal and Pima Counties, ARIZONA. BANKS GRASS MITE (Oligonychus pratensis) was heavy on timothy pastures in Lyon County, NEVADA, in late April and May.

Although the number of infestations of a SPIDER MITE (Oligonychus stickneyi) on St. Augustine grass in FLORIDA is low, more damage is being noted along the southeast coastal area from Palm Beach southward.

weather continued from page 130

TEMPERATURE: While mild weather continued from the Rockies to the Sierra ranges, bitter cold prevailed over the eastern half of the Nation. During the latter half of the week, a large and stagnant mass of Arctic air extended from the eastern slopes of the Rockies to the Atlantic coast. Subzero temperatures occurred in more than 20 States with temperatures of 30° below zero in New England. Some Colorado mountain valleys experienced -35° and mountain locations in western North Carolina registered -20° and colder. Several subzero mornings occurred in the northern Great Plains. Temperatures dropped to 32° along the gulf and south Atlantic coasts and freezing hit much of Florida. Moderation came to the central Plains as southerly winds sent temperatures into the 50's and 60's; Bismarck, North Dakota, emerged from the "deep freeze" with a high of 37°. Temperatures over the Ohio River Valley averaged 15° to 18° colder than normal. (Summary supplied by Environmental Data Service, ESSA).



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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**



# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

All correspondence pertaining to additions, deletions and changes of addresses for the mailing list for this report should be sent to:

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## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

GREENBUG populations severe on wheat in some areas of Texas and Oklahoma. SPOTTED ALFALFA APHID killing fall-seeded alfalfa near Tipton, Oklahoma. (p. 151). EGYPTIAN ALFALFA WEEVIL causing heavy damage to alfalfa in Yuma and Maricopa Counties, Arizona. (p. 152). CITRUS RUST MITE and an ARMORED SCALE at highest February levels in 16 years in Florida. (p. 153).

Detection

A PLUME MOTH found for first time in Indiana. (p. 153).

For new county records see page 157.

Prediction

BROWN WHEAT MITE could present problems in Kansas if weather continues mild and dry. (p. 151). Early collection of ALFALFA LOOPER adults in California may indicate heavy infestations this season. (p. 152). FOREST TENT CATERPILLAR expected to cause heavy defoliation in larger area of Minnesota this year and EASTERN TENT CATERPILLAR damage may increase in Kentucky. (p. 155). Egg surveys for an OAK LEAF ROLLER in Virginia indicate extensive damage may occur in 1967. (p. 155).

First Occurrence of Season

ALFALFA WEEVIL in California, Missouri, and Illinois. (p. 151).

Special Reports

Summary of Insect Conditions in the United States - 1966

Forage Legumes (pp. 159-164).

Soybeans (pp. 164-167).

Peanuts (p. 167).

Distribution of Meadow Spittlebug (Map). (p. 165).

Overwintering of Alfalfa Weevil Eggs in Massachusetts. (pp. 168-170).

Soybean Cyst Nematode Quarantine (Map). See centerfold.

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Soybean Cyst Nematode Quarantine (Map). See center fold.

WEATHER BUREAU'S 30-DAY OUTLOOK

MARCH 1967

The Weather Bureau's 30-day outlook for March calls for temperatures to average below seasonal normals in the Great Lakes region and the Northeast as well as in the Southwest and the central Pacific coast. Above normal temperatures are indicated for the Southeast and also for the northern Plains while near normal temperatures are called for elsewhere. Precipitation is expected to exceed normal over the Pacific Northwest and also over the eastern half of the Nation except for near to below normal totals in the south and middle Atlantic Coast States. Subnormal precipitation is indicated for portions of the northern and southern Plains while near normal precipitation is in prospect in unspecified areas.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

For weather of the week see page 157.



### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**GREENBUG (*Schizaphis graminum*)** - TEXAS - Increased markedly in past 2 weeks but remained noncritical. Light to heavy populations spotty in High Plains wheat area, with isolated counts up to 250 per linear foot in Swisher and Hale Counties. (Texas Coop. Rpt.). In Swisher County, 3,000-4,000 aphids per foot infested irrigated wheat. Situation under control with chemicals. (Daniels). ARKANSAS - Numbers low, but have increased; increase likely to continue. (Ark. Ins. Sur.). OKLAHOMA - Increased in southwest area. Ranged 20-80 per linear foot in Tillman County wheat; 20-40 and occasionally 200-275 per linear foot in Stephens County. Latter fields showing typical feeding damage. Averaged 30 per linear foot in McCurtain County; heavy in Oklahoma County but light in Kingfisher. (Okla. Coop. Sur.). KANSAS - Light, 2-5 per linear foot, in several Seward County wheat fields. (DePew).

**CORN LEAF APHID (*Rhopalosiphum maidis*)** - ARIZONA - Moderate on small grains in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). NEW MEXICO - Light on Dona Ana County barley. (Campbell, Nielsen).

**SPOTTED ALFALFA APHID (*Therioaphis maculata*)** - OKLAHOMA - Up to 80 per plant killing fall-seeded alfalfa in Tipton area of Tillman County. Averaged 32 per square foot of crown in Lincoln County. (Okla. Coop. Sur.). ARKANSAS - Easily found in northwest area; previously very scarce. (Ark. Ins. Sur.).

**ARMY CUTWORM (*Chorizagrotis auxiliaris*)** - KANSAS - Occasional larva found in few wheat fields in Logan, Wallace and Greeley Counties. (Simpson).

### SMALL GRAINS

**BROWN WHEAT MITE (*Petrobia latens*)** - TEXAS - Present on small grains in several panhandle counties. (Daniels). OKLAHOMA - Numbers per square foot of wheat by county: Tillman 200-1500, Comanche 250-350, Stephens 200-800. (Okla. Coop. Sur.). KANSAS - Light to moderate in Haskell, Stevens and Seward Counties. Could present problems if weather continues mild and dry. (DePew).

**WINTER GRAIN MITE (*Penthaleus major*)** - OKLAHOMA - Ranged 175-400 per linear foot on wheat in northern Tillman County. (Okla. Coop. Sur.).

**AN APHID (*Rhopalosiphum padi*)** - OKLAHOMA - Ranged up to 100 per linear foot of wheat in scattered Stephens County fields; 0-5 in Tillman County, and 40 in McCurtain County. (Okla. Coop. Sur.).

**ENGLISH GRAIN APHID (*Macrosiphum avenae*)** - ARKANSAS - Continues low on wheat in northwest area. (Ark. Ins. Sur.).

### FORAGE LEGUMES

**ALFALFA WEEVIL (*Hypera postica*)** - CALIFORNIA - Beginning to damage alfalfa in Colusa and Glenn Counties. (Jenkins). MISSISSIPPI - Heavy, approximately 40-50 larvae per square foot, on 15 acres of alfalfa in Sunflower County. Heavily damaged young leaves. (Dinkins). MISSOURI - First larvae of season observed in southeast section. Alfalfa too short for sweep counts. First and second-stage larvae averaged 8-10 per square foot in fields checked. (Munson). ILLINOIS - First to third-stage larvae ranged 5-40 per square foot on alfalfa in Pope County; 10-20 in Massac County and 8 in Harding County. Alfalfa measured 2-4 inches and temperature ranged 60-70°. Two adults per 100 sweeps collected in Pope County. (Armbrust, Moore). VIRGINIA - Single square-foot sample of alfalfa collected at Charlotte Courthouse, Charlotte County. Of 215 eggs found, 161 hatched and 54 unhatched. Of 67 larvae found, 28 were alive. Some feeding signs observed, but no weevils found. No feeding signs observed at Shenandoah Valley Research Station, Rockbridge County. (Woodside).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Increasing rapidly. Larvae damaged 40-100 percent of alfalfa terminals in Yuma County and 10-45 percent in Maricopa County. (Ariz. Coop. Sur.).

CLOVER LEAF WEEVIL (Hypera punctata) - ILLINOIS - Larvae ranged 4-12 per square foot in 2 to 4-inch alfalfa in Massac, Pope, and Hardin Counties. (Armbrust, Moore).

ALFALFA LOOPER (Autographa californica) - CALIFORNIA - Adults collected in light trap at La Grange, Stanislaus County, for unusually early record. This may indicate season of heavy infestations. (Cal. Coop. Rpt.).

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Increased on alfalfa in Yuma, Maricopa and Pinal Counties. Averaged 5,000 per 100 sweeps. (Ariz. Coop. Sur.). OKLAHOMA - Averaged as low as 20 per square foot on some alfalfa in Stephens County, and as high as 800 per square foot in other fields, especially fall-seeded alfalfa. Averaged 12 per square foot in Lincoln County. (Okla. Coop. Sur.). ARKANSAS - Increased; ranged 30-50 per square foot on vetch in Washington County. (Ark. Ins. Sur.). ILLINOIS - Occasional specimens observed in 2 to 4-inch alfalfa in southeast section. (Armbrust, Moore).

LYGUS BUGS (Lygus spp.) - NEW MEXICO - Adults light in Chaves County alfalfa. (Mathews).

#### SUGARBEETS

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae light, but increased on sugarbeets in Pinal and Maricopa Counties. Controls unnecessary. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Increased in Maricopa County, particularly in western area. (Ariz. Coop. Sur.).

#### MISCELLANEOUS FIELD CROPS

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Moderate, 4 per leaf, on new safflower leaves in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Nymphs light to moderate on most safflower in Maricopa County. (Ariz. Coop. Sur.).

#### POTATOES, TOMATOES, PEPPERS

POTATO APHID (Macrosiphum euphorbiae) - IOWA - Very high populations damaged greenhouse tomatoes in Creston, Union County. (Iowa Ins. Sur.).

#### CUCURBITS

CITRUS MEALYBUG (Planococcus citri) - CALIFORNIA - Heavy on black calabash squash in nursery at Fresno, Fresno County. (Cal. Coop. Rpt.).

#### GENERAL VEGETABLES

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Continues moderate on lettuce in Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

THRIPS - NEW MEXICO - Increasing on mature onions but very light on seedlings. (Campbell, Elson).

## DECIDUOUS FRUITS AND NUTS

LESSER PEACH TREE BORER (*Synanthedon pictipes*) - MISSISSIPPI - Larvae light to medium on peach in Oktibbeha and surrounding counties; infestation 75 percent on one orchard. Second and third-stage larvae and some pupae observed. (Dinkins).

BLACK PEACH APHID (*Brachycaudus persicaecola*) - CALIFORNIA - Medium on peach trees at Paradise, Butte County. (Cal. Coop. Rpt.).

## CITRUS

Citrus Insect Situation in Florida - End of February 1967 - CITRUS RUST MITE (*Phyllocoptruta oleivora*) infested 71 percent of groves (norm 58 percent); 54 percent economic (norm 35 percent). Population continued in high range and is at highest February level recorded in 16 years; will remain high. High in all districts. CITRUS RED MITE (*Panonychus citri*) infested 56 percent of groves (norm 34 percent); 27 percent economic (norm 12 percent). Population above average and in moderate range. Decrease expected. Highest districts west and north. TEXAS CITRUS MITE (*Eutetranychus banksi*) infested 49 percent of groves (norm 26 percent); 29 percent economic (norm 8 percent). This mite continues at record high level for February. Population still in moderate range and expected to hold near current level. Highest districts west and north. GLOVER SCALE (*Lepidosaphes gloverii*) infested 84 percent of groves; 17 percent economic. Population near normal and in high range. Slight increase expected. Highest districts east, central and south. PURPLE SCALE (*L. beckii*) infested 80 percent of groves; 11 percent economic. This scale near normal moderate abundance. Will increase slightly but will not produce heavy infestations. Highest district central. YELLOW SCALE (*Aonidiella citrina*) infested 70 percent of groves; 10 percent economic. Population near normal and in moderate range with little change expected. Highest districts central and east. CHAFF SCALE (*Parlatoria pergandii*) infested 59 percent of groves; 4 percent economic. Population below normal and low with little change expected. Highest district east. BLACK SCALE (*Saissetia oleae*) infested 46 percent of groves; 12 percent economic. Population above normal for February but in low range. Slight increase expected. Highest district east. An ARMORED SCALE (*Unaspis citri*) infested 6 percent of groves; 3 percent have moderate or heavy infestations. Population has increased during past 4 years and is now at highest level in 16 years of record. All infestations of this pest should be considered of economic importance because of potential for spread and difficulty of control. WHITEFLIES and MEALYBUGS near normal low levels of abundance. A few APHIDS have appeared in scattered groves. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred, Fla.)).

## OTHER TROP. & SUBTROP. FRUITS

FIG SCALE (*Lepidosaphes ficus*) - CALIFORNIA - Adults light on 5 acres of fig trees in Clovis, Fresno County. Normally, this scale is held in check biologically. (Cal. Coop. Rpt.).

## ORNAMENTALS

A PLUME MOTH (*Platyptilia pica*) - INDIANA - In Putnam County, larvae and pupae found on greenhouse geranium cuttings from out of State. This is a new State record. (Favinger).

GRANULATE CUTWORM (*Feltia subterranea*) - ARIZONA - Larger than normal populations damaged ornamentals in the Phoenix area of Maricopa County. (Ariz. Coop. Sur.).

ARMORED SCALES - MARYLAND - Unaspis euonymi heavy on euonymus at location in Silver Spring, Montgomery County. (U. Md., Ent. Dept.). FLORIDA - Comstockiella sabalis infested cabbage palm at nursery in Cross City, Dixie County. This is a new county record. (Graham, Feb. 22). ALABAMA - Crawler activity of Fiorinia theae increased during past 2 weeks on Burford holly and camellia in central and southern sections. Aspidiotus perniciosus heavy on 20 percent of flowering crab apple in Lee County. (McQueen). CALIFORNIA - Hemiberlesia rapax heavy on euonymus at Ramona, San Diego County, and at Davis, Yolo County. (Cal. Coop. Rpt.).

SOFT SCALES - FLORIDA - Toumeyella liriodendri adults severe on 100 sweetbay nursery plants at Thonotosassa, Hillsborough County; caused much twig and stem die-back. (Simmons et al.). Coccus hesperidum collected on stem and leaves of monstera at nursery in Cross City, Dixie County, February 15. This is a new host record. (Graham). CALIFORNIA - Saissetia oleae heavy on euonymus in Ramona, San Diego County. (Cal. Coop. Rpt.).

MEALY BUGS - CALIFORNIA - Pseudococcus obscurus adults heavy on Eucharis grandiflora nursery stock in San Bruno, San Mateo County. Spilococcus cactearum heavy on a cactus locally in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

APHIDS - ALABAMA - Overwintering Eriosoma lanigerum heavy on roots of several flowering crab apple trees in Lee County. (McQueen). ARIZONA - Macrosiphoniella sanborni increased on and damaged ornamentals in Phoenix area of Maricopa County. (Ariz. Coop. Sur.).

AN ERIOPHYID MITE (Paracalacarus podocarp) - FLORIDA - Adults moderate on 10 percent of 2,500 Japanese yews at nursery in West Hollywood, Broward County. New growth was stunted. (Hickman, Cervone, Feb. 15).

#### FOREST AND SHADE TREES

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - OKLAHOMA - Infesting occasional pine trees near America, McCurtain County. Most infested trees have been cut. (Okla. Coop. Sur.).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - Populations continue on following National Forests: Francis Marion in South Carolina, Homochitto in Mississippi and Talladega in Alabama. On private lands, epidemic populations continue in Alabama, Louisiana, North Carolina and Texas. Also found on the Bankhead National Forest and in Clarke County, Alabama, for the first time in several years. (South. For. Pest Rptr., Feb. Sum.).

PINE BARK APHID (Pineus strobi) - MARYLAND - Light to medium on young white pines at Laurel, Prince Georges County. (U. Md., Ent. Dept.).

A PINE APHID (Cinara sp.) - OKLAHOMA - Heavy on pines in many areas of McCurtain and Pushmataha Counties in mid-February. Trees checked this period show parasites and birds completely destroyed most infestations. (Okla. Coop. Sur.).

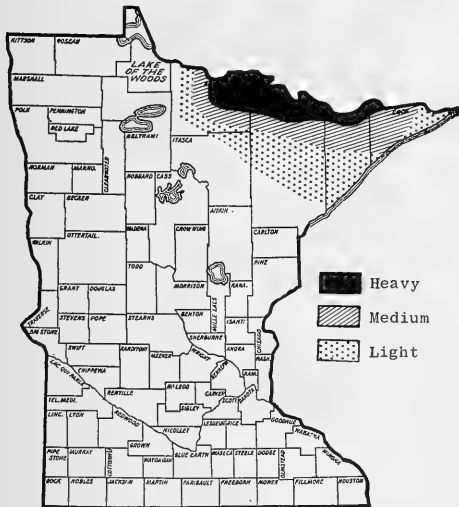
SEED AND CONE INSECTS - Overall damage to cones was much higher in Louisiana during 1966. Treated shortleaf pine seed production areas in Arkansas showed an increase in seed and cone production when compared with untreated checks. Most common insects infesting seeds and cones in Arkansas, Louisiana, North Carolina and South Carolina were Dioryctria spp., Laspeyresia spp. and a coneworm Eucosma sp. A chloropid fly, Hapleginella conicola, was collected from cones infested by cecidomyiid midges in North Carolina. This may be first recovery of this insect from shortleaf pine cones. (South For. Pest Rptr., Feb. Sum.).

AN ARMORED SCALE (Phenacaspis heterophyllae) - FLORIDA - Collected on loblolly pine at Melrose, Putnam County, February 24. This is a new county record. (Graham).

**FOREST TENT CATERPILLAR (*Malacosoma disstria*) - MINNESOTA** - This pest has caused heavy defoliation on broadleaf trees since 1964 in the north-central area. Since that date, infestation has spread very slowly. The 1967 defoliation prediction is illustrated on accompanying map. This predication is based on 3 surveys: An aerial defoliation survey in early July 1966, a light trap survey for moth distribution during entire month of July and an egg mass survey conducted from October 15 to January 1. (Minn. Ins. Rpt.).

Forest tent Caterpillar Defoliation Prediction in Minnesota - 1967

heavy defoliation on broadleaf trees since 1964 in the north-central area. Since that date, infestation has spread very slowly. The 1967 defoliation prediction is illustrated on accompanying map. This predication is based on 3 surveys: An aerial defoliation survey in early July 1966, a light trap survey for moth distribution during entire month of July and an egg mass survey conducted from October 15 to January 1. (Minn. Ins. Rpt.).



Heavy  
 Medium  
 Light

**EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - KENTUCKY** - A statewide egg-mass survey was conducted in portions of Letcher, Morgan, Menifee, Powell, Bath, Montgomery, Marion, Taylor, Casey, Green and Adair Counties. Intensity of damage may increase compared with 1966. (South. For. Pest Rptr., Feb. Sum).

**CALIFORNIA OAKWORM (*Phryganidia californica*) - CALIFORNIA** - Larvae heavy on oak trees at St. Helena and Yountville, Napa County. Larvae about one-third grown. Early occurrence of larvae indicates another year of severe defoliation unless virus disease currently present in some specimens becomes effective. (Cal. Coop. Rpt.).

**AN OAK LEAF ROLLER (*Croesia semipurpurana*) - VIRGINIA** - Some 5,000 acres of scarlet oak trees on the James River District of the George Washington National Forest were infested during 1966. Recently completed egg surveys indicate that extensive damage may occur in 1967. (South. For. Pest Rptr., Feb. Sum.).

**A WHITEFLY (*Aleuroplatus gelatinosus*) - CALIFORNIA** - Nymphs heavy on oak trees at Fresno, Fresno County. (Cal. Coop. Rpt.).

**MAN AND ANIMALS**

**COMMON CATTLE GRUB (*Hypoderma lineatum*) - OKLAHOMA** - Counts per head averaged 5-8 on yearlings and cows in Payne and Noble Counties, 2-8 on cows in Dewey County, 1-12 on 30 percent of cows in Marshall County. Light to moderate in Mayes and Cleveland Counties. Adults active in Cotton, Tillman and Pushmataha Counties. (Okla. Coop. Sur.). **KANSAS** - Counts per head on steers ranged 0-4 in Saline County and 0-12 in Montgomery County. *H. lineatum* and *H. bovis* (northern cattle grub) reported moderate to heavy on many animals at packing plants in central district. (Simpson, Redding).

**STABLE FLY (*Stomoxys calcitrans*) - MISSISSIPPI** - Approximately 4-5 flies observed on several beef bulls penned near stables in Oktibbeha County. (Dinkins).

**SCREW-WORM (*Cochliomyia hominivorax*)** - No cases reported in U. S. February 26-March 4. Total of 35 cases reported in portion of Barrier Zone in Republic of Mexico February 19-25 as follows: Territorio sur de Baja California 4, Chihuahua 5, Nuevo Leon 1, Tamulipas 1, Sonora 24. No cases reported from Mexico south of Barrier Zone. Barrier Zone is area where eradication operations are underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 18,368,000, Mexico 90,452,000. (Anim. Health Div.).

EAR TICK (Otobius megnini) - TEXAS - Moderate in ears of horses near Waco, McLennan County. Only 2 other species, Gulf Coast tick (Amblyomma maculatum) and tropical horse tick (Anocenter nitens), normally occur in ears of domestic animals in State. (Price).

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Continues heavy on cattle and horses in Mayes and Haskell Counties. Heavy on cows in Dewey County. (Okla. Coop. Sur.).

TROPICAL RAT MITE (Ornithonyssus bacoti) - TEXAS - Moderate populations noted in homes at Mason, Mason County, and at Vernon, Wilbarger County. (Garrett, Boring).

#### BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - Adults becoming active in wheat and alfalfa in southern half of State. (Okla. Coop. Rpt.).

DAMSEL BUGS (Nabis spp.) - ARKANSAS - Low but active in green vegetation in northwest area. (Ark. Ins. Sur.).

#### FEDERAL&STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - OKLAHOMA - Stops made only where 7 or more adults per square yard were found in late summer survey. Egg pod counts averaged as follows: Latimer County, 0.25 at 3 stops; Pittsburg County, 1.5 at 5 stops; Grady and Kiowa Counties, 0.75 at 6 stops; Muskogee County negative at 2 stops. (Okla. Coop. Sur.)

ORIENTAL WOOD BORER (Heterobostrychus aequalis) - FLORIDA - Larvae and adults taken out of white oak lumber at a lumber sales yard in Miami, Dade County, February 23, 1967. This is the first established record for Dade County. (Swanson, Snowden). DELAWARE - This species and a powder-post beetle (Minthea reticulata) were collected from wooden packing case at Newark, New Castle County, in December 1966 by D. MacCreary. Det. by T. J. Spilman. Wooden case came from Vietnam. (Burbutis).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Adult collections in 8 southern counties averaged 437 per week during January and 569 during February. During last week of February, total of 740 flies collected, the highest for any week this year. Adults reared from Governors plum and Barbados-cherry. Larvae also collected in loquats, calamondins, kumquats and guavas. Some tangelos and tangerines found infested in Broward County. (Fla. Coop. Sur.).

## INSECT DETECTION

### New State Record

A PLUME MOTH (Platyptilia pica) - INDIANA - Larvae and pupae collected from geranium cuttings in Putnam County. (p. 153).

### New County Records

AN ARMORED SCALE (Comstockiella sabalis) - FLORIDA - Collected on cabbage palm at Cross City, Dixie County. (p. 154).

AN ARMORED SCALE (Phenacaspis heterophyllae) - FLORIDA - Collected on loblolly pine at Melrose, Putnam County. (p. 154).

## CORRECTIONS

CEIR 17(8):115 - AN OLETHREUTID MOTH (Cactra verutana chrysea) should read Bactra verutana chrysea).

CEIR 17(8):119 - Beneficial Insects - Line 4...a TORTRICID MOTH (Aptoforma...) should read Apotoforma...

CEIR 17(8):126 - third paragraph, lines 5-9 - Delete reference to six-spotted leafhopper in Indiana. This note should refer to SPOTTED ALFALFA APHID (Therioaphis maculata) which was reported for the first time in 11 counties in Indiana during 1966.

## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 3/2, BL - Granulate cutworm (Feltia subterranea) 1, armyworm (Pseudaletia unipuncta) 3. Sanford, 2/21-22, BL - Black cutworm (Agrotis ipsilon) 2, granulate cutworm 6, yellow-striped armyworm (Prodenia ornithogalli) 4, corn earworm (Heliothis zea) 1. SOUTH CAROLINA - Charleston, 2/20-26, BL, temp. 17-70°, precip. 0.02 - Granulate cutworm 2. TEXAS - Brownsville - 2/18-24, 2BL, temp. 43-79° Black cutworm 10, granulate cutworm 11, tobacco budworm (Heliothis virescens) 1, corn earworm 6, yellow-striped armyworm 66, armyworm 21, beet armyworm (Spodoptera exigua) 1, cabbage looper (Trichoplusia ni) 5.

## WEATHER OF THE WEEK ENDING MARCH 6, 1967

HIGHLIGHTS: Warmer most areas with spring storms from gulf coast to New England. Critical drought conditions in southern Great Plains.

PRECIPITATION: The week began with light to moderate precipitation over New Mexico, Oklahoma, Texas, and the eastern half of the United States except Florida. Freezing rain from the Great Lakes and Ohio River Valley regions to New England slicked the highways and made driving hazardous. Light precipitation fell in the Far Northwest and eastward to the western edge of the Great Plains. Little precipitation occurred elsewhere in the United States during the first several days of the week. The drought intensified over the Southwest and southern Great Plains, where strong winds raised clouds of dust and farmers worried about losing valuable topsoil. Weekend precipitation was light but widespread. Snow fell in the Rockies, the Great Lakes region, and eastward to New England. An inch of snow fell as far south as Zuni, New Mexico, and Flagstaff, Arizona, received 2 inches of snow Saturday, the first measurable precipitation since January 25. On Sunday, violent weather continued on page 158.

HAWAII INSECT REPORT

Vegetables - All stages of PEPPER WEEVIL (Anthonomus eugeni) light and affecting fruit set in 0.5 acre of bell pepper at Kahuku, Oahu. (Sato). GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) moderate on 0.25 acre of potatoes; heavy on small plantings of eggplant and zucchini in Kahului, Maui. CARMINE SPIDER MITE (Tetranychus telarius) moderate on eggplants in above field. (Miyahira).

Sugarcane - SUGARCANE LEAF ROLLER (Hedylepta accepta) moderate on small ornamental planting of Hawaiian sugarcane at Makawao, Maui. (Miyahira).

Shade Trees - CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) light and widespread on Chinese banyans in Ala Moana Park, Oahu. Infestation effectively held in check by an introduced anthocorid bug, Montandoniola moraguesi. (Morris).

Ornamentals - BLACK TWIG BORER (Xylosandrus compactus) light to moderate on Epicattleya spp. and Dendrobium spp. at nursery in Hilo. This is the first record on orchids for Hawaii Island. (Yamayoshi). GREEN SCALE (Coccus viridis) heavy on gardenia at Kaneohe, Oahu; light on plumeria at Kahuku. Both immature and adult stages present. (Kajiwaru).

General Pests - All stages of a PLATASPID BUG (Coptosoma xanthogramma) heavy and completely covered branches of pigeon pea at Pearl Harbor, Oahu; eggs on all parts of plant. Surveys conducted in Waianae Valley, Oahu, for a GRASSHOPPER (Schistocerca vaga) revealed a buildup, mostly adults, on weeds and grasses. On Kauai, a female was collected on sugarcane in Koloa. Six females have been collected since the grasshopper was first reported from Kauai in July 1966. (Au, et al.). SOUTHERN GREEN STINK BUG (Nezara viridula) activity increased throughout State. Light, scattered populations, mostly nymphs, confined largely to wild hosts. (Nakao).

Household - PACIFIC BEETLE COCKROACH (Diploptera punctata) adults moderate around housing area at Pearl Harbor, Oahu; annoying, especially after heavy rains. (Kajiwaru).

Beneficial Insects - A NOCTUID MOTH (Hypena strigata) - on Maui, over 20 square miles of lantana in the Ulupalakua and Auahi area was denuded by larvae of this introduced insect. Increased activity also noted on Lanai Island. (Miyahira, Davis). AN ICHNEUMONID WASP (Ecthromorpha fuscator) was reared from chrysalids of monarch butterfly (Danaus plexippus) collected in Manoa Valley, Oahu. This is a new host record for this native wasp. (Hale, Huddleston).

Weather continued from page 157.

thunderstorms occurred in parts of Arkansas with a few reports of personal injuries and property damage. Sleet and freezing rain fell south of the snow areas from Missouri to New England, with rain or drizzle farther south. Late Monday, March 6, tornadoes ripped across Mississippi and Alabama, killing at least 1 person, injuring many and causing property damage to more than a dozen communities. On the same day heavy snow spread northeastward from the Ozarks to New England. South of the snow belt, heavy rains, 1 to 3 inches, sent rivers on the rise.

TEMPERATURE: Cold temperatures persisted near the Great Lakes and over the Northeast but mild Pacific air warmed the Western States and eastern slopes of the Rockies. Southerly winds brought warm air to mid-America and to the Southeast as far north as Kentucky and Virginia. Temperatures climbed into the 70's in central Nebraska on several days at midweek, and in Virginia over the weekend. A new mass of Arctic air with subzero temperatures and strong north winds began moving into the northern Great Plains. (Summary supplied by Environmental Data Service, ESSA).



SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1966  
(continued from page 148)

FORAGE LEGUMES

Highlights:

ALFALFA WEEVIL was again the most important pest of alfalfa in the Nation as it has been for three years. It was found for the first time in Michigan and Wisconsin. Its range was extended into 128 counties in 12 States. Damage ranged light to heavy in many areas, especially to first and second cuttings. CLOVER LEAF WEEVIL was a problem in Vermont, Texas, Kansas and Washington. ALFALFA CATERPILLAR, GREEN CLOVERWORM and VARIEGATED CUTWORM were reported from several States, causing damage in some. PEA APHID caused some damage in Arkansas, Oklahoma and Kansas; however, populations were light in other States reporting. PLANT BUGS were generally normal during 1966.

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ALFALFA WEEVIL (*Hypera postica*) was the most important pest of alfalfa again in VIRGINIA and caused considerable concern to first and second cuttings. Larvae were active during the first week of March in Prince Edward, Culpeper, Hanover and Charles City Counties. Larvae reached a peak during May and caused moderate to heavy damage to unprotected and poorly sprayed alfalfa in all sections of MARYLAND. During June and July, larvae and first-generation adults caused conspicuous injury to second-growth alfalfa in Carroll, Frederick and Howard Counties. In DELAWARE, alfalfa weevil was generally high with heaviest injury to alfalfa during late May. Populations during 1966 in NEW JERSEY were moderate to severe with little change from 1965. Alfalfa weevil developed 2 weeks late in CONNECTICUT due to cool spring temperatures and caused heavy damage to second cutting, especially in Litchfield and Fairfield Counties. Distribution was statewide in RHODE ISLAND. Oviposition peaked during late May, and larvae reached 2,144 per 50 sweeps during mid-June in the Kingston area. Damage was noticeable in NEW HAMPSHIRE for the first time. In VERMONT, damage was the worst ever experienced. Adults averaged 4-5 per sweep and larvae 40-50 per sweep during early June. Alfalfa weevil increased in intensity west of the Allegheny Mountains in PENNSYLVANIA, but decreased somewhat in the southeast. Spring planted alfalfa was severely damaged in several parts of the State.

Alfalfa weevil infested all counties in OHIO not reported infested during previous seasons. Severe damage occurred in the southeastern half of the State, with very little of the first cutting harvested without the use of controls. Heavily infested fields had up to 100 larvae per sweep. Many farmers used substitute hay crops. Alfalfa weevil was found for the first time in MICHIGAN May 21 in Livingston County and was collected in 5 additional counties later in year. Distribution increased by 30 new counties in INDIANA this year; economic infestations occurred generally throughout the southern quarter of the State. Approximately 30,725 acres were treated in 26 southern counties. *H. postica* continued its rapid spread northward in ILLINOIS and increased its range from 47 counties infested in 1965 to 83 counties in 1966. At least 75 percent of first-cutting alfalfa was destroyed in the southern 2 tiers of counties. Approximately 10,372 acres were treated in the southern area. Alfalfa weevil was detected in WISCONSIN for the first time, being collected in Kenosha County November 15. Approximately 460 alfalfa fields were surveyed in Kenosha, Racine, Walworth and Rock Counties, but only one field was found infested. Larvae were first reported in Pemiscot County, MISSOURI, March 2. Heavy damage was confined to early infested southeastern counties. Alfalfa weevil was found in 20 additional Missouri counties this year. Alfalfa weevil was found in 6 new counties in ARKANSAS, extending its movement westward across the northern section and southward across the eastern section.

Alfalfa weevil adults were active on alfalfa in NORTH DAKOTA in early June. Highest populations were present in flood-irrigated fields. Light to moderate damage was evident in the more heavily infested fields. New county records were Dunn, Divide, Billings, Hettinger, Mercer, McKenzie, Williams and McLean. Populations were high in the Black Hills area of SOUTH DAKOTA. Larvae reached a high of 3,440 per 100 sweeps in uncut alfalfa during late June; however, little damage occurred. In KANSAS, alfalfa weevil was collected in Scott and Haskell Counties for the first time. A total of 8 western counties are not infested; however, populations remained low and noneconomic. Populations were lighter than in 1965 in NEBRASKA. The weevil was found in Gosper County in mid-May for a new record. Larval populations decreased in midsummer and were less prevalent than in 1965 in COLORADO. Damage again exceeded that of any other crop in WYOMING; however, economic damage to alfalfa was slightly lower than in 1965. Larval counts reached a peak during the first hay harvest. Peak counts of 430-1,000 per 10 sweeps near mid-June were observed in the Big Horn Basin. Very little damage occurred in southeastern Wyoming where light populations were found. Spraying of stubble and standing alfalfa did not produce satisfactory results. Alfalfa weevil was serious in most areas of MONTANA; losses ranged from 5 percent to more than 40 percent. Losses exceeding one million dollars were reported in Carbon County while many other losses approaching this figure were also reported in Montana. First adult activity of the season was noted March 17 at Parma and March 29 at Idaho Falls, IDAHO. Larvae varied from a few to 100 per sweep in first-crop alfalfa; terminal damage approached 100 percent in several areas. Damage exceeded 12 million dollars during the year. This was more than a one-million dollar increase, compared with 1965. Adults were collected for first time in Bonner County.

Alfalfa weevil was slightly more serious than in 1965 in OREGON and seriously damaged untreated alfalfa in Wallowa, Baker, Lake, Klamath and Malheur Counties. Damage to first and second-crop alfalfa was extensive and severe in UTAH. Several areas were sprayed. Damage to second crop was more severe than normal. Infestations and damage were the heaviest in recent years in NEVADA; cold weather retarded alfalfa growth and egg hatch was spread over a longer period. In some areas, larval counts reached 400 per sweep. Larval populations peaked May 20 in southern counties, June 10-15 in central counties and July 20-25 in northern counties. Alfalfa weevil increased its range and damage in CALIFORNIA and now occurs from Fresno County northward. Damage was light to heavy on first and second cuttings of alfalfa in San Juan, Rio Arriba, Sandoval and Bernalillo Counties, NEW MEXICO. For alfalfa situation in U. S., see CEIR 17(2):19.

EGYPTIAN ALFALFA WEEVIL (*Hypera brunneipennis*) caused moderate to heavy damage to alfalfa in Yuma and Maricopa Counties and parts of Pinal County, ARIZONA. Populations were much higher in Maricopa County than any previous year. Populations peaked in February and continued until late April. Parasites were not as effective as in previous years.

CLOVER LEAF WEEVIL (*Hypera punctata*) was unusually abundant and damaging on alfalfa in the Columbia Basin of WASHINGTON during the spring. Clover leaf weevil is a new insect in TEXAS and the most destructive pest of crimson clover. Infestations have been recorded in Upshur, Houston, San Augustine, Tyler, Jasper, Nacogdoches and Rusk Counties. The range of this pest in eastern Texas is increasing rapidly. Larvae damaged alfalfa in scattered areas of OKLAHOMA from January through April. Light infestations appeared in the northeast area during late December. Clover leaf weevil infestations were higher than usual in few areas of west-central KANSAS and caused some damage to second-cutting alfalfa. In ILLINOIS, larval populations were about the same as the 10-year (1955-1964) average. Population ranged up to 35 per square foot with approximately 3,101 acres treated. However, 30 percent of larvae in east-southeast district were parasitized, probably by *Biolysia tristis* (an ichneumon wasp), in April. No parasitized larvae were found in the eastern district and only 4 percent in the southwestern district. Larvae were active from mid-April through most of May in OHIO. Generally, populations appeared to be below economic levels in most fields. Clover leaf weevil caused heavy damage to trefoil seed production in VERMONT. LESSER CLOVER LEAF WEEVIL







CONSULT YOUR STATE OR FEDERAL PLANT PEST CONTROL INSPECTOR OR YOUR COUNTY AGENT FOR ASSISTANCE REGARDING EXACT AREAS UNDER REGULATION AND REQUIREMENTS FOR MOVING REGULATED ARTICLES.

Counties entirely colored are completely regulated; counties partially colored are partially regulated.

Restrictions are imposed on movement of regulated articles from red into or through white.

THE FOLLOWING CROPS OR ARTICLES MUST BE MOVED UNDER CERTIFICATE OR LIMITED PERMIT YEAR-ROUND EXCEPT AS NOTED:

1. Soil, except soil samples to Corps of Engineer Laboratories are exempt.
2. Nursery stock and other plants with roots attached.
3. True bulbs, corms, rhizomes, and tubers, except true bulbs and corms which have been stored a minimum of 90 days and are free of soil are exempt.\*
4. Root Crops, except root crops such as beets, carrots, Irish potatoes, onions, radishes, rutabagas, sweet potatoes, and turnips if moving to a designated processing plant\*\* or if free of soil are exempt.\*
5. Sugar beets.
6. Soybeans and small grains for planting, except soybeans and small grains other than for planting and earcorn if harvested in bulk or directly into new or treated containers and the containers or crops did not come in contact with the soil are exempt.\*
7. Hay, straw, fodder, and plant litter of any kind.
8. Seed cotton and peanuts, except seed cotton and peanuts moving to a designated gin or plant\*\* are exempt.\*
9. Used farm tools, implements, and harvesting machinery, and used construction and maintenance equipment, except used farm tools and implements if cleaned free of soil are exempt.\*
10. Used crates, boxes, burlap bags, cotton picking sacks, and other used farm products containers, except cotton picking sacks are exempt if cleaned or treated to the satisfaction of an inspector.\*

\*Exempt if not exposed to infestation or if sanitation practices are maintained as prescribed by or to the satisfaction of the inspector.

\*\*Information as to designated processing plants and gins may be obtained from an inspector.

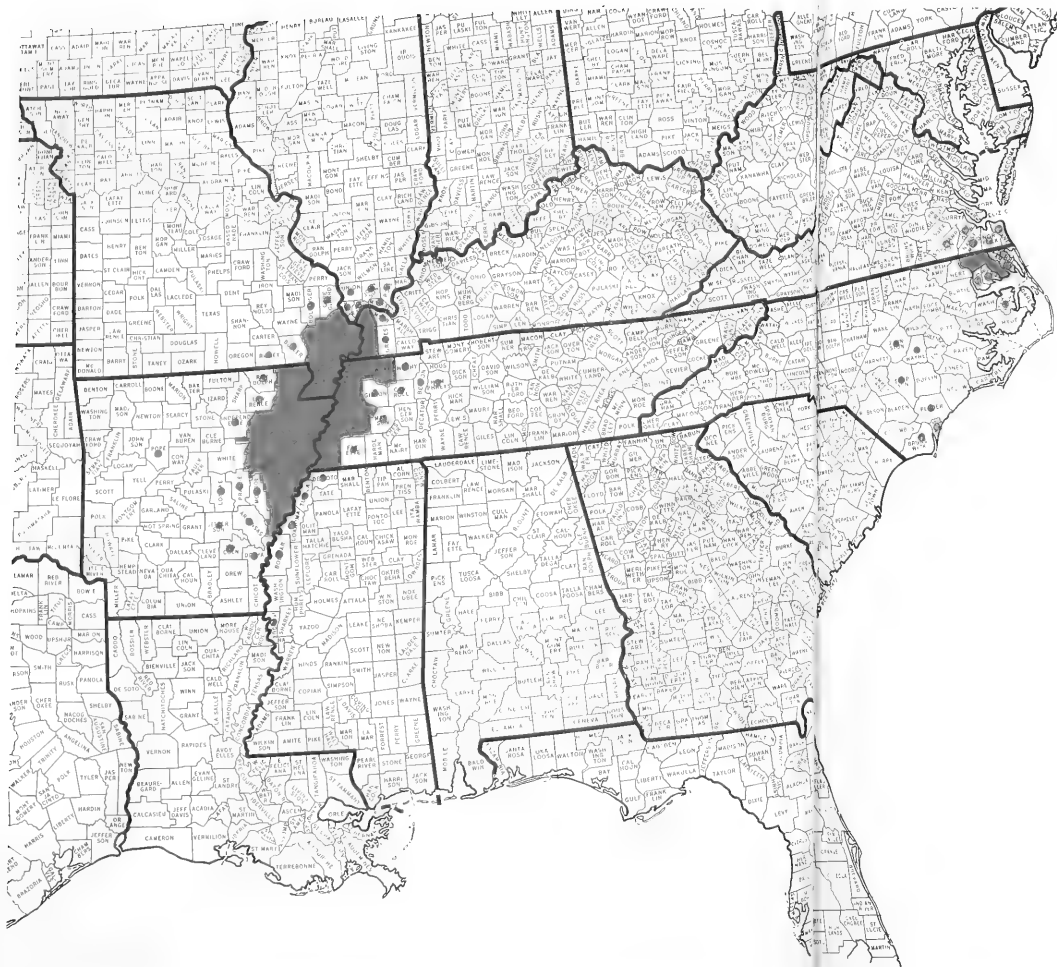




# SOYBEAN CYST NEMATODE QUARANTINE

UNITED STATES DEPARTMENT OF AGRICULTURE  
 AGRICULTURAL RESEARCH SERVICE - PLANT PEST CONTROL DIVISION

COOPERATING WITH AFFECTED STATES



CONSULT YOUR STATE OR FEDERAL PLANT PEST CONTROL INSPECTOR OR YOUR COUNTY AGENT FOR ASSISTANCE REGARDING EXACT AREAS UNDER REGULATION AND REQUIREMENTS FOR MOVING REGULATED ARTICLES.

Counties entirely colored are completely regulated; counties partially colored are partially regulated.

Restrictions are imposed on movement of regulated articles from red into or through white.

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(Hypera nigrirostris) larvae infested up to 100 percent of clover stems in many southern ILLINOIS fields.

SWEETCLOVER WEEVIL (Sitona cylindricollis) severely damaged seedling sweetclover in northwest MINNESOTA. Populations were light in most sweetclover fields throughout NORTH DAKOTA. High adult populations in the southeast caused light defoliation of sweetclover.

A moderate population of PEA WEEVIL (Bruchus pisorum) was detected in a field of alfalfa during late August in Cochise County, ARIZONA. This constituted a new best record.

ASH-GRAY BLISTER BEETLE (Epicauta fabricii) adults appeared on alfalfa in early June in NORTH DAKOTA, but remained noneconomic throughout season, while BLACK BLISTER BEETLE (E. pennsylvanica) was moderate in a few scattered fields of alfalfa. Black blister beetle remained low throughout the summer and caused no problems in KANSAS. Epicauta spp. were present in clover and alfalfa in ILLINOIS, but caused no damage.

PALE-STRIPED FLEA BEETLE (Systema blanda) caused economic damage to alfalfa in SOUTH DAKOTA during 1966. Populations ranged up to 150-200 adults per 100 sweeps in Tripp and Meade Counties.

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) was evident in trace numbers in some NORTH DAKOTA alfalfa fields. Infestations were recorded for the first time in Adams, Golden Valley, Oliver, Richland, Ransom, Sargent and Dickey Counties. Minor feeding was evident on alfalfa in OHIO.

ALFALFA CATERPILLAR (Colias eurytheme) required treatment in most alfalfa in CALIFORNIA from July to October. Infestations were below the 1964-65 level in Clark County, NEVADA, but caused considerable damage to late alfalfa. Alfalfa caterpillar was common in alfalfa throughout NEW MEXICO, but caused only minor damage. Larvae appeared as early as January 27 in ARKANSAS; however, infestations were noneconomic this season. Larvae averaged 53 per 100 sweeps in northwest ILLINOIS July 11-14, but no damage occurred. Alfalfa caterpillar was light in eastern KANSAS and no damage was noted. Larvae ranged 40-65 per 100 sweeps on alfalfa in SOUTH DAKOTA, particularly in Sanborn County and in north-central and east-central areas during September. Heavy populations appeared in alfalfa late in season in NORTH DAKOTA.

GREEN CLOVERWORM (Plathypena scabra) was present in OKLAHOMA from April to October. Populations were moderate to heavy throughout MISSOURI, but damage was light. Some controls were applied in the southeast area. Larvae averaged 10-15 per 100 sweeps in clover and alfalfa throughout ILLINOIS in late May and early June and 18 per 100 sweeps in the northwest district during August. No damage was observed, however. Second to fourth-stage green cloverworm larvae were prevalent on alfalfa in Yankton and Butte Counties, SOUTH DAKOTA, in early May.

VARIEGATED CUTWORM (Peridroma saucia) larvae averaged 22 per 100 sweeps or up to 2 per square foot on clover and alfalfa in southern ILLINOIS during May. Adults were first collected at Portageville, MISSOURI, April 6. Larvae damaged alfalfa and soybeans in the southeast area and new growth of alfalfa was severely injured in central and west-central areas. Variegated cutworm was light on alfalfa in a few northeast area fields in KANSAS and no damage was reported. Variegated cutworm and GRANULATE CUTWORM (Feltia subterranea) caused heavy damage to alfalfa in Yuma, Maricopa and Pinal Counties, ARIZONA, during April and May. Losses to alfalfa were severe. Variegated cutworm larvae were unusually abundant early in the season on forage in CALIFORNIA.

GLASSY CUTWORM (Crymodes devastator) damaged new growth of second-cutting alfalfa in central PENNSYLVANIA. SPOTTED CUTWORM (Amathes c-nigrum) caused only minor feeding damage to alfalfa in OHIO. In OKLAHOMA, YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) was widespread but light on alfalfa from April through October and

FALL ARMYWORM (*Spodoptera frugiperda*) was moderate in most areas from July to October. WESTERN YELLOW-STRIPED ARMYWORM (*Prodenia praefica*) infested alfalfa in a few counties in northern CALIFORNIA. Unspecified CUTWORMS were the major pests on forage statewide in CALIFORNIA. Larvae of another cutworm, *Heliothis phloxiphaga*, were heavy on seed alfalfa in northern Washoe County, NEVADA, in mid-July. GARDEN WEBWORM (*Loxostege similalis*) was heavier than normal in ARKANSAS and remained in fields later in the season than usual. Garden webworm and ALFALFA WEBWORM (*L. commixtalis*) occurred mainly in west-central ILLINOIS alfalfa and caused some webbing and damage. An estimated 12,017 acres were treated. Garden webworm larvae damaged alfalfa and soybeans in southeastern MISSOURI and in the entire western half of the State. Alfalfa webworm was light in a few scattered fields in central KANSAS; however, garden webworm adults were extremely numerous in many alfalfa fields in eastern two-thirds of Kansas with considerable acreage treated. Garden webworm was heavy on alfalfa in parts of southeastern NEBRASKA in August.

PEA APHID (*Acyrtosiphon pisum*) was severe on alfalfa in early spring in the Columbia Basin of WASHINGTON, and on seed alfalfa in Walla Walla and Franklin Counties during midsummer. Considerable control by parasites and predators was evident in several areas. Pea aphid was noneconomic on alfalfa in southern IDAHO. Infestations were heavy and required controls in many areas of NEVADA. Predators and parasites controlled many infestations. Pea aphid caused light to moderate damage during September in Pinal and Pima Counties, ARIZONA, and minor damage to alfalfa throughout NEW MEXICO. Noneconomic, light to moderate pea aphid populations were recorded on several legumes, principally vetch and alfalfa, throughout north and central TEXAS. Populations ranged 300-400 per 100 sweeps on alfalfa during May in ARKANSAS. Pea aphid was present in OKLAHOMA through March. Numbers increased rapidly in most areas during April and ranged as high as 1,000 per 10 sweeps in some areas on alfalfa and Austrian winter field peas. Decreases began in May and infestations were light, except in isolated areas in east-central counties, until aphids disappeared in mid-July. Fall activity in Oklahoma began in mid-September with light numbers present through November. Isolated heavy counts were present in the northeast area in late December. Pea aphid caused considerable damage to alfalfa prior to first cutting in central KANSAS, although predators and parasites kept numbers below economic levels elsewhere. Populations were low the remainder of season. Pea aphid did not increase to high levels on alfalfa in COLORADO and remained low on this crop throughout NEBRASKA. Pea aphid first appeared in alfalfa in southeastern WYOMING in late April and in early May in northern areas. Populations remained low throughout the growing season, counts ranging 50-85 per 10 sweeps in all areas. Populations increased to 225-250 per 10 sweeps with the advent of cooler weather in late September, then declined in October.

Pea aphid was the most common and prevalent aphid on alfalfa in SOUTH DAKOTA, particularly during the cooler weather of spring and fall. Populations were noneconomic throughout the season in NORTH DAKOTA, but were high on alfalfa throughout growing season in MINNESOTA despite high numbers of aphid predators. Pea aphid eggs hatched the first week of May in alfalfa fields in southern WISCONSIN. Winged forms were noted on peas in mid-May. Populations in alfalfa were high until mid-July when parasites began exerting control. Numbers were very low throughout season in ILLINOIS. The highest population was 160 per sweep. Parasites were present in most fields. Only 293 acres of alfalfa were estimated to have been treated this year. Pea aphid was light on alfalfa and clover in the southern third of INDIANA throughout the growing season. In the northern half of the State, counts ranged 10-78 per sweep during June before a heat wave caused pea aphid populations to collapse. Adult and nymphal populations in MICHIGAN fluctuated according to alfalfa growing conditions, predator numbers, and other factors, but population levels during 1966 were generally lower than usual. Damsel bugs were important as predators in Michigan. Pea aphid was present on alfalfa throughout VIRGINIA but caused little damage. Populations were light to moderate throughout NEW JERSEY and few fields required controls. Pea aphid was less abundant on alfalfa in RHODE ISLAND than last year. Buildup was slow, probably due to cold spring weather.

COWPEA APHID (*Aphis medicaginis*) was heavy in isolated alfalfa in north-central, northwest and panhandle areas of OKLAHOMA during late April and early May.

THRIPS were heavy in alfalfa in west-central and northwest KANSAS, with over 1,000 per 5 sweeps. Thrips were also heavy on alfalfa in Clark County, NEVADA, in April, causing leaf and bud damage.

ALFALFA SEED CHALCID (*Bruchophagus roddi*) damage to alfalfa seed was heavier than in previous years in Humboldt and Lander Counties, NEVADA. Infestations in alfalfa decreased slightly in WASHINGTON compared with 1965. A survey of 10 fields showed seed infestations ranged 2-42 percent. The average was 11 percent compared with 16 percent in 1965. Also in Washington, CLOVER SEED CHALCID (*B. platyptera*) infested up to 35 percent of red clover seed at Columbia Basin localities.

RAPID PLANT BUG (*Adelphocoris rapidus*) and ALFALFA PLANT BUG (*A. lineolatus*) were serious on alfalfa in OHIO; counts averaged 1 per sweep. Adults and nymphs of TARNISHED PLANT BUG (*Lygus lineolaris*) were more numerous than during recent years and were the dominant plant bug species on alfalfa in MICHIGAN. Rapid plant bug nymphs ranged 20-200 per 100 sweeps on alfalfa in south-central INDIANA during May. Tarnished plant bug was more abundant during 1966 than in 1965. All stages ranged 100-700 per 100 sweeps on clover and alfalfa throughout the State during July and August. Alfalfa plant bug reached peaks in the southern half of the State during mid-June, when all stages also ranged 100-700 per 100 sweeps on alfalfa. In the northern half of INDIANA, heaviest populations occurred during mid-July and all stages ranged from 100 to 1,600 per 100 sweeps, higher densities being found in the northern third of the State. Adults and nymphs were low throughout the season in ILLINOIS. Adults of tarnished plant bug and newly hatched nymphs of rapid plant bug were observed in alfalfa the first week of May. Two weeks later, rapid plant bug nymphs were noted. Populations throughout Illinois were fairly high from June to mid-August. No apparent damage to alfalfa was attributed to these pests. Tarnished plant bug adults and nymphs were generally low with highest field counts averaging only 220 adults per 100 sweeps. Alfalfa plant bug nymphs were first observed May 9. The highest field population in Illinois, 3.6 nymphs per sweep, was found in the central district June 6-9.

Tarnished plant bug was light to moderate in alfalfa from early April to mid-November in OKLAHOMA. *LYGUS* BUGS (*Lygus* spp.) were moderate, 15-20 per 10 sweeps, in northeast KANSAS during June and July. Elsewhere, numbers remained very low and these bugs remained noneconomic throughout the season. Tarnished plant bug ranged 100-125 per 10 sweeps on alfalfa in eastern NEBRASKA during late summer, but were lighter in the remainder of the State. Nymphs of alfalfa plant bug ranged 120-200 per 100 sweeps in alfalfa in various areas of SOUTH DAKOTA including Lawrence and Day Counties, but remained low throughout the season in NORTH DAKOTA. Lygus bugs occurred on alfalfa in destructive numbers in MONTANA. Nymphs and adults of *Lygus elisus* and *L. hesperus* ranged 7-15 per sweep in alfalfa in Canyon, Elmore and Owyhee Counties, IDAHO, on May 27; however, summer numbers were about the same as in other years. Lygus bugs were a problem in alfalfa seed production fields in western COLORADO. Populations were up slightly over 1965 in NEVADA, especially in alfalfa seed fields and required control in all seed areas during the summer. Controls were applied too late and heavy damage occurred in some areas of Nevada. Lygus bugs were widespread and damaging throughout CALIFORNIA on forage.

Lygus bug adults and nymphs were very prevalent in blooming alfalfa and clover fields throughout MARYLAND. Tarnished plant bug was generally normal to heavy on forage in RHODE ISLAND, and damaged trefoil and alfalfa in VERMONT.

FALSE CHINCH BUG (*Nysius ericae*) was general throughout south-central and southwestern IDAHO; adults and nymphs averaged 10 per sweep on alfalfa June 3.

MEADOW SPITTLEBUG (*Philaenus spumarius*) was common but less conspicuous than usual on forage throughout RHODE ISLAND. Nymphal populations were the highest in several years on red clover and hay mixtures in eastern and central sections of MARYLAND. Nymphs ranged up to 4 per 10 stems on alfalfa and clover in south-central and southeastern INDIANA during May. Adults were common in these same areas during mid-June, ranging up to 12 per sweep on alfalfa and up to 70 per sweep in a few adjacent wheat fields. In general, populations were moderate during 1966, and were slightly lower than in 1965. Populations were low in most areas of ILLINOIS with an estimated 220 acres treated in the northwest district. Meadow spittlebug eggs began hatching the second week of May. Spittle masses were common in alfalfa, but populations were not high. Adults appeared about June 17 in southern counties and about July 1 in northern counties. Adults were present into late fall. Nymphs were unusually heavy in alfalfa during May in Douglas County, OREGON. See distribution map page 165.

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) was moderate to heavy and caused extensive damage to alfalfa in nearly all areas of ARIZONA during the summer months. Extremely heavy damage occurred in Maricopa and Pinal Counties during October and early November. Populations were light to moderate on alfalfa from early May to early November in OKLAHOMA. Unspecified LEAFHOPPERS were a problem on new alfalfa throughout MONTANA. BUFFALO TREEHOPPER (*Stictocephala bubalus*) was more abundant on legumes than in past years in VERMONT.

Populations of FIELD CRICKETS (*Gryllus* spp.) were high along roadsides and some fields of alfalfa in northwest MINNESOTA. Crop damage was noneconomic to light and generally restricted to field margins. Populations were light throughout the season in NORTH DAKOTA.

## SOYBEANS

### Highlights:

VELVETBEAN CATERPILLAR and CABBAGE LOOPER damaged soybeans in Alabama and Florida. Approximately 81,433 acres were treated for control of GREEN CLOVERWORM in Illinois. GARDEN WEBWORM was more widespread in Arkansas than in recent years. MEXICAN BEAN BEETLE caused economic damage in Florida and Virginia. SOUTHERN GREEN STINK BUG was less of a problem during 1966. STRAWBERRY SPIDER MITE damage was very conspicuous in Maryland and Delaware.

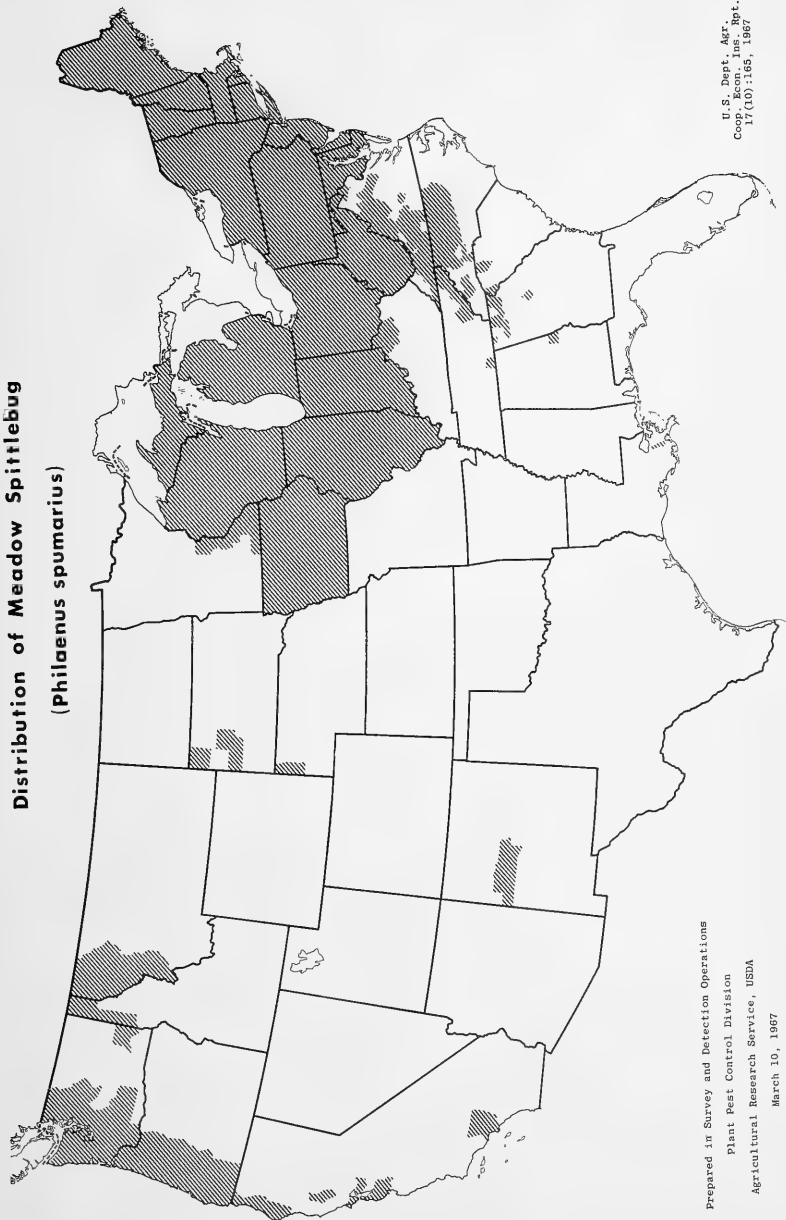
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VELVETBEAN CATERPILLAR (*Anticarsia gemmatalis*) was a serious pest of soybeans in isolated fields in the coastal area of ALABAMA, with heavier numbers in extreme southwest section. Of the noctuid loopers, this pest was a secondary problem in north FLORIDA. Frequent control measures and later in the season a fungus, probably *Spicaria rileyi*, helped to control larvae in many years.

CABBAGE LOOPER (*Trichoplusia ni*) was another secondary pest in north FLORIDA. Larvae were held in check by frequent control measures and a fungus, probably *Spicaria rileyi*, late in the season. Cabbage looper also damaged some soybeans in the coastal counties of ALABAMA. Since virus and fungus heavily infected cabbage looper in ARKANSAS, larvae did not become an economic problem. No extensive damage was observed in KANSAS, although a few scattered fields in the southeast area were lightly infested.

GREEN CLOVERWORM (*Plathypena scabra*) was noted during September in OKLAHOMA and was noneconomic in ARKANSAS. The amount of damage was questionable although it ragged soybean leaves heavily in central and northern ALABAMA. Damage occurred on 6.45 percent of the fields in Henry and Bureau Counties, ILLINOIS, with no

**Distribution of Meadow Spittlebug  
(*Philaenus spumarius*)**



Prepared in Survey and Detection Operations  
Plant Pest Control Division  
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Coop. Econ. Inse. Rpt.  
17 (10):266, 1967

evidence of pod feeding. One larva per sweep and 6 per foot of row were found in late August; approximately 81,433 acres were treated in Illinois.

Several other NOCTUIDS damaged soybeans. YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) continued as minor problem in ARKANSAS. However, TOBACCO BUDWORM (*Heliothis virescens*) and CORN EARWORM (*H. zea*) damaged soybeans in ALABAMA. Pseudoplusia includens was the dominant noctuid looper in northern FLORIDA and throughout Alabama, with damage evident in the coastal counties of Alabama.

ALFALFA WEBWORM (*Loxostege commixtalis*) infested soybeans in the southwest quarter of ILLINOIS and caused light to moderate damage in some fields. Approximately 7,750 acres were treated. Heavy populations of GARDEN WEBWORM (*L. similalis*) moved into soybeans after alfalfa was cut in parts of southwestern NEBRASKA; some controls were applied. Garden webworm was more widespread in ARKANSAS than in past years. In OKLAHOMA, WEBWORMS (*Loxostege* spp.) damaged soybeans in northeast and east-central areas during July.

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) damaged young soybean plants in ALABAMA, mostly in Monroe County. BEAN LEAF ROLLER (*Urbanus proteus*) caused moderate to heavy damage in several large fields during September at Brooksville, FLORIDA. Millions of PAINTED LADY (*Vanessa cardui*) adults flew northward through Moscow, IDAHO, May 6 and 8. Larvae fed on all thistle varieties statewide by the end of June. In northeastern NEBRASKA, larvae damaged some field margins during mid-June. Painted lady larvae abounded on thistles in ILLINOIS and occasionally moved into soybeans after devouring thistles. Although reports of larval feeding were numerous from central and west-central OHIO during early July, damage was minor.

BEAN LEAF BEETLE (*Cerotoma trifurcata*) was light to moderate in most soybeans in KANSAS during June and July, with considerable leaf feeding evident. This pest was heavy for the first time on young beans in northeast ARKANSAS, feeding on maturing pods late in the season without economic damage. In ILLINOIS, up to 3 adults per sweep were observed. An estimated 2,891 acres were treated. In southeastern Renville County, MINNESOTA, bean leaf beetle damaged soybeans in August for the first time this late in the season. It also damaged soybeans in OHIO. Normal numbers of adults injured foliage in variable amounts on the Eastern Shore of MARYLAND. Bean leaf beetle was light in VIRGINIA.

MEXICAN BEAN BEETLE (*Epilachna varivestis*) was a problem during late season in the Quincy area of Gadsden County, FLORIDA. Numbers were light in all fields throughout ALABAMA, except for isolated fields in Baldwin County, where counts were heavy. Defoliation ranged light to heavy throughout VIRGINIA, ranging 70-80 percent in the southeastern area in late September.

BROWN STINK BUG (*Euschistus servus*) caused moderate to heavy damage in several large fields during September at Brooksville, FLORIDA. Nymphs and adults damaged soybeans after pod development in coastal areas of ALABAMA. *Euschistus* spp. caused light damage in southeast and southwest MISSOURI. SOUTHERN GREEN STINK BUG (*Nezara viridula*) was less of a problem than in past years late in the season in the Quincy area of Gadsden County, FLORIDA, although damage was moderate to heavy in several large fields during September. Nymphs and adults of this pest damaged plants after pod development in coastal areas of ALABAMA. In TEXAS, southern green stink bug damage was light. GREEN STINK BUG (*Acrosternum hilare*) was lighter than in 1965 in southeast KANSAS. Elevator operators reported 50 percent less damage. Green stink bug was also light in southeast and southwest MISSOURI.

SEED CORN MAGGOT (*Hylemya platura*) damaged soybeans in OHIO. THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) was noneconomic in most areas of ARKANSAS.

THRIPS were heavy in most areas of OKLAHOMA from mid-June to mid-July. Mainly Sericothrips variabilis was present in most soybean fields in ILLINOIS. Highest populations were 110-500 (average 305) per 100 leaflets in the central district, with 60 percent of plants showing some silvering. Thrips caused widespread streaking of foliage and stunting of seedling and young beans on the Eastern Shore of MARYLAND.

CARMINE SPIDER MITE (Tetranychus telarius) was widespread in ILLINOIS and heaviest from Mason County southward into Greene and Macoupin Counties, where 34 percent of the fields showed "russetting" during July and August. Approximately 4,132 acres were treated. SPIDER MITES were heavy in southeast VIRGINIA during late summer. STRAWBERRY SPIDER MITE (T. atlanticus) was a primary pest of soybeans in MARYLAND during the year. Damage was conspicuous on border rows during August on the lower Eastern Shore. Strawberry spider mite was generally very heavy and severely injurious throughout DELAWARE.

## PEANUTS

### Highlights:

BURROWING STINK BUGS caused serious damage to peanuts in Alabama.

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BURROWING STINK BUGS (Tominotus communis and Pangaeus bilineatus) caused serious damage to peanuts in southeastern ALABAMA. Over 1,000 tons were downgraded in price as the result of nut damage underground during the growing season. Additional unknown yield losses also occurred. NEGRO BUG (Corimelaena pulicaria) caused losses of 3 percent during late summer in Bonifay, Holmes County, FLORIDA.

FALL ARMYWORM (Spodoptera frugiperda) was light to moderate on peanuts in most areas of OKLAHOMA from late July to October. RED-NECKED PEANUTWORM (Stegasta bosqueella) was light to moderate on peanuts from early July to mid-September and LESSER CORNSTALK BORER (Elasmopalpus lignosellus) was light on this crop during August in Bryan County, OKlahoma. VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) infested peanut foliage in ALABAMA, as did unspecified CUTWORMS, CORN EARWORM (Heliothis zea) and TOBACCO BUDWORM (H. virescens). GRANULATE CUTWORM (Feltia subterranea) damaged large acreages of peanuts in Houston, Coffee, Geneva and several other counties in Alabama. Fall armyworm was of less concern than in some years, but did occur with other leaf feeders in isolated fields.

TOBACCO THRIPS (Frankliniella fusca) damaged young peanuts throughout the 9-county peanut-growing area of ALABAMA and some controls were necessary. SPIDER MITES were heavy on peanuts in southeast VIRGINIA during August and September.

Overwintering of Alfalfa Weevil Eggs in Massachusetts <sup>1/</sup>

M. C. Miller and F. R. Shaw <sup>2/</sup>

The question of whether or not eggs of alfalfa weevil (*Hypera postica* (Gyll.)) overwinter and their significance to the spring infestation has received considerable attention in the Northeast, but additional work is necessary before any general statement can be made for the area. Titus (1913) in Utah and Parks (1914) in Idaho claimed that eggs were winter killed; yet Reeves et al. (1916), Reeves (1927), and Webster (1912) in Utah and Snow (1925) in Nevada reported the overwintering of eggs. Essig and Michelbacher (1933) concluded that differences in climatic conditions might account for conflicting reports.

In a study of the alfalfa weevil in the Northwestern United States, Hamlin et al. (1949) agreed with Parks (1914) that small numbers of eggs appearing in October represented the initial oviposition of the new generation weevils; but disagreed with Titus (1913) and Parks (1914) by claiming that most of the eggs survived the winter. Maglitz and App (1957) in Maryland, and Milliron and MacCreary (1955) and Milliron (1956) in Delaware reported overwintering of eggs. Evans (1959) in Virginia claimed that eastern and western weevil populations differed in overwintering habits; "In the West it is the adults which overwinter, while in the East both eggs and adults go through the winter." Shaw (1965) has published a limited amount of information from Massachusetts on fall oviposition and viability of eggs the following spring.

Materials and Methods: Random samples of 50 alfalfa stems were taken at weekly intervals from fields in Berkshire County, Massachusetts, in the spring and fall of 1965. Each stem was picked within one inch of the ground. The stems were stripped of leaves and inspected for oviposition punctures. In view of the difficulty encountered in locating all punctures, the stems were dissected, and eggs were counted under a dissecting microscope. In a number of instances, empty punctures which never contained eggs were found. The empty punctures and the punctures containing eggs were recorded and the number of eggs indicated.

Results: Table I shows data taken in October and November, and April and May 1963 through 1965. Shaw (1965) reported a decrease in oviposition in the fall of 1964 as opposed to oviposition in the fall of 1963 from 670 eggs to 40 eggs. According to the data taken in the comparable period in 1965 oviposition had increased to 170 eggs. Data taken in the spring of 1964 and 1965 indicated little spring oviposition. Between April 7 and May 5 of 1964 and 1965, 16 eggs and six eggs respectively, were found.

Discussion: Although the results seem to indicate that a few eggs overwinter in Massachusetts, analysis of the data in the light of previous work leads us to doubt this conclusion. After controlled environmental experiments, Koehler and Gyrisco (1961) stated that the true minimum effective temperature for incubation of eggs was between 10° and 12° C. No egg hatch occurred at 12° C. below 50 percent humidity. This finding corroborated the 10° C. minimum effective incubation temperature based on field study data by Sweetman and Wedemeyer (1933). Hamlin et al. (1949) noted that apparently oscillation about a temperature of 10° C. promoted the most abundant ovulation: "...the negative phase favoring ovogenesis and the positive phase favoring oviposition."

1. Contribution No. 1390 from the Department of Entomology and Plant Pathology of the University of Massachusetts and of the Massachusetts Experiment Station. Part of a thesis submitted to the Graduate School of the University of Massachusetts as partial fulfillment of the requirements for the degree of Master of Science.
2. Graduate Assistant (Research) and Professor of Entomology and Beekeeping, respectively; Department of Entomology and Plant Pathology.



The data recorded by Shaw for 1963 and 1964 and by the authors for 1965 indicate oviposition into the fall. According to Hamlin et al. (1949) this may continue until the daily temperature remains below 10° C. Since the daily temperature during the Massachusetts winter remains below 10° C. for long periods, oviposition can not occur during such conditions; and according to the findings of Koehler and Gyrisco (1961), if eggs were laid they would not hatch.

The work of Hamlin et al. (1949), Sweetman and Wedemeyer (1933), and Koehler and Gyrisco (1961) substantiate the supposition that oviposition could occur in the early spring if the temperature rose to approximately 10° C. The presence of a few eggs in stems gathered from the fields in the early spring is, therefore, not inconsistent with the statement that overwintering of eggs in Massachusetts is highly improbable.

Since eggs can not develop until a temperature of 10° C. to 12° C. has been attained; and since oviposition commences at this temperature, the overwintering of eggs, if any, could have little effect on the spring infestation.

TABLE I  
ALFALFA WEEVIL OVIPOSITION  
NEW MARLBORO, MASSACHUSETTS

FALL 1963			SPRING 1964		
Date	No. Punctures	No. Eggs	Date	No. Punctures	No. Eggs
Oct 2	45	225	Apr 7	36	6
Oct 17	38	90	Apr 16	101	0
Oct 24	37	81	Apr 22	116	0
Oct 31	63	93	May 5	111	10
Nov 10	69	151			
Total	252	670	Total	364	16

FALL 1964			SPRING 1965		
Date	No. Punctures	No. Eggs	Date	No. Punctures	No. Eggs
Oct 1	3	0	Apr 8	0	0
Oct 15	2	0	Apr 15	1	0
Oct 22	2	0	Apr 21	2	0
Oct 29	5	40	Apr 28	2	1
Nov 11	4	0	May 5	1	0
Total	16	40	Total	6	1

FALL 1965

Date	No. Punctures	No. Eggs
Oct 9	2	31
Oct 14	0	0
Oct 20	8	18
Oct 21	5	19
Oct 26	7	38
Nov 2	5	27
Nov 10	5	37
Total	32	170

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*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

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## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

High winter survival of EUROPEAN CORN BORER indicates potential problem this year in Delaware and Illinois. (p. 173). ALFALFA WEEVIL larvae active in Virginia, Indiana, Illinois, Mississippi, and California. EGYPTIAN ALFALFA WEEVIL population heavier than normal for this time of year in California; active in Arizona. (p. 174).

GREEN PEACH APHID damaging sugarbeets, safflower, and lettuce in Arizona. (p. 175).

BARK BEETLES infesting National Forests in California; several potential epidemic areas reported. (p. 177).

NORTHERN FOWL MITE severely infested commercial hatchery in Florida. (p. 178).

Detection

New State records include a SOD WEBWORM in Kansas, (p. 173); a LONG-HORNED BEETLE in Nevada, an ERIOPHYID MITE in Pennsylvania, and a LOUSE FLY in Oklahoma, (p. 177); SOUTHERN POTATO WIREWORM in Virginia and a PLUME MOTH in Delaware, (p. 179).

Some First Occurrences of Season

NANTUCKET PINE TIP MOTH and EASTERN TENT CATERPILLAR larvae in Alabama; TARNISHED PLANT BUG and CONVERGENT LADY BEETLE in Arkansas.

Special Reports

Summary of Insect Conditions in the United States - 1966

Cotton (pp. 181-183).  
Tobacco (pp. 183-184).  
Sugarbeets (pp. 184-185).  
Miscellaneous Field Crops (pp. 185-186).

Notes on, and a Key to, the Species of Neophyllaphis Takahashi. (pp. 187-194).

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Reports in this issue are for week ending March 10 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING MARCH 13

HIGHLIGHTS: Springlike weather brought tornadoes to Dixie and flooding to the Ohio River Valley and parts of the Northeast.

PRECIPITATION: An outbreak of tornadoes and heavy thunderstorms brought death and destruction to the Deep South early in the week. Precipitation totals ranged 1-4 inches over parts of Arkansas, the Ohio River Valley, and the Appalachians. Heavy rains also fell Friday from northern Alabama to South Carolina. On Sunday, hail as large as baseballs pounded some spots northwest of Evansville, Indiana, and heavy rains caused flooding along some tributaries and the main stem of the Ohio River. The generous rains also flooded many areas in the Northeast from West Virginia to New Jersey. The drought continued in parts of the western Plains and the Great Basin. In the Pacific Northwest, a storm brought moderate to heavy rains from Tatoosh Island to San Francisco with snow in the foothills and mountains early in the week. Later the precipitation spread to the southern California coast, the interior valleys of California and in the north, to the Rockies and western Plains. Weather continued on page 186.

#### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (Schizaphis graminum) - KANSAS - Light to moderate on wheat in Stevens County; caused some light damage. (Simpson). OKLAHOMA - Ranged 200-300 per linear foot on wheat in Oklahoma County and up to 200 per linear foot in scattered fields in Jackson County. Ranged 15-50 per linear foot in Greer, Cotton, and Tillman Counties. Reported heavy in Washita, Grady, and Garvin Counties; moderate in Caddo, Kingfisher, and Garfield Counties; light in Blaine County. Weather may have been severe enough during week to reduce populations in some areas. (Okla. Coop. Sur.). ARKANSAS - Increasing slightly but still low in northwest area. (Ark. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Heavy in Greer County alfalfa, with some young stands seriously damaged; moderate in Garvin County. (Okla. Coop. Sur.). UTAH - Few found in Hurricane area of Washington County. (Knowlton). MISSISSIPPI - Very light in Pontotoc County. (Dinkins). ARKANSAS - Remains low in northwest area. (Ark. Ins. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Increased on barley in Yuma, Maricopa, and Pinal Counties. Averaged 700 per 100 sweeps. (Ariz. Coop. Sur.).

SIX-SPOTTED LEAFHOPPER (Macrostelus fascifrons) - MISSISSIPPI - Light on small grains in Oktibbeha County. (Dinkins).

ARMY CUTWORM (Chorizagrotis auxiliaris) - KANSAS - Ranged 1-14 per square foot on wheat in Cowley, Chase, Butler, and Barber Counties. Damage sufficient in Cowley County to warrant controls. (Simpson).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Spring survey showed average of 205 live borers per 100 cornstalks. Based on fall population of 307 borers per 100 stalks, winter survival was estimated at 67 percent. This survival indicates a potentially high borer population for the coming season. (Burbutis).

ILLINOIS - Percent winter survival of borers 83 in McLean County, 80 in Henderson County. Borer survival apparently above normal; 7-year average is 74 percent. (Ill. Ins. Rpt.).

#### SMALL GRAINS

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Counts per linear foot on wheat ranged 300-1,500 in Greer and Tillman Counties, up to 500 in Oklahoma County. Counts of 50-400 per linear foot common in Cotton, Jackson, Grady, Dewey, and Woodward Counties. Reported heavy in Washita County; moderate in Garfield, Kingfisher, and Blaine Counties; light in Caddo County. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - KANSAS - Very light on wheat in few south-central district fields. (Simpson).

GREAT BASIN WIREWORM (Ctenicera pruinina) - WASHINGTON - Probably this species, damaging winter wheat in Pullman area, Whitman County. (Telford).

A LEAFHOPPER (Graminella nigrifrons) - MISSISSIPPI - Light on small grains in Oktibbeha County. (Dinkins).

#### TURF, PASTURES, RANGELAND

A SOD WEBWORM (Surattha indentella) - KANSAS - Damaged buffalo grass during 1966 in Pawnee, Stafford, Rice, Meade, and Wichita Counties. This is a new State record. Det. by A. B. Klots and R. W. Hodges. (Thompson).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - CALIFORNIA - Active in Fresno, Fresno County; this may indicate a season of heavy damage. Alfalfa weevil is seldom found as far south as Fresno County. (Cal. Coop. Rpt.). MISSISSIPPI - Larvae averaged 4 per square foot on flame-treated alfalfa and 27 per square foot on untreated alfalfa in Pontotoc County. (Dinkins). MISSOURI - No live larvae found in 5 fields checked in southeast area after 4-11 inches of snow. (Munson). ILLINOIS - Larvae ranged 10-40 per square foot in Massac, Pope, and Hardin Counties. Counts comparable to last week inspite of several cold days. Adults and eggs present; majority of eggs in dried stems. (Ill. Ins. Rpt.). INDIANA - During late February, 200 eggs per square foot were present in northeastern Dubois County; first-instar larvae were inside alfalfa stems in Vincennes area, Knox County, and first through third instars were on 1-2 inch alfalfa in Ohio River floodplain areas of Perry, Spencer, and Harrison Counties. (Mathew). VIRGINIA - Mostly second-instar larvae active on alfalfa at Chesterfield Court House, Chesterfield County, and at Mechanicsville, Henrico County. (Innes, Mar. 3).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Decreased in Yuma County, but continued to increase in Maricopa County. Terminal damage 40-90 percent in infested fields. (Ariz. Coop. Sur.). CALIFORNIA - Very light populations active on alfalfa at Lancaster, Los Angeles County; single specimen was taken in Lancaster area last year. In Pomona and La Puente areas of Los Angeles County, populations are heavier than ever observed at this time of year. (Cal. Coop. Rpt.).

CLOVER LEAF WEEVIL (Hypera punctata) - ARKANSAS - Larval counts very low on legumes in northwest area. (Ark. Ins. Sur.).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - ALABAMA - Adults began emerging and feeding on leaves of crimson clover in southern section. (McQueen).

GREEN CLOVERWORM (Plathypena scabra) - ALABAMA - Larvae 1-3 per sweep on crimson clover in Mobile and Baldwin Counties; mostly first instar. (McQueen).

PEA APHID (Acyrthosiphon pisum) - WASHINGTON - Mostly first and second instars on seed and forage alfalfa; 25 per sweep in Gardena Beach area and 7 per sweep in Pasco area, (Telford, Feb. 24). OREGON - All stages present and active on alfalfa in Umapine area of Umatilla County; averaged 2.5 per tip or 90 per sweep in stands 2-6 inches high. If good weather continues, control operations will soon be necessary. (Halfhill). OKLAHOMA - Heavy on alfalfa in Greer County; light in Washita County. (Okla. Coop. Sur.). ARKANSAS - Counts high on alfalfa in extreme southwest area. Very little change noted in northwest area. (Barnes).

AN APHID (Macrosiphum creelii) - WASHINGTON - Adults and nymphs, probably this species, 12 per sweep on 20 percent of seed and forage alfalfa in Walla Walla area, Walla Walla County. (Halfhill, Feb. 24).

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - Numerous adults feeding on crimson clover in southern section. (McQueen). ARKANSAS - First activity of season observed on vetch in northwest area. (Ark. Ins. Sur.).

A LEAFHOPPER (Aceratagallia uhleri) - KANSAS - Moderate, 25-30 per square foot, on established alfalfa in Butler and Chase Counties. Det. by H. D. Blocker. (Simpson).

#### TOBACCO

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Few nymphs and adults scattered on approximately 2 percent of tobacco at Loughman, Polk County. (Skipper et al., Mar. 3).

## SUGARBEETS

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Controls necessary to protect young sugarbeets in Maricopa County. (Ariz. Coop. Sur.).

## MISCELLANEOUS FIELD CROPS

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Heavy on safflower in Yuma and Maricopa Counties; retarded growth in 10 percent of infested fields. (Ariz. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Nymphs continue to increase on safflower in Maricopa and Pinal Counties; averaged 250 per 100 sweeps. (Ariz. Coop. Sur.).

## COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Adults abundant in home gardens and commercial plantings of cabbage and collards in Baldwin, Mobile, and other southern counties. Adults light as far north as Montgomery and Lee Counties. Egg laying general and few larvae observed in Baldwin County. (McQueen).

DIAMONDBACK MOTH (Plutella xylostella) - ALABAMA - Larvae light to medium in commercial planting of mature cabbage in Baldwin County. (McQueen).

## GENERAL VEGETABLES

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Controls necessary to protect young lettuce in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Light on lettuce in Yuma County. Some controls applied. (Ariz. Coop. Sur.).

THRIPS - NEW MEXICO - Undetermined species averaged 1-10 per onion plant near Mesilla, Dona Ana County. (Elson).

## DECIDUOUS FRUITS AND NUTS

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Larval survival high in pecan shucks on ground in Lee, Montgomery, and Dallas Counties. Pupation occurring as far north as Lee County. (Leeper et al.).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - A single male taken from an oriental fruit fly trap baited with methyl eugenol in Fullerton, Orange County. Husk flies emerged during recent warm weather and normally are not attracted to traps baited with methyl eugenol. (Cal. Coop. Rpt.).

ARMORED SCALES - ALABAMA - Pseudaulacaspis pentagona was heavy on peach and plum in older home orchards throughout central and southern sections where little or no controls have been applied. Chrysomphalus obscurus was heavy on lower limbs of older pecan trees in Baldwin County. (McQueen). NEW MEXICO - Aspidiotus perniciosus heavy on backyard apple plantings in Farmington area, San Juan County. (Heninger). CALIFORNIA - Lepidosaphes ficus light in 10 acres of walnuts at Sanger, Fresno County. (Cal. Coop. Rpt.).

## CITRUS

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Infested one of 25 sweet orange plants in nursery at Gainesville, Alachua County, February 27. This is a new county record. (Graham). Previous records of U. citri on other hosts in Alachua County are probably in error. (Denmark).

HEMISPHERICAL SCALE (Saissetia coffeae) - CALIFORNIA - Heavy on backyard citrus in Ventura, Ventura County. (Cal. Coop. Rpt.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Economic numbers appearing in some citrus areas of Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

SPIREA APHID (Aphis spiraeicola) - FLORIDA - All stages infesting 1 percent of 5,000 sweet orange plants at Oak Hill, Volusia County. (Pott, Mar. 3).

## SMALL FRUITS

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - FLORIDA - Adults damaged strawberries at East Wauchula, Hardee County. (Rhodes, Mar. 1).

## ORNAMENTALS

AZALEA LEAF MINER (Gracillaria azaleella) - CALIFORNIA - Larvae medium on azalea nursery stock in Vista, San Diego County. (Cal. Coop. Rpt.).

AN OLETHREUTID MOTH (Laspeyresia cupressana) - CALIFORNIA - Larvae heavily damaged twigs of Italian cypress in San Jose, Santa Clara County. (Cal. Coop. Rpt.).

OMNIVOROUS LOOPER (Sabulodes caberata) - CALIFORNIA - Larvae medium on fatshedera plants in Santa Maria, Santa Barbara County. This pest was more widespread and occurred on a wider range of hosts than usual during 1966. (Cal. Coop. Rpt.).

ALFALFA LOOPER (Autographa californica) - CALIFORNIA - First-instar larvae light on juniper nursery stock in Azusa, Los Angeles County; adults collected from light trap in La Grange, Stanislaus County. This is unusually early and may indicate problem this season. (Cal. Coop. Rpt.).

MEALYBUGS - CALIFORNIA - Pseudococcus adonidium and P. obscurus heavy on New Zealand flax nursery stock in Oakland, Alameda County. P. longispinus medium on New Zealand flax in Tiburon and Mill Valley, Marin County. (Cal. Coop. Rpt.).

BROWN SOFT SCALE (Coccus hesperidum) - CALIFORNIA - This and Hemiberlesia lataniae heavy on Bromelia sp. nursery stock in Spring Valley, San Diego County. (Cal. Coop. Rpt.).

AN ARMORED SCALE (Temnaspidiotus excisus) - FLORIDA - All stages severe on 500 Aglaonema commutatum plants at nursery in Apopka, Orange County. (Musgrove, Jan. 31).

A CONIFER APHID (Cinara tujafilina) - NEW MEXICO - Moderate to heavy on arborvitae at Hobbs, Lea County. (Mathews).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - VIRGINIA - Heavy on boxwoods at Chatham, Pittsylvania County. (Isakson, Blair).

## FOREST AND SHADE TREES

BARK BEETLES - CALIFORNIA - Dendroctonus brevicomis, D. valens, and Ips spp. infested 500-acre stand of sugar pine and ponderosa pine in the Daller Spring area, Tahoe National Forest; some trees killed. (Rich, U.S.F.S.). D. brevicomis and Ips sp. occurred in recently logged ponderosa and sugar pine stands. Insects killed all size trees in groups in the Porter Crossing, Peavine, Low Gap, and Anderson Ridge areas in the Mendocino National Forest. These locations are near the Kelly Cabin epidemic area of 1966. Portion of area now inaccessible; control will depend on access this spring. (Thompson et al., U.S.F.S.). Several potential epidemic areas of D. brevicomis and Ips sp. indicated in the Sierra National Forest. Fades observed in several areas. (Young et al., U.S.F.S.).

EASTERN LARCH BEETLE (Dendroctonus simplex) - WISCONSIN - Adults numerous in grove of native tamarack in Walworth County. Emergence had not begun by mid-February, but birds were feeding on insects in galleries. Water table recently altered in area by fill-in operations. (Wis. Ins. Sur.).

A WEEVIL (Cylindrocopturus eatoni) - CALIFORNIA - Severely infested ponderosa pine plantation in Scott Ridge area, Stanislaus National Forest. Entire plantation affected; up to 200 trees infested per acre. This is the first report of a large infestation in several years. (U.S.F.S.).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - First adult emergence of season occurred in pine tree tips in Mobile and Baldwin Counties. Few adults emerged as far north as Dallas County. (McQueen).

A PINE TUSsock MOTH (Halisodota ingens) - COLORADO - Third-instar larvae abundant and feeding on pine near Elbert, Elbert County. (Olkjer).

A LONG-HORNED BEETLE (Neoclytus caprea) - NEVADA - Larvae and adults medium on ash in Las Vegas, Clark County, in January. New State record. (Bechtel, Zoller, Mar. 3).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - FLORIDA - Middle to late-instar larvae infesting wild cherry and wild plum in Alachua and Putnam Counties. Recent cold weather had little or no effect on pest or hosts. (Hetrick).  
ALABAMA - First larvae of season observed on wild cherry in Dallas and Coffee Counties. (McQueen).

A COREID BUG (Leptocoris rubrolineatus) - NEVADA - Adults active on boxelder and maple in Reno, Washoe County. (Ting, Mar. 3).

AN ERIOPHYID MITE (Phyllocoptes wisconsinensis) - PENNSYLVANIA - Heavy in 0.5 acre of commercial elderberry at Mercer, Mercer County, September 22, 1966. Det. by H. H. Keiffer. This is a new State record. (Adams).

## MAN AND ANIMALS

MOSQUITOES - LOUISIANA - Larval collections in Jefferson Parish during week ending March 3 contained Aedes vexans, Anopheles quadrimaculatus, Culex restuans, Culex salinarius, and Culiseta inornata. Adult activity low throughout parish except in Cheniere Camanada area near Grand Isle where Anopheles atropos and Culex salinarius averaged 32.8 per night. Mosquitoes averaged 3.8 per night in 20 light traps operated in remainder of parish. (Stokes).

CATTLE LICE - ALABAMA - Bovicola bovis and Haematopinus eurysternus heavy on beef cattle in Bibb County. Several herds treated. (Odom). OKLAHOMA - Mostly H. eurysternus heavy on cattle in Garvin County, moderate in Marshall and Mayes Counties. (Okla. Coop. Sur.). IOWA - H. eurysternus and B. bovis adults light, less than 5 per head, on 8 cattle from 8 farms in Polk, Dallas, and Boone Counties. (Iowa Ins. Sur.). UTAH - Cattle lice moderate to severe on some untreated beef herds in Beaver and Millard Counties. (Knowlton).

HORN FLY (Haematobia irritans) - ALABAMA - Adults occurring 1-2 weeks earlier than normal on cattle at Camp Hill, Tallapoosa County. (Bourne et al.). MISSISSIPPI - Approximately 2 flies per animal observed on cattle in Oktibbeha County. (Dinkins). OKLAHOMA - Light, 3-4 per head, on cattle in Payne County during recent warm days. (Okla. Coop. Sur.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Ranged 1-12 per head in cattle in Marshall County and 3-5 per head in Garvin County. Moderate in Mayes and Cleveland Counties. (Okla. Coop. Sur.).

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U. S. March 5-11. Total of 57 cases reported in portion of Barrier Zone in Republic of Mexico February 26-March 4 as follows: Baja California 1, Territorio sur de Baja California 20, Sonora 26, Chihuahua 4, Nuevo Leon 2, Tamaulipas 4. No cases reported from Mexico south of Barrier Zone. Barrier Zone is area where eradication operations are underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released March 5-11: Texas 10,968,000, Mexico 96,432,000. (Anim. Health Div.).

SHEEP KED (Melophagus ovinus) - IOWA - Adults and eggs very heavy, 50 per 25 partings, on two sheep from Polk County. (Iowa Ins. Sur.).

A LOUSE FLY (Lipoptena mazamae) - Collected from white-tailed deer in eastern section. Det. by A. Stone. This is new State record. (Okla. Coop. Sur.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - MISSISSIPPI - Moderate on caged laying hens in Oktibbeha County. (Dinkins). FLORIDA - Severe in breeding flock of 30,000 chickens at commercial hatchery in Callahan, Nassau County. Several hens dead, others dying in several of the hen houses. Improper application of recommended chemical allowed mites to build up. (Strayer).

#### STORED PRODUCTS

A VINEGAR FLY (Drosophila sp.) - PENNSYLVANIA - This and Diastata sp. emerging from potatoes at a chip factory in Columbia County; operators concerned about contamination of potato chips. (Menusan).

#### BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - ALABAMA - Early emerged adults feeding on aphids in pine trees in central and southern sections. (McQueen). ARKANSAS - First activity of season noted March 10 on pea aphid infested vetch in northwest area. (Ark. Ins. Sur.).

A LADY BEETLE (Coleomegilla maculata fuscilabris) - ALABAMA - Feeding on aphids in pines in Baldwin and Escambia Counties. (McQueen).

A BIG-EYED BUG (Geocoris punctipes) - ALABAMA - Adults active on crimson clover in extreme southern section. (McQueen).

FLOWER BUGS (Orius spp.) - ALABAMA - Adults numerous on crimson clover in extreme southern part of State. (McQueen).

DAMSEL BUGS (Nabis spp.) - ARKANSAS - Active in northwest area. (Ark. Ins. Sur.).

#### FEDERAL & STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - OKLAHOMA - Results of egg pod survey by county: Cherokee - 4 stops, 3 pods; Muskogee - 3 stops, 1 pod; Craig - 4 stops, no pods; Delaware - 6 stops, 3 pods; Mayes - 6 stops, 4 pods; Nowata - 4 stops, 1 pod. Egg pods averaged



0-0.75 per square foot. (Okla. Coop. Sur.). COLORADO - Chortophaga viridifasciata nymphs active on warm days of February at Fort Collins, Larimer County. (Wellso)..

IMPORTED FIRE ANT (Solenopsis saevissima) - FLORIDA - Adults collected in De Soto County for new county record. Det. by H. A. Denmark. (Lamb, Mar. 3).

TULIPTREE SCALE (Toumeyella liriodendri) - CALIFORNIA - Survey completed in San Jose treatment area; none found on 189 yard hosts and 27 parkway trees in treatment area. Heavy infestation found on single tree in border block adjacent to infested area. (Cal. Coop. Rpt.).

#### INSECT DETECTION

##### New State Records

A LONG-HORNED BEETLE (Neoclytus caprea) - NEVADA - Collected on ash in Las Vegas, Clark County, in January. (p. 177).

SOUTHERN POTATO WIREWORM (Conoderus falli) - VIRGINIA - Two adults collected in light trap at Norfolk, July 15, 1966. (PPC).

A SOD WEBWORM (Surattha indentella) - KANSAS - Damaged buffalo grass during 1966. Det. by A. B. Klots and R. W. Hodges. (p. 173).

A PLUME MOTH (Oidaematophorus monodactylus) - DELAWARE - Adult collected at light by J. Franklin at Dover, Kent County, on November 16, 1965. Det by R. W. Hodges. (Burbutis).

A LOUSE FLY (Lipoptena mazamae) - OKLAHOMA - Collected from white-tailed deer. Det. by A. Stone. (p. 177).

AN ERIOPHYID MITE (Phylcoptes wisconsinensis) - PENNSYLVANIA - Collected on commercial elderberry at Mercer, Mercer County, September 22, 1966. Det. by H. H. Keiffer. (p. 177).

##### New County Records

ORIENTAL WOOD BORER (Heterobostrychus aequalis) - FLORIDA - Larvae and adults collected from white oak lumber at Miami, Dade County, February 23. Reported in CEIR 17(10):156.

IMPORTED FIRE ANT (Solenopsis saevissima) - FLORIDA - Collected in De Soto County. Det. by H. A. Denmark. (p. 179).

AN ERIOCOCCID SCALE (Dactylopius confusus) - FLORIDA - Specimens collected on stem of pricklypear at Cross City, Dixie County. (Graham, Feb. 15).

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Collected at Gainesville, Alachua County, February 27. (p. 176).

#### CORRECTIONS

CEIR 17(10):158 - Beneficial Insects - AN ICHNEUMONID WASP (Ecthomorpha fuscator) should read AN ICHNEUMON WASP (Echthromorpha agrestoria fuscator).

HAWAII INSECT REPORT

Vegetables - ONION THRIPS (Thrips tabaci) medium on 10 acres of bulb onions in Kihēi and 2.5 acres in Pulehu, Maui. (Miyahira). IMPORTED CABBAGEWORM (Pieris rapae) larvae caused moderate damage on 1 acre of cauliflower in Pulehu, Maui. (Miyahira).

General Pests - BLACK TWIG BORER (Xylosandrus compactus) medium to heavy on mountain-apple (Eugenia malaccensis) and light on hau (Hibiscus tiliaceus), Christmas-berry (Schinus terebinthifolius), undetermined ginger plants and coffee plants in upper Manoa Valley, Oahu. Light on epidendrum orchids in Hilo, Hawaii Island. Mountain-apple, hau and Christmas-berry are new host records. (Davis et al.).

Fruits and Nuts - BROAD MITE (Hemitarsonemus latus) heavy and causing serious injury to macadamia flowers in scattered areas of an orchard in Hilo, Hawaii Island. Severe blossom drop may occur if left unchecked. Believed to be the first known occurrence of this mite attacking macadamia flowers in State. Population building up on young terminal leaves of passion-fruit on farm in Kahului. (Yoshioka, Ooka, Miyahira). RED-BANDED THRIPS (Selenothrips rubrocinctus) heavy and causing silvering of mango fruits and leaves in Waimea, Kauai. (Au). Larvae of an OLETHREUTID MOTH (Cryptophlebia sp.) in Hilo, Hawaii Island, light to medium on terminals of litchi, causing noticeable dieback. A SCOLYTID BEETLE (Xyleborus fornicatus) heavy on weakened litchi trees. (Yoshioka). RED AND BLACK FLAT MITE (Brevipalpus phoenicis) and CITRUS RUST MITE (Phyllocoptruta oleivora) heavy on grapefruit in Puhī and Lawai, Kauai; 75-95 percent of fruits heavily scarred and bronzed. (Au).

Shade Trees - CHINESE ROSE BEETLE (Adoretus sinicus) adults caused moderate to heavy damage to mature leaves of false kamani (Terminalia catappa) along roadside in entire Hana area of Maui. (Miyahira, Nakao). MONKEYPOD MOTH (Polydesma umbricola) larvae medium to heavy and caused heavy foliar damage to several monkeypod trees in Pearl Harbor, Oahu. (Kajiwara).

Beneficial Insects and Snails - Occasional individuals of ROSY PREDATOR SNAIL (Euglandina rosea) noted crossing road from Haiku to Kailua, Maui; more active in Hana. This snail purposely introduced in 1957 to prey on giant African snail (Achatina fulica). Populations of giant African snail remain heavy in Hana. (Miyahira, Nakao). A TACHINA FLY (Lespesia archippivora) reared from chrysalides of monarch butterfly (Danaus plexippus) collected from Manoa Valley, Oahu. Most of the chrysalides were parasitized. (Hale).

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 3/7, BL - Black cutworm (Agrotis ipsilon) 1, granulate cutworm (Feltia subterranea) 3, yellow-striped armyworm (Prodenia ornithogalli) 1, armyworm (Pseudaletia unipuncta) 1.

SOUTH CAROLINA - Charleston, 2/27 - 3/5, BL, temp. 24-80°, precip. 0.88 - black cutworm 4, granulate cutworm 2, armyworm 4.

TEXAS - Brownsville, 2/25-26, 3/3, 2BL, temp. 49-78°, precip. 0.88 - black cutworm 6, granulate cutworm 20, yellow-striped armyworm 3, armyworm 6, beet armyworm (Spodoptera exigua) 4, corn earworm (Heliothis zea) 5, variegated cutworm (Peridroma saucia) 1, cabbage looper (Trichoplusia ni) 3, salt-marsh caterpillar (Estigmene acrea) 1. Waco, 3/4-10, BL - granulate cutworm 4, armyworm 1, yellow-striped armyworm 14, black cutworm 2, salt-marsh caterpillar 1.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1966  
(continued from page 167)

COTTON

Highlights:

BOLL WEEVIL populations and damage were greater throughout Alabama than any year since 1962. Infestations were heavy in southern Georgia and populations increased for the third consecutive year in Arkansas. BOLLWORMS caused heavy damage in Georgia late in the season and were major pests in Alabama. Infestations declined for the third consecutive year in Arkansas. Bollworm infestations were severe in California, but the lightest in several years in Nevada. PLANT BUGS and STINK BUGS were of some concern, especially in western areas. COTTON APHID was heavier than usual in Arizona. For the first time in 6 years, COWPEA APHID was present on cotton in large enough numbers in New Mexico to warrant treatment in several fields. THRIPS were heavier on cotton than for several years in Arkansas, and approximately twice the cotton acreage was treated in Missouri than in any previous year. Thrips were of concern to cotton growers throughout Arizona, and were a seasonal problem in California.

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BOLL WEEVIL (*Anthonomus grandis*) was heavy in southern GEORGIA where punctured squares ranged up to 30 percent by mid-June. Infestations in northern and eastern areas of the State did not reach damaging proportions until late in the season. Populations and damage were greater throughout ALABAMA than any year since 1962, and may have been the most severe of any year in northern Alabama. Weevils overwintered and emerged in large numbers, followed by a large "hatchout" in June and July. Populations increased for the third consecutive year in ARKANSAS. Boll weevil successfully overwintered in the extreme northwest area and was more widespread in northeastern Arkansas than in many years. Infestations in cotton were again low in MISSOURI, although infestations were economic in some fields in the extreme southern part of Dunklin County late in the season. Boll weevil was active in OKLAHOMA early in July. Populations were moderate to heavy in most areas of the State by early August and continued throughout the remainder of the season. Boll weevil was the principal concern of cotton growers in most areas of TEXAS, but there were no unusual outbreaks during 1966.

BOLLWORM (*Heliothis zea*) was light on cotton during early June in GEORGIA with some damage evident. Severe infestations had developed by mid-July with damage more evident. Later in the season, boll damage was heavy in some areas of Georgia. Bollworm was heavy in a large planting of cotton near Jay in Santa Rosa County, FLORIDA, during late summer. Bollworm and TOBACCO BUDWORM (*H. virescens*) were major pests of cotton throughout ALABAMA. Both species infested cotton in ARKANSAS, but tobacco budworm comprised only 1-6 percent of the population. This was the third consecutive year of bollworm decline in Arkansas; however, both species were serious pests of cotton, having declined from very high levels in 1963. Only 9 percent of the cotton acreage in Arkansas was treated during 1966 compared with 25 percent in 1965 and 48 percent in 1964. Bollworm and tobacco budworm built up slowly in MISSOURI during July, and continued until the first killing frost. These two pests infested 73 percent of cotton fields in the State by early September.

BOLLWORMS (*Heliothis* spp.) damaged cotton in OKLAHOMA from early June to mid-October. Populations were moderate to heavy in central and southwest areas of the State by early August and in the east-central area by early September. Tobacco budworm ranged up to 15 percent of the bollworm population in Oklahoma after September. Bollworm populations in cotton in TEXAS were equal to those of the past 2 years. Bollworm and tobacco budworm were locally heavy on cotton in the Rio Grande Valley, causing economic damage and concern throughout the area.

Damage was reported normal throughout the remainder of Texas. Bollworm caused only minor concern on cotton in southern NEW MEXICO. Bollworm was normal throughout the central cotton-growing area of ARIZONA during late summer, but was lighter than usual on cotton in Cochise, Graham, and Yuma Counties. Bollworm infestations were severe on cotton in CALIFORNIA, but were the lightest in several years in NEVADA where they were kept in check by parasites and predators.

Several lepidopterous pests infested cotton in CALIFORNIA. Late populations of COTTON LEAF PERFORATOR (Bucculatrix thurberiella) developed on cotton in desert areas and larvae of PINK SCAVENGER CATERPILLAR (Sathrobrotia rileyi) were found in cotton bolls in several areas of the State. CELERY LEAF TIER (Udea rubigalis) and FALSE CELERY LEAF TIER (U. profundalis) caused some damage to cotton in a few locations. Larvae of a LEAF ROLLER MOTH (Platynota stultana) caused varying degrees of damage to cotton in California, and was more prevalent in northern areas of the State than previously observed. Some late infestations of SALT-MARSH CATERPILLAR (Estigmene acrea) also developed on cotton in California. Salt-marsh caterpillar was generally light on cotton in ARIZONA, but some heavy infestations did develop in Pima, Pinal, and Yuma Counties.

CABBAGE LOOPER (Trichoplusia ni) was a general pest of cotton in all areas of CALIFORNIA. Some chemical controls were necessary in NEVADA, but parasites and predators controlled most cabbage looper infestations in the State. Cabbage looper infestations were moderate in OKLAHOMA and cotton in the central and southwest sections of the State was damaged during the summer. Cabbage looper and a FALSE CABBAGE LOOPER (Pseudoplusia includens) appeared on cotton as early as June in ALABAMA but caused no damage until August. Unspecified LOOPERS ranged light to moderate on cotton in GEORGIA, but infestations were controlled by disease before reaching damaging proportions.

BET ARMYWORM (Spodoptera exigua) damaged seedling cotton during May and June in ARIZONA, but was not a serious problem during late summer. Beet armyworm also damaged seedlings in many areas of CALIFORNIA, and required some controls in NEVADA. Most infestations in Nevada were controlled by parasites and predators. EUROPEAN CORN BORER (Ostrinia nubilalis) larvae were common in stalks and bolls of cotton late in the season in MISSOURI.

A PLANT BUG complex composed of COTTON FLEAHOPPER (Psallus seriatus), TARNISHED PLANT BUG (Lygus lineolaris), RAPID PLANT BUG (Adelphocoris rapidus), and Neurocolpus nubilus infested as much as 92 percent of cotton fields in MISSOURI. Although infestations were above the recommended level for treatment, no controls were applied. Cotton fleahopper became active during mid-June in OKLAHOMA, with moderate to heavy populations common in cotton during the summer. LYGUS BUGS (Lygus spp.) were medium to heavy in ARIZONA from June through September, but were normal in CALIFORNIA where controls were restricted to possible outbreaks of other cotton pests. Lygus bugs began increasing on cotton during mid-June in NEVADA, and by June 10 required controls through the remainder of the season in Clark and Nye Counties. CONCHUELA (Chlorochroa ligata) and other STINK BUGS were severe on cotton during the early summer months in most southern counties of NEW MEXICO, where damage to young squares and bolls was very noticeable. SAY STINK BUG (C. sayi) caused light to moderate damage to cotton bolls in many areas of ARIZONA during July and August, and several species of stink bugs were a problem on cotton late in the season in Imperial County, CALIFORNIA. Also in California, LEAFHOPPERS infested cotton early in the season and caused some loss to the crop in all cotton-growing areas of the State.

APHIDS developed late on cotton in CALIFORNIA but caused little damage. Populations of COTTON APHID (Aphis gossypii) were heavier than normal and damaged cotton in Maricopa and Pinal Counties, ARIZONA, during April and May, with the greatest amount of damage occurring in Queen Creek and Chandler areas. COWPEA APHID (Aphis craccivora) occurred in economic numbers on cotton in the Pecos and Mesilla Valleys of NEW MEXICO for the first time in 6 years. Several fields were treated in these areas. Cotton aphid was noneconomic in OKLAHOMA. Isolated

infestations occurred on cotton in MISSOURI, but a late season buildup was eliminated by an early freeze. Cotton aphid was heavier early in the summer in ARKANSAS than in previous years, probably due to cool weather. Early cotton aphid populations of 1-25 aphids per cotton plant were present throughout ALABAMA, but large numbers of convergent lady beetle (Hippodamia convergens) reduced these infestations. Unspecified APHIDS were light on cotton early in the season in GEORGIA, with some buildup occurring before control measures were used.

THRIPS ranged light to heavy on cotton throughout GEORGIA early in the season. Cold, wet weather in the spring slowed cotton development resulting in more severe damage. TOBACCO THRIPS (Frankliniella fusca) and FLOWER THRIPS (F. tritici) infested cotton statewide in ALABAMA, especially plants in the 2 to 6-leaf stages. Unspecified thrips were heavier during early summer in ARKANSAS than during many years, with approximately 20 percent of cotton being treated. Tobacco thrips, flower thrips, and Sericothrips variabilis were very heavy on cotton in MISSOURI due to late planting. The cotton acreage treated in Missouri during 1966 was approximately twice that treated any previous year. Heavy populations of thrips damaged cotton in many areas of OKLAHOMA during the summer. WESTERN FLOWER THRIPS (Frankliniella occidentalis) populations were higher than normal on cotton during the spring in ARIZONA and caused concern to cotton growers throughout the State. Various species of thrips were a seasonal problem on cotton in CALIFORNIA.

PACIFIC SPIDER MITE (Tetranychus pacificus) and TWO-SPOTTED SPIDER MITE (T. urticae) were common in all cotton-growing areas of CALIFORNIA, with some controls applied. Unspecified SPIDER MITES were a problem on cotton in NEVADA early in the season, with controls necessary until early June. Infestations were heaviest on cotton adjacent to alfalfa in Nevada. Spider mites were noneconomic in OKLAHOMA. STRAWBERRY SPIDER MITE (T. atlanticus) was the principal spider mite that infested 25 percent of cotton fields in MISSOURI during late July. Spot and strip treatments were effective in controlling these pests. Probably due to dry weather in ARKANSAS, spider mites were heavier during June than in 1965. For the remainder of 1966, however, populations were lighter than usual. Infestations were confined to extreme northern ALABAMA. Severe in some areas of Georgia, spider mites required control.

## TOBACCO

### Highlights:

CABBAGE LOOPER and Heliothis spp. were more abundant than normal and caused economic damage to flue-cured tobacco in Florida. TOBACCO FLEA BEETLE was medium to heavy in Maryland, but light in Virginia and Florida. GREEN PEACH APHID was observed in more fields than any time since 1946 in Florida, and was the major tobacco pest in Maryland.

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CABBAGE LOOPER (Trichoplusia ni) was much more abundant than normal in FLORIDA, and caused considerable economic damage to flue-cured tobacco. Cabbage looper prevailed throughout the flue-cured district but was especially noticeable in Madison, Suwannee, and Lafayette Counties. In Gadsden County, infestations were similar to 1965 and caused moderate to heavy damage to cigar-wrapper tobacco. TOBACCO BUDWORM (Heliothis virescens) damaged some late beds of tobacco in Gadsden County; some fields had 25 percent of plants damaged 2 weeks after transplanting. POTATO TUBERWORM (Phthorimaea operculella) infestations were moderate late in the season but heavier than in 1965 in Florida. BLACK CUTWORM (Agrotis ipsilon), GRANULATE CUTWORM (Feltia subterranea), and VARIEGATED CUTWORM (Peridroma saucia) moderately damaged young transplants in FLORIDA. CUTWORMS were generally

light in the southern tobacco-growing area of VIRGINIA. Heliothis spp. were more numerous and damaging on flue-cured tobacco in Pittsylvania, Halifax, and Mecklenburg Counties in that State than in the past several years.

TOBACCO FLEA BEETLE (Epitrix hirtipennis) adults were medium to heavy on tobacco in MARYLAND. Numbers on late tobacco were heavy during August and September. The overwintered tobacco flea beetle populations ranged light to medium on newly-transplanted tobacco in southern VIRGINIA. The second generation emerged later than normal, but infestations were generally moderate. A few heavy, localized infestations were reported in Pittsylvania and Mecklenburg Counties. Tobacco flea beetle losses were light in FLORIDA; insecticide applications were effective on tobacco beds and in fields. WIREWORMS, predominantly TOBACCO WIREWORM (Conoderus vespertinus), caused very light damage in most tobacco fields in southern VIRGINIA. However, heavy damage occurred in an occasional field in Pittsylvania and Halifax Counties, with losses up to 80 percent in one field. SOUTHERN POTATO WIREWORM (C. falli) was the dominant species on tobacco in FLORIDA; populations were light on field tobacco with insecticide control. VEGETABLE WEEVIL (Listroderes costirostris obliquus) caused light damage to tobacco in plant beds in Florida.

GREEN PEACH APHID (Myzus persicae) was reported from more fields than at any time since 1946 in FLORIDA. Infestations were probably due to poor control treatments. Damage was confined to small areas in fields and was light where cleanup treatments were applied. Green peach aphid remained at noneconomic levels in Pittsylvania County, VIRGINIA, where drought and high temperatures prevailed during June and July; however, infestations were occasionally heavy on irrigated tobacco and were medium in Mecklenburg County. Populations were normal in MARYLAND with several thousand acres treated during August. Green peach aphid was the major tobacco pest during 1966 in the State. SUCKFLY (Cyrtopeltis notatus) was light on some late-maturing tobacco in VIRGINIA.

#### SUGARBEETS

##### Highlights:

CUTWORMS were a major problem on sugarbeets in Colorado, Nevada, and Washington. BEET ARMYWORM was heavy on sugarbeets in Nevada and caused damage in California. SUGAR-BEET ROOT MAGGOT populations were high in Colorado and Wyoming.

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BEET WEBWORM (Loxostege sticticalis) was extremely low throughout MINNESOTA; in NORTH DAKOTA heaviest populations occurred in the northern Red River Valley and caused localized damage in some fields. Generally, infestations were noneconomic. Beet webworm damaged some sugarbeets in southwest NEBRASKA during July. Populations remained low in KANSAS during summer and caused no problems. One generation occurred on sugarbeets in Larimer and Weld Counties, COLORADO, with controls required in some fields. Populations were moderate in the eastern area.

Migrating populations of SALT-MARSH CATERPILLAR (Estigmene acrea) caused considerable damage to seedling sugarbeets in Maricopa and Pinal Counties, ARIZONA, during October and November. CUTWORMS were a major problem on sugarbeets in the Western Slope area of COLORADO. BLACK CUTWORM (Agrotis ipsilon) was heavy on sugarbeets in Churchill and Pershing Counties, NEVADA, during early summer and required controls. RED-BACKED CUTWORM (Euxoa ochrogaster) and other cutworms damaged sugarbeets in the Yakima Valley and the Columbia Basin of WASHINGTON, early in the season. BEET ARMYWORM (Spodoptera exigua) was light to moderate on sugarbeets during September and October in Maricopa and Pinal Counties, ARIZONA. Beet armyworm was heavy on sugarbeets during summer in Churchill and Pershing Counties, NEVADA,

and caused considerable damage to sugarbeets in CALIFORNIA. SUGAR-BEET CROWN BORER (Hulstia undulatella) damaged sugarbeets in Los Angeles County, California.

A WEEVIL (Cosmobaris americana) was collected from sugarbeet foliage in Malheur County, OREGON, in August 1965 for first record. Scattered infestations occurred on sugarbeets in Malheur County this season. SUGAR-BEET WIREWORM (Limonijs californicus) was the dominant wireworm species found on irrigated lands in IDAHO. Infestations are expected to spread and damage to increase until satisfactory control is found. The present organophosphorus insecticides have not given satisfactory protection from wireworms. Sugar-beet wireworm damaged sugarbeets in Yakima County, WASHINGTON, early in the season. GREAT BASIN WIREWORM (Ctenicera pruinina) damaged sugarbeets in Yakima and Franklin Counties, Washington. Un-determined WIREWORMS damaged sugarbeets near Kindred, NORTH DAKOTA. Larvae of unspecified FLEA BEETLES caused some losses to sugarbeets in Larimer and Weld Counties, COLORADO. Flea Beetles were observed on sugarbeets at Presque Isle, MAINE, in mid-June.

SAY STINK BUG (Chlorochroa sayi) and GREEN STINK BUG (Acrosternum hilare) caused stunting of sugarbeet plants in the Arkansas Valley of COLORADO; control was not satisfactory. A STINK BUG (Thyanta punctiventris) caused light damage to sugarbeets in southwest KANSAS in June and July; many fields were treated. LYGUS BUGS (Lygus spp.) in destructive numbers infested sugarbeets in MONTANA. Lygus bugs were more damaging than usual to sugarbeets early in the season in the Yakima Valley, WASHINGTON. BEAN APHID (Aphis fabae) was unusually abundant and damaging to sugarbeets in the Yakima Valley and the Columbia Basin of Washington. GREEN PEACH APHID (Myzus persicae) required control in sugarbeets and lettuce in Pinal and Maricopa Counties, ARIZONA, during fall. BEET LEAFHOPPER (Circulifer tenellus) caused considerable damage to sugarbeets in some locations in CALIFORNIA.

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) populations on sugarbeets were at high levels in Larimer and Weld Counties, COLORADO, and caused considerable reduction in yield. Populations were slightly larger than in 1965 in WYOMING; damage was first noted in the Big Horn Basin during late June and was severe in Washakie County with 3-5 plants damaged in 100. Infestations ranged 10-100 percent in Walsh and Pembina Counties, NORTH DAKOTA. LEAF MINER FLIES (Pegomya spp.) were evident in most sugarbeet fields in McKenzie County, North Dakota, and the Red River Valley. Some fields were 75 percent infested with blasted areas evident on up to 6 leaves per plant. Leaf miner flies were low in Red River Valley area of MINNESOTA, with no control required. A LEAF MINER FLY injured some sugarbeet foliage at Presque Isle, MAINE, during late July.

#### MISCELLANEOUS FIELD CROPS

##### Highlights:

CABBAGE LOOPER was observed on mint for the first time in recent years in Washington. A BILLBUG caused extensive damage to orchard grass plantings in Oregon. LYGUS BUGS damaged safflower in Arizona and flax in North Dakota. TWO-SPOTTED SPIDER MITE was severe on mint in Washington and was present earlier than normal in Oregon.

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BANDED SUNFLOWER MOTH (Phalonia hospes) and SUNFLOWER MOTH (Homoeosoma electellum) infestations ranged 20-90 percent with 2-21 larvae per head in most sunflower fields in eastern NORTH DAKOTA. DIAMONDBACK MOTH (Plutella xylostella) larvae lightly damaged mustard in Ward County, and IMPORTED CABBAGEWORM (Pieris rapae) larvae were evident on mustard in Pembina County, North Dakota.

CABBAGE LOOPER (Trichoplusia ni) was observed on mint for the first time in central WASHINGTON since 1952 and in southeast area since 1958. RED-BACKED CUTWORM (Euxoa ochrogaster) and the other cutworms damaged mint and hops in the Yakima Valley and the Columbia Basin, WASHINGTON, early in the season. VARIEGATED CUTWORM (Peridroma saucia) caused less damage to many crops than in 1965 in OREGON. Heavy egg deposits were observed during summer, but economic damage was minor. Larvae were very light in mint fields. First-stage larvae of ALFALFA LOOPER (Autographa californica) were noneconomic on mint in the Willamette Valley, OREGON. A MINT FLEA BEETLE (Longitarsus waterhousei) was found for the first time in Jefferson County, Oregon; damaged one field. Adults began emerging in the Willamette Valley during early July but caused little damage due to good control. A BILLBUG (Sphenophorus venatus confluens) caused extensive damage to orchard grass grown for seed in Benton, Linn, and Lane Counties, OREGON.

A MINT APHID (Ovatus crataegarius) was unusually abundant during a relatively cool season in WASHINGTON; required control on peppermint and spearmint during early August. HOP APHID (Phorodon humuli) was abundant on hops in the Yakima Valley of Washington. Heavy honeydew resulted in mold development and defoliation in unsprayed yards.

LYGUS BUGS (Lygus spp.) caused extensive injury to seedling safflower in Maricopa and Pinal Counties, ARIZONA; populations remained high until crop maturity. Migration from safflower to cotton was heavy and of concern to cotton growers. TARNISHED PLANT BUG (Lygus lineolaris) was moderate in flax in Grand Forks County, NORTH DAKOTA.

Trace numbers of SUNFLOWER MAGGOT (Strauzia longipennis) were evident on sunflowers in Cass County, NORTH DAKOTA.

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) was severe on mint in the Columbia Basin, WASHINGTON, but less abundant than normal on hops in the Yakima Valley, with populations developing a month later than in 1965. In OREGON, infestations were present on hops 6 weeks earlier than normal in Marion, Benton, and Josephine Counties.

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Weather continued from page 172.

TEMPERATURE: Unusually cold early in the week, with freezing temperatures in all of the Continental United States, and subzero temperatures as far south as the central Great Plains. This was followed, at midweek, by unusual warmth over the middle and southern States, which spread to the East over the weekend. The temperature at Dodge City, Kansas, "high-jumped" from -1° on Wednesday morning to 71° on Thursday afternoon. Warm temperatures continued over the Central States and East for the rest of the week with the southern three-quarters of the Nation averaging 1° to 7° above normal. Arctic outbreaks early in the week and on Friday kept temperature averages below normal along the northern border from the Pacific Ocean to northern New England. (Summary supplied by Environmental Data service, ESSA.)



Notes on, and a Key to, the Species of Neophyllaphis Takahashi

(Homoptera: Aphididae)

Louise M. Russell 1/

Five species have been described in the genus Neophyllaphis Takahashi, and another, Chileaphis michelbacheri Essig (p. 65), has been transferred to Neophyllaphis by Russell (p. 340). Mindarus podocarpi Shinji (p. 532) was synonymized with N. podocarpi Takahashi by Takahashi (1924 p. 112). Of the six species now recognized in Neophyllaphis, one occurs in Hawaii and two are present in the continental United States. N. araucariae Takahashi was described in 1937 (pp. 105-106). Though unrecognized at the time, it was found in Hawaii by Timberlake (p. 267) in 1917. It was next recorded, as araucariae, by Krauss (p. 17) as having been collected in 1943. Subsequently it has been reported from new locations in the State by Swezey (p. 470), Beardsley (p. 26), and Shiroma (pp. 29-30). This species was first found in Florida in 1963 according to Woodruff (p. 131), and Cooperative Economic Insect Report (1963 p. 1334), and was rediscovered in 1966 when it was reported in CEIR (1966 p. 390) as having been found in three localities. N. podocarpi was found in California in 1954, 1957, 1958, and 1964, according to Hawthorne, and Harper (p. 82) indicated that the species had gradually extended its range in the State. N. podocarpi was found in Louisiana in the spring of 1966 and its presence was reported in CEIR (1966 p. 500) in November.

Neophyllaphis araucariae and N. podocarpi are becoming of increasing interest in the United States, and they, or related species, presumably will be intercepted at our ports of entry. For these reasons, and because it is difficult to recognize the species of Neophyllaphis from the existing, scattered literature, it seems desirable to devise keys to the various species and forms, insofar as this is possible, and to assemble miscellaneous information concerning the insects.

Economic Importance - Neophyllaphis podocarpi, N. grobleri Eastop, and N. araucariae are known to be of economic importance. Takahashi (1921 p. 78, 1923 pp. 129-130) stated that podocarpi was very common, that it sometimes grouped densely, and attacked the lower surface of leaves, particularly the young ones, causing them to curl. Boudreaux, and CEIR (1966 p. 500) indicated that in Louisiana heavy populations of the aphid reduced the growth of the infested Podocarpus. The plants also became covered with sooty mold that grew in the honeydew excreted by the insects. In CEIR (1966 p. 1047) N. podocarpi was said to be "heavy on podocarpus nursery stock in Mill Valley, Marin County," California. Eastop (1955 p. 160, 1958 p. 86) stated that N. grobleri feeds on both seedlings and full grown trees. He (1961 p. 59) stated further that "grobleri may be a pest.... in nurseries as heavy attacks stunt and distort the growing points and the wax covered aphid is difficult to wet with insecticide." Although Timberlake (p. 267) wrote that he found the aphid that was later identified as N. araucariae "abundant on young shoots of Araucaria," most subsequent reports of this species in Hawaii and Florida indicate that the insect occurs sparsely. However, Hu (p. 967) stated that araucariae infested "40 acres of Norfolk Island pine trees in Kapoho, Hawaii Island. Wingless forms on heavily infested trees ranged 10-20 per leaf. Winged forms in lesser numbers." Cottier (p. 317) wrote that N. totarae Cottier infested its host sparsely, usually being found singly on leaves or in small groups on young trees, and that it was not of economic importance. Carver (p. 26) reported gingerensis Carver as being found singly or in small groups on the leaves, "being mostly confined to the purple coloured shoots, where it is well camouflaged." Essig (pp. 65-66) made no statement concerning the location, abundance, or injuriousness of michelbacheri, but from the number of individuals listed, a total of 124, it seems likely that the species occurred in fair numbers. He stated that the aphids were collected by beating the limbs and foliage of the host plant.

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Predators - Species of Neophyllaphis apparently have few insect enemies. Mamet (p. 56) stated that in Mauritius araucariae was attacked by the coccinellid beetle Ecochomus laeviusculus Weise, and by an entomogenous fungus, Cephalosporium aphidicola Petch. Zimmerman (p. 66) listed one coccinellid, Coelophora inaequalis (Fabricius), and one chrysopid, Chrysopa lanata Banks, as predators of araucariae in Hawaii. Eastop (1958 p. 86) wrote that grobleri "which is wax covered in life, is often preyed upon by wax-covered coccinellid larvae." I have found no records of attacks by parasites on members of this genus.

Hosts and distribution - Species of Neophyllaphis are known on two genera of the Pinaceae and one genus of the Taxaceae (sensus latus). They occur on five continents and several islands. Records are as follows:

Araucaria cunninghami, A. excelsa, Araucaria sp.

N. araucariae - Florida, Hawaii; Mauritius; Australia (New South Wales, Queensland, Eastop 1966 p. 516).

Pilgerodendron uviferum (uviferum also has been placed in Juniperus, Libocedrus, and Thuja, Essig p. 65).

N. michelbacheri - Chile (Llanquihue).

Podocarpus alpina, P. chinensis, P. elata, P. gracilior, P. henkelii, P. macrophylla, P. milanjanus, P. nageia, P. totara, Podocarpus spp.

N. gingerensis - Australia (Mt. Gingera, Mt. Ginini).

N. grobleri - Kenya; South Camerouns; South Africa; Tanganyika; Transvaal.

N. podocarpi - California, Louisiana; Australia (Sydney, Hardy p. 31; Queensland, Eastop 1966 p. 517); China (Chekiang, Fukien, Kwangtung, Szechuan), Taiwan, Japan, Ryukyu Islands, (Tao p. 210); Malaya (Takahashi 1950 p. 587); Botel Tobago (Takahashi 1927 p. 17); Loochoo Islands (Takahashi 1930 p. 325).

N. totarae - New Zealand.

N. grobleri and N. totarae were at first misidentified as podocarpi. Thus, reports of podocarpi from Africa and New Zealand are erroneous.

Relationships - The placement of Neophyllaphis within the Aphididae (sensus latus) has varied, but most frequently has been in the Callipterinae or Callipterini. It was placed either in this subfamily or tribe by Takahashi (1921 p. 69), though originally he (1920 pp. 19-20) did not assign it to a supergeneric group, by Baker (p. 23), Boerner (p. 128), Eastop (1958 p. 86, 1961 p. 59), and Tao (p. 210). Recently Eastop (1966 p. 514) placed Neophyllaphis in the Drepanosiphinae, listing the Phyllaphidinae and Callipterinae as synonyms. Essig (p. 65) placed Chileaphis in the Callaphidinae. However, Boerner (pp. 165, 177) and Cottier (p. 76) assigned Neophyllaphis to the Thelaxini. Although Eastop (1961 pp. 59-60) placed the genus in the Callipterinae, he stated: "The often alate oviparae, indistinctly separated head and pronotum of the apterae and nymphs and their three-faceted eyes, the annular rhinaria of the alatae, absence of flattened empodial harris from the tarsi and short processus terminalis may indicate that Neophyllaphis belongs in the Thelaxinae, distantly related to Mindarus Koch."

Neophyllaphis was placed in the subtribe Phyllaphidina by Baker (p. 23), in Callipterina by Boerner (p. 128), and in "Subtribe Neophyllaphidini" by Takahashi (1921 pp. 69, 76). Takahashi (1931 p. 79) elevated his subtribe to tribal rank, and thereafter most workers except Cottier followed this placement. Quednau (1962 p. 248) established the subfamily Neophyllaphidinae without other characterization than the inclusion of the species N. grobleri Eastop. Richards (1966 p. 758), apparently unaware of Quednau's action, and also without characterizing the subfamily, stated, "Neophyllaphidinae new status."

Neophyllaphis is an old group. Mordvilko (p. 270) suggested that it might be "almost of the same antiquity as Podocarpus."

Distinguishing Characters - Neophyllaphis is unusual in several respects. The oviparous females of grobleri, michelbacheri, podocarpi, and totarae are winged, whereas those of gingerensis are wingless, as are those of most aphids. The sexuales of grobleri, michelbacheri, and podocarpi appear in the spring, summer, and fall, and those of gingerensis and totarae in the spring. Sexuales of most aphid species appear only in the fall. The winged viviparae of grobleri, gingerensis, and podocarpi may have a few pseudosensoria on the hind tibiae. This also is uncommon, these structures usually being present only in oviparae. In gingerensis, grobleri, michelbacheri, podocarpi, and totarae, the only species in which the oviparae have been described, the cauda is strikingly dissimilar in shape to that of the other forms. Such a variation in the shape of the cauda is extremely rare.

Neophyllaphis is distinguished from other genera known in the United States by the following combination of characters: Secondary sensoria absent from antennal segment III in all apterae, annular or semiannular in alate viviparae, annular or semiannular to oval in alate sexuales; base of antennal segment VI much longer than the unguis; eyes of apterae with 3 facets; ocular tubercles strongly tuberculate in alatae; last rostral segment without setae except for the 3 apical pairs; cornicles porelike and slightly to distinctly elevated; each first tarsal segment with 5-9 (most often 7) setae; anal plate slightly to distinctly bilobed; cauda constricted in viviparae and males, with distal portion globose or elongate; cauda in oviparae greatly enlarged, modified in shape and subquadrate or platelike; oviparae apterous or alate.

The keys and data presented here have been extracted from literature and observed in specimens determined as araucariae, grobleri, michelbacheri, and podocarpi. Examples of gingerensis Carver and totarae Cottier have not been studied by me.

Most of the characters given in the key are apparent only in slide-mounted specimens. The descriptions of some species, or forms, do not mention all structures that might be useful in the separation of species. For this reason, certain characteristics are sometimes included in one part of a couplet to assist the identifier, even though they are necessarily omitted from the other part.

Key to alate viviparae

Alate viviparae of michelbacheri are unknown.

- 1. Antenna 5 or 6-segmented; antennal segment III with 20-24 secondary sensoria distributed over its entire length and encircling the ventral 3/5 of its circumference, the dorsal 2/5 imbricated; segments III-V (or VI) approximately 113 mm long; cauda elongate.....araucariae Takahashi

Antenna 6-segmented; combination of other characters not as in araucariae...2

- 2. Cauda globular, with about 12 setae; antennal segment III with 50-80 secondary sensoria encircling the ventral 3/4 of its circumference, the dorsal 1/4 not imbricated; each, or anterior 6, abdominal terga with a black, transverse bar; 8th tergum with 6-8 setae; base of cornicle with 2 setae.....grobleri Eastop

Cauda elongate, with 5 setae; antennal segment III with fewer than 50 secondary sensoria, encircling the ventral 3/4 of its circumference or not, but the dorsal 1/4 imbricated in podocarpi and totarae (condition unknown in gingerensis); each abdominal tergum without a black, transverse bar; 8th tergum with 4 setae in podocarpi (number unknown in gingerensis and totarae); base of cornicle without setae in podocarpi and presumably without setae in gingerensis and totarae.....3

3. Antennal segment III with 32-45 annular secondary sensoria distributed over its entire length and encircling the ventral 2/3 of its circumference.....podocarpi Takahashi
- Antennal segment III with fewer than 30 secondary sensoria, all not annular, and some elongate oval or narrowly oval if distributed over entire length of segment, all not encircling the ventral 2/3 circumference of segment.....4
4. Antennal segment III with 20-25 secondary sensoria distributed over its entire length; III approximately 7/8 length of combined segments IV-VI; IV usually with 1 or 2 secondary sensoria; abdomen with inconspicuous scleroites at bases of dorsal setae.....gingerensis Carver
- Antennal segment III with 10-22 secondary sensoria, absent from ends of segment; III approximately 3/5 length of combined segments IV-VI; IV without secondary sensoria; abdomen without scleroites at bases of dorsal setae....totarae Cottier

Key to apterous viviparae

1. Antenna 5-segmented; living insects yellow; not pulverulent or waxy.....araucariae Takahashi
- Antenna 6-segmented; color of living insects of grobleri and micelbacheri unknown, other species purplish blue, or reddish brown to reddish purple; pulverulent or waxy.....2
2. Cauda globular, with 12 or more setae; waxy.....3
- Cauda elongate, with 5 or 6 setae; pulverulent.....4
3. Cornicles slightly dusky, weak, the base only slightly larger than the opening and with 1 or 2 setae; subanal plate slightly bilobed; cauda with about 12 setae.....grobleri Eastop
- Cornicles darker, almost truncate, the diameter of the base about twice that of the opening and with 5-7 setae; subanal plate deeply cleft into 2 lobes; cauda with about 30 setae.....micelbacheri (Essig)
4. Subanal plate indented but not divided into 2 separate, distinct lobes; abdominal terga apparently (not mentioned in description) without dark scleroites around setal bases; antennal segment III slightly shorter than combined length of IV + V.....totarae Cottier
- Subanal plate distinctly divided into 2 separate, distinct lobes; abdominal terga with dark, though inconspicuous scleroites around setal bases; antennal segment III approximately as long as combined length of IV + V.....5
5. Head with 2 pairs of 2-5 cellular, glandlike areas, prothorax with 1 multicellular, glandlike area.....gingerensis Carver
- Head and prothorax without cellular, glandlike areas.....podocarpi Takahashi

Key to oviparae

Oviparae of araucariae are unknown.

1. Wingless; antennal segment III without secondary sensoria; head with 2 pairs of cellular, glandlike areas, prothorax with 1 multicellular, glandlike area; cauda with apical portion ornamented with wax pore, glandlike areas.....gingerensis Carver  
Winged; antennal segment III with secondary sensoria; head and prothorax without cellular, glandlike areas; cauda with apical portion not ornamented with wax pore, glandlike areas.....2
2. Fore, middle, and hind tibiae each with pseudosensoria.....micelbacheri (Essig)  
Fore and middle tibiae without pseudosensoria.....3
3. Antennal segment III with 10-19 semiannular or oval secondary sensoria distributed over the proximal 2/3 - 3/4 of its length; cauda strongly constricted at base, ornamented with teardrop shaped designs.....totarae Cottier  
Antennal segment III with at least 20 annular secondary sensoria distributed over its entire length; cauda not constricted, ornamented with scroll-like lines.....4
4. Antennal segment III with 20-35 secondary sensoria; subanal plate strongly bilobed, with elongate slender setae as long as greatest width of hind tibia; cauda ornamented by lines running lengthwise of the structure.....podocarpi Takahashi  
Antennal segment III with approximately 80 secondary sensoria; subanal plate weakly bilobed, with short, stout, spinelike setae, no longer than the least width of the hind tibia, and with an occasional elongate slender seta; cauda ornamented by scroll-like lines running in concentric circles.....grobleri Eastop

Key to males

Males of araucariae and grobleri are unknown.

1. Subanal plate more or less entire; antennal segment III with 41-45 semiannular to oval secondary sensoria, the semiannular ones on the proximal half, most of the others on the distal half, of the segment; base of antennal segment VI with 0-2 secondary sensoria.....totarae Cottier  
Subanal plate divided into 2 distinct lobes; antennal segment III with about 40 (micelbacheri), or at least 50 semiannular to oval secondary sensoria arranged as in totarae in micelbacheri but not in other species; base of antennal segment VI with 5-7 secondary sensoria.....2
2. Subanal plate divided nearly to base, each lobe wider than long; antennal segment III with at least 100 secondary sensoria.....podocarpi Takahashi  
Subanal plate completely divided, each lobe presumably as long as wide; antennal segment III with about 40, or with 57-66, secondary sensoria.....3

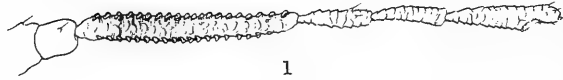
3. Antennal segment III with about 40 secondary sensoria; cornicle almost truncate and with 5-7 setae; abdominal terga 3-6 each with a dark transverse bar.....Michelbacheri (Essig)
- Antennal segment III with 57-66 secondary sensoria; cornicle slightly elevated and presumably without, or with 1 or 2, setae; abdominal terga without transverse bars; sometimes with faint, dark scleroites around bases of setae.....gingerensis Carver

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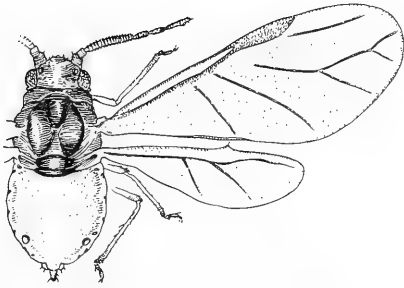
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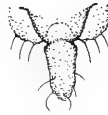
Neophyllaphis araucariae Takahashi



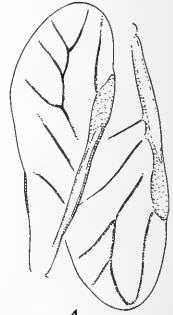
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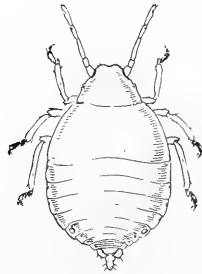
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Alate Viviparous Female

1. Antenna 2. Adult 3. Cauda  
4. Wings showing abnormal venation



5



6



7

Apterous Viviparous Female

5. Antenna 6. Adult 7. Cauda





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**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

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## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMY CUTWORM larvae continue moderate to heavy in Kansas; damage severe in many instances. GREENBUG increasing in small grains in Texas, but not so heavy as in past years when outbreaks have occurred. Populations light to moderate in New Mexico, Oklahoma, Kansas, Missouri, and Arkansas. (p. 197). BROWN WHEAT MITE damaging wheat in Oklahoma. WINTER GRAIN MITE heavy on wheat in Oklahoma, damaging in northern Texas. (p. 198).

EUROPEAN CORN BORER winter survival averaged 78 percent in Illinois. (p. 198).

ALFALFA WEEVIL egg hatch heavy in Arkansas; infestations increasing in Mississippi and Missouri, adults active in Colorado, and egg numbers indicate continued problem in New Jersey. EGYPTIAN ALFALFA WEEVIL heavy in Arizona; widespread in some areas of State with some control needed. (p. 198).

GREEN PEACH APHID heavy on spinach in Zavala County, Texas. (p. 199).

Detection

New State records include a MOSQUITO in Virginia, (p. 201); an EPIPASCHIID MOTH in Delaware, (p. 203); and three ANTS in Hawaii, (p. 214).

For new county records see page 203.

Some First Occurrences of Season

ALFALFA WEEVIL larvae in Maryland; GREEN FRUITWORM and two NOCTUID MOTHS in Ohio; COMMON CATTLE GRUB adults in Oklahoma; and southern POTATO WIREWORM in South Carolina (see light trap collections, p. 203).

Special Reports

Summary of Insect Conditions in the United States - 1966

Potatoes, Tomatoes, Peppers (pp. 204-207).

Beans and Peas (pp. 207-208).

Cole Crops (pp. 209-210).

Cucurbits (pp. 210-211).

General Vegetables (pp. 211-214).

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WEATHER OF THE WEEK ENDING MARCH 20

**HIGHLIGHTS:** Cold and stormy, northern Rockies to New England; heavy snows northern California and the Northeast; turning very cold in Southeast with heavy freezes Carolinas and Georgia.

**PRECIPITATION:** Moist Pacific air produced 2-5 inches of rain along the northern Pacific coast during the week with heavy snow in the Sierras of northern California in the first half of the week. Snow accumulated to 15 feet at Norden, California, and at Squaw Valley 8 feet of new snow fell in 60 hours. Winds 50-90 m.p.h. drifted the snow and filled the mountain highway passes. Violent thunderstorms occurred March 13 from the Ohio River Valley to Virginia and southwestern New York, while freezing rain slicked the highways in New England. Later in the week, light to moderate snow fell from the northern Plains to the Great Lakes, and heavy snow, 10-16 inches in some areas, fell over northeastern Pennsylvania, northern New Jersey, southeastern New York, and southeastern New England. Wide areas across the South received no precipitation while scattered rains in parts of the Great Basin, the southern Rockies, and the central Plains were too light to be of much benefit.

Weather continued on page 202.

**SPECIAL INSECTS OF REGIONAL SIGNIFICANCE**

**ARMY CUTWORM (*Chorizagrotis auxiliaris*)** - KANSAS - Larvae continue moderate to heavy on small grains in Cowley County. Larval counts on wheat as high as 20 per square foot in some fields. Damage severe in many instances. Most larvae in late instars and nearing pupation. Numbers continue light on small grains in Barber County. Ranged 6-10 per square foot in field of seedling alfalfa in Cowley County. Damage severe. (Simpson).

**CORN LEAF APHID (*Rhopalosiphum maidis*)** - ARIZONA - Medium in small grains in scattered areas of Maricopa County. Generally light to medium in many Yuma County barley fields. (Ariz. Coop. Sur.).

**GREENBUG (*Schizaphis graminum*)** - NEW MEXICO - Counts per linear foot on wheat ranged 6-15 near Roswell, Chaves County, and 4-10 near Clovis, Curry County. (Mathews). TEXAS - Sporadic light to heavy populations extend into most small grain producing counties in northern half of State. Infestations generally light in northern High Plains, moderate in lower High Plains, light to moderate in Rolling Plains and light throughout northern and central areas. Although populations increasing, infestations not as heavy as in previous seasons when outbreaks have occurred. (Texas Coop. Rpt.). Populations continue to increase. Counts range up to 4,000 per row foot in few fields in eastern Swisher County; many fields in western half of county with 1,500-2,000 per row foot. Parasitic wasps appearing in area. Counts in Castro, Deaf Smith, and Parmer Counties decreased from last month but still range 500-600 per row foot. Heavy infestations widespread in Armstrong County; counts highest in southern half of county. Infestations noted in Kaufman County on oats, rye, and wheat; apparently building up. Counts ranged 0-366 per row foot, averaged 25. Damage also noted in Carson, Ochiltree, and Randall Counties. (Daniels, Wheeler, Turney).

**OKLAHOMA** - Populations decreased in scattered areas due to freezing weather, but apparently unaffected in many other areas. Reported heavy in wheat areas of Blaine, Caddo, Grady, Canadian, Cotton, and Marshall Counties. Moderate in Beckham (50-200 per linear foot), Kingfisher, Tillman (50 per linear foot), and Jefferson Counties; light in Alfalfa and Bryan Counties. Many fields being sprayed throughout southwestern quarter of State. (Okla. Coop. Sur.).

**ARKANSAS** - Populations increasing in Pope County to extent growers are considering treatments. (Barnes). **KANSAS** - Counts per foot of row by county as follows: Greenwood, 0-5; Cherokee, 20-30; Labette, 35-40; Montgomery, 0-10; Chautauqua, 0-5. (Simpson). **MISSOURI** - Very light in southwest area. Counts in 9 fields ranged 2-8 per foot of row. Average in all fields, 1.8 per foot. (Munson).

**POTATO PSYLLID (*Paratrioza cockerelli*)** - ARIZONA - Light egg deposits found on potatoes in fields in Litchfield and Peoria areas, Maricopa County. No nymphs or adults found. (Ariz. Coop. Sur.).

**SIX-SPOTTED LEAFHOPPER (*Macrostelus fascifrons*)** - MISSISSIPPI - Adults light; first-generation present in middle nymphal stages in Oktibbeha County. (Dinkins). **FLORIDA** - Very light on rye and oats at Gainesville, Alachua County. (Mead).

**SPOTTED ALFALFA APHID (*Therioaphis maculata*)** - ARIZONA - Light numbers caused light damage to alfalfa in areas of western Maricopa County. Light and scattered infestations appearing in Yuma County. Some parasitism evident. (Ariz. Coop. Sur.). **TEXAS** - Averaged 5-10 per sweep in most small alfalfa acreages in Hidalgo County. (Parker). **OKLAHOMA** - Heavy in alfalfa in Grady County. Reported moderate and spotty in Beckham County. (Okla. Coop. Sur.). **MISSISSIPPI** - Very light on alfalfa in Pontotoc County. (Dinkins). **FLORIDA** - Nymphs and adults averaged 2 per sweep on alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.).

## CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - ILLINOIS - Winter survival of borers averaged 78 percent for State. Percent survival by section as follows: West 81, central 78, west-southwest 75, southwest 70. (Ill. Ins. Rpt.).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - MISSOURI - Winter mortality very low in southwestern area; less than 5 percent in 5 fields checked (100 girdled plants per field). (Munson).

## SMALL GRAINS

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Moderate to heavy numbers continue to damage wheat in Grady, Canadian, Kingfisher, Beckham, Blaine, and Cotton Counties. Light in Alfalfa and Tillman Counties. (Okla. Coop. Sur.). KANSAS - Ranged up to 50 per foot of row in some Cowley County wheat. (Brooks, Simpson). Light populations reported in Barber County. (Simpson).

WINTER GRAIN MITE (Penthaleus major) - KANSAS - Continues light on wheat in many southwest area fields; 15-25 per foot of row. (Simpson). OKLAHOMA - Heavy in wheat in Grady County. (Okla. Coop. Sur.). TEXAS - Continues to damage many untreated fields of small grains throughout northern area. (Turney).

ENGLISH GRAIN APHID (Macrosiphum avenae) - KANSAS - Ranged 5-10 per foot of row in few Labette and Montgomery County wheat fields. (Simpson). FLORIDA - Very light on rye and oats at Gainesville, Alachua County. (Fla. Coop. Sur.).

A LEAFHOPPER (Graminella nigrifrons) - FLORIDA - Very light on rye and oats at Gainesville, Alachua County. (Mead).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MISSISSIPPI - Populations increased in Pontotoc County. Larvae average 60 per square foot in untreated alfalfa, 16 per square foot in flame treated alfalfa. (Dinkins). ARKANSAS - Egg hatch heavy. Examination of stems showed larger number of empty egg shells than eggs in stems in Mississippi County. (Miner). Small larvae ranged 8-10 per stem in Lonoke County. Some treatments made March 17. (Barnes). Light infestations of small larvae observed in Fulton County. (Roberts). MISSOURI - Numbers increasing rapidly in alfalfa. Ranged 20-30 per square foot in Pemiscot County. (Jones). INDIANA - Cold, wet weather curtailed larval activity in Ohio River area. (Hintz). No eggs or larvae present in alfalfa stem samples collected in Marion, Hancock, Shelby, Rush, Fayette, Franklin, and Wayne Counties. (Huber). MARYLAND - First larvae of season, mostly first instar, found March 16 on alfalfa near Atholton, Howard County. Mating adults also observed. (U. Md., Ent. Dept.). NEW JERSEY - Egg numbers in alfalfa indicate infestations will continue troublesome this season. Overwintering adults numerous in most alfalfa. (Ins.-Dis. Newsltr.). COLORADO - Adults active in western area; also observed in Larimer County. (Bulla, McLaughlin).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - No increase observed in Maricopa County alfalfa; larvae average 2 per terminal in most fields. Counts 250-400 per 100 sweeps in Yuma County. Infestations widespread in Pinal County; control measures needed in many fields. (Ariz. Coop. Sur.).

CLOVER LEAF WEEVIL (Hypera punctata) - MARYLAND - Larvae beginning to damage red clover near Lanham, Prince Georges County. (U. Md., Ent. Dept.). MISSOURI - Larvae averaged 1.25 per square foot in 3 fields in southwest area. (Munson). KANSAS - Larvae ranged 3-8 per square foot on alfalfa in Cowley County field. Some damage apparent. (Simpson).



A SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) - NEW MEXICO - Very light on alfalfa in Dona Ana County south of Las Cruces. (Elson).

ALFALFA CATERPILLAR (Colias eurytheme) - NEW MEXICO - Heavy on some alfalfa near Roswell, Chaves County. (Chappell).

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Very light to light on alfalfa near Roswell, Chaves County. (Mathews). TEXAS - Very light on vetch in Kaufman County and on alfalfa in Brazoria County. Counts in Brazoria County averaged 2-3 per sweep over 600 acres of alfalfa. (Turney, Parker). FLORIDA - Nymphs and adults averaged 3-4 per sweep on alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.). KANSAS - Ranged 25-50 per square foot in many seedling alfalfa fields in Wilson, Labette, Montgomery, and Cherokee Counties. Very light, 0-10 per square foot found elsewhere in southeast area. (Simpson). MISSOURI - Numbers in established stands of alfalfa in southwest area very low; 0-40 per 100 sweeps. In fall-seeded alfalfa, some damage observed in spots where aphids ranged 8-30 per plant. (Munson). MARYLAND - Light on alfalfa near Atholton, Howard County. (U. Md., Ent. Dept.).

SOUTHERN GREEN STINK BUG (Nezara viridula) - FLORIDA - Very light on alfalfa at Gainesville, Alachua County. (Mead).

LYGUS BUGS (Lygus spp.) - UTAH - Lygus spp. and L. elisus active in St. George and Hurricane areas of Washington County on roadside margins of alfalfa fields. (Knowlton).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - TEXAS - Averaged 5-10 per sweep in most small alfalfa acreages in Hidalgo County. (Parker). FLORIDA - Very light on alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.).

#### SUGARBEETS

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Continues moderate to heavy on sugarbeets in all areas of Maricopa County. (Ariz. Coop. Sur.).

#### GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Although heavy in Rio Grande Valley earlier, populations decreased to subeconomic level and presently not troublesome. (Deer, Parker).

GREEN PEACH APHID (Myzus persicae) - TEXAS - Heavy on spinach in Zavala County; has been problem all season. Light on spinach in Hidalgo County but apparently increasing. Light on spinach in Brazoria County. (Rainey, Lovelace, Parker). MARYLAND - Light to medium on overwintered cabbage and turnips at Fairland, Montgomery County. (U. Md., Ent. Dept., Mar. 10).

BEAN APHID (Aphis fabae) - CALIFORNIA - Heavy on artichoke plantings in Madison, Yolo County. (Cal. Coop. Rpt.).

ONION THRIPS (Thrips tabaci) - TEXAS - Few present on onions in several Rio Grande Valley fields. However, seldom builds up to damaging numbers in this area. (Deer, Parker).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - NEW MEXICO - Probably this species, very light to light on onions in Dona Ana County south of Las Cruces. (Elson).

ARGENTINE ANT (Iridomyrmex humilis) - CALIFORNIA - Heavy on artichoke plantings in Madison, Yolo County. (Cal. Coop. Rpt.).

## DECIDUOUS FRUITS AND NUTS

GREEN FRUITWORM (Lithophane antennata) - OHIO - First flights occurred on evening of March 10. (Rings).

NOCTUID MOTHS (Eupsilia spp.). - OHIO - First flights of E. morrisoni and E. vinulenta occurred March 10 when the maximum daily temperature was 62°F. E. morrisoni females laid eggs on March 14. (Rings).

A PYRALID MOTH (Aglossa caprealis) - CALIFORNIA - Larvae heavy on bark and trunks of apple trees in Caruthers, Fresno County. (Cal. Coop. Rpt.).

A LEAF ROLLER MOTH (Platynota stultana) - ARIZONA - Some activity noted in nurseries and greenhouses in Yuma County. (Ariz. Coop. Sur.).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Medium on peach and light on almond locally in Colusa, Colusa County. Parasites have been introduced for control. (Cal. Coop. Rpt.).

## CITRUS

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Appearing in Yuma County; few infestations noted in Maricopa County. (Ariz. Coop. Sur.).

TEXAS CITRUS MITE (Eutetranychus banksi) - TEXAS - Heavy infestations in 1966 have resulted in some fruit damage this year in the Rio Grande Valley. (Parker).

## ORNAMENTALS

ARMORED SCALES - FLORIDA - All stages of Pseudococcus adonidum moderate at Altamonte Springs, Seminole County, on 160 of 200 Pilea cadierei, light on 5 of 500 heartleaf philodendron, moderate on 45 of 100 Philodendron mandaianum, severe on 1 dracaena, and severe on 1 coffee plant. (Kipp, Feb. 13). Melanaspis tenebricosa adults collected on maple and Chionaspis longiloba collected on pussy willow north of Cross City, Dixie County. (Graham, Feb. 16). Latter two scales are new county records. (Fla. Coop. Sur.). Aonidiella orientalis very light on scarlet firethorn at Hollywood, Broward County. (Hickman, Cervone, Feb. 13).

APHIDS - ARIZONA - Macrosiphoniella sanborni appearing on many plants in Maricopa County and heavy on chrysanthemums at Yuma, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Probably Macrosiphum rosae medium on leaf buds of roses in Albuquerque, Bernalillo County. (Heninger).

CALICO SCALE (Lecanium cerasorum) - CALIFORNIA - Locally heavy on deciduous magnolia shrubs at San Jose, Santa Clara County. (Cal. Coop. Rpt.).

A COREID BUG (Jadera haematoloma) - OKLAHOMA - Heavy numbers damaging western soapberry in Durant, Bryan County. (Okla. Coop. Sur.).

FALSE SPIDER MITES (Brevipalpus spp.) - CALIFORNIA - B. obovatus adults medium on honeysuckle vines in Escondido, San Diego County. B. essigi eggs and adults light to medium on fuchsia nursery stock in San Luis Obispo County. (Cal. Coop. Rpt.).

AN ERIOPHYID MITE (Diptacus swensoni) - CALIFORNIA - Medium on undersides of leaves on English holly nursery stock at Millbrae, San Mateo County. (Cal. Coop. Rpt.).

#### FOREST AND SHADE TREES

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ALABAMA - Widespread hatching and early feeding on cherry continues in southern area. (Granberry).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - NEW JERSEY - Infestations reported in Chirstmas tree plantings. (Ins.-Dis. Newsltr.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - OHIO - Collected in Tiffin, Seneca County. This is a new county record. (Porter).

APHIDS - ALABAMA - Eulachnus spp. infestations heavy on pine; 100-200 aphids infest outer 6-8 inches of each pine limb in most localities throughout east-central area. Heavy honeydew dripping into streets. (Shumack et al). CALIFORNIA - Pterocomma flocculosa heavy on willow along State highway in Arroyo Grande, San Luis Obispo County. (Cal. Coop. Rpt.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - CALIFORNIA - Heavy on willow along State highway in Arroyo Grande, San Luis Obispo County. Trees weakened by Pterocomma flocculosa infestations show greatest damage. (Cal. Coop. Rpt.). MARYLAND - L. ulmi heavy on maple at Shadyside, Anne Arundel County. (U. Md., Ent. Dept.).

A SOFT SCALE (Eriococcus quercus) - OKLAHOMA - Noted on blackjack oak in Midwest City, Oklahoma County. (Okla. Coop. Sur.).

#### MAN AND ANIMALS

MOSQUITOES - LOUISIANA - Larval collections in Jefferson Parish contained Aedes vexans, Anopheles quadrimaculatus, Culex restauans, C. salinarius, and Culiseta inornata. Adult activity very low week ending March 10. Larval collections for week ending March 17 contained same species. Adult activity, however, increased throughout parish due to warmer weather. Mosquito counts highest in western portion of parish. (Stokes). ARKANSAS - Due to warm temperatures, large numbers of larvae, primarily Culex pipiens quinquefasciatus, developed in still water on level land areas. (Barnes). VIRGINIA - Aedes cinereus reported from State for first time. Single females collected during 1966 in light trap and Malaise trap in Franklin County June 16; in light trap in Pittsylvania County June 25; and in light trap in Roanoke County August 19. Collected by W. J. Gladney. Det. by A. Stone. (Isakson). MINNESOTA - State Health Department reported 13 cases of California encephalitis (not Western equine encephalitis) in children in Houston and Winona Counties during the summer of 1966. The mosquito vector in the southeast area cases is unknown. (Minn. Ins. Rpt.).

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U.S. March 12-18. Total of 27 cases reported in portion of Barrier Zone in Republic of Mexico March 5-11 as follows: Territorio sur de Baja California 2, Sonora 23, Coahuila 1, Tamaulipas 1. Three cases reported from Mexico south of Barrier Zone. Barrier Zone is area where eradication operations are underway to prevent establishment of self-sustaining population un U.S. Screw-worm flies released March 12-18: Texas 5,064,000, Mexico 89,384,000. (Anim. Health Div.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Ranged 3-12 per head of cattle in Marshall County, moderate in Mayes County. Adults active in Seminole County. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Increased slightly on cattle in Oktibbeha County; 3-4 per head present. (Dinkins).

BLACK FLIES - ALABAMA - Hatch heavy in Auburn area, Lee County. Large numbers feeding on horses in local stable. (Shell, Ledbetter).

SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) - TEXAS - Continues to increase; moderate to heavy on cattle near Bryan, Brazos County. (Cooper). OKLAHOMA - Mostly this species averaged 2 or more per hair part on cattle checked in Payne, Noble, and Lincoln Counties. Reported heavy in Cotton County and moderate in Marshall County. (Okla. Coop. Sur.).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Continues moderate on hogs in Marshall County. (Okla. Coop. Sur.).

TICKS - OKLAHOMA - Total of 258 ticks taken from deer and elk shot in vicinity of Wichita Wildlife Refuge in Comanche County, November 19-23, 1966. The following 244 ticks were taken from 24 deer: Ixodes scapularis 124, Dermacentor albipictus 119, and Amblyomma americanum 1. The following 34 ticks were taken from elk: I. scapularis 31, D. albipictus 2, and A. americanum 1. (Okla. Coop. Sur.). TEXAS - Amblyomma americanum heavy on cattle near Goliad County. One cow paralyzed. (Hajdik).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - TEXAS - Moderate to heavy in several poultry houses near Gonzales, Gonzales County. (Walker).

#### BENEFICIAL INSECTS

LADY BEETLES - NEW MEXICO - Light to medium on alfalfa and wheat in Roswell area, Chaves County; light on alfalfa and barley south of Las Cruces, Dona Ana County. (Mathews, Elson).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Larva collected on jasmínorange at Ft. Lauderdale, Broward County, (Runfeldt, Feb. 24); 15 larvae collected from calamondin at Sebring, Highlands County, (Morris, Mar. 6); larvae taken from loquat at Hialeah, Dade County, (Stegmaier, Mar. 6); single larva taken from grapefruit at North Miami, Dade County, (DeHaven, Mar. 10). Adults continue to be collected in south Florida. (Fla. Coop. Sur.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - TEXAS - New infestations of approximately 5 mounds about 2 years old found at 15-foot intervals on roadside near Plantersville and Richards in Grimes County. Reproductives have already swarmed this year. (Barham).

GRASSHOPPERS - OKLAHOMA - Surveys at 7 rangeland stops in Atoka and Latimer Counties averaged 0.75 egg pod per square yard and 1 egg pod per square yard at 3 rangeland stops in Greer County. (Okla. Coop. Sur.).

Weather continued from page 196.

TEMPERATURE: Arctic air from Canada poured into the northern Plains holding average temperatures to 5-18° below normal for the second consecutive week. As the cold air advanced southward and eastward, temperatures which had neared record high levels for so early in the season plunged to near record cold. By the weekend, hard freezes had penetrated deep into Dixie, causing heavy damage in the peach and apple orchards of the Carolinas and Georgia. Pacific air cooled portions of Washington, Oregon, and northern California but temperature over parts of the Great Basin continued to average above normal as it has for the past several weeks. (Summary supplied by Environmental Data Service, ESSA).

## INSECT DETECTION

### New State Records

AN EPIPASCHID MOTH (Epipaschia zelleri) - DELAWARE - Collected in blacklight trap by J. Franklin, at Dover on August 8, 1965. Det. by R. W. Hodges. (Burbutis).

A MOSQUITO (Aedes cinereus) - VIRGINIA - Collected in traps in Franklin, Pittsylvania, and Roanoke Counties during 1966 by W. J. Gladney. Det. by A. Stone. (p. 201).

AN ANT (Pheidole javana) - HAWAII - Collected in upper Manoa Valley, Oahu, November 21, 1966, and at Hilo, Hawaii Island, December 27, 1966. Det. by D. R. Smith. (p. 214).

AN ANT (Strumigenys rogeri) - HAWAII - Collected November 21, 1966 in upper Manoa Valley, Oahu. Det. by D. R. Smith. (p. 214).

AN ANT (Solenopsis (Diplorhoptum) sp.) - HAWAII - This new subgenus collected in upper Manoa Valley, Oahu, September 25, 1966. Det. by D. R. Smith. (p. 214).

### New County Records

AN ARMORED SCALE (Melanaspis tenebricosa) - FLORIDA - Collected on maple in Dixie County. (p. 200).

AN ARMORED SCALE (Chionaspis longiloba) - FLORIDA - Collected on pussy willow in Dixie County. (p. 200).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - OHIO - Collected in Tiffin, Seneca County. (p. 201).

## CORRECTIONS

CEIR 17(10):163 - COWPEA APHID (Aphis medicaginis) should be (Aphis craccivora).

CEIR 17(11):174 - PEA APHID (Acyrthosiphon pisum) should be (Acyrtosiphon pisum).

CEIR 17(11):179 - IMPORTED FIRE ANT (Solenopsis saevissima) should be (Solenopsis saevissima richteri). This correction should be made in first complete note on this page and in second entry under New County Records.

## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 3/14, BL - Black cutworm (Agrotis ipsilon) 1, salt-marsh caterpillar (Estigmene acrea) 1, granulate cutworm (Peltia subterranea) 10, yellow-striped armyworm (Prodenia ornithogalli) 1, armyworm (Pseudaletia unipuncta) 1. Sanford, 2/28-3/3, BL - Black cutworm 5, granulate cutworm 13, tobacco budworm (Heliothis virescens) 1, corn earworm (H. zea) 2, yellow-striped armyworm 3. SOUTH CAROLINA - Charleston, 3/6-12, BL, temp. 40-88°, precip. 1.80 - Black cutworm 2, granulate cutworm 9, armyworm 3, southern potato wireworm (Conoderus falli) 26 (first occurrence 3/3). TEXAS - Brownsville - 3/4-10, 2 BL, temp. 45-84°, trace precip. - Black cutworm 26, salt-marsh caterpillar 1, granulate 189, tobacco budworm 3, corn earworm 109, variegated cutworm (Peridroma saucia) 9, yellow-striped armyworm 36, tobacco hornworm (Manduca sexta) 1, armyworm 160, beet armyworm (Spodoptera exigua) 5, cabbage looper (Trichoplusia ni) 32; 3/11-17, 2 BL, temp. 62-87°, trace precip. - Black cutworm 10, salt-marsh caterpillar 5, granulate cutworm 24, tobacco budworm 13, corn earworm 96, variegated cutworm 8, yellow-striped armyworm 2, armyworm 111, beet armyworm 1, cabbage looper 23.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1966  
(continued from page 186)

POTATOES, TOMATOES, PEPPERS

Highlights:

COLORADO POTATO BEETLE caused severe damage to potatoes in a few areas in Maine, and persisted in spite of treatments previously successful in Rhode Island. Populations were moderate to severe in New Jersey and higher than usual on commercial potatoes and tomatoes in Delaware. Colorado potato beetle damaged untreated potatoes and tomatoes in eastern Maryland, and damaged potatoes for the second consecutive year in Colorado. FLEA BEETLES and WIREWORMS were of concern in several potato-growing areas. POTATO TUBERWORM was heavy on fall potatoes and caused some heavy losses to peppers on the Eastern Shore of Virginia. TOMATO FRUITWORM was important on tomatoes in Alabama and caused losses to potatoes and tomatoes in southern and eastern Kansas. BEET ARMYWORM was a problem on tomatoes in Nevada and California. BLACK CUTWORM damaged newly set tomatoes in Maryland and commercial potatoes in Rhode Island. EUROPEAN CORN BORER was serious on peppers in New Jersey, potatoes in Delaware, and potatoes and peppers in eastern Virginia. GREEN PEACH APHID increased on potatoes in Delaware and was heavy on peppers in Delaware and Maryland. Controls were necessary on tomatoes in Nevada and seed potatoes in Oregon. LYGUS BUGS damaged potatoes and tomatoes in Montana. TWO-SPOTTED SPIDER MITE was severe on tomatoes in New Jersey and on potatoes in Washington.

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COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) varied light to moderate in MAINE; larvae were abundant in spots and caused severe damage to potato. Populations persisted in spite of treatments that had been very effective in previous years in RHODE ISLAND. Colorado potato beetle was more generally distributed than in past years in CONNECTICUT. In NEW JERSEY, populations were moderate to severe on potatoes, tomatoes, and eggplants. Infestations in commercial potatoes and tomatoes in DELAWARE were higher this year than in most recent years. Colorado potato beetle was generally heavy in the spring and caused considerable damage to unprotected potatoes and tomatoes on the lower Eastern Shore of MARYLAND. Populations were less numerous on potatoes in VIRGINIA than in 1965. For the first time since 1962, untreated plots were not completely defoliated. Infestations were completely controlled in the commercial-growing areas of ALABAMA. Colorado potato beetle became active in home gardens in late April and was heavy in many areas of OKLAHOMA by late May. Populations were light in most areas of KANSAS being heaviest in the northeast area. Potatoes were damaged for the second consecutive year in Weld County, COLORADO, with some controls required. This leaf beetle was generally noneconomic throughout commercial potato-growing areas of NORTH DAKOTA. Adults became numerous in potato fields throughout southern IDAHO in late June. By early July, adult and larval feeding caused severe defoliation in Fremont County. Adult movement from solanaceous weeds to potato fields was common in Bonneville and Power Counties, Idaho.

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) caused early damage to seedling tomatoes in northern CALIFORNIA. TUBER FLEA BEETLE (*Epitrix tuberis*) was collected on potatoes in Jackson County, OREGON, for the first time. Damage in other infested areas of the State was much less than usual. Unspecified FLEA BEETLES infested potatoes in many parts of the Gallatin Valley and Livingston areas of MONTANA. Control was required on tomatoes at Roundup, Musselshell County. POTATO FLEA BEETLE (*Epitrix cucumeris*) was light to moderate on potatoes in the northern Red River Valley of NORTH DAKOTA. Severe damage occurred in isolated untreated fields in Pembina and Walsh Counties. Flea beetles were a problem on potatoes in home gardens during late May and June in Finney County, KANSAS. In OHIO, various species were abundant on eggplant and tomatoes in the central section during

June. Potato flea beetle was present during early May in PENNSYLVANIA, but the seasonal abundance was light. Epitrix spp. adults were normal during the spring on potatoes, tomatoes and peppers in all sections of MARYLAND, and populations were well controlled on commercial plantings. Potato flea beetle adults were numerous on potatoes and tomatoes in many areas of DELAWARE causing moderate to heavy injury. Populations decreased from the past 2 years in CONNECTICUT. A small potato flea beetle population overwintered in RHODE ISLAND and remained negligible during the growing season. Infestations of overwintered adults ranged light to heavy during late June and early July in MAINE. Damage to potato foliage paralleled population levels and began to decrease by mid-July.

A SAP BEETLE (Stelidota geminata) migrated from strawberries late in the season to tomatoes in Berrien County, MICHIGAN. Fruits on or near the ground harbored the greatest beetle concentrations. A LEAF BEETLE (Chrysochus cobaltinus) was severe on foliage of garden potatoes in Jackson County, OREGON, in July. BLISTER BEETLES (Epicauta spp.) damaged tomatoes in scattered areas of OKLAHOMA during summer months.

WIREWORMS (Limonium spp.) caused less damage to potatoes than in 1965 in OREGON. GREAT BASIN WIREWORM (Ctenicera pruinina) damaged potatoes in Yakima and Franklin Counties, WASHINGTON. Great Basin wireworm infested large acreages of potatoes in southwestern IDAHO. These areas were cultivated for the first time in 1966 from what had been sagebrush rangeland. Great Basin wireworm, a dryland species, is expected to cause severe losses to potatoes in this area for the next 2-3 years, although the potatoes are sprinkler irrigated. Organophosphorus applications give poor control of these pests in Idaho. Unspecified wireworms damaged potatoes grown in untreated soil in MONTANA. SOUTHERN POTATO WIREWORM (Conoderus falli) caused negligible damage to potatoes in FLORIDA. POTATO STALK BORER (Trichobaris trinotata) was observed in the lower stems of potato plants in Cass County, NEBRASKA, for a new county record.

POTATO TUBERWORM (Phthorimaea operculella) infested isolated potato fields in Mobile and Baldwin Counties, ALABAMA. Populations were normal in FLORIDA, causing scattered damage up to 5 percent in some fields. Overall damage for area was less than 1 percent. Potato tuberworm was light on foliage of spring potatoes on the Eastern Shore of VIRGINIA, but some heavy infestations developed on the fall crop. Small larvae were observed in stems of fall peppers in the same area where losses ranged 1-50 percent of the plants. Stored potatoes, possibly from out of the State, were infested in York County, PENNSYLVANIA. TOMATO FRUITWORM (Heliothis zea) was the most important pest of tomatoes throughout the season in ALABAMA. Tomato fruitworm was light throughout northern KANSAS, but caused considerable losses to potatoes and tomatoes in southern and eastern areas of the State. Populations on tomatoes were light to moderate with losses at a low level in COLORADO, and lightly damaged tomatoes in UTAH.

STALK BORER (Papaipema nebris) damaged few tomato plants in northeast KANSAS during June. Probably this species, lightly damaged tomatoes in Aroostook County, MAINE, in early July. BEET ARMYWORM (Spodoptera exigua) was heavy on tomatoes and required control in Clark County, NEVADA, during May and was a problem on tomatoes in CALIFORNIA. Beet armyworm damaged tomatoes in a 400-acre field in Manatee County, FLORIDA.

FALL ARMYWORM (Spodoptera frugiperda) larvae infested potatoes in the Ronan area of MONTANA, where weather conditions were favorable for development in July and August. CABBAGE LOOPER (Trichoplusia ni) populations reached high levels on tomatoes and fall potatoes in VIRGINIA. A widespread, naturally occurring nuclear polyhedrosis virus and prolonged rain checked the infestations by October. Larvae were relatively light and spotty during summer in MICHIGAN. Larvae damaged potato foliage in Montcalm County in early July and major adult flights occurred in late September. In COLORADO, larval numbers ranged low to moderate on tomatoes and losses were low. Cabbage looper was heavy on tomatoes during May and required control in Clark County, NEVADA. A NOCTUID MOTH (Pseudoplusia includens) caused

considerable damage to tomatoes in Manatee County, FLORIDA, and required controls during October. BLACK CUTWORM (Agrotis ipsilon) larvae were very destructive to newly set tomatoes during May in Wicomico County, MARYLAND. Larvae did considerable damage to tubers in several commercial potato fields during summer in RHODE ISLAND. Some black cutworm feeding damage occurred on potatoes in irrigated fields in WISCONSIN during August.

VARIEGATED CUTWORM (Peridroma saucia) damaged young tomato plants in southeast ARKANSAS, with some controls required. CUTWORM damage was lower than usual in FLORIDA. Unspecified cutworms caused heavy losses to tomatoes early in the season in NEW JERSEY. Infestations on potatoes during midseason were heavier than during 1965. Yield losses up to 20 percent occurred in Atlantic and Camden Counties, New Jersey. Cutworms caused widespread damage to potato tubers in CONNECTICUT, and damage was severe on tomato and pepper transplants.

EUROPEAN CORN BORER (Ostrinia nubilalis) was a serious problem on peppers during the latter part of the growing season in NEW JERSEY, and infestations in sweet peppers and potatoes were very high in DELAWARE. European corn borer was the most numerous in 20 years in VIRGINIA. Single night moth catches in the light trap at Painter, on the Eastern Shore, exceeded the total of any of the preceding 5 years. Potatoes, sweet corn, and peppers were heavily damaged. Untreated peppers that matured in August and early September were 100 percent infested. Damage was very light on pimento peppers in the northern commercial-growing area of ALABAMA.

TOMATO PINWORM (Keiferia lycopersicella) infestations in tomatoes in CALIFORNIA were more severe and more widespread than for several years.

APHIDS began migrating to potatoes during early June in the Houlton and Presque Isle areas of MAINE. POTATO APHID (Macrosiphum euphorbiae) was dominant. BUCKTHORN APHID (Aphis nasturtii) and GREEN PEACH APHID (Myzus persicae) were also present. Parasitized and diseased aphids were abundant during August in this area of Maine. Potato aphid was not economically significant in RHODE ISLAND. Unspecified APHIDS were not as serious as in past years in CONNECTICUT. Green peach aphid was significantly less abundant than in 1965 on tomatoes, potatoes, and peppers in NEW JERSEY. This could have been due to the extremely hot weather during early July. Populations continued to increase on commercial potatoes in DELAWARE, and were very heavy on sweet peppers. Green peach aphid caused heavy damage to a 30-acre pepper field in Queen Annes County, MARYLAND. Green peach aphid populations were at the lowest levels on potatoes for the past 9 years in St. Johns County, FLORIDA. Potato aphid was light to moderate on potatoes in the San Luis Valley of COLORADO. Controls were used in some seed production fields and a few commercial fields. Populations were light in Weld County. Green peach aphid required controls on tomatoes in Clark County, NEVADA, in March. Potato aphid infested tomatoes in San Joaquin County, CALIFORNIA. Green peach aphid was heavy and required extensive controls on seed potatoes in Klamath and Douglas Counties, OREGON, late in the season. Populations were lower on potatoes in eastern WASHINGTON than usual. Green peach aphid failed to develop on early season potatoes in IDAHO, probably due to several severe late-spring frosts. In Bingham County, Idaho, populations were restricted to margins of potato fields by August 12.

LYGUS BUGS (Lygus spp.) were present in destructive numbers on tomatoes and potatoes in MONTANA. TARNISHED PLANT BUG (Lygus lineolaris) was light on potatoes in Grand Forks County, and moderate in Pembina County, NORTH DAKOTA. FALSE CHINCH BUG (Nysius ericae) populations were high on potatoes in the San Luis Valley of COLORADO, with controls necessary in some fields. LEAFHOPPERS were a problem in potato fields near Bozeman, MONTANA. POTATO LEAFHOPPER (Empoasca fabae) was light on potatoes in PENNSYLVANIA. THRIPS caused injury to tomato plantings in Marshall County, KANSAS, during June.



SEED-CORN MAGGOT (*Hylemya platura*) was detected in potatoes infected with black leg disease in Grand Forks and Ransom Counties, NORTH DAKOTA. Seed-corn maggot, lightly damaged tomatoes in Aroostook County, MAINE, in early June. A LEAF MINER FLY, probably *Liriomyza pusilla*, damaged leaves of tomatoes in commercial-growing areas of ALABAMA.

TWO-SPOTTED SPIDER MITE (*Tetranychus urticae*) was severe on fresh market and commercial tomatoes in NEW JERSEY and continued severe on potatoes in WASHINGTON. SPIDER MITES (*Tetranychus* spp.) damaged tomatoes in scattered areas of OKLAHOMA during the summer.

TOMATO RUSSET MITE (*Aculops lycopersici*\*) was a general pest of tomatoes in CALIFORNIA and required control treatments.

GARDEN SYMPHYLAN (*Scutigerella immaculata*) became increasingly important in the Willamette Valley of OREGON, particularly on potatoes, where it damaged more tubers than did flea beetles.

## BEANS AND PEAS

### Highlights:

MEXICAN BEAN BEETLE was troublesome on home garden beans in several areas, but was heavy in Delaware in early June. COWPEA CURCULIO was serious on table peas in Alabama where it caused loss of sales for commercial canners. WESTERN BEAN CUTWORM damage in Idaho exceeded that of 1962 when damage to beans was severe. GREEN CLOVERWORM adult flights were heavy over much of the Lower Peninsula of Michigan in late summer but no larval buildup occurred on beans. PEA APHID required controls on peas in Idaho by July. TWO-SPOTTED SPIDER MITE damaged beans in California where infestations occurred late in the season.

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MEXICAN BEAN BEETLE (*Epilachna varivestis*) in COLORADO ranged from zero up to 5 adults and 10 larvae per bean plant in the Arkansas Valley, on the Western Slope, and in parts of the northeast area. Populations heavier than in 1965 damaged some beans in Scotts Bluff County, NEBRASKA. The beetle was found for the first time in Riley County, KANSAS, making a total of 7 counties known to be infested. Populations severely damaged or totally destroyed some home garden snap beans in the northeast area. Lima and pole beans were also seriously damaged throughout ALABAMA and peas in the southern section. In central OHIO, Mexican bean beetle larvae appeared in early July on bush beans and adults emerged in early August. Most serious infestations in MARYLAND occurred in home gardens on snap and pole beans late in the season. Mexican bean beetle infestations were heavy in DELAWARE during early June on lima and snap beans.

Four other leaf beetles also seriously damaged beans and peas. In OREGON, large numbers of second-generation adults of WESTERN SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata undecimpunctata*) emerged late and severely damaged beans in Douglas County. PALE-STRIPED FLEA BEETLE (*Systema blanda*) was economically important in COLORADO and was severe in a field of pinto beans in Chase County, NEBRASKA. Although BEAN LEAF BEETLE (*Cerotoma trifurcata*) was very light in most of OKLAHOMA, it seriously injured garden beans in eastern and south-central KANSAS where no

\*The scientific name of tomato russet mite (*Aculus lycopersici* (Masse)) has been changed to *Aculops lycopersici* (Masse). See Keifer, H. H. 1966. Eriophyid Studies B-21. Entomol. Calif. Dept. Agr. Nov. 23, and Reference List, General Index January 1967, p. 5.

controls were applied. Present in ALABAMA throughout 1966, bean leaf beetle only damaged peas and beans in the 2 to 6-leaf stage. POTATO FLEA BEETLE (Epitrix cucumeris) was moderate on beans in Androscoggin County, MAINE, in early June.

Other beetle pests of beans and peas were COWPEA CURCULIO (Chalcoedermus aeneus) and a SAP BEETLE (Meligethes nigrescens). Cowpea curculio severely infested table legumes in south FLORIDA. Curculio populations had been allowed to build up on wild cowpeas growing near cultivated fields. Due to a decrease in hairy vetch plantings, there were fewer adults of M. nigrescens on pole beans in western OREGON. The most serious pest of table peas in ALABAMA, cowpea curculio caused the loss of sales for commercial canners in the southern area.

Larvae of several noctuids infested beans and peas. Light trap collections of WESTERN BEAN CUTWORM (Loxagrotis albicosta) in IDAHO exceeded those of 1962, when bean damage was severe. General bean injury ranged 3-10 percent in 1966. In COLORADO, this pest was of some economic importance on beans. DINGY CUTWORM (Feltia subgothica) damaged the edges of a commercial pea field in PENNSYLVANIA. GRANULATE CUTWORM (Feltia subterranea) and other cutworms were a problem on cowpeas in FLORIDA. A NOCTUID MOTH (Pseudoplusia includens), the most abundant in a complex of plusiine loopers, infested beans during the spring at Belle Glade, Florida. CABBAGE LOOPER (Trichoplusia ni) infestations were variable on beans in CALIFORNIA. Although a heavy flight of GREEN CLOVERWORM (Plathypena scabra) adults flew over much of Lower MICHIGAN from late July through August, larval buildup was prevented by weather factors and natural control agents. There were other troublesome Lepidoptera on beans, such as BEAN LEAF ROLLER (Urbanus proteus) which required control in Seminole County, FLORIDA, during the late summer, and LIMA-BEAN POD BORER (Etiella zinckenella) which infested beans in CALIFORNIA.

Infesting a majority of peas in Lewis and Nez Perce Counties, IDAHO, PEA APHID (Acyrtosiphon pisum) required treatment by July. It also damaged home garden peas in a few areas of OKLAHOMA during late April. Generally below normal and well controlled on commercial peas on the Eastern Shore, MARYLAND, this aphid was high on peas in DELAWARE during mid-May. Thought to be a vector of a widely distributed and damaging cowpea mosaic, COWPEA APHID (Aphis craccivora) damaged home gardens and commercial plantings throughout ALABAMA. This aphid as well as BEAN APHID (Aphis fabae) infested beans respectively in Fresno County and in a few other locations of CALIFORNIA. BEAN THRIPS (Caliothrips fasciatus) infested beans in Santa Barbara County, California.

Heavy numbers of SEED-CORN MAGGOT (Hylemya platurá) on pole beans in May resulted in the replanting of 350 acres in Polk County, OREGON. A SCIARID MIDGE (Bradysia impatiens) damaged pea seedlings in a greenhouse and in the field in Skagit County, WASHINGTON.

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) populations in most areas of CALIFORNIA damaged beans when infestation developed late. In WASHINGTON, this pest continued severe on beans. Although it infested field beans in Arénece and Huron Counties, MICHIGAN, during late August, major problems were relatively scarce. During midsummer, Tetranychus spp. populations reached injurious levels in several lima bean fields on the Eastern Shore of MARYLAND. In IDAHO, Tetranychus spp. severely damaged beans in southern Twin Falls County.

## COLE CROPS

### Highlights:

CABBAGE LOOPER damaged commercial cabbage in Wisconsin and was unusually numerous on several cole crops in Oregon. Losses were severe and control costs double those of 1965 in Oregon. This looper caused losses to lettuce in Colorado. Cabbage looper populations reached high levels on cole crops on the Eastern Shore of Virginia and were serious on crucifers in Maryland. A FALSE CABBAGE LOOPER damaged cole crops in Alabama and recommended insecticides did not give satisfactory results in Florida. YELLOW-MARGINED LEAF BEETLE was serious on cole crops in gulf coast areas of Mobile and Baldwin Counties, Alabama. CABBAGE MAGGOT was serious in Maine, Rhode Island, and Connecticut, and was a problem on cole crops in California.

CABBAGE LOOPER (*Trichoplusia ni*) moths were detected in blacklight traps July 15 in WISCONSIN. Larvae damaged commercial cabbage by July 29, and caused heavy damage to several other crops in a few central locations by August 12. Moderate populations were found on cauliflower at Carrington, NORTH DAKOTA. Cabbage looper was unusually numerous on broccoli and cauliflower in Marion, Clackamas, and Multnomah Counties, OREGON. Two generations occurred this year and continued into October due to a mild fall. Losses were severe and control costs double those of 1965. Cabbage looper caused considerable loss to lettuce in Otero County, COLORADO. Cabbage in home gardens was damaged in a few areas of OKLAHOMA during late May and June. Larvae were also noted on turnip leaves during September. Cabbage looper and a FALSE CABBAGE LOOPER (*Pseudoplusia includens*) damaged cabbage, collards, and other cole crops throughout ALABAMA. Normal high populations on unsprayed cabbage and broccoli were eliminated by a polyhedrosis virus in April in FLORIDA. Infestations were not satisfactorily controlled on cabbage with current recommended chemicals at Sanford, Seminole County. Cabbage looper was the predominant looper on crucifers at Belle Glade during spring. Favored by ideal weather during July and August, cabbage looper populations reached very high levels on cole crops in VIRGINIA. Widespread, naturally occurring nuclear polyhedrosis virus in mid-September checked populations by October 1. Cabbage looper became a serious problem on crucifers from midsummer to late fall in MARYLAND. Control of this pest was difficult. Populations were less numerous than in 1965 in NEW JERSEY and subsequently less damaging.

IMPORTED CABBAGEWORM (*Pieris rapae*) was less numerous than in 1965 in NEW JERSEY, and less damaging. Larvae became abundant on several cruciferous crops in MARYLAND early in season, but were generally well controlled on commercial plantings. Adults were active in many Lower MICHIGAN counties in late April and throughout May. A large larval brood completed development on cruciferous weeds and an extremely heavy adult flight occurred in early July. Sprays kept commercial problems relatively low in Michigan. Imported cabbageworm fed heavily on cole crops in WISCONSIN by July 15. Adults were abundant and laying eggs by July 29. Larvae caused heavy damage to many home gardens early in August. Larvae were abundant on cauliflower at Carrington, NORTH DAKOTA. Populations were moderate on commercial cabbage plantings in COLORADO. Imported cabbageworm damaged cabbage in Santa Barbara and Alameda Counties, CALIFORNIA. Larvae were among the most destructive pests of cabbage, collards, and other cole crops in ALABAMA.

BLACK CUTWORM (*Agrotis ipsilon*) was heavy in untreated cabbage at Belle Glade, Palm Beach County, FLORIDA, during the fall. DIAMONDBACK MOTH (*Plutella xylostella*) infested collards in Dade County, Florida, during February. Larvae damaged turnips and mustard in isolated areas throughout ALABAMA.

Large numbers of WESTERN SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata undecimpunctata*) second-generation adults emerged late and severely damaged seedling brussels sprouts and cabbage in Douglas County, OREGON. YELLOW-MARGINED LEAF BEETLE (*Microtheca ochroloma*) was serious on cole crops along the gulf coast in Mobile and Baldwin Counties, ALABAMA. FLEA BEETLES (*Phyllotreta* spp.) were heavy in the spring and caused typical injury to unprotected crucifers over most of MARYLAND. Unspecified flea beetles were severe on seed turnips in Douglas County, OREGON, during July, and various species were abundant on cabbage in central OHIO during June.

CABBAGE APHID (*Brevicoryne brassicae*) was heavy in September in OREGON. Damage was light on 300 acres of cabbage in Marion County. Losses amounted to 30 percent on 100 acres of cabbage in Columbia County. Relatively high populations occurred on cole crops all year in CALIFORNIA. Cabbage aphid was a serious pest of cabbage and collards throughout ALABAMA. Populations were normal on cabbage but high on rutabaga, broccoli, and brussels sprouts at Hastings, St. Johns County, FLORIDA. Cabbage aphid was generally light on cabbage during spring and summer months in DELAWARE. TURNIP APHID (*Hyadaphis pseudobrassicae*) was damaging all summer and winter on turnips and mustard in ALABAMA. Populations were heavy, 300-500 per leaf, on home garden and commercial turnips in northeast OKLAHOMA during mid-November. GREEN PEACH APHID (*Myzus persicae*) infested cabbage at Sanford, FLORIDA, and was significantly less abundant than in 1965 on cruciferous crops in NEW JERSEY, probably due to extremely hot weather during early July in the latter State.

HARLEQUIN BUG (*Murgantia histrionica*) damaged cole crops in ALABAMA, but was not as serious as it was several years ago, probably due to development of parasites. Unusual populations developed on cabbage in Amador County, CALIFORNIA. FALSE CHINCH BUG (*Nysius ericae*) caused replanting of several acres of cauliflower, broccoli, and kale in Marion County, OREGON, during September.

CABBAGE MAGGOT (*Hylemya brassicae*) severely damaged cabbage in Cumberland County, MAINE, during July. Cabbage maggot caused serious economic injury to rutabaga in Westerly, RHODE ISLAND, and was probably the most difficult pest of vegetables to control in the State. Cabbage maggot infested 75 percent of the cabbage crop early in the season in CONNECTICUT but was not a problem late in the season. This pest also infested radish and turnip in Connecticut. Populations were less numerous than in 1965 in NEW JERSEY. Large numbers of eggs were found on cabbage in Washington County, PENNSYLVANIA, but the pest was not as damaging as in 1965. Cabbage maggot was a problem on cole crops in Santa Cruz and Alameda Counties, CALIFORNIA.

MOLE CRICKET populations were unusually high during the fall on cabbage seedbeds in FLORIDA.

## CUCURBITS

### Highlights:

CABBAGE LOOPER necessitated repeated treatments on melons in California and SQUASH VINE BORER was serious on cucumber and cantaloup in central and southern Alabama. STRIPED CUCUMBER BEETLE caused extensive injury to commercial cucurbits on the lower Eastern Shore of Maryland. MELON APHID was of concern to commercial growers of watermelons in Oklahoma. Various SPIDER MITES damaged commercial melons in Oregon, Arizona, and Maryland.

Full-grown WHITE-LINED SPHIX (Celerio lineata) larvae moved from weedy rye to 20 acres of cucumbers in Washington County, OREGON, in June causing light damage before control was established. CABBAGE LOOPER (Trichoplusia ni) was severe on melons throughout CALIFORNIA and required repeated controls throughout the year. SQUASH VINE BORER (Melittia cucurbitae) was a serious pest of cucumbers and cantaloups in central and southern ALABAMA. DARK-SIDED CUTWORM (Euxoa messoria) damaged melons in Bedford County, PENNSYLVANIA.

STRIPED CUCUMBER BEETLE (Acalymma vittatum) was general but not conspicuous in RHODE ISLAND. Adults were abundant on many cucurbits in Sussex County, DELAWARE, during May and June. High numbers of striped cucumber beetle caused extensive injury to young commercial cucurbits on the lower Eastern Shore of MARYLAND. Larvae caused noticeable injury to roots of cucumber plants in a large planting in Cecil County. Striped cucumber beetle was the most serious pest of cucumbers throughout ALABAMA and was heavy on cucumbers and other vine crops during the summer in OKLAHOMA. Striped cucumber beetle and SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) severely damaged cucumber and cantaloupe plantings in Doniphan and Riley Counties, KANSAS. Spotted cucumber beetle was heavy on cucumbers and other vine crops during the summer in Oklahoma, but was not a major pest of cucurbits in Alabama. Diabrotica spp. were light on melons in Yolo County, CALIFORNIA.

SQUASH BEETLE (Epilachna borealis) appeared in small localized populations of usual abundance in RHODE ISLAND. Late in the season, adults and larvae of a SAP BEETLE (Stelidota geminata) damaged melons in Berrien County, MICHIGAN, after migrating from strawberries. Beetle concentrations were heaviest on fruits on or near ground.

SQUASH BUG (Anasa tristis) damaged squash and pumpkins in San Joaquin County, CALIFORNIA. Activity began in mid-May with egg laying beginning in late May. Moderate to heavy activity continued until mid-September. Squash bug was heavy on squash and related plants in many areas of NEW MEXICO.

POTATO APHID (Macrosiphum euphorbiae) infested squash in Fresno County, CALIFORNIA. MELON APHID (Aphis gossypii) caused concern to commercial watermelon growers in some areas of OKLAHOMA during late August.

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) severely damaged melons and cucumbers in Douglas County, OREGON. Heavy populations of Tetranychus spp. on melons during the spring in Yuma County, ARIZONA, required controls. Heavy also in Wicomico County, MARYLAND. SPIDER MITES seriously injured several large watermelon plantings during July and August.

## GENERAL VEGETABLES

### Highlights:

BLACK CUTWORM and GRANULATE CUTWORM were heavy on lettuce in Florida during the spring. CUTWORMS were unusually prevalent and damaged many crops in California, and caused moderate losses to onions in western Colorado and heavy losses to asparagus in New Jersey. These pests were also troublesome on a wide variety of vegetables in several States. ARTICHOKE PLUME MOTH larvae caused severe damage to artichokes in California and damaged an experimental planting of this host in Oregon. SWEETPOTATO FLEA BEETLE caused extensive foliage injury to sweetpotato plants in Maryland. WIREWORMS were the most common pests of sweetpotatoes along the upper Arkansas River in Arkansas. GREEN PEACH APHID caused moderate to heavy damage to lettuce and necessitated controls on lettuce and sugarbeets in Arizona. ONION MAGGOT and ONION THRIPS were economic on onions in the Arkansas Valley of Colorado. GARDEN SYMPHYLAN increased in importance on vegetables in the Willamette Valley of Oregon.

BLACK CUTWORM (*Agrotis ipsilon*) peak populations occurred in June in the Willamette Valley, OREGON, but were far less numerous than in 1965. Some control was necessary on table beets in Lane County. In WISCONSIN, larvae appeared on vegetables in mid-June, and moths occurred from mid-May to late in September. In FLORIDA black cutworm predominated over GRANULATE CUTWORM (*Feltia subterranea*) in a heavy infestation on lettuce at Belle Glade in early spring. VARIEGATED CUTWORM (*Peridroma saucia*) caused light damage to various garden vegetables in NORTH DAKOTA. Unspecified CUTWORMS were also troublesome in North Dakota and were unusually prevalent and damaging to many crops in CALIFORNIA. Cutworms caused moderate onion losses in the Western Slope area of COLORADO, but caused heavy losses to asparagus in NEW JERSEY early in the season. Cutworm injury was widespread in RHODE ISLAND early in the summer. Cutworms fed extensively in VERMONT on a wide variety of vegetables, including asparagus and tomatoes. In NEW HAMPSHIRE, subterranean and climbing species were particularly troublesome. Although cutworms heavily damaged many crops in sections of Washington County, MAINE, in July, damage throughout the State remained average.

Four other noctuids infested vegetables. Requiring continuous controls, CABBAGE LOOPER (*Trichoplusia ni*) heavily damaged crops during the fall in Yuma, Maricopa, Pinal, and Pima Counties, ARIZONA. Infesting spring and fall lettuce, this looper required strict control in Dona Ana County, NEW MEXICO. It also caused considerable losses to lettuce in Otero County, COLORADO. At Belle Glade, FLORIDA, cabbage looper was the predominant looper on celery during the spring, and at Sanford caused light damage to commercial celery. In spite of weekly applications of a recommended insecticide, SOUTHERN ARMYWORM (*Prodenia eridania*) defoliated 50 percent of a half-acre of sweetpotatoes in Alachua County, Florida. BEET ARMYWORM (*Spodoptera exigua*) damaged lettuce in Yuma, Maricopa, Pinal, and Cochise Counties, ARIZONA, and was a problem to vegetable growers in CALIFORNIA. Finally, STALK BORER (*Papaipema nebris*) was general in RHODE ISLAND but caused less injury than in previous years.

Other Lepidoptera damaged vegetables. In CALIFORNIA, MORNING-GLORY LEAF MINER (*Bedellia somnulentella*) damaged sweetpotato vines in Merced and Fresno Counties. Larvae of a LEAF ROLLER MOTH (*Platynota stultana*) damaged truck crops in a few counties, and ARTICHOKE PLUME MOTH (*Platyptilia carduidactyla*) larvae severely damaged artichokes in all growing areas. In OREGON, artichoke plume moth larvae caused ten percent damage in an experimental artichoke planting in Tillamook County. EUROPEAN CORN BORER (*Ostrinia nubilalis*) was the most numerous in 20 years in eastern VIRGINIA. Single night moth catches in the light trap at Painter exceeded the entire take in any of the preceeding 5 years.

Several Coleoptera were also troublesome on vegetables. Two weevils were pests in CALIFORNIA. VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) required control in several vegetable-growing areas and another WEEVIL (*Brachyrhinus cribricollis*) damaged artichokes in Santa Barbara County. WESTERN SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata undecimpunctata*) caused some damage in late August in Marion, Linn, and Benton Counties, OREGON. SPOTTED ASPARAGUS BEETLE (*Crioceris duodecimpunctata*) and ASPARAGUS BEETLE (*C. asparagi*) were general in RHODE ISLAND but in lower abundance than in 1965. Found wherever asparagus was grown in MONTANA, asparagus beetle was abundant in many irrigated areas in the Yellowstone Valley. Asparagus beetle was reported infrequently in OHIO and was light in most areas of DELAWARE. GOLDEN TORTOISE BEETLE (*Metricona bicolor*) adults were common and caused conspicuous foliage injury to sweetpotatoes in Wicomico County, MARYLAND. Numerous adults of SWEETPOTATO FLEA BEETLE (*Chaetocnema confinis*) caused extensive foliage injury to newly set sweetpotato plants in Wicomico County, Maryland, during late May and June. Light populations of POTATO FLEA BEETLE (*Epitrix cucumeris*) were evident in gardens at several locations in NORTH DAKOTA. Heaviest in Yuma and Maricopa Counties, ARIZONA, DESERT CORN FLEA BEETLE (*Chaetocnema ectypa*) and FLEA BEETLES (*Phyllotreta* spp.) damaged vegetables during late spring and fall. A slight increase in flea beetle populations in NEW MEXICO was evidenced by a higher incidence of Stewart's wilt disease. TOBACCO WIREWORM (*Conoderus vespertinus*) and a WIREWORM (*Melanotus communis*) were the most common

species found on sweetpotatoes along the upper Arkansas River in ARKANSAS.

GREEN PEACH APHID (*Myzus persicae*) infestations were general in CALIFORNIA during most of 1966. In ARIZONA, this aphid caused moderate to heavy damage to lettuce during the spring and required controls on lettuce and sugarbeets in Pinal and Maricopa Counties during the fall. In FLORIDA, green peach aphid damage was light on commercial celery at Sanford and light on a commercial bell pepper field at Delray Beach, Palm Beach County. Green peach aphid in usual numbers on lettuce, endive, and escarole resulted in losses from lettuce mosaic virus in NEW JERSEY. LETTUCE ROOT APHID (*Pemphigus bursarius*) developed populations on lettuce in San Mateo County, CALIFORNIA. MELON APHID (*Aphis gossypii*) was medium to heavy on vegetables and melons during spring and fall in Maricopa, Yuma, and Pinal Counties, ARIZONA.

ONION MAGGOT (*Hylemya antiqua*) populations were economically important on onions in the Arkansas Valley, COLORADO, and extensive control was necessary in the Pueblo County area. Losses to onions ranged low to moderate in the northeastern area and were moderate in the Western Slope area of Colorado. For MONTANA only one occurrence of onion maggot was reported in 1966, compared with widespread destruction in 1965. In MICHIGAN, first onion maggot adults were caught in late May in Allegan County. By mid-June larval infestations occurred in Ingham, Allegan, and Newaygo Counties. Third-generation adults emerged in early September in the Grant area, Newaygo County. SPINACH LEAF MINER (*Pegomya hycosyami*) occurred in normal abundance on spinach, beets, and chard in RHODE ISLAND. CARROT RUST FLY (*Psila rosae*) damaged home garden carrots in the Pullman area of Whitman County, WASHINGTON. This pest of carrots was first observed in Washington in 1965, but previously unrecorded. LEAF MINER FLIES (*Liriomyza* spp.) lightly damaged commercial celery at Sanford, FLORIDA.

Although ONION THRIPS (*Thrips tabaci*) was economically important in the Arkansas Valley of COLORADO, losses to onions were low. Losses were low to moderate in the northeastern area and moderate in the Western Slope area. Populations ranged 2-20 thrips per umbel in southwestern IDAHO onion seed fields and required controls in Canyon County from late May until mid-August. In CALIFORNIA, onion thrips infested onions in several counties. Wild hosts served as reservoirs for general infestations of WESTERN FLOWER THRIPS (*Frankliniella occidentalis*) in California. In NEVADA, unspecified THRIPS were heavy and required control on green onions and garlic in Clark County during the spring.

LYGUS BUGS (*Lygus* spp.) were damaging in all growing areas of CALIFORNIA. These pests were medium on table beets grown for seed in Douglas County, OREGON, and reduced yields of unsprayed fields. Feeding injury of FOUR-LINED PLANT BUG (*Poecilocapsus lineatus*) adults and nymphs was widespread during June and July in many Lower MICHIGAN Counties.

Very heavy populations of FIELD CRICKETS (*Gryllus* spp.) seriously damaged vegetables and melons in areas of Yuma, Maricopa, and Pinal Counties, ARIZONA, throughout 1966. In CALIFORNIA, field cricket damage was more widespread than in many years.

AN ACARID MITE (*Tyrophagus dimidiatus*) infested spinach in Orange, Yolo, and Fresno Counties, CALIFORNIA. Because of improper handling of "mother bulbs" prior to storage during the previous fall, BULB MITE (*Rhizoglyphus echinopus*) infested most onion-seed fields at Twin Falls, IDAHO, and infestations were heavy in southwestern Idaho. TWO-SPOTTED SPIDER MITE (*Tetranychus urticae*) was significantly less severe on most vegetables in NEW JERSEY, but in western OREGON this spider mite was present in more than usual quantities in August and September. In CALIFORNIA, widespread damage by two-spotted spider mite was cumulative rather than acute. A SPIDER MITE (*Aplonobia myops*) was a local problem on asparagus in Orange County, California. BROWN WHEAT MITE (*Petrobia latens*) was heavy on garlic and required control in Lyon County, NEVADA, in late March through June. CLOVER MITE (*Bryobia praetiosa*) infested greenhouse lettuce in PENNSYLVANIA. A TARSONEMID MITE (*Tarsonemus randsi*) infested mushroom compost in Pennsylvania.

GARDEN SYMPHYLAN (Scutigera immaculata) increased in importance on several vegetables in the Willamette Valley of OREGON, and damaged field planted crops in several locations in CALIFORNIA.

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#### HAWAII INSECT REPORT

New State Records - Three ants reported for first time. Pheidole javana collected in upper Manoa Valley, Oahu, November 21, 1966, and in Hilo, Hawaii Island, December 27, 1966. This species occurs throughout Asia and the Pacific islands. Strumigenys rogeri collected November 21, 1966, at University of Hawaii Arboretum in upper Manoa Valley, Oahu, in dead, bored, sugarcane stalk in volunteer stand. This insect distributed throughout the Tropics and is found on other Pacific islands. Solenopsis (Diplorhoptrum) sp. collected in Woodlawn area of upper Manoa Valley, Oahu, September 25, 1966, and November 21, 1966. This is the first report of the subgenus Diplorhoptrum in the State. All determinations by D. R. Smith. (Huddleston, Fluker).

Pasture - HAWAIIAN BEET WEBWORM (Hymenia recurvalis) adults heavy on spiny amaranth in pastures at Kapahi, Kauai; averaged 40 per 5 sweeps. Adults also heavy on grounds of Kauai Branch Experiment Station in Kapaa. (Au).

Eggplant - POTATO APHID (Macrosiphum euphorbiae) moderate on 5 acres of eggplant in Nanakuli, Oahu; 50-75 percent of aphids parasitized by a braconid wasp (Aphidius testaceipes). Numerous adult wasps noted amid living and mummified aphids. (Funasaki, Suzukawa).

Fruit and Nuts - BLACK CITRUS APHID (Toxoptera aurantii) adults light on newly set fruits of macadamia in orchard in Hilo, Hawaii Island. Populations usually very low (trace) and of no importance. (Ooka). ORIENTAL FRUIT FLY (Dacus dorsalis) adults medium and very active in 3 acres of citrus in Haiku, Maui. (Takishita).

Ornamentals - Buildup of HAWAIIAN THRIPS (Thrips hawaiiensis) on gardenia blossoms throughout State anticipated within few weeks. Most gardenias now in bud stage and expected to bloom in late March. Feeding injury causes discoloration of blossoms. In Hilo, Hawaii Island, gardenias already in bloom are heavily infested with average of 50 adults and numerous nymphs per blossom. (Funasaki, Yoshioka).

Beneficial Insects - BLACK DUNG BEETLE (Copris incertus prociudus) adults in unusually heavy numbers attracted to lights in Kihei, Maui. This beetle purposely introduced to inhibit breeding of horn fly. (Akaka). MELASTOMA BORER (Selca brunella) larvae medium and active on Indian-rhododendron (Melastoma malabathricum) in Hanamaulu (Lihue District), Kauai. This is a 10-mile extension of range from original release point at Puh. (Au). PUNCTURE-VINE STEM WEEVIL (Microthrinus lypriformis) larvae and adults heavy and causing heavy damage to nohu (Tribulus cistoides) within 2-acre area in Nanakuli, Oahu. (Au).

Miscellaneous Pests - GIANT AFRICAN SNAIL (Achatina fulica) - Three additional snails (approximately 2 inches in length) found in vicinity of previous finds in Kailua-Kona, Hawaii Island. Every effort being made to prevent this pest from becoming established on that island. On Maui, heavy populations very active in Waikapu but no significant damage noted on crops. (Yoshioka, Miyahira). An adult female VAGRANT GRASSHOPPER (Schistocerca vaga) collected on garage wall in Kekaha, Kauai. This is eighth specimen taken on island of Kauai. (Au).





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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**



# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

All correspondence pertaining to additions, deletions and changes of addresses for the mailing list for this report should be sent to:

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## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

SPOTTED ALFALFA APHID counts very high in south-central Oklahoma. BEET LEAFHOPPER populations increased in Texas and New Mexico compared with 1966 survey. Host plants are widespread and in good condition (p. 217). BROWN WHEAT MITE heavy on wheat in Oklahoma and New Mexico. (p. 219).

ALFALFA WEEVIL increasing; reported from 10 States this period. PEA APHID heavy in Tillman County, Oklahoma; light in Arkansas, Virginia, and Maryland. A MEALY-BUG is infesting alfalfa in California. (pp. 219-220).

POPLAR PETIOLE GALL APHID heavy on cabbage in lower Rio Grande Valley, Texas. (p. 221).

HORN FLY heavy on beef cattle in Mississippi. (p. 224).

Detection

New State records include a LEAF ROLLER MOTH in Delaware (p. 225), and a MEALYBUG in California (p. 223).

Prediction

MEADOW SPITTLEBUG not expected to be a problem in New Jersey. (p. 220). IMPORTED FIRE ANT numerous in fields and pastures in Jasper County, South Carolina. Will be serious this summer if controls not applied. (p. 224).

Some First Occurrences of Season

LYGUS BUG adults in New Mexico; EASTERN TENT CATERPILLAR and NANTUCKET PINE TIP MOTH in Arkansas; FOREST TENT CATERPILLAR in Mississippi; ELM LEAF BEETLE in Arizona; and HORN FLY adults in Alabama.

Special Reports

Beet Leafhopper Survey, Texas and New Mexico - 1967. (p. 217).

Summary of Insect Conditions in the United States - 1966

Deciduous Fruits and Nuts (pp. 227-233).

Citrus (pp. 233-234).

Other Tropical and Subtropical Fruits (p. 234).

Small Fruits (pp. 234-236).

Insects Not Known to Occur in the United States

A LEAF BEETLE (Marseulia dilativentris (Reiche)). (p. 237).

Reports in this issue are for week ending March 24 unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK

MID-MARCH TO MID-APRIL

The Weather Bureau's 30-day outlook for mid-March to mid-April calls for temperatures to average above seasonal normals in the southern half of the Nation except for below normal along the west coast. Below normal temperatures are indicated for the Pacific Northwest, parts of the Great Basin and across the northern tier of States from Montana to New England. In unspecified areas, near normal average temperatures are expected, but with considerable week to week fluctuations. Precipitation is expected to exceed normal over the Great Basin and the west coast States as well as in the northern border States from Montana to New England and the Ohio Valley and the Middle Atlantic Coast States. Subnormal totals are indicated for most of the central and southern Plains as well as the Gulf and South Atlantic Coast States. Elsewhere near normal precipitation is in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year. For the weather of the week see page 226.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (*Schizaphis graminum*) - NEW MEXICO - Averaged 2-10 per linear foot in Chaves County wheat fields; heavier in Curry County. (Nielsen et al.). OKLAHOMA - Counts ranged up to 5,000 per linear foot in a field near Marshall, Logan County. Ranged 45-900 per linear foot in Jackson, Kiowa, and Tillman Counties, and up to 100 per linear foot in Creek County. Moderate to heavy in 1 northeast, 1 northwest, 1 west-central, 4 south-central, and 4 central counties. (Okla. Coop. Sur.). ARKANSAS - Not serious in Pope County where field was treated. (Barnes). Moisture and warm weather aided growth of small grain. Light to medium infestations less harmful to vigorously growing crops. Increased, but noneconomic in northwest area; ranged 100-200 per 100 sweeps in Washington County. (Ark. Ins. Sur.). ALABAMA - Heavy, 25-100 per sweep, on vetch along borders of isolated fields in Montgomery County. (McQueen).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - MISSISSIPPI - Very light on alfalfa in Pontotoc County. (Dinkins). ARKANSAS - Increased in Washington County, but still relatively low; 25-50 per square foot. (Ark. Ins. Sur.). OKLAHOMA - Ranged 600-800 per square foot of crown on alfalfa in Tillman County. Heavy in Comanche and Garvin Counties, and moderate in Cleveland County. (Okla. Coop. Sur.). ARIZONA - Continues light on alfalfa in Yuma County. Some fields required control. (Ariz. Coop. Sur.).

ARMY CUTWORM (*Chorizagrotis auxiliaris*) - NEVADA - Late-instar larvae light on alfalfa at Lovelock, Pershing County. (Arnett). None noted in Reno area, Washoe County. (Bechtel, Horton).

CORN EARWORM (*Heliothis zea*) - ARIZONA - Several fields of lettuce in Dome, Yuma County, treated for this pest. (Ariz. Coop. Sur.).

### Beet Leafhopper Survey, Texas and New Mexico - 1967

The beet leafhopper (*Circulifer tenellus*) survey was begun February 23 and completed March 3, 1967. The survey was conducted in 51 counties in Texas and 6 counties in New Mexico, with 101 stops made in Texas and 25 stops in New Mexico. Host plants were present at 81 percent of the stops in Texas and 80 percent of the stops in New Mexico. The number of beet leafhoppers per 100 square feet was 26 in Texas and 86 in New Mexico.

Significant observations: Texas - Unusually dry conditions were noted throughout the survey area. Host plants were generally widespread and uniformly distributed. Plant conditions ranged from fair in the northern portion of the survey area to excellent in the southwestern portion. Beet leafhoppers were found at the rate of 26 per 100 square feet in 1967 compared with 8 per 100 square feet in 1966. New Mexico - Population counts increased to 86 per 100 square feet in 1967 compared with 32 in 1966. Host plants were widespread and in good condition.

In order that the survey information be more specific, the following breakdown is presented.

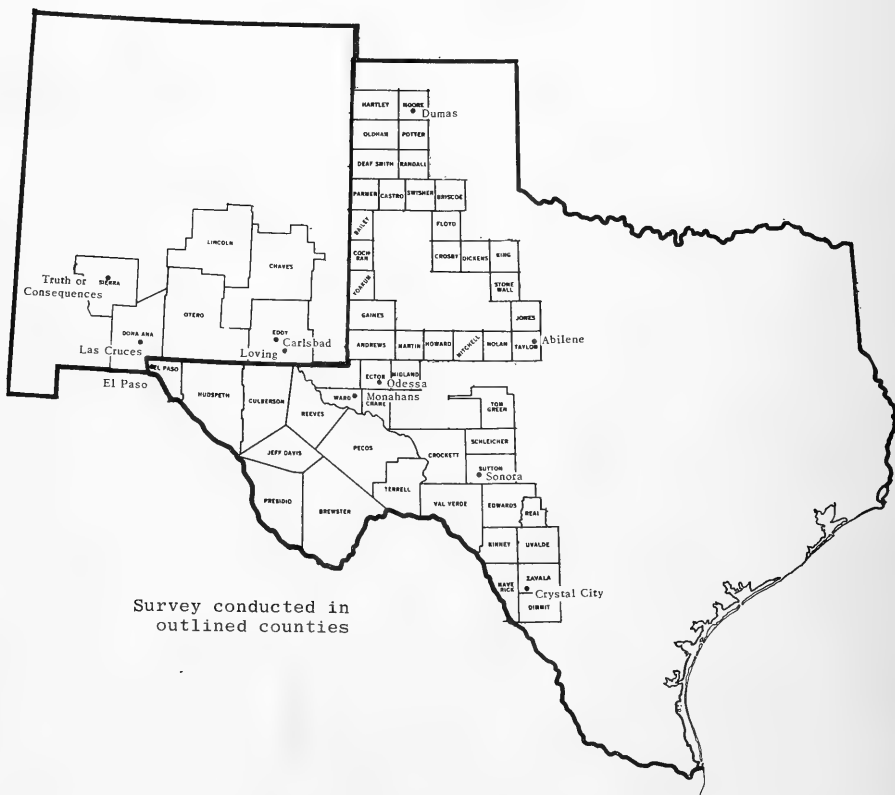
TEXAS - El Paso-Crystal City-Monahans Area. This area produced approximately four-fifths of the beet leafhoppers found during the entire survey in 1967. Crystal City was the only location on the survey route where a decrease in beet leafhopper counts was found. Counts increased from 162 in 1966 to 326 this year at all other locations. Host plants were numerous and in good condition in all areas except in the vicinity of Crystal City and Uvalde.

Odessa-Dumas-Abilene Area. Host plants at 23 of the 34 stops in this area produced 136 beet leafhoppers. Positive results were obtained at 8.5 times as many stops this year as in 1966. Beet leafhopper numbers increased from 70 in 1966 to 136 in 1967, or slightly less than 100 percent. Stops with positive finds were evenly distributed. (Continued on page 218.)

Sonora-Abilene-Monahans Area. Beet leafhoppers were found at 8 of the 14 stops in this area, the same as in 1966. The total count, however, increased from 70 in 1966 to 102 in 1967. The condition of host plants in the area ranged from fair to poor.

NEW MEXICO - Beet leafhoppers were distributed all along the survey route. The Carlsbad-Loving Area, the Roswell Area, and the Las Cruces-Truth or Consequences Area showed large increases. Host plants were widely distributed and in good condition. (PPC and cooperating agencies).

BEEF LEAFHOPPER SURVEY, TEXAS AND NEW MEXICO - 1967





#### SMALL GRAINS

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Ranged 200-1,000 per linear foot on wheat in Tillman and Kiowa Counties and up to 1,200 per linear foot in Jackson County. Moderate to heavy in many northwest, north-central, west-central, central, and southwest counties; light to moderate in Cimarron County. Diapause eggs, which will hatch in the fall, reported in Custer and Payne Counties. Some infestations expected to decrease because of recent rains. (Okla. Coop. Sur.).  
NEW MEXICO - Spotty infestations noted on wheat in Curry County; some damage present in fields with heavier infestations. (Nielsen, Campbell). UTAH - Active but not numerous on fall dryland wheat in Nephi, Juab County. (Knowlton).

CLOVER MITE (Bryobia praetiosa) - UTAH - Active on wheat in Juab County. (Knowlton).

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Averaged 2,000 per linear foot on barley in Tillman County. (Okla. Coop. Sur.).

A LEAFHOPPER (Dikraneura carneola) - UTAH - Active along margins of wheat in Juab County. (Knowlton).

CUTWORMS - COLORADO - None found in wheat; conditions favorable for an increase above 1966 season. (Jenkins).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - DELAWARE - First-instar larvae averaged 1-2 per 10 alfalfa stems in New Castle and Kent Counties; first and second instars averaged 10 per 10 stems in Sussex County. Feeding injury light in all areas. (Burbutis). MARYLAND - Young larvae feeding on alfalfa in Somerset and Worcester Counties. (U. Md., Ent. Dept.). VIRGINIA - First and second-instar larvae averaged 5-15 per square foot of alfalfa in Botetourt, Roanoke, Montgomery, Bland, Tazewell, and Pulaski Counties. No adults seen. (Isakson). SOUTH CAROLINA - Larvae present in all fields of alfalfa. Damage ranged 30-40 percent. (Thomas). ALABAMA - Larvae severely damaged several isolated plots of Regal white clover at Plant Breeding Station at Tallassee, Elmore County. Ranged light to medium on all other plantings. (Johnson et al.). MISSISSIPPI - Continues to increase on alfalfa in Pontotoc County. Larvae averaged 91 per square foot on untreated alfalfa and 29 per square foot in flamed alfalfa. (Dinkins). ARKANSAS - Larvae active in all areas where infestations known to occur. Light to medium in Marion and Fulton Counties and moderately heavy in Sharp County. (Barnes, Roberts). ILLINOIS - Prepupae noted March 17 in Pope County. Second and third-instar larvae averaged 31 per 100 sweeps of 5-inch alfalfa. (Ill. Ins. Rpt.). COLORADO - Adults active with advent of higher temperatures in Mesa and Delta Counties. Activity noted in Larimer and Weld Counties. Alfalfa showing green growth. (Bulla, Jenkins). NEVADA - Adults active in Lovelock, Pershing County, and Reno, Washoe County. No eggs observed. (Arnett, Bechtel, Horton).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Averaged 400 per sweep on recently cut alfalfa in Yuma County. Application of controls continues. Many Maricopa County fields treated. (Ariz. Coop. Sur.).

CLOVER HEAD WEEVIL (Hypera meles) - ALABAMA - Larvae heavy on buds and leaves of crimson clover along highways in Montgomery County. (McQueen).

CLOVER STEM BORER (Languria mozardi) - ALABAMA - Adults collected on burclover in Montgomery County. This insect not known to be economic in State. (McQueen).

VARIEGATED CUTWORM (Peridroma saucia) - NEW MEXICO - Heavy in spots in alfalfa around Roswell, Chaves County; damaging crowns. (Mathews).

GREEN CLOVERWORM (Plathypena scabra) - ALABAMA - Larvae light to medium on crimson clover, vetch, and burclover as far north as Lee and Montgomery Counties. (McQueen).

ALFALFA CATERPILLAR (Colias eurytheme) - ALABAMA - Larvae light to medium as far north as Lee and Montgomery Counties on crimson clover; adults abundant. (McQueen).

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Building up on newly cut alfalfa in Yuma, Yuma County; few appearing in Phoenix area, Maricopa County. (Ariz. Coop. Sur.). OKLAHOMA - Averaged up to 3,000 per square foot of crown of alfalfa in Tillman County. Moderate in Murray County; light in Marshall, Mayes, and Alfalfa Counties. (Okla. Coop. Sur.). ARKANSAS - Continues to increase in northwest section; winged forms present. Ranged 100-200 per square foot on alfalfa and vetch. Light in alfalfa in Fulton and Marion Counties. (Roberts). VIRGINIA - Apteræ very light in 2 to 4-inch alfalfa in Roanoke County. (Isakson). MARYLAND - Light on alfalfa in Somerset and Worcester Counties. (U. Md., Ent. Dept.).

LYGUS BUGS (Lygus spp.) - NEW MEXICO - Adults appearing on alfalfa. (Campbell). UTAH - L. elisus and Lygus spp. active in alfalfa along field margins and roadsides in Salt Lake, Utah, and Juab Counties. (Knowlton).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ALABAMA - Few adults noted on crimson and burclover from Lee and Montgomery Counties southward. (McQueen).

MEADOW SPITTLEBUG (Philaenus spumarius) - NEW JERSEY - Annual survey showed overwintering egg masses increased in numbers compared with 1966. No major problems anticipated in 1967 however. (Ins.-Dis. Newsltr.).

A LEAFHOPPER (Dikraneura carneola) - UTAH - Active along alfalfa field margins in Juab County. (Knowlton).

A MEALYBUG (Rhizoecus kondonis) - CALIFORNIA - Infesting alfalfa in Tyler and Grand Island areas, Sacramento County. Infestations scattered in fields totaling 1,000 acres in areas from Isleton to Sherman Island in the Delta region. Plants stunted and dead in areas several feet in diameter throughout alfalfa acreages. Infested plants first show a typical potassium deficiency symptom, then appear scorched and die. Most noticeable along ditch banks where infestations spread from native weeds. Rotated crops not affected. Infestations heaviest on roots of plants 8 inches to 3 feet high. (Cal. Coop. Rpt.).

CLOVER MITE (Bryobia praetiosa) - UTAH - Active along alfalfa field margins in Juab County. (Knowlton).

#### POTATOES, TOMATOES, PEPPERS

POTATO APHID (Macrosiphum euphorbiae) - NEW JERSEY - Eggs more abundant than during same time in 1966. Percent of viable eggs averaged 61.1 compared with 33.5 in 1966. (Ins.-Dis. Newsltr.).

#### COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Controls necessary in some lettuce fields in the Yuma Valley, Yuma County. (Ariz. Coop. Sur.). ALABAMA - Light in cabbage field near St. Elmo, Mobile County. (Diller, Seibels). FLORIDA - Rapidly increasing on cabbage. Numbers of eggs per plant and larvae on unsprayed plants have doubled and tripled since February. No complaints of poor control received yet at Sanford, Seminole County. (Greene).

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Light in cabbage field near St. Elmo, Mobile County. (Diller, Seibels).

DIAMONDBACK MOTH (Plutella xylostella) - ALABAMA - Light in cabbage field near St. Elmo, Mobile County. (Diller, Seibels).

POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) - TEXAS - Heavy throughout most untreated cabbage fields in lower Rio Grande Valley. Counts highest on heavier soils along river. Populations have increased during past few years and are becoming a major problem in cabbage production in this area. (Deer, Parker).

#### GENERAL VEGETABLES

ASPARAGUS BEETLES (Crioceris spp.) - NEW JERSEY - Survey in Cumberland, Salem, Gloucester, Atlantic, Camden, and Burlington Counties indicates relatively low carryover. Adults of C. asparagi (asparagus beetle) per 100 stalks per field decreased compared with 1966. C. duodecimpunctata (spotted asparagus beetle) increased slightly. C. asparagi averaged 2.3 per 100 stalks compared with 6.0 in 1966 and C. duodecimpunctata averaged 1.3 compared with 1.1 in 1966. (Ins.-Dis. Newsltr.).

A MEALYBUG (Phenacoccus solani) - CALIFORNIA - Heavy on stored sweetpotatoes at Ballico, Merced County. Could be transferred to field stock and become widespread if stored sweetpotatoes are used for slips. This is an underground mealybug with wide host range. (Cal. Coop. Rpt.).

THRIPS - NEW MEXICO - Activity increased on onions and lettuce with occurrence of warm weather in Dona Ana County. (Chambell). CALIFORNIA - Thrips tabaci ranged 5,000-6,000 per stem on asparagus in Arlington area, Riverside County. Asparagus uninjured. (Cal. Coop. Rpt.).

#### DECIDUOUS FRUITS AND NUTS

EUROPEAN RED MITE (Panonychus ulmi) - NEW JERSEY - Eggs abundant in apple blocks in Burlington County. (Ins.-Dis. Newsltr.).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Overwintering eggs light in Mesa County; averaged 6.6 per 100 buds, the lowest in seven years. First nymphs hatched in late February; approximately 60 percent hatched by mid-March. Apricots in full bloom March 20. Dormant sprays applied on peaches, apples, and pears, with an early bloom of all fruits expected. (Bulla).

#### CITRUS

Citrus Insect Situation in Florida - Mid-March 1967 - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 73 percent of groves (norm 56 percent); 58 percent economic (norm 34 percent). Population increased and is now at the highest March level in 16 years of record on both leaves and fruit. It will continue in the high range and may increase further. Four of the 5 districts are in the high range: south, west, central, and north. TEXAS CITRUS MITE (Eutetranychus banksi) infested 52 percent of groves (norm 27 percent); 34 percent economic (norm 10 percent). This mite is also at the highest March level on record and will increase into high range. Highest districts are west, north, central, and south. CITRUS RED MITE (Panonychus citri) infested 57 percent of groves (norm 37 percent); 25 percent economic (norm 14 percent). Population is above the average of recent years. Increase is expected in scattered areas and about 10 percent of groves will have heavy infestations. Highest districts are west, north, and central. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) is abnormally scarce and of little threat. GLOVER SCALE (Lepidosaphes gloverii) infested 34 percent of groves; 20 percent economic. Population is above average

and in the high range; little change is expected. Highest districts are east, south, and central. PURPLE SCALE (L. beckii) infested 80 percent of groves; 10 percent economic. Population is near normal and moderate, with slight decrease expected. YELLOW SCALE (Aonidiella citrina) infested 72 percent of groves; 8 percent economic. Population is near normal and in moderate range but lower than last March. No change is expected. Highest districts are central and east. CHAFF SCALE (Parlatoria pergandii) infested 59 percent of groves; 5 percent economic. Population is below normal and will remain low or moderate in all districts. BLACK SCALE (Saissetia oleae) infested 35 percent of groves; 12 percent economic. Population is above normal but will remain in the low range in most districts. WHITEFLIES are slightly above normal numbers. Adult forms will become abundant. MEALYBUGS are expected to remain at normal low level until early May. APHIDS will increase rapidly during the coming month and peak early in April. Overall abundance is not expected to exceed the normal. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Appearing in a few orchards in Maricopa County; prevalent in Yuma area, Yuma County. Controls being applied in some groves in Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

ONION THRIPS (Thrips tabaci) - CALIFORNIA - Seriously damaging ripening grapefruit in Arlington, Riverside County; migrating from adjacent asparagus field. Navel and Valencia orange groves nearby unaffected. (Cal. Coop. Rpt.).

#### SMALL FRUITS

STRAWBERRY SPIDER MITE (Tetranychus atlanticus) - MARYLAND - Light but active on strawberries near Salisbury, Wicomico County. (U. Md., Ent. Dept.).

#### ORNAMENTALS

APHIDS - NEW MEXICO - Honeydew of Cinara tujafilina present on most arborvitae throughout State. (N. M. Coop. Rpt.). OKLAHOMA - C. tujafilina heavy on arborvitae in Greer County; light to moderate in Cleveland County. (Okla. Coop. Sur.). ALABAMA - Macrosiphum rosae heavy on many roses and Aphis spiraeicola heavy on new growth of spirea in central and southern areas. (McQueen).

ARMORED SCALES - CALIFORNIA - Aonidiella aurantii medium on sago-palm nursery stock at Vista, San Diego County. (Cal. Coop. Rpt.). MARYLAND - Pseudaulacaspis pentagona heavy on lilac at Dundalk, Baltimore County. (U. Md., Ent. Dept.).

BULB SCALE MITE (Steneotarsonemus laticeps) - ALABAMA - Infesting bulbs and destroying flower buds in greenhouse in Montgomery County. Controls unsatisfactory. (Griffith).

#### FOREST AND SHADE TREES

EASTERN TENT CATERPILLAR (Malacosma americanum) - OKLAHOMA - Eggs hatched on wild plum in Payne and Major Counties. (Okla. Coop. Sur.). ARKANSAS - Webs noted March 14, one of earliest hatching dates for Washington County. Small webs also noted in Little River, Sevier, and other southern counties. Infestations unusually light. (Warren). MISSISSIPPI - Small webs on shade trees in Noxubee County. (Dinkins). ALABAMA - Heavy in Butler County; appearing as far north as Lee County. (Seibels et al.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - MISSISSIPPI - Larvae hatched on March 15 in Washington County. (Dinkins).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ARKANSAS - Heavy adult emergence observed in southwest area March 7-14. Exceptionally warm weather accelerated normal pattern of emergence. (Warren).

A LEAF BLOTCH MINER (Lithocolletis arbutusella) - CALIFORNIA - Heavy in 10-mile area of madrone trees in Mendocino County. (Hunt).

PALES WEEVIL (Hylobius pales) - ALABAMA - This weevil, Ips calligraphus, and Glyptoscelis pubescens (a leaf beetle) infested pine seedlings at State nursery in Escambia County. (Goggans, Leeper).

ELM LEAF BEETLE (Pyrrhalta luteola) - ARIZONA - Appearing on some elms in Collidge, Pinal County. (Ariz. Coop. Sur.).

A LONG-HORNED BEETLE (Neoclytus conjunctus) - CALIFORNIA - All stages heavy on white oak in Valley Springs, San Diego County. (Cal. Coop. Rpt.).

MEALYBUGS - CALIFORNIA - Spilococcus juniperi light to heavy on native juniper in Highlands and East Highlands, San Bernardino County. Pseudococcus sparsus infesting same host locally in East Highlands. P. sparsus is a new State record. (Cal. Coop. Rpt.).

A SOFT SCALE (Coccus elongatus) - CALIFORNIA - Adults heavy on street planting of chestnut trees in San Diego, San Diego County. (Cal. Coop. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - MARYLAND - Conspicuous on Norway spruce at Rocks, Harford County. (U. Md., Ent. Dept.).

A PSYLLID (Psylla uncatoides) - CALIFORNIA - Nymphs and adults heavy on acacia trees in San Diego, San Diego County. (Cal. Coop. Rpt.).

A CONIFER SAWFLY (Neodiprion taedae linearis) - ARKANSAS - Unseasonably warm weather shortened hatching period in Calhoun County. Hatch began March 14; nearly complete by March 16. (Warren).

#### STORED PRODUCTS

DERMESTID BEETLES (Trogoderma spp.). - CALIFORNIA - T. parabile, T. simplex, T. inclusum, and T. sternale common in powdered, dried milk locally in Riverside and San Bernardino Counties. (Cal. Coop. Rpt.).

#### BENEFICIAL INSECTS

LADY BEETLES - ALABAMA - Adults and larvae of Cycloneda sanguinea, Hippodamia convergens, and Coleomegilla maculata fuscilabris abundant in vetch, crimson clover and burclover in Montgomery County where aphid populations are heavy. Adalia bipunctata adults numerous on spirea in Lee County. (McQueen). ARKANSAS - Light numbers of H. convergens active on legumes in northwest area. (Ark. Ins. Sur.). NEW MEXICO - Lady beetles observed on mustard weeds in an onion field. (Campbell).

A PREDACEOUS OSTOMID BEETLE (Temnochila virescens) - ALABAMA - Adults plentiful under pine bark of dead trees, feeding on larvae of other insects. Single adult included in large collection of pine insects from pine seedlings at Atmore State Nursery. Det. by L. L. Hyché. (Goggans, Leeper).

DAMSEL BUGS (Nabis spp.) - ARKANSAS - Activity increasing on small grains and legumes in northwest area. (Ark. Ins. Sur.).

A BIG-EYED BUG (Geocoris punctipes) - ALABAMA - Adults heavy in Montgomery County clover where heavy populations of injurious insects have become established. (McQueen).

HYMENOPTEROUS PARASITES - ARKANSAS - Activity increasing in northwest area. (Ark. Ins. Sur.).

#### MAN AND ANIMALS

**MOSQUITOES** - UTAH - Second to fourth-instar larvae of Aedes increpitus ranged up to 30 per dip in Weber County; control underway. Second-instar A. dorsalis larvae collected in Hot Springs area. Up to 200 first-instar mosquito larvae per dip in Huntsville area. These are unusually early records. (Fronk, Knowlton).  
**LOUISIANA** - Larval collections in Jefferson Parish contained Aedes vexans, Anopheles crucians, A. quadrimaculatus, Culex restuans, and C. salinarius. Adult activity continues low throughout parish. Some floodwater species increased along Lake Pontchartrain levee. (Stokes).

**CATTLE GRUBS** (Hypoderma spp.) - SOUTH DAKOTA - Populations at same levels as last year on young stock from Cottonwood, Jackson County, and Newell, Butte County. Will be at peak emergence within next 3 weeks; 75-100 percent of untreated calves infested with 8 grubs per head. Yearlings averaged 5 grubs each; 2-year-olds fewer. (Jones).  
**KANSAS** - Survey conducted in 30 counties during February. Infestations ranged from 1 animal infested with 1 grub in Smith and Mitchell Counties to 43 grubs per animal in Russell County. The averages ranged as follows by district: Northeast 2.0-4.3, east-central 2.5-9.2, southeast 2.5-4.6, north-central 1.0-1.6, central 3.2-9.5, south-central 4.0-6.4, northwest 3.1-6.6, west-central 3.5-4.1, and southwest 3.2-7.6. (Simpson).

**SCREW-WORM** (Cochliomyia hominivorax) - No cases reported in U. S. March 19-25. Total of 75 cases reported in portion of Barrier Zone in Republic of Mexico March 12-18 as follows: Baja California 1, Territorio sur de Baja California 29, Sonora 33, Chihuahua 6, Tamaulipas 6. One case reported in Mexico south of the Barrier Zone. Barrier Zone is area where eradication operations are underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released March 19-25: Texas 8,808,000, Mexico 115,056,000. (Anim. Health Div.).

**HORN FLY** (Haematobia irritans) - MISSISSIPPI - Approximately 50-75 flies per head observed on 100 beef cattle in Lowndes County. (Dinkins).  
**ALABAMA** - First adults of season observed on cattle herds in Bibb County March 18 and 19. (Odum).  
**OKLAHOMA** - Ranged up to 25 per head (average 5) on cattle in Cherokee and Muskogee Counties; light in Garvin County. (Okla. Coop. Sur.).

**CATTLE LICE** - ILLINOIS - Remain numerous especially on beef herds. Infestations economic on 10-20 percent of beef herds during past winter. (Ill. Ins. Rpt.).  
**IOWA** - Bovicola bovis and Haematopinus eurysternus adults light, less than 5 per examination area, on animals in Polk, Dallas, Story, and Marion Counties.  
Linognathus vituli and Solenopotes capillatus not found on these animals. (Iowa. Ins. Sur.).  
**OKLAHOMA** - H. eurysternus continues moderate on cattle in Mayes, Ottawa, Choctaw, and Garvin Counties. (Okla. Coop. Sur.).

**LONE STAR TICK** (Amblyomma americanum) - OKLAHOMA - Ranged 300-400 nymphs and 300-400 adults per head on cattle in Muskogee and Cherokee Counties. Moderate on cattle in Choctaw County. (Okla. Coop. Sur.).  
**ARKANSAS** - Ticks, primarily this species, heavy on cattle in north-central area. (Barnes).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

**CITRUS WHITEFLY** (Dialeurodes citri) - CALIFORNIA - Infestation discovered at Bakersfield, Kern County. Delimiting survey in progress. This is first find in Kern County since period of 1938-1941, and is 100 miles south of the Fresno infestation. (Harper, Feb. 28).

**IMPORTED FIRE ANT** (Solenopsis saevissima richteri) - SOUTH CAROLINA - Infestation more widespread in Jasper County; 100 mounds found on 1 mile of roadside between Tillman and Hardeville. Mounds more numerous in fields and pastures. Unless concentrated control measures undertaken, these ants will be serious problem for farmers this summer. (Nettles et al.).

KHAPRA BEETLE (Trogoderma granarium) - Inspections in Arizona, California, and New Mexico negative during February. (PPC West. Reg.).

MORMON CRICKET (Anabrus simplex) - NEVADA - Scouting in areas of Elko, Lander, and Eureka Counties showed no evidence of hatching. (PPC West. Reg., Feb. Rpt.).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Examinations of cotton debris and sex-lure traps negative during February. (PPC West. Reg.).

#### INSECT DETECTION

##### New State Records

A LEAF ROLLER MOTH (Argyrotaenia alisellana) - DELAWARE - Adult collected in blacklight trap at Dover, Kent County, June 22, 1966, by J. Franklin. Det. by R. W. Hodges. New State record. (Burbutis).

A MEALYBUG (Pseudococcus sparsus) - CALIFORNIA - Collected on native juniper at East Highlands, San Bernardino County. (p. 223).

#### CORRECTIONS

CEIR 17(11):179 - Under New County Records. AN ERIOCOCCID SCALE (Dactylopius confusus) should read A DACTYLOPIID SCALE.

CEIR 17(12):197 - GREENBUG (Schizaphis graminum) should read (Schizaphis graminum).

CEIR 17(12):201 - MOSQUITOES - LOUISIANA - Culex restauans should read Culex restuans.

CEIR 17(12):203 - New State Records - AN ANT (Solenopsis (Diplorhoptrum) sp.) - HAWAII - Should read: This subgenus collected in upper Manoa Valley, Oahu, September 25, 1966. Det. by D. R. Smith. (p. 214).

CEIR 17(12):208 - Paragraph 4, line 2 from bottom: BEAN THRIPS (Caliothrips fasciatus) should read (Caliothrips fasciatus).

##### Light Trap Collections

FLORIDA - Gainesville - 3/22, BL - Granulate cutworm (Feltia subterranea) 2, Sanford - 3/8, BL - Black cutworm (Agrotis ipsilon) 10, granulate cutworm 19, yellow-striped armyworm (Prodenia ornithogalli) 8, cabbage looper (Trichoplusia ni) 5. Sanford - 3/14-16, BL - Black cutworm 19, granulate cutworm 24, tobacco budworm (Heliothis virescens) 1, corn earworm (H. zea) 1, yellow-striped armyworm 5, cabbage looper 26.

SOUTH CAROLINA - Charleston - 3/20-26, BL, temp. 39-86°, precip. 0.19 - Black cutworm 1, granulate cutworm 6, armyworm (Pseudaletia unipuncta) 2.

TEXAS - Brownsville - 3/18-24, 2 BL, temp. 62-83°, precip. 0.44 - Black cutworm 9, salt-marsh caterpillar (Estigmene acrea) 2, granulate cutworm 33, tobacco budworm 4, corn earworm 71, variegated cutworm 4, yellow-striped armyworm 9, armyworm 29, beet armyworm (Spodoptera exigua) 1, cabbage looper 21, Waco - 3/18-24, BL - Black cutworm 1, salt-marsh caterpillar 3, granulate cutworm 8, corn earworm 4, variegated cutworm 7, yellow-striped armyworm 12, armyworm 5.

## HAWAII INSECT REPORT

Vegetables - All stages of DIAMONDBACK MOTH (Plutella xylostella) medium to heavy on broccoli and cabbage seedlings in Wailua, Kauai; many leaves with 2-5 pupae. (Au). All stages of CABBAGE WEBWORM (Hellula rogatalis) heavy on Chinese cabbage in Kalaheo, Kauai; mature cabbages heavily damaged. (Fujimoto). GREENHOUSE WHITE-FLY (Trialeurodes vaporariorum) and a LEAF MINER FLY (Lirionomyza sp.) heavy in tomato and snap bean fields in Waianae, Oahu. (Yamamoto).

Fruits and Nuts - SPOTTED GARDEN SLUG (Limax maximus) caused heavy damage to mature strawberry fruits in backyard plantings at Makawao, Maui. (Miyahira). COCONUT LEAF ROLLER (Hedylepta blackburni) caused moderate to heavy damage to coconut trees in Olowalu, Maui; only few larvae on leaves, most had pupated. (Miyahira).

General Pests - SOUTHERN GREEN STINK BUG (Nezara viridula) increased in areas on Oahu, Kauai, and Hawaii Islands. On Oahu, nymphs medium on tomatoes in Waianae; on Kauai, nymphs and adults built up on cowpea, morning-glory, and other plants in Lihue; and on Hawaii Island, nymphs heavy on castor bean and popolo (Solanum nigrum) in Keauhou. Population generally light throughout Maui. (Yamamoto et al.).

Ornamentals - On Maui, infestations of ROSE APHID (Macrosiphum rosae) medium on backyard rose plantings in Kahului and light on roses in Makawao. (Ah, Sam). All stages of an ARMORED SCALE (Chrysomphalus sp.) heavy on stems and leaves of slipper flower in Likue, Kauai; more than 300 adults on some leaves. (Funasaki).

Man and Animals - Total of 953 Aedes vexans nocturnus and 3,483 Culex pipiens quinquefasciatus taken in 47 light traps operated by Mosquito Control Branch, Department of Health, on Oahu during February. Aedes spp. counts remained generally low in all areas. A total of 1,452 Culex spp. collected in Nanakuli; very high compared with other areas. (Haw. Ins. Rpt.).

Miscellaneous Pests - GIANT AFRICAN SNAIL (Achatina fulica) - Heavy activity, due to heavy rains, reported in residential areas of Kaneohe, Kahuku, and the Hawaii-Kai areas of Honolulu, Oahu. On Maui, heavy activity reported from Hana, Waikapu, and Paia. (Nakao, Funasaki, Miyahira).

### WEATHER OF THE WEEK ENDING MARCH 27

HIGHLIGHTS: Moderate to locally heavy showers or snows fell over most of the eastern half of the Nation. It was a warm or very warm week, except in the Northeast.

PRECIPITATION: A storm centered over the Corn Belt early in the week produced precipitation from midcountry to the Atlantic coast. Several inches of snow fell in the extreme North, while 2-22 inches accumulated from Maryland to New England. South of the snow line rain showers fell. Amounts were generally less than 0.5 inch, except in parts of Illinois and Indiana, where more than 1 inch was recorded. Scattered thundershowers, mostly late in the week, dampened portions of the parched central Plains, providing only slight relief from a long period of dryness. Parts of Texas and Oklahoma received over an inch and a few places in Kansas more than 2 inches, but on Thursday and Friday southerly winds raised great clouds of dust from Kansas to the Dakotas. Light rain fell along the northern Pacific coast during the week, with snow inland and over the mountains.

TEMPERATURE: Average temperatures in the Northeast and the Middle Atlantic States were below normal for the second week. Nightly freezes occurred in the Northeast. In contrast, southerly winds brought increasing warmth to the central and northern Great Plains, with Omaha, Nebraska, registering 89° on Friday. Glasgow, Montana, averaged 34° warmer than the previous week, while the Great Plains averaged 8° to 14° warmer than normal. (Summary supplied by Environmental Data Service, ESSA).



SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1966  
(continued from page 214)

DECIDUOUS FRUITS AND NUTS

Highlights:

CODLING MOTH emerged heavy in Oregon and was troublesome in California, New Mexico, Texas, Kansas, and Illinois. ORIENTAL FRUIT MOTH damaged peaches in several States and HICKORY SHUCKWORM was serious on pecans in the South. PEACH TREE BORER and LESSER PEACH TREE BORER were severe pests of stone fruits. GREEN JUNE BEETLE adults damaged fruits in Arkansas and Oklahoma. APHID populations were heavy on apples in some areas and BLACK PECAN APHID was very damaging to pecans in Texas. EUROPEAN RED MITE was the most troublesome pest for fruit growers in Michigan and Virginia. SPIDER MITES were serious in Missouri, Illinois, Indiana, and eastern Virginia.

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CODLING MOTH (*Carpocapsa pomonella*) was not as abundant in the Bozeman and western areas of MONTANA as in 1965. Because of improper timing of sprays, damage to apples increased during 1966 in WASHINGTON. In OREGON, adults emerged in record numbers in Jackson County during May, but damage only occurred in unsprayed orchards. Codling moth was very damaging to apples, pears, and walnuts throughout CALIFORNIA. Codling moth was abundant on apples in all areas of COLORADO, but numbers varied from orchard to orchard. In light population areas, many growers timed sprays according to the moth catches in light traps, and were able to reduce the number of sprays needed. This pest was serious on improperly treated pear and apple orchards throughout NEW MEXICO, and reduced apple quality in the Hondo and Espanola Valleys. It was also a major pest of apples in TEXAS. Emerging later than usual in northeast KANSAS, codling moth infested 90 percent of the unsprayed apples in the south-central areas by mid-July. Injury was negligible in well sprayed orchards. This pest was almost nonexistent in sprayed MISSOURI orchards, but almost continuous broods occurred on unsprayed apples until hot weather in mid-July. Very few third-brood larvae were found in mid-October. Most ILLINOIS growers maintained excellent control; but where weather made early spraying difficult and growers neglected the second brood, populations quickly built up to damaging proportions.

Codling moth populations in WISCONSIN were low all season. Moths were detected in blacklight traps by June, second-generation larvae were observed by July, and second-generation moths were evident by late August. General emergence was underway during the middle of June in Kent County, MICHIGAN. Sprays were effective, but late season activity of second-brood adults resulted in late September larval injury of apples in some southwest Michigan and Kent County orchards. Remaining one of the major apple pests in INDIANA, codling moth damaged commercial apples very little, however. Peak emergence of overwintered adults in OHIO occurred during early June. Injury to apples became apparent along with almost fully developed, first-generation larvae by late June and early July. First-generation adults emerged in increasing numbers until the beginning of August. Damage was abnormal because of fruit loss from frost in most of the southern half of Ohio. Where spray programs had been partially or completely abandoned, codling moth infested nearly all of the crop. Also, because of curtailed control programs, more injury than usual occurred in VIRGINIA. Codling moth was medium on an abandoned apple orchard early in the season at Hancock, MARYLAND. Possibly due to parasites, the second brood was generally light. Populations were very light in well managed apple orchards and typically abundant in backyard apple plantings in NEW JERSEY. Codling moth infested unsprayed CONNECTICUT orchards and damaged fruit in unsprayed VERMONT trees. Bait-trap collections in MAINE indicated an above average number of second-brood adults.

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) was a serious pest of peaches in the central valley and northward in CALIFORNIA. Larvae emerged during late May in south-central KANSAS. Infested twigs could be readily found in Doniphan County by early June. Peaches that had not been frozen were 100 percent infested. Oriental fruit moth was variable on peaches in southeast MISSOURI. Infestations were directly proportional to control practices; in general, economic damage to fruit was low but injury to terminals was widespread. Infestations were well controlled in ILLINOIS. Oriental fruit moth was not a problem on peaches in southwestern INDIANA where routine sprays were applied. Where a spray program was neglected due to loss of crop during the May freeze, some flagging of terminal branches was apparent. Populations increased in poorly sprayed orchards in PENNSYLVANIA. Oriental fruit moth was not serious in RHODE ISLAND, but reached its greatest abundance since 1961 in CONNECTICUT, although infestations were not serious. Populations were light in well managed peach orchards in NEW JERSEY. Larvae heavily damaged terminal buds in an unsprayed peach orchard in Washington County, MARYLAND. Populations were highest on peaches since the initiation of organic insecticides for control in VIRGINIA. Injury was severe in young orchards and moderate on late maturing fruits.

EEY-SPOTTED BUD MOTH (*Spilonota ocellana*) populations were normal in CONNECTICUT and were not economic in sprayed orchards. GRAPE BERRY MOTH (*Paralobesia viteana*) continued at a low level in PENNSYLVANIA. FILBERTWORM (*Melissopus latiferreanus*) was normal in filberts in the Willamette Valley of OREGON. Adults emerged June 21 in Douglas County and June 26 in Lane County. Peaches were infested in Washington County, where infestation was 75 percent in an early variety in one orchard. HICKORY SHUCKWORM (*Laspeyresia caryana*) caused usual damage to pecan production in TEXAS. Hickory shuckworm damage to pecans was common in OKLAHOMA. Larvae infested pecans throughout ALABAMA, with serious losses resulting.

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) caused little injury to apples in northeast KANSAS. No infestations were found in the south-central area. Red-banded leaf roller and FRUIT-TREE LEAF ROLLER (*Archips argyrospilus*) were all but absent this year in MISSOURI. Populations increased slightly to about 2 damaged fruits per 1,000 apples in ILLINOIS. Red-banded leaf roller was observed on peaches in PENNSYLVANIA, but was no problem on apples. Infestations continued very light on apples in MARYLAND. Populations were very light on well managed apple orchards in NEW JERSEY, while a smaller decrease than previous 2 or 3 years was observed in CONNECTICUT. Red-banded leaf roller was active in MAINE. Fruit-tree leaf roller increased in sprayed and unsprayed orchards in Connecticut. Populations were very light in NEW JERSEY while populations remained low in ILLINOIS. Fruit-tree leaf roller infested many species of deciduous trees as well as Russian-olive, chokecherry, and plum in MONTANA. A LEAF ROLLER MOTH (*Platynota stultana*) infested prunes at a few locations in CALIFORNIA, but has not been a pest of prunes in State previous to 1966.

PEACH TREE BORER (*Sanninoidea exitiosa*) was a major pest of plums in TEXAS. A survey of 8 orchards in Johnson County, ARKANSAS, during February indicated 32.5 percent of trees infested with peach tree borer. This species and LESSER PEACH TREE BORER (*Synanthedon pictipes*) were the most destructive pests of peach, plum, and cherry trees throughout ALABAMA. In VIRGINIA, peach tree borer populations were higher than normal, with considerable damage to trees in some orchards. Loss of young trees was 50 percent in one Nelson County orchard. Peach tree borer killed many young peach trees in a Carroll County orchard, MARYLAND. Peach tree borer was a problem in several young plantings in NEW JERSEY where peach growers failed to practice preplanting root-dip controls. WESTERN PEACH TREE BORER (*Sanninoidea exitiosa graefi*) caused heavy damage to peach in Siskiyou and San Luis Obispo Counties, CALIFORNIA. Lesser peach tree borer damage increased in KANSAS. This species continued to be a major pest of peaches in southwestern INDIANA. Damage contributed to premature decline and removal of peach trees injured by winter freezing, crotch splitting, and pruning. In Knox County, the first male of the season was collected May 3. Peak emergence occurred from June 20 to July 10 and from August 15 to September 4. Lesser peach tree borer continued as one of the most severe pests of stone fruits in MICHIGAN. Widespread

emergence of adults was underway in all fruit areas by mid-June and continued at a high level during July. Infestations were low in VIRGINIA, probably due to the revised spray program which gave better control.

A GEOMETRID MOTH (*Operophtera occidentalis*) was abundant on leaves of cherry, plum, pear, and apple in Multnomah County, OREGON, during April and May. UNSPOTTED TENTIFORM LEAF MINER (*Callisto geminatella*) was low in a single orchard in central MISSOURI and severe in an orchard at East Lyme, CONNECTICUT. A CHERRY LEAF MINER (*Nepticula slingerlandella*) infested cherry foliage in Van Buren and Oceana Counties, MICHIGAN, and adults emerged in Van Buren County on May 25. LEOPARD MOTH (*Zeuzera pyrina*) caused considerable damage to apple orchards at Barrington, RHODE ISLAND. Unspecified CUTWORMS caused heavy damage to apple trees in several isolated locations in VERMONT. EASTERN TENT CATERPILLAR (*Malacosoma americanum*) populations were below average levels in CONNECTICUT, but larvae damaged fruit trees during April in OKLAHOMA. UNICORN CATERPILLAR (*Schizura unicornis*) defoliated apple trees in Ellis County, KANSAS, in October. RED-HUMPED CATERPILLAR (*Schizura concinna*) was more prevalent on walnuts in northern CALIFORNIA. WALNUT CATERPILLAR (*Datana integerrima*) damaged pecan trees from late June to mid-October in OKLAHOMA. FALL WEBWORM (*Hyphantria cunea*) leaf damage on walnuts and apples was much less in OREGON than in 1965. Webs averaged less than one per walnut tree. Populations were heavy on walnuts in San Luis Obispo County, CALIFORNIA. Fall webworm nests were observed in some KANSAS pecan groves during July, but controls kept damage at low levels. Larvae damaged pecan trees from late June to mid-October in OKLAHOMA.

PECAN NUT CASEBEARER (*Acrobasis caryae*) was present in large numbers in KANSAS, and caused premature nut drop in some southeastern pecan groves. Damage was moderate to heavy in most of the pecan-producing areas of OKLAHOMA during the summer. Second-generation egg laying began in late July with moderate to heavy damage occurring in a few areas during August. Infestations continued to expand in Carlsbad and adjacent areas in Eddy County, NEW MEXICO, during the summer. Chemical control was fair to good, depending on the material used and the timing of applications. Populations appeared heavier in pecans during the first and second generations, and accounted for considerable losses in central and southern ALABAMA. A PYRALID MOTH (*Acrobasis tricolorella*) continued as a major problem for cherry growers in north-northwest Lower MICHIGAN, where, by June 3, over 90 percent of the larval population had dropped to the ground for pupation. The summer brood of larvae completed development and started spinning hibernaculae during mid-July.

PLUM CURCULIO (*Conotrachelus nenuphar*) infested peaches in Labette County, KANSAS. Plum curculio caused considerable "catfacing" of peaches and some scarring of apples in MISSOURI. Populations were controlled in both peach and apple orchards in ILLINOIS, but most apple orchards had a small amount of damage. This species was a minor problem along the edges of commercial apple orchards adjoining woodlots in INDIANA. Fully developed larvae emerged from dropped plums in east-central OHIO during late June and adults appeared in mid-July through August. On June 23, 7 percent of the plums in a Wayne County orchard showed feeding and oviposition scars. Plum curculio was of minor importance on apples in PENNSYLVANIA. In VERMONT, larvae damaged fruit in unsprayed trees. Populations were observed in MAINE, but no control difficulties were encountered. Plum curculio was common on unsprayed apples during June in RHODE ISLAND, but well controlled in commercial orchards. This pest was a problem in many commercial orchards and backyard plantings in CONNECTICUT because of the extended emergence period. Populations were very light in well managed apple and peach orchards in NEW JERSEY. Weather was unfavorable for plum curculio oviposition during April and May in VIRGINIA, resulting in a small second generation. Commercial orchards showed no losses. Plum curculio was the most serious pest of peaches, plum, and apples throughout ALABAMA.

PECAN WEEVIL (*Curculio caryae*) emergence began in north-central OKLAHOMA during early August; heavy infestations were present in many areas during the fall and damage continued until mid-November. Populations remained noneconomic during 1966 in KANSAS. A WEEVIL (*Brachyrhinus cribricollis*) damaged apricots in San Benito County, CALIFORNIA.

GREEN JUNE BEETLE (*Cotinis nitida*) adults damaged ripened fruit in northwestern ARKANSAS. The basic cause appears to be the result of increased use of poultry litter on pastures which is favorable for larval development. Green June beetle damaged ripening fruit in many areas of OKLAHOMA during late July and August. PACIFIC FLATHEADED BORER (*Chrysobothris mali*) damaged apples and walnuts in Tuolumne and El Dorado Counties, CALIFORNIA. SHOT-HOLE BORER (*Scolytus rugulosus*) was very prevalent in deciduous fruits in several locations in California. A FALSE POWDER-POST BEETLE (*Melalgus confertus*) damaged limbs of fruit trees in Douglas County, OREGON, during May and June.

APPLE APHID (*Aphis pomi*) appeared early and infested numerous backyard plantings in MONTANA. Populations were high in northeast KANSAS in June where no controls were applied. Parasites and predators kept numbers below economic levels after June. Apple leaf curling was reported from May to mid-June in OHIO and was particularly high in some sections, causing badly distorted foliage in more severe infestations. Apple aphid was troublesome during midseason in VIRGINIA because growers were less vigilant in their control. Apple aphid was not serious, but was very high in some unsprayed orchards in CONNECTICUT. Populations were below average in most areas of MAINE.

ROSY APPLE APHID (*Dysaphis plantaginea*) was high in northeast KANSAS in June where no controls were applied. Parasite and predator populations kept numbers below economic levels after June. Rosy apple aphid was particularly high on apple foliage over some sections of OHIO, and active from early May through June. Infestations were adequately controlled in VIRGINIA, except where control measures were applied after some damage had occurred. Populations were light and considerably below normal on apples in Washington County, MARYLAND, while in CONNECTICUT populations were very high in some unsprayed orchards.

WOOLLY APPLE APHID (*Eriosoma lanigerum*) was a major apple pest in ALABAMA and less noticeable than in 1965 in KANSAS. APPLE GRAIN APHID (*Rhopalosiphum fitchii*) first-instar nymphs were observed on *Prunus* sp. during April in southern WISCONSIN. Fundatrices began reproducing two weeks later. A buildup was noted on *Prunus* sp. early in October. Apple grain aphid built up to 50 aphids per apple bud during April and declined in May in OHIO. Predatory syrphid fly larvae and eggs were associated with most aphid colonies. GREEN PEACH APHID (*Myzus persicae*) was heavy on peach and plum in June, causing severe leaf curl in northwest NEVADA. High populations of unspecified APHIDS on nut trees were common in UTAH, but less general and troublesome than 1965. Aphids caused no serious problems on apples where spray programs were followed, but were moderate on unsprayed apple trees in RHODE ISLAND.

BLACK PECAN APHID (*Myzocallis caryaefoliae*) killed several peach trees in each of two young plantings in NEW JERSEY. Black pecan aphid and several species of yellow aphids were serious pests of pecans in central and southern ALABAMA. In TEXAS, the heaviest infestation of black pecan aphid in several years occurred throughout the pecan-producing areas. In spite of a late peak population, considerable defoliation occurred, potentially threatening 1967 pecan production. This species and BLACK-MARGINED APHID (*Monellia costalis*) were light to heavy on pecan trees in the Pecos and Mesilla Valleys, NEW MEXICO. Black-margined aphid damaged pecan trees in Fresno and Shasta Counties, CALIFORNIA. FILBERT APHID (*Myzocallis coryli*) was high during early summer in OREGON, but declined rapidly due to high temperatures.

PEAR PSYLLA (*Psylla pyricola*) damaged pears in northern CALIFORNIA and in OREGON. Much fruit in Jackson County, Oregon, was downgraded because of damage, but late-picked Bartlett's escaped damage. Surveys indicated unusually large overwintering populations. Area-wide control programs were more than 94 percent effective in reducing pear psylla populations in over 14,000 acres of pears in central WASHINGTON. Pear psylla appeared to be building up in RHODE ISLAND. WHITE APPLE LEAFHOPPER (*Typhlocyba pomaria*) adults and nymphs caused considerable leaf chlorosis on apples in Berrien and Kent Counties, MICHIGAN, during September. EUROPEAN FRUIT LECANIUM (*Lecanium corni*) infestations were high in a single orchard in VIRGINIA. In CALIFORNIA, some infestations occurred on deciduous fruits in northern counties.

SAN JOSE SCALE (*Aspidiotus perniciosus*) increased in cherry orchards at Wenatchee, WASHINGTON, where cherry fruit fly programs were not in use and also increased on apples. San Jose scale was heavier this year than past years on deciduous fruits and almonds in CALIFORNIA, and continued as the most important scale insect affecting peach, apple, plum, and pear in ALABAMA. This species was a common pest of pear, plum, and peach trees in the northern half of FLORIDA. WHITE PEACH SCALE (*Pseudaulacaspis pentagona*) was a serious pest of peach trees in Florida, and light to moderate in several orchards in VIRGINIA. An ARMORED SCALE (*Hemiberlesia lataniae*) infested cherries in San Luis Obispo County, CALIFORNIA. OLIVE SCALE (*Parlatoria oleae*) infested deciduous fruits in the San Joaquin Valley of California. OYSTERSHELL SCALE (*Lepidosaphes ulmi*) eggs began hatching May 19 at Madison, WISCONSIN, with crawlers active on twigs and undersides of leaves a week later. Damage to fruit and twigs of apple trees was noted during August in Fond du Lac County on untreated trees.

APPLE MAGGOT (*Rhagoletis pomonella*) extended its range much farther south in ILLINOIS than for several years. Infested apples were found in Brown, Champaign, and Coles Counties. Populations became high in August and controls were necessary. Adults began appearing during July in WISCONSIN after heavy rains. After rains in August, adults became very numerous and control was recommended. Populations remained high for 3 weeks, before decreasing for the remainder of the season. In MICHIGAN, apple maggot adults were first collected July 1 in Van Buren and Kalamazoo Counties and general emergence followed in other fruit areas. Adult populations varied according to area and host trees with some flies reported as late as mid-September in some southwest areas. Well timed sprays obtained good control of larvae. Adults were observed on July 24 in an unsprayed orchard near Vincennes, INDIANA, but none were reported in commercially grown fruit. In general, this insect was more abundant in the northern half of Indiana than for several years. Apple maggot was typically abundant in backyard apple plantings in NEW JERSEY. This pest was a problem in some commercial orchards in CONNECTICUT because of increased abundance and extended emergence period. Populations were very heavy in home plantings. Populations were normal in RHODE ISLAND, being controlled in commercial orchards, but were a problem in home gardens. Apple maggot adults were abundant in untreated orchards in VERMONT. Adult emergence began July 5 in the Monmouth area of MAINE. Emergence peaked July 19 and was complete by August 13.

WALNUT HUSK FLY (*Rhagoletis completa*) was widespread and damaging to walnuts and infested peaches in a few locations in CALIFORNIA. Surveys for walnut husk fly remained negative in the Willamette Valley of OREGON; however, backyard trees in Jackson County were 100 percent infested. Walnut husk fly was recorded for the first time in Benton and Clark Counties, WASHINGTON. CHERRY FRUIT FLY (*R. cingulata*) adults emerged May 9 in Wasco County and May 19 in Marion County, OREGON. Populations were heavier than in 1965 and very heavy in poorly sprayed or unsprayed orchards in PENNSYLVANIA. In MONTANA, BLACK CHERRY FRUIT FLY (*R. fausta*) infested few treated cherries, but untreated cherries in the Flathead Lake area were heavily infested. Adults emerged in mid-June in Kent, Manistee, and Benzie Counties, MICHIGAN.

PEAR SAWFLY (*Hoplocampa brevis*) survey was conducted with yellow sticky board traps in WISCONSIN pear plantings; however, none were detected. Pear sawfly was reported in several areas in CONNECTICUT. An adult collected in Providence on May 3, 1966, was the first specimen of this sawfly found in RHODE ISLAND. Additional adults were collected on sticky boards on the same and an adjoining property during May. Larvae were collected in Johnston during June. EUROPEAN APPLE SAWFLY (*Hoplocampa testudinea*) was high in commercial orchards in CONNECTICUT, where damage may have been confused with that of pear sawfly. First adults were observed May 18. Adults of 2 sawfly species, not *H. brevis*, were collected on sticky boards in pears at Kingston, Rhode Island, in late May. PEAR-SLUG (*Caliroa cerasi*) fed heavily on cherry at Warren, Rhode Island, during early September. CALIFORNIA PEAR-SLUG (*Pristiphora abbreviata*) adults were collected on sticky boards near a pear tree at Providence, Rhode Island, in early May for a new State record.

TARNISHED PLANT BUG (*Lygus lineolaris*) was less abundant during early spring in VIRGINIA, and fruit injury was light. STINK BUGS caused some damage to apple and pear fruits in northern CALIFORNIA and WESTERN FLOWER THRIPS (*Frankliniella occidentalis*) damaged plum, nectarine, and a few almonds in California. FLOWER THRIPS (*F. tritici*) was generally higher this year in ILLINOIS with about 1.3 percent of apples damaged.

EUROPEAN RED MITE (*Panonychus ulmi*) infested deciduous fruits and walnuts in many areas of CALIFORNIA. Populations began building up on pears in Jackson County, OREGON, during May; more controls were required than usual through the summer. Control of European red mite continued to be difficult in ILLINOIS. Populations dropped in July and August, which is normal for this species, but which did not occur the previous 3 years. In INDIANA, the freeze of May 9-10 delayed European red mite development, but by mid-May most eggs had hatched and this spider mite became a major pest of commercial orchards. By mid-summer, many trees had populations sufficient to cause bronzing of leaves. European red mite began hatching the first week of May but most larvae were killed by a heavy frost on May 9-10 in the southern half of OHIO. Populations remained noneconomic until mid-June. Untreated trees showed some bronzing by late June and high populations, 100 mites per apple leaf, were noted during July and August. *P. ulmi* continued as the most expensive fruit pest in MICHIGAN. Because of cool weather, spring populations developed late in fruit areas. Populations built up to high numbers during July, August, and September. European red mite was the most troublesome arthropod pest of fruit in VIRGINIA. Generally, control was more satisfactory than the previous 2 seasons. Populations were moderate in Piedmont and eastern Virginia orchards. This pest was difficult to control during midseason in Washington County, MARYLAND. Infestations increased in the Erie area of PENNSYLVANIA, but were generally much lighter on apple in NEW JERSEY than in 1965. This spider mite was not as abundant as in the previous 2-3 years in CONNECTICUT, but was extremely heavy in unsprayed orchards in VERMONT. European red mite was of particular concern in NEW HAMPSHIRE even in regularly sprayed commercial orchards. Overwintering eggs began hatching during late May in central MAINE. Populations were generally low in commercial orchards throughout the season.

SPIDER MITES (*Tetranychus* spp.) were below 1965 levels in MAINE with only a few reports of activity and damage. Spider mite abundance was down compared with past 2 or 3 years in CONNECTICUT. Spider mites were the most difficult problem on fruits in MISSOURI. European red mite caused considerable trouble early in season, but by midsummer was replaced by TWO-SPOTTED SPIDER MITE (*Tetranychus urticae*), especially on apples. *P. ulmi* continued troublesome on peaches all summer. By mid-October, spider mites were very scarce in most orchards and low carry-over is anticipated. A SPIDER MITE (*Tetranychus* sp.) caused bronzing of apple foliage in northeast and south-central KANSAS. Spider mites were abundant on apples in Mesa and Delta Counties, COLORADO, where good spray programs were not used. Most injury was in neglected orchards or where populations were allowed to build up before miticides were applied. Spider mites, especially *T. mcdanieli*, were extremely injurious during summer. A large proportion of the apple and pear orchards showed heavy damage and control measures were generally inadequate in Colorado. Two-spotted spider mite was unusually low in western OREGON orchards until July

when numbers became heavy. Some cherry orchards were defoliated early in Yamhill County. Spider mite damage was most serious ever noted in a peach orchard in Douglas County, WASHINGTON.

A FRUIT-TREE MITE (*Bryobia rubrioculus*) was not as severe as in past years on almond and peach trees in CALIFORNIA. FILBERT BUD MITE (*Phytoptus avellanae*) continued heavy on filbert in Benton County, OREGON. APPLE RUST MITE (*Aculus schlechtendali*) was widespread in southwestern MAINE, where damage ranged light to heavy in all varieties of apples.

## CITRUS

### Highlights:

YELLOW SCALE in February and BLACK SCALE in June and July were at highest levels in 15 years of record on Florida citrus. BROWN SOFT SCALE caused heavy damage to grapefruit in Arizona. *Unaspis citri* was economic on citrus and found in more groves during December than in 16 years of record in Florida. WOOLLY WHITEFLY infested citrus in California. CITRUS RUST MITE spread to many lemon groves on the Yuma Mesa of Arizona. Citrus rust mite was above normal abundance from September through November in Florida. CITRUS THRIPS was heavy on citrus in Arizona during March and April and severe on citrus from Tulare County southward in California.

YELLOW SCALE (*Aonidiella citrina*) was above average abundance during most of 1966 in FLORIDA. Populations in February were the highest recorded in 15 years. Populations were general in Tulare County and light in a few northern CALIFORNIA citrus areas. PURPLE SCALE (*Lepidosaphes beckii*) was widely, but normally distributed in light infestations in FLORIDA from January through March. Populations increased to a moderate level in November and December. Populations were generally low on citrus in Orange County, CALIFORNIA. BLACK SCALE (*Saissetia oleae*) was at a record high for January in Florida. Populations continued high and by June and July, were the highest recorded in 15 years; at the mid-July peak, 92 percent of the groves were infested and 81 percent had moderate or heavy infestations. Populations decreased during August and September to normal low levels for the remainder of year. Black scale was primarily a pest of citrus in CALIFORNIA, but infested some deciduous fruits; there were considerable variations in populations.

BROWN SOFT SCALE (*Coccus hesperidum*) was observed on citrus in Yuma and Maricopa Counties, ARIZONA. One large infestation in Maricopa County heavily damaged grapefruit trees. Brown soft scale infested citrus from Tulare County northward in CALIFORNIA. Numerous infestations of COTTONY-CUSHION SCALE (*Icerya purchasi*) were detected on citrus on the Yuma Mesa in Yuma County, and in areas of Maricopa County, ARIZONA. Most infestations were controlled by vedalia (*Rodolia cardinalis*) and chemical treatments. Populations infested citrus in a few areas of CALIFORNIA. GLOVER SCALE (*Lepidosaphes gloverii*) was above normal abundance and widely distributed in FLORIDA. Populations decreased during August to normal low level, but increased to moderate level in November and December. CHAFF SCALE (*Parlatoria pergandii*) was below normal abundance throughout 1966 in Florida. An ARMORED SCALE (*Unaspis citri*) increased and became economically important during the summer in Florida and was found in more groves (8 percent) during December than in 16 years of record.

CITRUS MEALYBUG (*Pseudococcus citri*) was a pest of coastal citrus in CALIFORNIA, usually held in check biologically. WHITEFLIES were slightly above normal abundance during January through March, but decreased to low levels during remainder of year in FLORIDA. WOOLLY WHITEFLY (*Aleurothrixus floccosus*) infested citrus in a 3 by 4-mile area in San Diego County, California.

CITRUS RUST MITE (*Phyllocoptruta oleivora*) populations were generally light on coastal citrus in CALIFORNIA. Since its detection in 1964, citrus rust mite has continued to spread to many lemon groves on the Yuma Mesa in Yuma County, ARIZONA. Citrus rust mite was the most troublesome pest of citrus in FLORIDA during January, when 49 percent of groves harbored economic infestations. A marked decrease to low level occurred during February. Populations increased above normal abundance in September and remained high and above normal through November. Controls were required for CITRUS BUD MITE (*Aceria sheldoni*) on lemons in San Diego, Orange, and Santa Barbara Counties, CALIFORNIA.

CITRUS FLAT MITE (*Brevipalpus lewisi*) damaged citrus throughout the summer in Yuma and Maricopa Counties, ARIZONA, and was a problem on citrus in Tulare County, CALIFORNIA. CITRUS RED MITE (*Panonychus citri*) populations were low or below normal levels throughout most of the year in FLORIDA. TEXAS CITRUS MITE (*Eutetranychus banksi*) peaked at normal high level during July, but was low during remainder of year in FLORIDA.

KATYDIDS were a local problem on citrus in Riverside and San Bernardino Counties, CALIFORNIA. FRUIT-TREE LEAF ROLLER (*Archips argyrospilus*) and ORANGE TORTRIX (*Argyrotaenia citrana*) damaged citrus in some southern areas of California.

Unusually heavy populations of CITRUS THRIPS (*Scirtothrips citri*) were observed during late March and April, but continued light to moderate during early summer in Yuma and Maricopa Counties, ARIZONA. Citrus thrips was a severe pest of citrus from Tulare County southward in CALIFORNIA. MELON APHID (*Aphis gossypii*) and MEALY PLUM APHID (*Hyalopterus pruni*) infested citrus early and late in the season in California. BROWN GARDEN SNAIL (*Helix aspersa*) was more prevalent than last year on citrus in San Diego and Orange Counties, California.

#### OTHER TROPICAL AND SUBTROPICAL FRUITS

OMNIVOROUS LOOPER (*Sabulodes caberata*) damaged some avocados in San Diego County, CALIFORNIA. NAVEL ORANGEWORM (*Paramyelois transitella*) infested figs in California.

BROWN GARDEN SNAIL (*Helix aspersa*) was prevalent on avocados in San Diego and Orange Counties, California.

#### SMALL FRUITS

##### Highlights:

GREEN JUNE BEETLE damaged ripening grapes in Oklahoma and Arkansas. Several WEEVILS were pests of strawberries in Oregon. EUROPEAN RED MITE damaged 10 percent of the grapes at Erie, Pennsylvania.

BEET ARMYWORM (*Spodoptera exigua*) damaged strawberries statewide in CALIFORNIA, and ROUGH-SKINNED CUTWORM (*Proxenus mindara*) infested strawberries in Santa Cruz and Santa Barbara Counties. RED-BACKED CUTWORM (*Euxoa ochrogaster*) caused heavy bud damage to young concord grapes in Benton County, WASHINGTON. BLACK ARMY CUTWORM (*Actebia fennica*) was light to moderate on blueberries in several areas of MAINE, with severe damage in some small areas. RASPBERRY LEAF ROLLER (*Exartema permundanum*) was a problem to Boyne raspberries in central MINNESOTA. STRAWBERRY LEAF ROLLER (*Ancyliis comptana fragariae*) remained light in northeast KANSAS, but continued moderate in south-central area. In OREGON, economic numbers required controls on many young strawberry plantings in Washington County. Larvae of a LEAF ROLLER MOTH (*Ptycholoma peritana*) damaged strawberries in some locations in



CALIFORNIA and larvae of another LEAF ROLLER MOTH (Platynota stultana) infested grapes in a few locations. The latter species has not been a pest previously. GRAPE LEAF FOLDER (Desmia funeralis) was a pest of grapes in Stanislaus and Merced Counties, while LESSER CORNSTALK BORER (Elasmopalpus lignosellus) damaged strawberry crowns in Orange County, California. GRAPE PLUME MOTH (Pterophorus pericelidactylus) webbed grape foliage during early June in RHODE ISLAND. Economic numbers of ORANGE TORTRIX (Argyrotaenia citrana) infested boysenberries and Marion blackberries in Marion and Yamhill Counties, OREGON, and infested crated berries for processing in Washington County. GRAPE LEAF SKELETONIZER (Harrisina americana) was a common pest of grapes and caused some heavy damage where not detected in time for control measures in FLORIDA.

EASTERN RASPBERRY FRUITWORM (Byturus rubi) adults were common on raspberries in Peace Dale, RHODE ISLAND, during late May. During October, WHITE GRUBS (Phyllophaga spp.) killed spring planted strawberry plants in Greenwood County, KANSAS. GREEN JUNE BEETLE (Cotinis nitida) damaged ripening grapes during August in OKLAHOMA, and became an increasing problem to ripening fruit in northwestern ARKANSAS. Heavy populations of GRAPE FLEA BEETLE (Altica chalybea) caused moderate damage to grapes in Maricopa, Yuma, and Pinal Counties, ARIZONA. Peak populations were reached during April. A FLEA BEETLE (Altica sylvia) was noted in light numbers at Acton, MAINE. This pest has been absent in this area for the past 2 years. STRAWBERRY WEEVIL (Anthonomus signatus) activity was below 1965 levels in Maine, but adults cut some buds in the central area. Populations were heavy on blackberry at Narragansett, RHODE ISLAND, in mid-June. Adults caused light to medium bud injury to strawberry plantings in Prince Georges and Wicomico Counties, MARYLAND. A WEEVIL (Sciopithes obscurus) became more prevalent on strawberries and raspberries in southwestern WASHINGTON. The following weevils damaged strawberries in OREGON: Peritelinus oregonus caused serious leaf-ragging damage to individual strawberry fields in Linn and Marion Counties; all stages were present May 27. Trachyphloeus bifoveolatus continued abundant and caused substantial damage to strawberry plantings throughout the Willamette Valley. Probably Nemocestes puncticolis damaged strawberries in Columbia, Washington, and Marion Counties. Sciopithes obscurus infested spring planted strawberries in Columbia and Washington Counties, and Red raspberries in Clackamas and Multnomah Counties, Oregon, where damage continued from July through September.

APHIDS (Chaetosiphon spp.) were light to medium on strawberry plantings during May at Glendale, MARYLAND. STRAWBERRY APHID (Chaetosiphon fragaefolii) was a problem on strawberries in Orange and San Luis Obispo Counties, CALIFORNIA. An APHID (Amphorophora rubi) was found on raspberry plants in the Aitkin area of MINNESOTA during late June.

MEADOW SPITTLEBUG (Philaenus spumarius) nymphs were unusually heavy on small fruits during May in Douglas County, OREGON. GRAPE PHYLLOXERA (Phylloxera vitifoliae) infested grapes in San Joaquin County, CALIFORNIA, with mostly old varieties being affected. A LEAFHOPPER (Erythroneura sp.) was common in most grape-growing areas of California and damaged grapevines in OKLAHOMA during the fall. A FULGORID PLANTHOPPER (Ormenia pruinosa) was heavy on strawberry plants and some ornamental shrubs in Champaign County, ILLINOIS, during late June. GRAPE MEALYBUG (Pseudococcus maritimus) increased in many vineyards of the Yakima Valley of WASHINGTON following the light crop of 1965 and poor control programs. A PYRRHOCORID BUG (Largus cinctus californicus) seriously damaged strawberries in San Luis Obispo County, CALIFORNIA. In MAINE, BLUEBERRY THRIPS (Frankliniella vaccinii) infestations were generally spotty and found mainly in coastal areas. Infestations were most numerous in Washington, Hancock, and Waldo Counties.

BLUEBERRY MAGGOT (Rhagoletis mendax) emergence began June 26 in Washington County, MAINE, with peak flights during early July. A GALL MIDGE (Contarinia vaccinii) was active in Washington County, Maine, during mid-June. Infestations and damage were light. Larvae of a MIDGE (Asphondylia sp.) were found feeding on the inside of grape berries in Maricopa County, ARIZONA, during early May. Populations were light and caused little economic damage. This is a new grape pest in Arizona.

A SPIDER MITE (Eotetranychus willametti) damaged grapes in Fresno and Amador Counties, CALIFORNIA. Another SPIDER MITE (Tetranychus mcdanieli) damaged several European varieties of grapes in the Yakima Valley of WASHINGTON, and was more serious than previously noted in a peach orchard in Douglas County. TWO-SPOTTED SPIDER MITE (Tetranychus urticae) was heavy on strawberries by the first week of June in Malheur and Willamette Valley counties, OREGON, and damaged inadequately sprayed strawberries during the winter in Bradford County, FLORIDA. Tetranychus spp. populations built up during May to injurious levels on strawberry plantings in Prince Georges and Wicomico Counties, MARYLAND, and caused serious postharvest problems on strawberries at Glendale. EUROPEAN RED MITE (Panonychus ulmi) damaged 10 percent of the grapes in the Erie area of PENNSYLVANIA. SPIDER MITES were abundant on raspberries in various parts of MINNESOTA during late summer and fall. CYCLAMEN MITE (Steneotarsonemus pallidus) was troublesome for growers of ever-bearing strawberry plants in Minnesota. GARDEN SYMPHYLAN (Scutigera immaculata) was less damaging to annual crops in southwestern WASHINGTON because of a dry spring, but continued to be a problem on raspberries and strawberries.

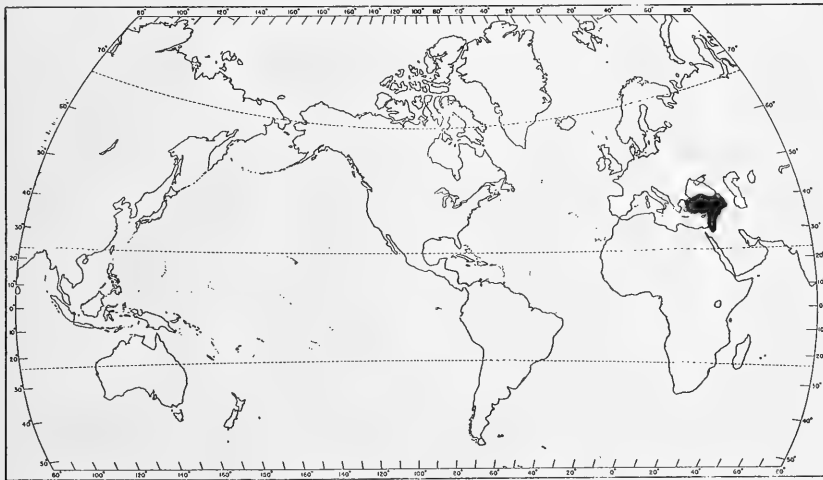
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

A LEAF BEETLE (Marseulia dilativentris (Reiche))

Economic Importance: This chrysomelid is at times a serious pest of field crops in Israel, especially in the Hills of Ephraim, where the beetles appear in vast numbers unexpectedly and often completely destroy fields of grain. Adults cause most of the damage, but the extent of injury depends upon the age of the plants and on the time of attack. If the plants are just beginning to sprout, the crop may be completely destroyed, but in more advanced plantings, the crop may recover and replanting will not be necessary.

Distribution: Recorded in Israel, Jordan, Lebanon, Syria, and Turkey.

Hosts: Found on many different plants. Among the cultivated hosts, wheat and barley appear to be preferred, but vetch, oats, clover, and broad beans are often attacked. In addition, soybeans, peas, table beets, sugarbeets, flax, poppy, radish, cabbage, turnip, spinach, and carrot are recorded cultivated hosts.



General Distribution of Marseulia dilativentris (Reiche)

Life History and Habits: The biology as recorded in Israel is as follows: Adults appear in December when wheat and barley plants reach a height of 2-4 inches. Feeding (skeletonizing of leaves) begins almost immediately. As many as 12 beetles may be found on one small plant. Copulation and oviposition start a few days after emergence. Adults become scarce by the end of January. Females oviposit in the soil near the plant; sometimes on the plant itself. The larva spends its life in the soil, pupating there. The movements of the larva are quick and supple. Details of the life history of the larva and time of pupation are not recorded. Adults emerge the following December.

Description: ADULT - Length, 2-3 mm. Oblong; brilliant bluish black. Head almost triangular, very large at base, somewhat roughened with 2 small tubercles arising in middle and little longitudinal elevations between antennae; eyes rounded, somewhat convex; antennae brownish black, 12-segmented. Thorax as long as head, slightly broader at apex, sides slightly rounded; surface minutely punctate (appears smooth to the unaided eye). Pronotum triangular, smooth. Elytra slightly wider at base than thorax and twice its length, very wide toward end and completely enfolding abdomen, obliquely truncate at rear end; surface punctate. Underneath, ventral surface and abdomen smooth (abdomen appears unsegmented). Tarsi with grayish pubescence; femur enlarged in male. Female abdomen enlarged, passing the elytra considerably as in the blister beetles. Elytra do not quite enfold abdomen in females and femur more slender. EGG - Small, rounded, yellowish. LARVA - Young larva threadlike, less than 1 mm. in length, with chitinous plate at posterior end of body.



Adult and Larva of Marseulia dilativentris (Reiche)

Selected References: 1. Rivnay, E. 1962. Field Crop Pests in the Near East. 450 pp., The Hague. 2. Bodenheimer, F. S., and Klein, H. Z. 1928. Z. Angew. Ent. 14:343-355. Illustration of larva courtesy of Rivnay, permission of Dr. W. Junk, Publishers. Figure of adult from Bodenheimer and Klein.

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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**



# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

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## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

GREENBUG diminishing in Texas, heavy in Noble County, Oklahoma. EUROPEAN CORN BORER numbers highest ever recorded in New Madrid County, during March in Missouri. (p. 241). BLACK CUTWORM destroyed seedling corn in Texas.(p.242).

ALFALFA WEEVIL is beginning to cause severe damage in several States. (pp. 242-243). PEA APHID is heavy in Arizona, Oklahoma, Arkansas, and Missouri. (pp. 243-244).

Heavy populations of PECAN PESTS noted in Alabama. (pp. 244-245).

Detection

New State records include SPOTTED ALFALFA APHID in Delaware (p. 241), and a PTEROMALID WASP in Oklahoma (p. 248).

For new county records see page 249.

Prediction

SUGAR-BEET ROOT MAGGOT adults may appear early in Colorado. (p. 244). Early GRASSHOPPER hatch indicated in Oklahoma. (p. 249).

Some First Occurrences of Season

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Special Reports

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Summary of Insect Conditions in the United States - 1966

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WEATHER BUREAU'S 30-DAY OUTLOOK

APRIL

The Weather Bureau's 30-day outlook for April is for temperatures to average above seasonal normals from the central and southern Plains eastward to the Appalachians and also in the South Atlantic Coast States and the southern Rockies. Below normal temperatures are expected in California and the North Atlantic Coast States while near normal values are anticipated in unspecified regions. Precipitation is expected to exceed normal over the West Coast States and northern portions of the northern Plains. Subnormal totals are indicated from the central and southern Plains eastward to the East Coast extending northward to include New England. Elsewhere near normal precipitation is in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year. For weather of the week, see page 249.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**GREENBUG (*Schizaphis graminum*)** - TEXAS - Populations diminishing on wheat in High Plains and Rolling Plains areas. Highest counts 2,000-5,000 per row foot in scattered eastern fields of Randall County. Averaged less than 250 per row foot with some heavy counts near Lazbuddie, Parmer County; Sprays effective. (Daniels). OKLAHOMA - Moderate to occasionally heavy numbers present on small grains in many areas; heaviest in Noble County where greenbug "spots" present in some fields. (Okla. Coop. Sur.). ARKANSAS - Continues light in northwest area. (Ark. Ins. Sur.). MISSOURI - Ranged 14-400 per foot of row on all wheat in the extreme southeast area. Averaged 63 per foot of row on wheat in Pemiscot and New Madrid Counties. Also damaged malting barley. (Munson). KANSAS - Trace on wheat in Rush and Barton Counties. (Harvey). Trace, 0-5 per linear foot, in a few wheat fields in Douglas, Johnson, and Leavenworth Counties. (Simpson).

**CORN LEAF APHID (*Rhopalosiphum maidis*)** - ARIZONA - Moderate on barley in most areas of Maricopa and Pinal Counties. Controls not necessary. (Ariz. Coop. Sur.). NEVADA - Light to medium on barley in Moapa Valley, Clark County. Cool weather holding populations in check. (Zoller).

**SPOTTED ALFALFA APHID (*Therioaphis maculata*)** - OKLAHOMA - Moderate to heavy populations damaged alfalfa in Murray, Pontotoc, Seminole, and Coal Counties. Light, 5-10 per square foot in Noble County. (Okla. Coop. Sur.). ARKANSAS - Populations ranged 25-50 per square foot in northwest area. (Ark. Ins. Sur.). MISSISSIPPI - Very light on alfalfa in Pontotoc County. (Dinkins). DELAWARE - Collected on alfalfa by G. W. Angalet at St. Georges, New Castle County, September 1966 and at Dover and Smyrna, Kent County, December 1966. Det. by L. M. Russell. New State Record. (Burbutis, Leonard).

**BEEF LEAFHOPPER (*Circulifer tenellus*)** - IDAHO - Preliminary surveys, February 27-March 10, 1967, indicate widespread host plant development (cotyledon stage) in Owyhee County; leafhopper averaged 0.29 per square foot. In Elmore County, counts averaged 0.01 in the Mountain Home area, 0.11 in the Sailor Creek area, and 0.07 in the Tuana Springs area. (Evans, Mar. 16).

**POTATO PSYLLID (*Paratrioza cockerelli*)** - ARIZONA - Nymphal populations increasing on potatoes in all areas of Maricopa County. Controls necessary and being applied. (Ariz. Coop. Sur.).

**SIX-SPOTTED LEAFHOPPER (*Macrosteles fascifrons*)** - MISSISSIPPI - Light on small grains; first generation has completed development and second generation is in second-instar stage. (Dinkins).

**ARMY CUTWORM (*Chorizagrotis auxiliaris*)** - KANSAS - Up to 5 larvae per square foot in Barton County wheat, controls applied. Ranged 4-8 per square foot in both established and seedling alfalfa in Riley and Clay Counties. (Simpson).

## CORN, SORGHUM, SUGARCANE

**EUROPEAN CORN BORER (*Ostrinia nubilalis*)** - DELAWARE - No pupae observed to date. (Burbutis). MARYLAND - Winter survival well above normal on the Eastern Shore. (U. Md., Ent. Dept.). MISSOURI - Abundance survey in New Madrid County showed an average of 3,200 borers per acre surviving. This is an overwintering reduction of 60 percent. Borer numbers are highest recorded for this area during March. (Keaster, Mar. 15).

**SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*)** - MISSOURI - Winter survival in New Madrid County averaged 25 percent or 278 borers per acre. (Keaster, Mar. 15). ALABAMA - Winter survival of larvae was 30 percent in underground girdled stalks in a corn field in Morgan County during early March; no pupation occurred. Det. D. M. Weisman. (Estes).

BLACK CUTWORM (Agrotis ipsilon) - TEXAS - Heavy populations completely destroyed several fields totaling 4,500 acres of 1 to 3-inch corn in Fort Bend and Brazoria Counties. All were replanted and treated. (Neeb).

#### SMALL GRAINS

APPLE GRAIN APHID (Rhopalosiphum fitchii) - MISSOURI - Ranged 300-5,000 per foot of row on barley in southwest area; control underway. (Munson).

ENGLISH GRAIN APHID (Macrosiphum avenae) - KANSAS - Ranged 5-15 per linear foot on wheat in Shawnee and Jefferson Counties. (Simpson). OKLAHOMA - Present in most wheat fields checked in Noble County; ranged 1-10 per linear foot. (Okla. Coop. Sur.). MISSISSIPPI - Moderate on wheat in Oktibeha and Webster Counties. Probably this species heavy on small grains in the delta area. (Dinkins).

CUTWORMS - COLORADO - Undetermined species damaged wheat in Washington County. (Doyle, Fitzsimmons).

BROWN WHEAT MITE (Petrobia latens) - TEXAS - Moderate to heavy infestations common throughout High Plains area. Most damage due to drought as mite is not seriously damaging small grains. (Daniels). OKLAHOMA - Populations low in most areas; highest in central and north-central counties. Ranged up to 500 per linear foot in scattered Noble County fields. Continued rains should cause further decrease; most eggs being laid are the white, oversummering type. (Okla. Coop. Sur.). KANSAS - Mites or evidence of their feeding, observed in all wheat checked in Ellis, Rooks, Graham, Trego, Rush, Barton, and Russell Counties. Ranged 5-500 per foot of row with largest populations in very poor, continuous wheat. (Harvey). Moderate to heavy in Sedgwick County with heaviest concentration south of Highway 54; damage evident. Light to moderate in Grant County, with light damage. (Simpson). COLORADO - Active on wheat in Boulder County. (Carter).

BANKS GRASSMITE (Oligonychus pratensis) - KANSAS - Damaged a wheat field in Trego County. (Harvey).

#### TURF, PASTURES, RANGELAND

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) - MARYLAND - Larvae heavy in gamagrass planting near Beltsville, Prince Georges County. (U. Md., Ent. Dept.).

BURROWING STINK BUGS - ALABAMA - Adults of Panagaeus bilineatus and/or Tominotus communis heavy in a 3,000 square-foot lawn of centipede grass in Greenville, Butler County. These insects caused severe damage to peanuts in several southeastern counties in 1966. (Morgan, Ledbetter).

RHODES-GRASS SCALE (Antonina graminis) - TEXAS - Moderate and common on Rhodes grass throughout southern area. Ranged 1.5-3.9 scales per node and have doubled since February. A small ENCYRTID WASP (Neodusmetia sangwani) controlled 8.8-33 percent of the scales. (Schuster).

A GROUND PEARL (Margarodes meridionalis) - ALABAMA - Observed in turf in Bullock County. (Morgan, Ledbetter).

A CRANE FLY (Tipula sp.) - CALIFORNIA - Larvae heavy in pastures at Santa Rosa, Sonoma County. (Cal. Coop. Rpt.).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MISSISSIPPI - Larval counts in untreated alfalfa in Pontotoc County averaged 55-60 per square foot. Larvae averaged 50 per square foot in alfalfa that was flamed January 15. Larval counts on alfalfa in

Sunflower County averaged 60-75 larvae per square foot. (Dinkins). ARKANSAS - Collected in Boone, Lafayette, and Miller Counties for new county records. (Roberts et al.). MISSOURI - Survey of southeast area indicated larvae per 10 sweeps as follows: Pemiscot County - Ranged 210-560, averaged 336; New Madrid County - Averaged 122 and 340 in 2 fields; Scott County - Ranged 50-370, averaged 110 in 3 fields. Alfalfa ranged 6-9.75 inches high. Chemical controls applied in all 3 counties. (Munson). COLORADO - Adult-feeding punctures observed on alfalfa stems in Larimer County. (McLaughlin). NEVADA - None found in Douglas County alfalfa; weather cold. (Munk). ILLINOIS - Damage was severe in occasional fields in southeastern area. New fall seedings most severely affected. Some controls applied, but in general, treatments will be needed on most fields by April 10. Problem in southern 2-3 tiers of counties. (Armbrust et al.). VIRGINIA - On 4-inch alfalfa in Campbell County that had been flamed, average per 10 sweeps was 2 larvae and 5 adults with much damage visible. Averaged 6 larvae and 2 adults per 10 sweeps in Bedford, Charlotte, Prince Edward, and Appomattox Counties. (Isakson). Larvae medium, mostly second instar in Mechanicsville, Chesterfield, and Hanover Counties. (Innes). DELAWARE - Considerable increase of larvae over last period; averaged 7 per 10 stems in New Castle County and 13 per 10 stems in Kent and Sussex Counties. Alfalfa injury more noticeable in Sussex County where second and third instars were present. (Burbutis). NEW JERSEY - No activity noted to date. (Ins.-Dis. Newsltr.).

CLOVER LEAF WEEVIL (Hypera punctata) - MARYLAND - Larvae beginning to feed on red clover near Easton, Talbot County. ILLINOIS - Damage moderate in occasional clover fields in southeastern and southwestern area. (Moore, Kuhlman). WISCONSIN - First and second-instar larvae fed considerably on 1-inch alfalfa. (Wis. Ins. Sur.). KANSAS - Ranged 10-15 larvae per square foot of alfalfa in Shawnee and Jefferson Counties and 0-5 in Douglas, Johnson, and Leavenworth Counties. (Simpson).

CLOVER HEAD WEEVIL (Hypera meles) - ALABAMA - Larval infestations high in some crimson clover fields in Lowndes County; controls applied. (Mathews, Mar. 24).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Adult populations increasing on alfalfa of Yuma, Maricopa, and Pinal Counties. Larval counts remain high in Maricopa and Pinal Counties; some controls required. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - NEW MEXICO - Larvae 0-25 per 25 sweeps in Chaves County alfalfa. (Mathews).

VARIEGATED CUTWORM (Peridroma saucia) - NEW MEXICO - Damage not as severe on alfalfa in Chaves and Eddy Counties as two weeks ago. (Mathews, Campbell).

CUTWORMS - COLORADO - Unspecified species damaged alfalfa in Prowers County. (Doyle, Fitzsimmons).

PEA APHID (Acyrtosiphon pisum) - NEVADA - Populations low on alfalfa in Moapa Valley, Clark County. Numerous predators present. (Zoller). ARIZONA - Continues heavy in scattered areas of Yuma and Maricopa Counties; however, populations generally light to moderate. (Ariz. Coop. Sur.). NEW MEXICO - Very light in Chaves County alfalfa. (Mathews). OKLAHOMA - Extremely heavy in alfalfa along Black Bear Creek in Noble County; several fields treated. Ranged 200-400 per square foot on alfalfa in Washita County; moderate to heavy in Murray County and light in Alfalfa, Seminole, and Coal Counties. Averaged 325 per linear foot on Austrian winter field peas in Noble County. (Okla. Coop. Sur.). ARKANSAS - Heavy in alfalfa in Miller County. (Roberts). Populations continued same as last period in northwest area; ranged 100-200 per square foot in alfalfa and vetch. A few winged forms present. (Ark. Ins. Sur.). KANSAS - Averaged 45 per square foot on alfalfa in Shawnee County; ranged 200-250 per square foot in Jefferson County, 75-100 in Douglas County, and 10-25 in Johnson and Leavenworth Counties. (Simpson). MISSOURI - Ranged 430 per 10 sweeps in Pemiscot County to 60 per 10 sweeps in Scott County. (Munson). ILLINOIS - Averaged 87 per sweep in

southwestern area clover fields and 3 per sweep in the southeastern district. (Moore). VIRGINIA - Light on alfalfa in Campbell, Bedford, Charlotte, Prince Edward, and Appomattox Counties; averaged 5-50 per 100 sweeps. (Isakson).

THRIPS - KANSAS - Unspecified species heavy on most alfalfa checked in northeast area. (Simpson).

LYGUS BUGS (Lygus spp.) - NEW MEXICO - Averaged 0-6 adults per 25 sweeps in Chaves County alfalfa. (Mathews). KANSAS - Occasional adult of L. lineolaris on alfalfa in Shawnee, Jefferson, and Douglas Counties. (Simpson). WISCONSIN - Overwintering L. lineolaris adults active. (Wis. Ins. Sur.).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - DELAWARE - First adults of season collected on alfalfa in Kent County. (Burbutis).

#### SUGAR BEETS

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Continues heavy on sugarbeets in scattered areas of Maricopa and Pinal Counties. Populations heaviest in western Maricopa County. (Ariz. Coop. Sur.).

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Increasing in small number of sugarbeet fields in Maricopa County. (Ariz. Coop. Sur.).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - COLORADO - Adults may appear early this year as maggots are not as deep in soil as in spring of 1966. (Jenkins).

#### MISCELLANEOUS FIELD CROPS

LYGUS BUGS (Lygus spp.) - ARIZONA - Nymphs increasing rapidly in safflower fields of Pinal and Maricopa Counties; averaged 150 per 100 sweeps. (Ariz. Coop. Sur.).

#### COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Larvae infested 1 percent of cabbages in commercial fields at Sanford, Seminole County. Controls less effective on older larvae. (Greene).

ROOT MAGGOTS (Hylemya spp.) - ALABAMA - Damaged onions and cabbage plantings in Cullman County. (Ledbetter, Pinkston).

#### CUCURBITS

MELON APHID (Aphis gossypii) - ARIZONA - Populations increasing and becoming widespread on cantaloups in Yuma County. (Ariz. Coop. Sur.).

#### GENERAL VEGETABLES

ASPARAGUS BEETLE (Crioceris asparagi) - ALABAMA - Adults emerged from hibernation in Lee County and oviposition is occurring in new asparagus stems. (Leeper et al.).

#### DECIDUOUS FRUITS AND NUTS

Pecan Pests in Alabama - Archips argyrospilus larvae heavy on new growth of 3 apple orchards at Tallapoosa and causing considerable damage; controls

applied. Pest not normally serious on apples in State. (Webb, Hagler, Ledbetter). Over 90 percent of Laspeyresia caryana larvae had pupated in pecan shucks examined in Barbour County; few adults had emerged. Acrobasis caryae larvae active and feeding on new growth of earlier pecan varieties in Lee County. A heavy infestation was observed in Barbour County, with 50 percent of larvae boring into the new growth. (Leeper et al).

A GELECHIID MOTH (Symmoca signatella) - CALIFORNIA - Larvae heavy on pecan trunks in Hanford, Kings County. (Cal. Coop. Rpt.).

WOOLLY APPLE APHID (Eriosoma langerum) - ALABAMA - Beginning to occur in bark depressions of apple trees throughout State. (McQueen).

BLACK PECAN APHID (Myzocallis caryaefoliae) - ALABAMA - Occurring in very light numbers on new growth of a few isolated pecan trees in Lee and Barbour Counties. (Leeper et al).

BLACK PEACH APHID (Brachycaudus persicaecola) - CALIFORNIA - Nymphs and adults heavy on peach rootstock in nursery at Chico, Butte County. (Cal. Coop. Rpt.).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - Economic on unsprayed peach trees at Gainesville, Alachua County. Most scales have gone from crawler stage to first sedentary stage. (Kuitert).

ITALIAN PEAR SCALE (Epidiaspis piricola) - CALIFORNIA - Medium on apricot in Visalia, Tulare County. (Cal. Coop. Rpt.).

#### CITRUS

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Increasing on citrus in Yuma and Maricopa Counties and causing moderate to heavy damage; controls applied to protect new fruit crops. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Heavy on weed hosts in citrus groves and on new citrus terminals in Yuma County. (Ariz. Coop. Sur.).

COWPEA APHID (Aphis craccivora) - ARIZONA - New infestations continue to be found in citrus blocks in Yuma County. Damage light to moderate on terminals. One young grove treated. (Ariz. Coop. Sur.).

CALIFORNIA RED SCALE (Aonidiella aurantii) - TEXAS - Light throughout most of the Rio Grande Valley area. (Stephens).

BROWN SOFT SCALE (Coccus hesperidum) - TEXAS - Moderate on unsprayed home citrus trees in Rio Grande Valley. Most commercial groves free of pest. (Stephens).

FLAT MITE (Brevipalpus lewisi) - ARIZONA - Very heavy in citrus groves not treated last year in Yuma County. Controls required in many groves. (Ariz. Coop. Sur.).

#### SMALL FRUITS

STRAWBERRY SPIDER MITE (Tetranychus atlanticus) - MARYLAND - Active on old strawberry planting at Glendale, Prince Georges County. (U. M., Ent. Dept.).

A LEAFHOPPER (Erythroneura sp.) - ARIZONA - Nymphs heavy on backyard grape plantings in Yuma, Yuma County. (Ariz. Coop. Sur.).

## ORNAMENTALS

APHIDS - CALIFORNIA - Dysaphis tulipae medium on lily nursery stock in Capitola, Santa Cruz County. Rhopalosiphum padi, Macrosiphum euphorbiae, and Acyrtosiphon pisum were medium on hydrangea and weigela nursery stock at Fresno, Fresno County. (Cal. Coop. Rpt.). ARIZONA - Macrosiphum rosae very heavy on rose bushes in eastern Maricopa County; light in other areas of county. Heavy populations of Aphis nerii damaged new terminals of oleander in Yuma, Pinal, and Maricopa Counties. (Ariz. Coop. Sur.). TEXAS - Cinara tujafilina heavy on roots and foliage of arborvitae; several shrubs killed in Borger, Hutchinson County. (Dollinger).

ARMORED SCALES - CALIFORNIA - Hemiberlesia rapax and Aspidiotus camelliae heavy on all parts of heather at Mission Beach. H. rapax heavy on loquat in La Jolla, San Diego County. Aspidiotus nerii heavy on acuba plants locally in Glenn, Glenn County. (Cal. Coop. Rpt.).

BROWN SOFT SCALE (Coccus hesperidum) - CALIFORNIA - Heavy on leaves of schefflera plants in San Francisco, San Francisco County. (Cal. Coop. Rpt.).

PRAIRIE TENT CATERPILLAR (Malacosoma lutescens) - KANSAS - Large numbers of early-instar larvae of probably this species, feeding on cherry and plum in Clark and Meade Counties; ranged 1-10 nests per shrub. (Thompson).

GLADIOLUS THRIPS (Taeniothrips simplex) - FLORIDA - Adults infested 100 imported gladiolus bulbs at garden center, Winter Haven, Polk County. (Eisenschenk, Mar. 16).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - VIRGINIA - Medium on American boxwood in Chesterfield, Henrico, Hanover, Goochland, and Charlotte Counties. (Innes).

SPIDER MITES - FLORIDA - Eutetranychus banksi adults infested 25 percent of 400 camellia plants at a nursery in Seffner, Hillsborough County. This is a new host record. (Simmons et al.). ARIZONA - Oligonychus ununguis caused heavy damage to ornamental evergreens at Yuma, Yuma County. O. platani damaged pyracantha at Yuma. (Ariz. Coop. Sur.).

## FOREST AND SHADE TREES

FALL CANKERWORM (Alsophila pometaria) - MICHIGAN - Adult flights recorded in Livingston and Ingham Counties, March 25 and 26 when temperatures were in high 60's. (Newman, Turk).

TENT CATERPILLARS (Malacosoma spp.) - ILLINOIS - Small nests of M. americanum observed in southeastern area. (White). FLORIDA - Late-instar M. disstria larvae on oak at Gainesville, Alachua County. (Hetrick).

SOFT SCALES - CALIFORNIA - Ehrhornia cupressi heavy on cypress in Fresno, Fresno County. Saissetia coffeae locally heavy on deodar cedar at San Francisco, San Francisco County. (Cal. Coop. Rpt.).

APHIDS - NEW MEXICO - Cinara sp. problem on ponderosa pine in Albuquerque area, Bernalillo County. (Kloepfer). TEXAS - Longistigma caryae heavy on live oaks throughout Dallas, Dallas County. (Millican).

BOXELDER BUG (Leptocoris trivittatus) - TEXAS - Moderate on boxelder trees at Del Rio, Val Verde County. (Tatum).

A SPIDER MITE (Oligonychus subnudus) - CALIFORNIA - Eggs and adults heavy on pine in San Jose, Santa Clara County. (Cal. Coop. Rpt.).



## MAN AND ANIMALS

MOSQUITOES - NEW MEXICO - Probably Culex tarsalis larvae in southern Dona Ana County. Culiseta inornata larvae appearing 3-4 weeks earlier than usual in some breeding areas. (Doll). LOUISIANA - Larval collections in Jefferson Parish consisted of Aedes triseriatus, A. vexans, Anopheles quadrimaculatus, Culex restuans, and C. salinarius. Adult activity lowest on record; 17 light traps averaged 1.4 adults per night. (Simpson). MINNESOTA - Overwintering adults of Culex sp. noted in St. Paul area. (Minn. Ins. Rpt., Mar. 24). MARYLAND - Early instars of Aedes spp. observed at several locations in southern area. (U. Md., Ent. Dept.).

A BITING MIDGE (Culicoides niger) - FLORIDA - Adults annoying people during twilight at Gainesville, Alachua County. (Mead).

HOUSE FLY (Musca domestica) - WISCONSIN - Overwintering adults active. (Wis. Ins. Sur.).

BLACK WIDOW SPIDER (Latrodectus mactans) - IDAHO - Found in basements of a few homes in Twin Falls County. (Peay, Feb. 1).

HORN FLY (Haematobia irritans) - OKLAHOMA - Ranged 40-50 per head on cattle in McIntosh County and 10-20 per head in Payne County. (Okla. Coop. Sur.). ARKANSAS - Appearing in northwest area; averaged 5-10 per head in southwest area. (Simco, Roberts). MISSISSIPPI - Infestations increased rapidly; approximately 115-200 flies per head on 50 black angus cows in Oktibbeha County. (Dinkins).

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U. S. March 26-April 1. Total of 23 cases reported in portion of Barrier Zone in Republic of Mexico March 19-25 as follows: Territorio sur de Baja California 6, Sonora 13, Tamaulipas 4. Four cases in Mexico south of Barrier Zone. Barrier Zone is area where eradication operations are underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released March 26-April 1: Texas 168,000, Mexico 101,430,000. (Anim. Health Div.).

CHICKEN BODY LOUSE (Menacanthus stramineus) - ARKANSAS - Few infested flocks have heavy infestations. (Simco).

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) - COLORADO - Active in foothill areas of Larimer County. (Hantsbarger).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - ARKANSAS - Few infested flocks have heavy infestations. (Simco).

HOG LOUSE (Haematopinus suis) - TEXAS - Moderate to heavy on hogs near Giddings, Lee County. Numbers increased during winter. (Spivey).

## HOUSEHOLDS AND STRUCTURES

TERMITES - UTAH - Subterranean termite infestations increasing in Salt Lake County during recent months. (Burningham, Knowlton). OKLAHOMA - Reticulitermes spp. swarming in Oklahoma and Bryan Counties after rain last period. (Okla. Coop. Sur.). MICHIGAN - Unspecified species swarming in Jackson County. First record of swarming adults for the season. (Cooper).

A PSYCHID MOTH (Apterona crenulella) - IDAHO - Tiny larvae in spiral mud tubes at Boise, Ada County, home. (Peterson, Nov. 1). Skeltonized alfalfa in June, 1966, at Roswell, Canyon County. (O'Keefe).

CARPET BEETLE (Anthrenus scrophulariae) - WISCONSIN - Overwintering adults active. (Wis. Ins. Sur.).

BOXELDER BUG (Leptocoris trivittatus) - UTAH - Invaded schoolrooms and homes at Logan, Cache County. (Knowlton).

CLOVER MITE (Bryobia praetiosa) - UTAH - Infestations more common than normal in Salt Lake County. (Burningham, Knowlton).

#### STORED PRODUCTS

POTATO TUBERWORM (Phthorimaea operculella) - TEXAS - Heavy on stored sweetpotatoes near Pittsburg, Camp County. (Cates).

FLOUR BEETLES (Tribolium spp.) - MINNESOTA - T. castaneum and T. confusum infested food products in homes, primarily in the Minneapolis and St. Paul area. (Minn. Ins. Rpt.).

GRANARY WEEVIL (Sitophilus granarius) - MINNESOTA - Infested shelled corn in Lyon County. (Minn. Ins. Rpt.).

#### BENEFICIAL INSECTS

LADY BEETLES - NEW MEXICO - Light on alfalfa in Eddy and Chaves Counties. (Mathews). OKLAHOMA - Up to 6 Hippodamia convergens larvae per linear foot in greenbug-infested wheat in Noble County. Adults and pupae occasionally observed. Ranged 2-8 per linear foot of wheat in southern area. (Okla. Coop. Sur.). KANSAS - Various species moderate on numerous pea aphids in alfalfa. (Simpson). MISSISSIPPI - Adults and larvae active in small grains. (Dinkins). WISCONSIN - Adalia bipunctata overwintering adults active. (Wis. Ins. Sur.).

A PTEROMALID WASP (Asaphes lucens) - OKLAHOMA - Reared from turnip aphid collected at Bixby, Tulsa County, on November 15, 1966. Det. by O. Peak. New State record. (Okla. Coop. Sur.).

HONEY BEE (Apis mellifera) - WISCONSIN - Overwintering adults active. (Wis. Ins. Sur.).

DAMSEL BUGS - NEW MEXICO - Light on alfalfa in Eddy and Chaves Counties. (Mathews).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GYPSY MOTH (Porthetria dispar) - Results of egg mass survey positive in Queens, New York; Atlantic, Burlington, Camden, Ocean, and Warren Counties, New Jersey, (PPC East. Reg., Feb. Rpt.).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Larvae collected in two species of wild hibiscus in Calhoun County. (PPC South. Reg., Feb. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ALABAMA - Medium population of larvae destroyed a stand of newly set tomatoes in a 0.5-acre field in Geneva County. (Reynolds, Stephenson).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Hibernation survey conducted in Foard and Wilbarger Counties showed 56 percent fewer overwintering weevils this year than last. Trash survey was completed below the Caprock on February 17; 1 live adult collected from untreated area in Dickens County. (PPC South. Reg., Feb. Rpt.).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - FLORIDA - Swarmed heavily from crack in concrete slab floor of motel laundry room, in spite of treatment prior to construction in 1965, at Tampa, Hillsborough County. (Fla. Coop. Sur., Mar. 14).

ORIENTAL FRUIT FLY (*Dacus dorsalis*) - CALIFORNIA - Inspection of 1,765 traps negative; it has been 8 weeks since the last positive collection in Fullerton. Recent warm weather should have produced adults if an infestation is present. (Cal. Coop. Rpt.).

MEXICAN FRUIT FLY (*Anastrepha ludens*) - TEXAS - One adult was collected in Cameron County; collections were negative in several other counties. (PPC South. Reg., Feb. Rpt.).

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Larvae collected from several hosts in Manatee, Sarasota, and Dade Counties. Adults collected in traps in Manatee, Sarasota, and Pinellas Counties. (Fla. Coop. Sur.).

CITRUS WHITEFLY (*Dialeurodes citri*) - CALIFORNIA - Treatment continues in San Diego area; approximately a third of the area or 592 blocks have been treated. In Bakersfield, Kern County, host plants within 1 mile of infestation have been inspected; not over 30-35 blocks will require treatment. (Cal. Coop. Rpt.).

CITRUS BLACKFLY (*Aleurocanthus woglumi*) - MEXICO - Inspections were made on 2,922 citrus trees on 11 properties in 5 municipios. Light infestations were found on 2,344 trees. (PPC Mex. Reg., Feb. Rpt.).

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#### WEATHER OF THE WEEK ENDING APRIL 3

HIGHLIGHTS: Substantial rains fell in parts of the central and northern Plains. It was unusually warm over the eastern half of the Nation.

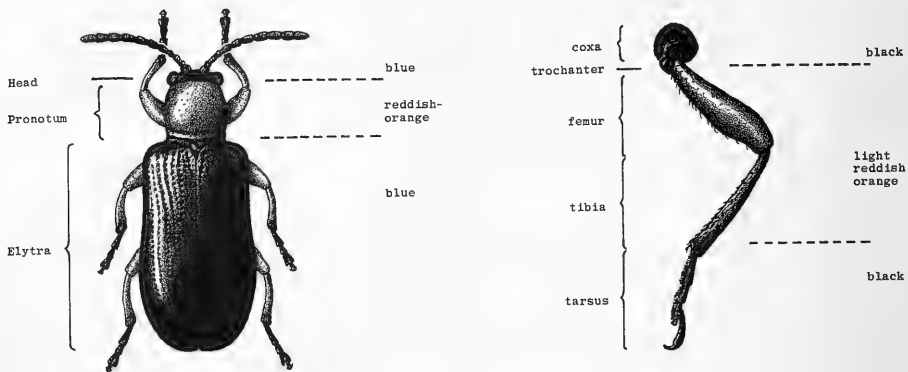
PRECIPITATION: Thunderstorms dropped generous precipitation over much of the Corn Belt during the past week, with totals exceeding 3 inches from northeastern Kansas to west-central Illinois. Two inches or more fell in southern Minnesota and northern Iowa. Most of the Nation's northeast quarter received light rains. Arkansas and Louisiana received no rain or only light sprinkles and other southeastern areas generally light showers. The western edge of the central and southern Plains received no rain, and strong winds on one or two days raised dust clouds in eastern Colorado and western Kansas. Light rain fell along the coast in the Pacific Northwest, with snow in the foothills and mountains. By the week-end the rains had spread southward, reaching the desert in California. Up to 6 inches of snow fell above 6,000 feet in northern Arizona Wednesday; Flagstaff received 8 inches in the afternoon.

TEMPERATURE: Temperatures averaged below normal over the Pacific Coast States, the Great Basin, and Montana. Elsewhere over the Nation they were above normal. It was the 5th warm week from Oklahoma and Texas to the Carolinas and Georgia. Wide areas from eastern New Mexico and central Texas northeastward to the Great Lakes and northern Vermont averaged more than 10° warmer than normal. Southerly winds brought afternoon temperatures to the 80's over the Great Plains early in the week and to the East by Sunday. Bismarck, North Dakota, registered 80° Wednesday afternoon and 30° a few hours later after a cold front passage. By the end of the week, the cold had advanced to the central Plains, the Ohio River Valley, and the eastern Great Lakes. (Summary supplied by Environmental Data Service, ESSA).

IDENTIFICATION OF THE CEREAL LEAF BEETLE, *Oulema melanopus* (L.)

ADULT

The adult is readily recognized by the body shape and the color pattern of the dorsal surface and legs. No other North American beetle duplicates this combination of characters.

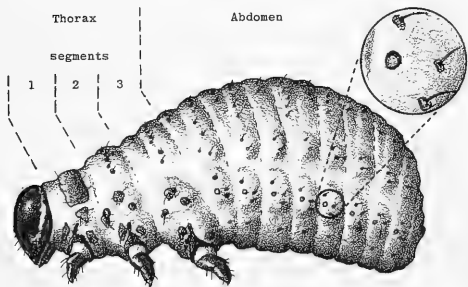


The head and pronotum are narrower than the elytra (the latter bear rows of punctures), note also the blue, reddish-orange, and blue color combination of the body.

The coxa is closely applied to the body. Each leg has the black, reddish orange, and black color combination.

LARVA

The larva is fat-bodied and broadest at about the middle of the abdomen. It can be distinguished from other larvae of similar shape by the nature of the sclerites at the side of the thoracic segments and the form of any one of the abdominal spiracles and the surrounding tubercles.



Each abdominal segment at its side has a moderate-sized spiracle and 3 tubercles (each with a seta) behind and about equidistant from the spiracle.

Each thoracic segment at its side has (respectively) 3, 5, and 5 small, often triangular, sclerites surrounding the base of a leg.

Larvae of species of the genus *Lema* are similar in body shape but have the thoracic sclerites different, and have the abdominal spiracles larger in comparison with the tubercles, and the latter arranged differently; see example.



## HAWAII INSECT REPORT

Turf - Adults of a BILKBUG (Sphenophorus venatus vestitus) light on tidfwarf greens on gulf course in Kalapaki, Kauai. (Au).

Beans - Adults of a PLATASPID BUG (Coptosoma xanthogramma) medium on snap beans in Kaneohe, Oahu; adult damage negligible. (Shinbara). All stages of SOUTHERN GREEN STINK BUG (Nezara viridula) light to medium on 0.25 acre of yardlong beans and 1.25 acres of snap beans in Waimanalo, Oahu. (Sato).

Fruits - PURPLE SCALE (Lepidosaphes bekkii) and GREEN SCALE (Coccus viridis) very heavy on citrus foliage and stems in Kihei, Maui. (Miyahira).

Ornamentals - RED AND BLACK FLAT MITE (Brevipalpus phoenicis) caused severe defoliation (50-75 percent) and dieback to Ligularia sp. in Lihue area, Kauai. (Au).

Forest and Shade Trees - Adults and nymphs of a PSYLLID (Psylla uncatoides) medium on Formosa koa. Adults light, 2 per sweep, on Formosa koa and Acacia koa in Kaliki Valley and in Nuuanu Valley. Det. by L. D. Tutthill. Several adults collected between March and June 1966 in light traps in Honolulu constituted the first record of this pest in the State. (Funasaki, Suzukawa). Several larvae of a CERAMBYCID BEETLE (Phoracantha semipunctata) collected from swamp mahogany in Manoa, Oahu, in January 1967; adults emerged in mid-March. This beetle was first reported in the State in February 1965. Additional adults have been collected in buildings at various locations on Oahu. Swamp mahogany constitutes the first host record of this beetle in Hawaii. (Davis).

Miscellaneous Pests - Very heavy buildup of VAGRANT GRASSHOPPER (Schistocerca vaga) adults and nymphs occurred on weed hosts in vacant lots in Waianae, Oahu. Adults reported in farming areas, but damage to crops negligible. (Otsuka, Au, Wong). No significant increase of RED-SHOULDERED STINK BUG (Thyanta accerra) noted in Nanakuli, Oahu; population remains at trace levels on weeds. Few adults found on swollen-finger grass (Chloris inflata) in Waianae. This is most northerly spread on leeward side of the island. (Funasaki, Au). GIANT AFRICAN SNAIL (Achatina fulica) continues active in many areas due to heavy rains, especially on Maui. Heavy populations of GARDEN SNAIL (Bradybaena similaris) and BLACK SLUG (Veronicella leydigi) noted in residential areas of Lahaina, Maui. (Miyahira).

### INSECT DETECTION

#### New State Records

A PTEROMALID WASP (Asaphes lucens) - OKLAHOMA - Collected from turnip aphid in Tulsa County. Det. by O. Peck. (p. 248).

SPOTTED ALFALFA APHID (Therioaphis maculata) - DELAWARE - Collected on alfalfa by G. W. Angalet in New Castle County, September 1966, and Kent County, December 1966. Det. confirmed by L. M. Russell. (p. 241).

#### New County Records

ALFALFA WEEVIL (Hypera postica) - ARKANSAS - Collected in Boone, Lafayette, and Miller Counties. (p. 243).



SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1966  
(continued from page 236)

ORNAMENTAL INSECTS

Highlights:

BAGWORM continued as a serious pest of ornamental evergreens in several States. Several WEEVILS damaged ornamentals in scattered areas this season. ROSE CHAFER was abundant in Maine, Connecticut, and Rhode Island. APHIDS, WHITEFLIES, SCALE INSECTS, and MITES were quite troublesome in many areas of the Country. Several species were reported as new State and county records this season.

JUNIPER WEBWORM (*Dichomeris marginella*) increased on juniper in western OREGON. AILANTHUS WEBWORM (*Atteva aurea*) caused more webbing and browning of ailanthus leaves than in the past 6 or 7 years in ILLINOIS. ARBORVITAE LEAF MINER (*Argyresthia thuiella*) was heavy in New Castle County, DELAWARE. A few adults were collected at nurseries in RHODE ISLAND during May. It was not economically important. WESTERN TUSSOCK MOTH (*Hemerocampa vetusta*) larvae caused heavy damage to ornamental shrubs in Ormsby County, NEVADA. CUTWORMS damaged peonies, iris, and tulips in VERMONT. STALK BORER (*Papaipema nebris*) infested chrysanthemums in a field plot in PENNSYLVANIA; infestation was light. GRANULATE CUTWORM (*Feltia subterranea*) caused serious losses to ornamentals and lawns during the spring and summer in Maricopa and Pinal Counties, ARIZONA. EUROPEAN PINE SHOOT MOTH (*Rhyacionia buoliana*) infested Tanyoshi pine in a Multnomah County, OREGON, nursery this year; all pines on the property subject to infestation were fumigated or destroyed. NANTUCKET PINE TIP MOTH (*R. frustrana*) infested pines in many nurseries in the eastern half of NEBRASKA. (Distribution map of *R. buoliana*, p. 272).

BAGWORM (*Thyridopteryx ephemeraeformis*) damaged coniferous shrubs throughout ALABAMA, and continued heavy in ARKANSAS, especially in the northwest area. Bagworm was moderate to heavy and caused considerable damage to evergreens in most areas of OKLAHOMA. It was the most serious pest on ornamental pines in KANSAS. Larvae were observed in June, July, and September. Ornamentals were heavily damaged throughout MISSOURI. Bagworm was found on various shipments of evergreens coming into MINNESOTA; this pest not known to overwinter in the State, however. Larvae caused browning of evergreens and a few deciduous trees throughout the southern two-thirds of ILLINOIS. Populations heavily damaged arborvitae and juniper plantings on many properties in Montgomery and Prince Georges Counties, MARYLAND. Bagworm was widely distributed and caused more injury this year than in most recent years in DELAWARE.

A PLUME MOTH (*Platyptilia pica monticola*) was not as severe on geraniums and pelargoniums as in past years in CALIFORNIA. Migrating larvae of WHITE-LINED SPHINX (*Celerio lineata*) destroyed ornamentals in many communities throughout the southern half of ARIZONA. A LEAF ROLLER MOTH (*Argyrotaenia cockerellana*) damaged ornamental junipers at Reno, NEVADA, in late May and early June; adults began emerging in late May. SPRUCE BUDWORM (*Choristoneura fumiferana*) infested ornamental spruce trees in Livingston, Bozeman, Big Timber, and other towns in western MONTANA. Infestations were lower in 1966 than in 1965.

BLACK VINE WEEVIL (*Brachyrhinus sulcatus*) and another WEEVIL (*B. meridionalis*) injured several hosts in Washoe County, NEVADA, with damage increasing as the season progressed. Damage to *Taxus* spp. has become a serious problem in nurseries and landscapes in many sections of OHIO, where larval damage to roots was reported through June. Adults emerged and fed on *taxus* leaves from mid-June through mid-September. Most serious damage to the plants resulted from larvae feeding on the roots. Black vine weevil was more abundant and widespread than in the past few years in CONNECTICUT, but remained about the same in nurseries and ornamental plantings in RHODE ISLAND. STRAWBERRY ROOT WEEVIL (*B. ovatus*) adults caused

flagging of terminal growth of established arborvitae in the Minneapolis and St. Paul area of MINNESOTA during the summer. A WEEVIL (*B. cribricollis*) damaged privet and roses in Clark County, NEVADA, during September and October. FULLER ROSE BEETLE (*Pantomorus cervinus*) was a problem on gardenia at a few locations in CALIFORNIA.

WHITE GRUBS (*Phyllophaga* spp.) were troublesome on nursery stock in MINNESOTA. ROSE CHAFER (*Macroductylus subspinosus*) was abundant during the season throughout CONNECTICUT and PENNSYLVANIA, and damaged roses at Auburn, MAINE, during June. Rose chaffer was the most abundant scarab in RHODE ISLAND. ASIATIC GARDEN BEETLE (*Maladera castanea*) caused heavy damage to Canadian hemlock at Bristol, Rhode Island. ELM LEAF BEETLE (*Pyrrhalta luteola*) was the most severe pest of ornamentals in TEXAS during 1966. Extremely heavy populations existed on elms throughout the north and northwest areas of the State, with damage heavier than in the past few years. A BARK BEETLE (*Xylosandrus compactus*) has become more of a pest in FLORIDA, especially on dogwood.

TULIP BULB APHID (*Dysaphis tulipae*) and an APHID (*Rhopalosiphoninus staphyleae*) were abundant on tulip bulbs and iris in storage in Pierce County, WASHINGTON. SPRUCE APHID (*Elatobium abietinum*) caused heavy needle damage to improperly treated ornamental spruce in home gardens and nurseries of Multnomah County, OREGON. RUSTY PLUM APHID (*Hysteroneura setariae*) damaged ornamentals throughout ARIZONA during late spring, and CHRYSANTHEMUM APHID (*Macrosiphoniella sanborni*) seriously damaged flowers and ornamentals during the spring in central and western Arizona. APHIDS were a problem on roses, chrysanthemums, and other ornamental flowers in all areas of NEW MEXICO. POTATO APHID (*Macrosiphum euphorbiae*) damaged roses and iris in many areas of OKLAHOMA during late April and early May. An APHID (*Aphis pseudoederiae*) was very heavy on English ivy in New Castle County, DELAWARE. APHIDS were abundant on roses in PENNSYLVANIA.

A MEALYBUG (*Trionymus dimittus*) was a normal pest of New Zealand flax in CALIFORNIA. Another MEALYBUG (*Pseudococcus microcirculus*) was a pest of orchids in northern California, and LONG-TAILED MEALYBUG (*P. adonidum*) was more prevalent and widespread in the State. A MEALYBUG (*Rhizoecus prichardii*) heavily infested 300 pots of African-violet in a greenhouse in Schuylkill County, PENNSYLVANIA. EASTERN SPRUCE GALL APHID (*Adelges abietis*) and COOLEY SPRUCE GALL APHID (*A. cooleyi*) were normally abundant on ornamentals, but abundance increased on Christmas trees in CONNECTICUT. Controls for eastern spruce gall aphid were ineffective in PENNSYLVANIA. A PSYLLID (*Psylla uncatoides*) was severe on albizia and acacia in some locations in CALIFORNIA. In RHODE ISLAND, very heavy infestations of a WHITEFLY (*Aleurotuberculatus similis*) were observed on Japanese holly in Kingston. Another WHITEFLY (probably *Dialeurodes chittendeni*) was very heavy on rhododendron at Richmond, and AZALEA WHITEFLY (*Pealius azaleae*) occurred statewide. GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*) was more general and heavier than ever observed in greenhouses in western PENNSYLVANIA. CITRUS WHITEFLY (*D. citri*) was the number one insect pest of ornamentals in FLORIDA. Greenhouse whitefly caused some damage to ornamentals in coastal areas of CALIFORNIA.

A COREID BUG (*Mozena obtusa*) infestations were heavy in the High Plains and Rolling Plains areas of TEXAS, principally on mimosa. This insect is quite common on mesquite and thrives best under dry, arid conditions which had been created throughout this area by a rather sustained drought. This bug was heavy on mimosa and peach trees during July in southwest KANSAS and had not previously been reported in the State. CUBAN-LAUREL THRIPS (*Gynaikothrips ficorum*) was severe on Indian-fig along the coast in southern CALIFORNIA. GREENHOUSE THRIPS (*Heliethrips haemorrhoidalis*) caused some damage to ornamentals in coastal areas of California. LEAFHOPPERS were a problem on ornamentals throughout MONTANA. EUROPEAN EARWIG (*Forficula auricularia*) populations in gardens and home areas were greater in western OREGON than in 1965, and some dahlia growers reported losses due to flower damage by earwigs.



EUONYMUS SCALE (Unaspis euonymi) was serious on home plantings of euonymus in Albuquerque, NEW MEXICO, and heavy in OKLAHOMA, where 5 generations occurred during 1966. Euonymus scale was a frequent problem on euonymus and bittersweet in MARYLAND, continued heavy on euonymus in many areas of DELAWARE, and was very common on euonymus and pachysandra in CONNECTICUT. CACTUS SCALE (Diaspis echino-cacti) was heavy on cactus in several greenhouses in PENNSYLVANIA. OYSTERSHELL SCALE (Lepidosaphes ulmi) was very common on lilac, apple, and willow in CONNECTICUT and RHODE ISLAND. Populations were evident on cotoneaster at Ellendale, NORTH DAKOTA. Although properly timed and applied control measures are effective against oystershell scale, heavy damage and new infestations occur yearly on lilac and cotoneaster in all areas of WYOMING. This scale insect was found on poplar in Goshen County for the first time. OLIVE SCALE (Parlatoria oleae) infested privet and ornamentals at a few locations in CALIFORNIA, while OLEANDER SCALE (Aspidiotus nerii) was more of a nuisance on ornamentals than in past years.

TEA SCALE (Florinia theae) was the most destructive and widespread scale on camellia and Burford hollies in ALABAMA. WHITE PEACH SCALE (Pseudaulacaspis pentagona) and an ARMORED SCALE (Phenacaspis cockerelli) were more of a problem in 1966 than in 1965 in FLORIDA, and FLORIDA RED SCALE (Chrysomphalus aonidum) continued as one of the worst pests on several ornamentals in the State. Infestations of SOFT SCALES (Pulvinaria spp.) were abundant on dogwood, pyracantha, and rose-of-Sharon at numerous locations in MARYLAND. FLETCHER SCALE (Lecanium fletcheri) was common on yews in CONNECTICUT, and trace numbers were present on arborvitae at Valley City, Jamestown, and Grand Forks, NORTH DAKOTA. Fletcher scale infested arborvitae at Chester, MONTANA, during 1966. A SOFT SCALE (Toumeyella pinicola) infested ornamental pine trees in a few widely separated areas of CALIFORNIA, and HEMISPHERICAL SCALE (Saissetia coffeae) was primarily a problem in San Diego County. COTTONY-CUSHION SCALE (Icerya purchasi) occurred on acacia trees and some ornamentals that serve as reservoirs for vedalia (Rodolia cardinalis). Numerous cottony-cushion scale infestations were reported on ornamentals throughout the year in areas of Yuma, Maricopa, Pinal, and Gila Counties, ARIZONA.

PEAR-SLUG (Caliroa cerasi) larvae were abundant and caused severe browning on some hawthorn trees in northern ILLINOIS by July 14. ROSE-SLUG (Endelomyia aethiops) severely damaged rose bushes at Valley City, NORTH DAKOTA. Rose-slug appeared wherever roses were grown in MONTANA, and pear-slug infested cotoneaster and other trees and shrubs throughout the State.

First NARCISSUS BULB FLY (Merodon equestris) adults of the season were collected on King County, WASHINGTON, July 9. NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) larvae mined foliage of American holly in all sections of MARYLAND during the spring and were heavy this year in American holly in DELAWARE. Native holly leaf miner was normal on holly in RHODE ISLAND, and a LEAF MINER FLY (Phytomyza sp.) damaged leaves of inkberry in a nursery at Wakefield. A GALL WASP (Diplolepis polita) damaged roses at a few locations in CALIFORNIA. Populations were more prevalent in the State this year.

SPIDER MITES (Tetranychus spp.) were heavy during early summer and caused extensive damage to ornamentals throughout much of ARIZONA. T. marianae was confined to nightshade in southern CALIFORNIA. Spider mites were heavy on many ornamentals including deciduous shrubs, flowers, juniper, and spruce throughout NEVADA from mid-April through early November. Infestations, similar to 1965, continued to cause moderate to severe damage on ornamental evergreens in WYOMING. Populations increased in late August and September. SPRUCE SPIDER MITE (Oligonychus ununguis) was heavy, causing discoloration to many ornamental junipers throughout KANSAS during late spring and summer, and was very heavy on spruce early in the season in PENNSYLVANIA. Spider mites were constant pests of roses, azalea, camellia, and many other shrubs and annual flowers throughout ALABAMA. TWO-SPOTTED SPIDER MITE (T. urticae) was a problem on untreated chrysanthemums in Palm Beach County, FLORIDA, requiring control applications on a 5 to 7-day schedule. Spider mites were troublesome in MARYLAND on many ornamentals. ERIOPHID MITES infested ornamental maples in VERMONT. CYCLAMEN MITE (Steneotarsonemus pallidus) was a local problem in San Mateo County, CALIFORNIA.

## FOREST INSECTS 1/

### Situation in the Western States

BARK BEETLE infestations, including several major ones, were dominant among the many insect problems affecting the forest resources in the Western United States. Easily the most important were the chronic epidemics of MOUNTAIN PINE BEETLE (*Dendroctonus ponderosae*) in stands of lodgepole pine on the Targhee National Forest, IDAHO, and on the Teton National Forest and Teton National Park, WYOMING. However, despite the widespread infestations and serious depletion of the resource that occurred in 1966 and is predicted to continue in 1967, there is some evidence there may be a general decline from peak levels of populations.

The mountain pine beetle was a major pest elsewhere in the West. For example, serious infestations occurred in many stands of lodgepole pine in eastern OREGON. This beetle took a heavy toll of second-growth ponderosa pine, also in eastern Oregon; seriously depleted the volume of mature western white pine in parts of Montana and northern Idaho; and killed many ponderosa pines previously top-killed by ENGRAVER BEETLES (*Ips* spp.). Mountain pine beetle, referred to as the Black Hills beetle in the central Rocky Mountains, killed many ponderosa pines on State and private lands in the Black Hills of SOUTH DAKOTA, and on the San Juan National Forest, COLORADO; and it killed many limber pines on the Shoshone National Forest, WYOMING.

On a regional basis, except for the serious bark beetle situation, insect problems were numerous, but much less serious than during the past few years.

The situation in ALASKA remained much the same as in 1965. A LEAF TIER skeletonized aspen and birch in the Fairbanks area, and HEMLOCK SAWFLY (*Neodiprion tsugae*) populations increased somewhat in the southeast; however, BLACK-HEADED BUDWORM (*Acleris variana*) infestations, while noticeable as far north as Circle, remained low. The SITKA-SPRUCE BEETLE (*Dendroctonus obesus*) killed patches of white and Sitka spruce on the Kenai Peninsula; suppression may be warranted in that high-value recreational area.

In OREGON and WASHINGTON, the most troublesome insect was the MOUNTAIN PINE BEETLE. Outbreaks occurred on some 300,000 acres of lodgepole and ponderosa pine. Another principal concern among forest landowners was the continued spread of the LARCH CASEBEARER (*Coleophora laricella*) in eastern Washington and a resurgence of a NEEDLE MINER in part of Oregon. Although the EUROPEAN PINE SHOOT MOTH (*Rhyacionia buoliana*) was found again in three Washington communities outside the containment zone, and in one forest nursery in Oregon, steps were taken to eradicate the moth in these areas. (Distribution map of *R. buoliana*, p. 272).

A sharp increase in damage from BARK BEETLES dominated the insect situation in CALIFORNIA. In the northwestern part of the State, DOUGLAS-FIR BEETLE (*Dendroctonus pseudotsugae*) killed thousands of trees in and adjacent to areas affected by floods and strong winds 2 years ago. In the northeastern counties, the JEFFREY PINE BEETLE (*D. ponderosae*) was destructive. Elsewhere in the State, droughts in the summer and fall triggered outbreaks of ENGRAVER BEETLES (*Ips* spp.) and gave impetus to WESTERN PINE BEETLE (*D. brevicomis*) infestations in ponderosa pine.

1/ This summary is the introduction of highlights section of the "Forest Insect Conditions in the United States - 1966" which was compiled and published by the Forest Service, U. S. Department of Agriculture. Copies of the complete annual summary are available upon request from the Regional Forester or Area Director in your area. Addresses of the regional offices may be found on page 259 this issue of the CEIR.

The overall condition of forest insect infestations in northern IDAHO and MONTANA was much improved from prior years. Noteworthy was a marked decrease in the long-term outbreaks of SPRUCE BUDWORM (Choristoneura fumiferana) in Montana. However, new but not severe budworm infestations developed near Missoula, and increased somewhat the population in northern Idaho. The LARCH CASEBEARER continued its spread in stands of western larch in both States, and the LARCH SAWFLY (Pristiphora erichsonii) and a LARCH BUD MOTH (Zeiraphera griseana) noticeably defoliated large areas. Other insect pests in the northern Rocky Mountains were a PINE NEEDLE-SHEATH MINER (Zelleria haimbachi) and a PINE TUSSOCK MOTH (Dasychira sp.). The BLACK-HEADED BUDWORM resurged on the Kootenai National Forest, Montana, and on the Kaniksu National Forest, Idaho.

In the central Rocky Mountains, forest insects were less troublesome than at any time during the past 5 years. The only noteworthy infestation of ENGLEMANN SPRUCE BEETLE (Dendroctonus obesus) occurred on the Grand Mesa-Uncompahgre National Forest, COLORADO. The largest and most continuous infestation of SPRUCE BUDWORM was also in Colorado, where light to moderate defoliation occurred on some 80,000 acres of mixed-conifer forests.

Noteworthy in the Intermountain States, in addition to the virulent epidemic of MOUNTAIN PINE BEETLE, was a sudden collapse of SPRUCE BUDWORM infestations on large acreages in IDAHO. The only other significant infestations were defoliation of lodgepole pine by a PINE TORTRIX in southern Idaho and western Wyoming, SAWFLY damage to pinyon pines in Nevada, and spotty defoliation of poplars in southern Utah.

DEFOLIATORS were the most important insect pests in the Southwest. The SPRUCE BUDWORM damaged one-half million acres of mixed conifers in southern and north-central New Mexico; the WHITE-FIR NEEDLE MINER (Epinotia meritana) persisted in some 50,000 acres of fir stands in northern ARIZONA; and a brief but virulent outbreak of DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) occurred on ornamental blue spruce near Santa Fe, NEW MEXICO. A SOUTHWESTERN PINE TIP MOTH (Rhyacionia neomexicana) was particularly damaging to natural regeneration and to some 2,000 acres of planted ponderosa pine in north-central Arizona. Other important insects included the DOUGLAS-FIR BEETLE, the ENGLEMANN SPRUCE BEETLE, and an ARIZONA FIVE-SPINED IPS (Ips lecontei); all three occurred locally in Arizona and New Mexico.

#### Situation in the Southern and Southeastern States

BARK BEETLES were the principal insect pests in the South and Southeast, and they killed many pines, particularly in TEXAS, LOUISIANA, MISSISSIPPI, and SOUTH CAROLINA. Fortunately, extreme cold early in 1966 halted SOUTHERN PINE BEETLE (Dendroctonus frontalis) infestations in TENNESSEE. Other significant insect problems in the Southern States were a rise in infestations of ENGRAVER BEETLES (Ips spp.) in portions of ARKANSAS and NORTH CAROLINA; serious tree killing by the BLACK TURPENTINE BEETLE (D. terebrans) in LOUISIANA, MISSISSIPPI, and TEXAS; damage to young pine plantations by the PALES WEEVIL (Hyllobius pales) in coastal NORTH CAROLINA; and continued serious infestations of the BALSAM WOOLLY APHID (Adelges piceae) in stands of Fraser fir in NORTH CAROLINA. While DEFOLIATING INSECTS were more widespread and more severe in some locations than in 1965, none were serious enough to warrant direct control.

#### Situation in the Lake and Central States and the Northeast

FOREST DEFOLIATORS caused the greatest damage to the forest resource in the Lake and Central States and the Northeast. The JACK PINE BUDWORM (Choristoneura pinus) was the most important pest in the Central States, where infestation increased to the point where suppression may again be necessary. The SPRUCE BUDWORM (C. fumiferana) was the predominant insect in the Northeast, where some 100,000 acres of mixed fir and spruce near Oxbow, MAINE, will probably have to be suppressed. The FALL CANKERWORM (Alsophila pometaria) continued in outbreak numbers in northern PENNSYLVANIA and was abundant and damaging throughout parts of WEST VIRGINIA,

NEW YORK, NEW JERSEY, and CONNECTICUT. Other forest defoliators, such as the GYPSY MOTH (*Portheiria dispar*), FOREST TENT CATERPILLAR (*Malacosoma disstria*), PINE SAWFLIES, and one or more species of LOOPERS, decreased. APHIDS, SCALES, WEEVILS, LEAF MINERS, and TIP and SHOOT MOTHS were damaging within their known areas of distribution in all States.

### Suppression Activities

Public and private agencies cooperated to check damage and loss caused by forest insects. The major campaigns were directed against bark beetles. The largest effort by far against bark beetles was aimed at suppression of the mountain pine beetle in stands of lodgepole pine on the Targhee and Teton National Forests and in Teton National Park. At these locations, infested trees were cut and utilized, cut and burned, burned standing, or cut and sprayed with toxic oils.

The mountain pine beetle was also the target of control action in eastern Oregon. The infestations in lodgepole pine were handled primarily by logging in the affected stands. Beetles in western white and sugar pine stands were also checked by accelerating logging in the stands. Outbreaks of second-growth ponderosa pine were suppressed by a two-prong attack. Populations in affected areas were first reduced by direct means, and then the stands were thinned to reduce basal area and relieve stand pressure. In some cases, thinning preceded the direct action taken to reduce populations.

Suppression in California also was directed chiefly against bark beetles, and operations were primarily limited to logging of the infested trees. In the north coast area, where Douglas-fir beetle infestations were severe, infested trees were logged along with other components of the stand. In areas where infested trees could not be salvaged, they were cut and the beetle broods were destroyed by treating the bark surface of the trees with penetrating sprays.

In the northern Rocky Mountains, control action was principally against spruce budworm. The largest suppression project was mostly on Bureau of Land Management lands east of Dillon, Montana. Use of 13 fluid ounces of technical malathion per acre reduced the total population 97 percent. A carbamate, at a rate of 0.15 pounds per gallon of kerosene per acre, was also used in a test to control the budworm on a small area of the Bitterroot Mountains, MONTANA. Definitive results of the test are not yet available, but control effectiveness appears to have been satisfactory.

Except for the large-scale campaigns to control mountain pine beetle infestations in Idaho and western Wyoming, only minor action was required to check damage and loss caused by other pests. The planned spraying to suppress spruce budworm on an extensive acreage of the Salmon National Forest was canceled in early June when it was learned that natural factors had reduced populations to low levels.

In the Southwest, control of forest insects was confined primarily to forest defoliators. The largest suppression project, directed against the spruce budworm in northern New Mexico, was not very successful. However, control efforts against a small outbreak of Douglas-fir tussock moth in and adjacent to Santa Fe, New Mexico, were highly successful, and no spread occurred from the focal center of infestation.

Bark beetles were the target of most of the control effort in the South and Southeast. Southern pine beetle infestations, particularly in Texas, Louisiana, Mississippi, and South Carolina, required suppression effort throughout the year. Fortunately, extreme cold in midwinter destroyed a virulent outbreak in Tennessee. Debris from floods and from stand disturbances caused by timber harvesting resulted in an upsurge in populations of black turpentine beetle, but these populations were checked by salvaging infested trees and spraying infested stumps. The pales weevil was controlled in pine plantations in North Carolina, and high-value Fraser firs were sprayed to protect them against more infestations by the balsam woolly aphid.

Suppression in the Central States, Lake States, and the Northeast was mostly in small areas. The saratoga spittlebug was controlled, as needed, in pine plantations in Michigan; the red-headed pine sawfly was treated in several areas; and the fall cankerworm was suppressed in high-value recreational sites in Pennsylvania. Minor programs contained white-pine weevil in Pennsylvania and New York, hemlock looper in New Hampshire, and jack pine budworm in Michigan and Wisconsin.

Pest Control Accomplishments

<u>Insect</u>	<u>Location</u>	<u>Trees treated</u>	<u>Acres sprayed</u>
Southern pine beetle	South and Southeast	240,000	
Black turpentine beetle	South and Southeast <u>1/</u>	249,000	
Western pine beetle	California	17,500	
Black Hills beetle	South Dakota, Colorado, and Wyoming	9,000	
Mountain pine beetle	Utah, Idaho, and Wyoming	645,000	
Spruce budworm	Montana, Idaho, and New Mexico		131,000
Balsam woolly aphid	Mississippi, Tennessee, and North Carolina	52,000	
Fall cankerworm	Pennsylvania		1,000
Pales weevil	North Carolina		4,000
Miscellaneous	Entire United States	<u>132,500</u>	<u>23,500</u>
Total		1,345,000	159,500

1/ Includes treating of stumps.

REGIONAL OFFICE ADDRESSES

U. S. FOREST SERVICE

<u>Region</u>		<u>Region</u>	
<u>1</u>	U. S. Forest Service Federal Building Missoula, Montana 59801	<u>6</u>	U. S. Forest Service P. O. Box 3623 Portland, Oregon 97208
<u>2</u>	U. S. Forest Service Federal Center Building 85 Denver, Colorado 80225	<u>7</u>	U. S. Forest Service 6816 Market Street Upper Darby, Pennsylvania 19082
<u>3</u>	U. S. Forest Service New Federal Building 517 Gold Street, S. W. Albuquerque, New Mexico 87101	<u>8</u>	U. S. Forest Service 50 Seventh Street, N. E. Atlanta, Georgia 30323
<u>4</u>	U. S. Forest Service Forest Service Building Ogden, Utah 84403	<u>9</u>	U. S. Forest Service 710 N. Sixth Street Milwaukee, Wisconsin 53203
<u>5</u>	U. S. Forest Service 630 Sansome Street San Francisco, California 94111	<u>10</u>	U. S. Forest Service Fifth Street Office Building P. O. Box 1631 Juneau, Alaska 99801

## SHADE TREES

### Highlights:

FALL WEBWORM infestations were heavier in Delaware than in recent years, and heavy in areas of Illinois and in northwest Arkansas. MIMOSA WEBWORM was a major pest of mimosa in Alabama and caused light to heavy damage on host trees in Illinois. Mimosa webworm was recorded in Oklahoma for the first time. TENT CATERPILLARS were damaging in several areas. SATIN MOTH damaged poplars in Maine and caused heavy defoliation in Vermont. ELM LEAF BEETLE was again serious on elms in most areas where this pest occurs, especially in Oklahoma where infestations were serious for the ninth consecutive year. BRONZE BIRCH BORER continued a problem in Minnesota and caused heavy mortality of white birch in Indiana. EUROPEAN ELM SCALE and COTTONY MAPLE SCALE were serious in several areas. BIRCH LEAF MINER occurred in outbreak proportions in Maine, and was damaging in several other areas.

FALL WEBWORM (*Hyphantria cunea*) infestations were higher this season in DELAWARE than in recent years on a variety of hosts. First larvae of the season occurred in central OHIO in late July. Infestations were generally minor in central, east-central, southeastern and north-central areas until late August, when extensive defoliation became apparent. Although wild cherry was the principal host, apple, walnut, sycamore, elder, hickory, oak, mulberry, elm, hawthorn, and peach were damaged. Fall webworm was present in most areas of ILLINOIS, being very abundant in some locations. Populations in MISSOURI declined from those present in 1965. Damage was heavy on individual trees, but the number of trees infested was not as great as in previous years. Fall webworm was heavier in northwest ARKANSAS than in other areas of State, but lighter than in 1965. Larvae and webbing were present on 25 percent of chokecherry trees in western NORTH DAKOTA and completely defoliated many trees. Fall webworm damaged madrone trees in some coastal areas of CALIFORNIA.

FALL CANKERWORM (*Alsophila pometaria*) and SPRING CANKERWORM (*Paleacrita vernata*), in conjunction with several species of LEAF ROLLER MOTHS, caused heavy damage to shade and forest trees throughout NEW JERSEY. Fall cankerworm was heavy on maple and cherry in northwestern PENNSYLVANIA. Fall cankerworm was generally noneconomic in all areas of NORTH DAKOTA. Spring cankerworm males emerged April 11 and females 2 weeks later in North Dakota. Light feeding was evident on some shade and shelterbelt trees, but damage was not extensive. Spring cankerworm defoliated elms and other shade trees in Lawrence, Pennington, and Yankton Counties, SOUTH DAKOTA, in late May. Some spraying was done. Fall cankerworm infested several species of trees and shrubs in the Saco area of MONTANA.

MIMOSA WEBWORM (*Homadula albizziae*) was a major pest of mimosa trees throughout ALABAMA, but was a minor problem over ARKANSAS. Mimosa webworm was collected in Tulsa County for the first record in OKLAHOMA. Mimosa webworm caused light to heavy damage to honeylocust and mimosa in southern ILLINOIS by July 5, and light damage as far north as La Salle County by July 11. Damage was severe in many areas of Illinois. New county records were Lake, Bureau, and Cass. Numerous incidences of mimosa webworm on honeylocust indicate that populations were higher than normal in OHIO. Larval activity was first reported in early July and feeding continued through the summer and into early September. Infestations were reported from 12 counties over much of Ohio. Mimosa webworm ranged medium to very heavy during the summer on mimosa and honeylocust in central and southern MARYLAND, but was light on honeylocust in PENNSYLVANIA.

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) was moderate to heavy over MAINE, but generally limited to wild cherry and abandoned or home apple trees. Heavy populations were scattered throughout VERMONT. Eastern tent caterpillar egg hatch began during mid-April in RHODE ISLAND and was most abundant in Providence and

Kent Counties. Infestations were less conspicuous than in previous years. Eastern tent caterpillar infestations were low throughout NEW JERSEY, but were conspicuous in the spring and early summer in VIRGINIA, especially on wild cherry. Eastern tent caterpillar eggs began to hatch in late April over most of southern OHIO. Larval growth was complete in the southern area and pupal cases were noted in late May. Adults appeared in blacklight traps in mid-June. Populations were larger this year than in previous years. Completely defoliated trees covered with webbing were not uncommon in southeastern Ohio counties, and elsewhere along the Ohio River. In areas where wild cherry and apple had been depleted, late-instar larvae occurred on a variety of deciduous trees and shrubs. Eastern tent caterpillar tents were present in east-southeast ILLINOIS by April 4. This pest was abundant in several areas of southern Illinois this season. Eggs of eastern tent caterpillar began hatching April 21 near Jamesville, WISCONSIN. Webs were evident on chokecherry by May 13 and some larvae were in the second instar. Populations were higher than for several years and many small chokecherry trees were completely defoliated.

FOREST TENT CATERPILLAR (*Malacosoma disstria*) was light with localized damage in an area of Washington County, MAINE. Spring populations collapsed in VERMONT, presumably as a result of natural environmental forces. Infestations were noted near Belvidere, NEW JERSEY. Forest tent caterpillar populations decreased to noneconomic levels this year in TEXAS. Populations have been heavy in central Texas for the past several years. Forest tent caterpillar populations were low over UTAH, but large numbers of adults were seen in the Gallatin Valley in MONTANA. Eggs and larvae were found in many locations in Montana, but no serious infestations were observed.

GREAT BASIN TENT CATERPILLAR (*Malacosoma fragile*) defoliated large numbers of cottonwood trees in Washington County, UTAH. Larvae of another TENT CATERPILLAR (*M. incurvum discoloratum*) caused heavy damage to elm and poplar in southeastern Clark County, NEVADA, during late March and early April.

SATIN MOTH (*Stilpnotia salicis*) was heavy and damaged poplars in Wales and Livermore, MAINE. Complete defoliation of small groups of poplars was observed in several areas. Defoliation of poplars was heavy in widely scattered locations in VERMONT. Satin moth larvae were abundant in Wallowa County, OREGON, on cottonwood, poplar, and willow. In the Lostine area, these host trees were totally defoliated.

WALNUT CATERPILLAR (*Datana intergerrima*) moths were collected in blacklight traps in Madison and Platteville, WISCONSIN, July 1. Light larval feeding was observed in Grant County late in July. Complete defoliation of several host trees was noted in western Wisconsin late in August. Migration from trees began early in September. Walnut caterpillar was heavy and caused light to complete defoliation of black walnut trees throughout the northern three-fourths of ILLINOIS. Damage to walnut foliage by walnut caterpillar was more common than usual in central and west-central OHIO. Major feeding damage occurred from late July to early September. Damage up to complete defoliation was reported from six counties.

Defoliation of catalpa trees by CATALPA SPHINX (*Cerotomia catalpae*) larvae was very common through much of OHIO. Defoliation by late-instar larvae of the second generation was apparent in early September and large numbers of defoliated catalpa trees were observed through September in central, north-central and west-central Ohio. Catalpa sphinx larvae were heavy at Hillside, NEW JERSEY.

Adults of an OLETHREUTID MOTH (*Eucosoma gloriola*) were collected May 6 in a pine plantation in Muskegon County, MICHIGAN, for a new State record. Egg laying was underway May 17 in Muskegon and Ottawa Counties. Larval injury occurred in a number of Ottawa, Muskegon and Wexford County plantations of Scotch and Austrian pines during June and July.

CARPENTERWORM (*Prionoxystus robiniae*) and other borers continued to cause serious log and lumber degrade in the hardwoods in MISSOURI. Carpenterworm was abundant

in Madison, Glacier, Daniels, and Roosevelt Counties, MONTANA, and damaged cottonwood, walnut, and ash in Glenn County, CALIFORNIA.

Larvae of a GIANT SILKWORM MOTH (Hemileuca nevadensis) continued to strip native cottonwood at White Sands National Monument near Alamogordo, NEW MEXICO. ASPEN BLOTCH MINER (Lithocolletis tremuloidiella) was reported for the first time from MONTANA. Infestations occurred in Yellowstone, Roosevelt, McCone, Garfield, Phillips, and Richland Counties. A CLEARWING MOTH (Podosesia syringae) was numerous on ash in a weakened condition in MONTANA. Another borer, Lespersinus fasciatus, was also widespread on green ash in Chouteau, Glacier, Toole, Liberty, Hill, Blaine, Phillips, Valley, and Roosevelt Counties, Montana. POPLAR-AND-WILLOW BORER (Sternochetus lapathi) infestations increased on willows at Middleton, Kamiah, Sanders, and Lewiston, IDAHO.

SPRUCE NEEDLE MINER (Taniva albolineana) infestations in NEVADA remained at 1965 levels, and were found for the first time in Humboldt County. WESTERN OAK LOOPER (Lambdina fiscellaria somnaria) caused less foliar damage to native oak in the Willamette Valley of OREGON than in 1965. CALIFORNIA OAKWORM (Phryganidia californica) caused severe damage to oaks in the coastal areas of CALIFORNIA.

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) larvae were heaviest in several years on elm and willow in NEVADA. Larvae infested cottonwood and willow trees in the Butte and Dillon areas of MONTANA, and willow trees at both Stanford and Missoula. Larvae of a NYPHALID BUTTERFLY (Polygonia interrogationis) infested elm in Smithfield, RHODE ISLAND, during mid-July.

ELM LEAF BEETLE (Pyrrhalta luteola) infestations were generally low in most areas of MAINE and damage was variable at several locations in VERMONT. Elm leaf beetle was moderately abundant in RHODE ISLAND, but was less conspicuous generally than in some previous years. Elm leaf beetle was common on elm in central NEW JERSEY, and was moderate in most areas of DELAWARE, where infestations were very heavy in some areas of New Castle County. Elm leaf beetle adults and larvae caused medium to heavy foliage injury to unprotected American and Chinese elms throughout MARYLAND. Elm leaf beetle caused serious damage to elms in central and northern ALABAMA, and damage was serious throughout most of OKLAHOMA for the ninth consecutive year. Elm leaf beetle continued heavy in nearly all areas of ARKANSAS. Elm leaf beetle damage was heaviest on Chinese elm in the metropolitan areas of MISSOURI, and was most serious on shade trees throughout the State of KANSAS. Most Siberian and hybrid elms were heavily damaged during the summer and damage ranged light to moderate on American elm. There are only 2 extreme western counties where this beetle is not known to occur in Kansas.

Elm leaf beetle spread to new areas in the northern half of NEW MEXICO and caused serious defoliation of Chinese elm trees. Control was not practical in most areas. This leaf beetle severely defoliated elm trees in nearly all areas of ARIZONA from May through July. Control efforts were not successful. Elm leaf beetle was very prevalent in many locations in CALIFORNIA and heavily infested elms throughout its range in NEVADA. Infestations were found in a second area of Las Vegas and the first time in Henderson, Clark County, Nevada. Elm leaf beetle defoliated and browned leaves of unsprayed elms in Jackson and Josephine Counties, OREGON. Damage ranged moderate to heavy over the entire State. For distribution of elm leaf beetle (map) see USDA Coop. Econ. Ins. Rpt. 16(45):1054.

COTTONWOOD LEAF BEETLES (Chrysomela scripta complex) caused light to moderate damage to willow and cottonwood at several locations throughout NORTH DAKOTA, and continued to infest cottonwood plantings in southeast MISSOURI. Damage is minor on the better cottonwood sites but increases on the poorer sites in Missouri. LOCUST LEAF MINER (Xenochalepus dorsalis) caused noticeable browning of foliage on black locust in central and southern sections of MARYLAND, and was heavy on locust in west central VIRGINIA in July and August.



WHITE-PINE WEEVIL (Pissodes strobi) adults were abundant on host plant leaders in late May and early August in RHODE ISLAND, with more than the usual amount of damage apparent Statewide.

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) damaged elm in Walla Walla, WASHINGTON. Although reported from Klamath County in 1960, no Dutch elm disease has yet been found in the State. Smaller European elm bark beetle was not the problem in CALIFORNIA as in several years past, but did increase its range in north and northwest TEXAS. Adults emerged from mid-April to late July in north-central OKLAHOMA, and killed numerous drought-weakened elms in central KANSAS. Smaller European elm bark beetle populations continued in the southeast quarter of MINNESOTA, being highest in the St. Paul area. Populations continued heavy on American elm in Lower MICHIGAN, with Dutch elm disease being found in more trees. First adults were noted on June 3 and second-brood adults were still active in late September.

NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) adults were active on May 16 and were recorded for first time from Cass, Barnes, and Richland Counties, NORTH DAKOTA. A CONE BEETLE (Conophthorus scopulorum) destroyed an estimated 47 percent of the ponderosa pine cone crop on the Sacramento Division of the Lincoln National Forest in NEW MEXICO. Damage by a BARK BEETLE (Phloeosinus cupressi) to cypress increased in many locations of CALIFORNIA.

TWIG PRUNER (Elaphidionoides villosus) was unusually prevalent throughout NEW HAMPSHIRE, but was less conspicuous than usual in RHODE ISLAND. TWIG GIRDLER (Oncideres cingulata) infestations were lighter in KANSAS than in the past 5 years.

Adults of a LEAF-MINING WEEVIL (Odontopus calceatus) were first reported feeding on yellow-poplar in southern OHIO in early May. Oviposition began in May and leaf mining activity had been in progress for some time by late May. Pupation of the 1966 larval generation had begun in southeastern Ohio by mid-June. Activity was widespread and occurrences were reported as far north as Ashland County in the northeastern part of the State. POPLAR-AND-WILLOW BORER (Sternochetus lapathi) killed willows in Whitman and Yakima Counties, WASHINGTON. A WEEVIL (Copturus floridanus) severely damaged West Indian mahogany trees during the autumn in the Miami area of FLORIDA.

BRONZE BIRCH BORER (Agrilus anxius) continued to be a problem in MINNESOTA. The isolation of blocks of birch appears to be major step in control. Heavy infestations caused high mortality of white birch throughout INDIANA. Unspecified borers in hardwood continue to be the major problem in MISSOURI forests at the present time. BLISTER BEETLES were reported on shelterbelt and ornamental trees in many MONTANA counties. In NEVADA, two FALSE POWDER-POST BEETLES (Dendrobiella aspera and Xyloblaptus prosopidis) and a POWDER-POST BEETLE (Trogoxylon aequale) seriously infested mulberry trees in Clark County in April.

WOOLLY ALDER APHID (Prociphilus tessellatus) was heavy over widely scattered areas of VERMONT and was very abundant on maple in central and western VIRGINIA during June. BALSAM TWIG APHID (Mindarus abietinus) distorted needles of balsam fir during early June in RHODE ISLAND, but there was no apparent increase in abundance. BEECH BLIGHT APHID (Prociphilus imbricator) was heavy in New Castle County, DELAWARE. PAINTED MAPLE APHID (Drepanaphis acerifoliae) was heavy on maple in northwest ARKANSAS during fall. Unspecified APHIDS were heavy on shade trees in UTAH but were less general and troublesome than 1965. Many trees were sticky with honeydew from heavy infestations. Cinara curvipes infested alpine fir and other firs wherever these trees occur in MONTANA. Lachnus salignus was heavy on willow in northeastern NEVADA in September and October. Cinara spp. heavily infested pinyon pine in west-central Nevada in July, with many trees covered with honeydew. Prociphilus fraxinifolii was severe on ash trees in many locations. Cinara curvipes was heavy on spruce and juniper in a few locations of the State. COOLEY SPRUCE GALL APHID (Adelges cooley) and EASTERN SPRUCE GALL APHID (A. abietis) were more conspicuous than usual in RHODE ISLAND.

A LEAFHOPPER (Macropis fumipennis) killed first buds and delayed foliar development of honeylocust in eastern KANSAS during May and June. CICADAS severely damaged young trees in Boulder City, NEVADA, and a PSYLLID (Euphyllura arbuti) was heavy on madrone trees in the northern coastal area of CALIFORNIA.

ASH PLANT BUG (Neoborus amoneus) caused light damage to green ash at Embden and severe damage near Killdeer, NORTH DAKOTA. A PLANT BUG (Tropidosteptes vittifrons) caused heavy damage to ash trees in Clark County, NEVADA, in May and June, and another PLANT BUG (Plagiognathus gleditsiae) killed first buds and delayed foliar development of honeylocust in eastern KANSAS during the same period. Medium to heavy populations of a COREID BUG (Leptocoris rubrolineatus) on maple and boxelder were widespread over CALIFORNIA. A LACE BUG (Leptopypha minor) was severe on ash trees in many locations in California and A SPITTLEBUG (Clastoptera airzonana) damaged acacia trees in the southern part of the State. Another SPITTLEBUG (C. juniperina) was medium on ornamental and native juniper in Washoe County, NEVADA, during May and June. SYCAMOR LACE BUG (Corythucha ciliata) was heavy on individual sycamore trees during late summer in RHODE ISLAND, and was heavy in some areas of PENNSYLVANIA.

EUROPEAN ELM SCALE (Gossyparia spuria) was heavy and widespread on Chinese and American elm trees throughout the High Plains portion of TEXAS. Several trees were killed and many other severely damaged. European elm scale continue serious in western KANSAS. Many trees were killed and most trees had many dead branches. Populations were heavy in parts of Sheridan County, NEBRASKA, and limited infestations were reported from Billings, MONTANA. European elm scale was heavy on American elm in Grant County, WASHINGTON, for a new State record. European elm scale was a particular problem in Ventura County, CALIFORNIA, but occurs in many areas of the State.

BEECH SCALE (Cryptococcus fagi) was widely distributed wherever beech occurs in VERMONT, and was heavy on native beech in northeastern PENNSYLVANIA.

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) infestations were reported from Dryden, MAINE, in late July and control measures were applied again in Farmington. Particularly heavy infestations on ornamental soft and silver maples were reported from mid-June through July from 8 counties in north-central, northeastern and east-central OHIO. Cottony maple scale infestations were spotty but ranged moderate to heavy on silver maple in Jackson and Multnomah Counties, OREGON. EUROPEAN FRUIT LECANIUM (Lecanium corni) was severe on maple, oak, and sassafras in PENNSYLVANIA. A LECANIUM SCALE (Lecanium canadense) occurred on elm trees at Hardin and Joliet, MONTANA.

OBSCURE SCALE (Melanaspis obscura) was heavy on pin and willow oaks at several locations in suburban Prince Georges County, MARYLAND, and was very heavy on pin oaks in one area of New Castle County, DELAWARE. OLEANDER SCALE (Aspidiotus nerii) was more abundant on shade trees in CALIFORNIA than in past years.

A PIT SCALE (Asterolecanium minus) was heavy on white and chestnut oaks in PENNSYLVANIA, and infested some red oaks in the State. This pit scale was severe on oaks in a few locations in CALIFORNIA. AN OAK KERMES SCALE (Kermes pubescens) infested pin and bur oaks throughout eastern KANSAS, causing distortion and yellowing of leaves and shortening of twig growth.

BIRCH LEAF MINER (Fenusa pusilla) eggs began hatching on gray and white birch in the Orono area of MAINE in early June. Infestations were in outbreak proportions in most areas of the State by the end of first brood activity on gray birch. Stands of birch trees between Bangor and Waterville and stand in coastal areas of Hancock and Washington Counties showed complete leaf mortality by early July. Birch leaf miner infestations were light in RHODE ISLAND, the second generation being especially inconspicuous. Another LEAF MINER (Profenusa sp.) was more severe on white birch in central Oxford County than was birch leaf miner. Birch leaf miner continued to damage ornamental birch in most areas of VERMONT and was common on birch in CONNECTICUT. Heavy infestations of birch leaf miner

occurred throughout NEW JERSEY and in most areas of DELAWARE. Birch leaf miner defoliated 100 percent of gray birch in northeastern PENNSYLVANIA. Birch leaf miner larval feeding was evident on birch in Madison, WISCONSIN, by May 30. Damage was severe in sections of Door and Calumet Counties in June. Infestations were numerous across the central third of the State in July and August. Birch leaf miner continued to spread in OREGON nurseries growing birch trees. This leaf miner was found on 12-year-old birch trees in Lane County and adults emerged April 11 in Multnomah County.

A SAWFLY (Profenusa maineensis) was heavy and damaged red and white oaks in MAINE. Another SAWFLY (P. lucifes) was light and damaged white oaks in western Maine in July. This was the first record of P. lucifex on white oak in Maine. PEAR-SLUG (Caliroa cerasi) infested mountain ash, cherry, plum, crab, quince, and other trees and shrubs in MONTANA. BROWN-HEADED ASH SAWFLY (Tomostethus multicinctus) damaged ash trees in Shasta County, CALIFORNIA, and was moderate on ash foliage in Peace Dale, RHODE ISLAND during mid-June. Also in Rhode Island, MOUNTAIN-ASH SAWFLY (Pristiphora geniculata) infested mountain-ash locally in Kenyon, and LARCH SAWFLY (P. erichsonii) defoliated ash on 5-acre plot at Westerly and a smaller planting in Hopkinton during mid-July. DUSKY BIRCH SAWFLY (Croesus latitarsus) defoliated 100 percent of gray birch in northeastern PENNSYLVANIA. ELM SAWFLY (Cimbex americana) damaged trees in several areas of NORTH DAKOTA. Complete defoliation was evident on 38 percent of trees in a mile-long willow planting in Cass County. A GALL WASP (Diplolepis polita) was more prevalent than usual in CALIFORNIA and damaged live oak in a few locations.

MAPLE BLADDER-GALL MITE (Vasates quadripedes) severely deformed foliage of maple and other trees throughout NORTH DAKOTA and was common on silver maple in most of MINNESOTA. Maple bladder-gall mite was more prevalent than usual in southeast NEBRASKA in early June, but was normal in CONNECTICUT.

SPIDER MITES were unusually heavy on various shade trees over NEVADA. Tetranychus spp. caused moderate to heavy damage to pine and fir in portions of eastern NEBRASKA in early July and were moderate on cedars in Sheridan County in mid-July. A SPIDER MITE (Eotetranychus multidigituli) was very heavy on honeylocust in Montgomery County, PENNSYLVANIA.

## MAN AND ANIMALS

### Highlights:

MOSQUITOES were again annoying in many areas of the Nation, but populations were lower than in 1965 in some areas due to dry conditions. Adult populations of Mansonia perturbans were the heaviest in 8 years in Minnesota and Anopheles walkeri was 10 times as numerous in that State as in 1965. Encephalitis was the most important insect-borne disease in Kansas, and a mild epidemic of St. Louis encephalitis occurred in Texas following a buildup of mosquito populations in the Dallas and Corpus Christi areas. Populations of FACE FLY continued high in Vermont and were the heaviest in 3 years in central Maryland, but were not so abundant in Pennsylvania. Face fly was a problem in some areas of Wisconsin, and heavy populations built up in Nebraska. HORN FLY and STABLE FLY were problems in some areas. Self-sustaining populations of SCREW-WORM are now considered to have been eliminated in the Southwest. CATTLE GRUBS, HORSE FLIES, and DEER FLIES were economic in some areas of the Nation. Several CATTLE LICE were of some concern and various TICKS were annoying and occasionally numerous.

MOSQUITOES were not a problem in FLORIDA where control of Aedes taeniorhynchus was very successful in many counties. Aedes sollicitans and other mosquitoes were annoying throughout the season in ALABAMA, especially along the coastal areas and lakes. Heavy populations of SOUTHERN HOUSE MOSQUITO (Culex pipiens

quinquefasciatus) and other species built up during late summer in the Dallas and Corpus Christi areas of TEXAS and a mild epidemic of St. Louis encephalitis resulted. Southern house mosquito, Culiseta inornata, and Psorophora cyanescens were active in scattered areas of OKLAHOMA from mid-March to late November. Mosquito activity increased as early as late March in ARKANSAS and continued into late fall due to mild weather, with Psorophora confinnis the principal species involved. Various mosquitoes were severe in most areas of KANSAS with Aedes vexans dominant. Culex tarsalis populations increased in the Manhattan area late in the summer and intensified control efforts were initiated. Encephalitis was the most important insect-borne disease in Kansas. Of the 26 confirmed cases, 20 were of the St. Louis type and 6 the western type. Most of these cases occurred in the central area of Kansas.

Cool weather during April delayed the hatch of Aedes spp. in MINNESOTA. Culiseta inornata and Aedes spp. were dominant in larval collections during May. Light trap collections were light through June in the Minneapolis and St. Paul district, but heavy in areas immediately outside this district. Heavy rains during June resulted in the first large hatch of Aedes vexans. The heaviest adult populations of Mansonia perturbans in 8 years emerged during late June. These mosquitoes were extremely annoying, especially in areas near cattail swamps. Anopheles walkeri was 10 times as numerous as in 1965 in Minnesota. Light trap collections of Culex tarsalis were much lower than in 1965. Larvae of Aedes spp. were nearly full grown by May 4 in WISCONSIN and adults were observed May 13 in southern counties and by May 27 in the extreme northern counties. Annoyance to man and cattle was severe the first week of June. High soil moisture resulting from heavy rains in the fall of 1965 contributed to ideal breeding conditions in Wisconsin. High mosquito populations and severe annoyance to man occurred through June and into the second week of July. Aedes spp. and Culex spp. adults were present in many areas of MICHIGAN but were not particularly annoying during the cool weather of May and June. Aedes vexans adults moved into populated areas of Lower Michigan during mid-July and were extremely annoying. A. vexans was the most important and most numerous species in Lucas County, OHIO, during June. Various mosquitoes were especially common in the Toledo area. A. vexans was also the most common mosquito in the Wright-Patterson Air Force Base area of Montgomery County during June.

Aedes spp. were considerably below normal on the Eastern Shore of MARYLAND during midsummer, although localized annoyance was experienced in late summer and fall on the lower Eastern Shore. Culex spp. were periodically very annoying during the summer to residents of several communities in Frederick and Prince Georges Counties. Mosquitoes were a severe problem during the early spring in most of CONNECTICUT and were heavy in scattered areas of VERMONT from early to midsummer. Mosquitoes reached peak levels during mid-June in the Orono area of MAINE. Abundant rainfall during late July resulted in hatches of Aedes cinereus and A. canadensis, but pools dried before adults emerged in many instances.

Several species of mosquitoes were again very annoying to man and animals in most areas of WYOMING, but due to cool, dry weather conditions during the spring and early summer, populations were smaller than in 1965. Mosquito populations were very much lower over NEVADA than in 1965 except in irrigated areas. Aedes spp. and Culex tarsalis were dominant. Mosquito populations were probably the lowest in many years in CALIFORNIA.

BLACK FLIES were not so annoying in CALIFORNIA as in past years. Black flies were heavy in some eastern areas of ARKANSAS for the first time in several years, and a few instances of these pests causing death of livestock were reported. Adults of a BLACK FLY (Simulium venustum) were extremely annoying to man and animals near rivers in eastern areas of NORTH DAKOTA. Black flies were annoying to man in areas near streams in WISCONSIN during May and continued annoying in many areas into June. Some annoyance by black flies was reported in Vilas County as late as mid-August. Some annoyance to cattle by these pests was reported early in the season in Wisconsin. Black fly adults were very annoying

to man and animals in Allegany and Cecil Counties, MARYLAND, and were normally abundant during the season in CONNECTICUT. Black flies were heavy during late spring in VERMONT and increased during mid-June in central MAINE. Infestations in many areas of Maine did not build up as quickly as usual to the levels normally expected.

FACE FLY (Musca autumnalis) populations continued high in all sections of VERMONT, with counts of 35-40 per animal. Face fly was not so abundant during early summer in PENNSYLVANIA as usual. Counts averaged 7-8 flies per animal during late summer in the northwest area of the State and 38 per animal in a large beef herd in the southwest section of Pennsylvania. Face fly populations were the highest in 3 years on beef and dairy cattle in central counties of MARYLAND. During July and August, counts of more than 20 per head were common. Face fly was present on cattle in OHIO by early April, but did not increase appreciably until late June. Seasonally normal populations continued with maximum counts of 50 or more flies per face observed during August. Face fly counts of up to 10 per face were noted on a warm day in May on cattle in Shawassee County, MICHIGAN. Populations were generally low but reached a high in early August when 20 or more flies per face were recorded on beef cattle in central Michigan. Face fly was scarce in INDIANA until mid-August when counts ranged 8-31 per face on cattle in north-central and northeastern districts. Infestations were light for the remainder of August through mid-September in the northern half of the State, with counts of 0-15 per face on pastured cattle. Face fly was first observed on cattle April 25 in Coles County, ILLINOIS. Populations were very low (0.3 per face) through May, June and the first half of July, but began to increase in late July. Highest counts of season in Illinois ranged 5-28 per animal on September 8 in McDonough County. Face fly populations were lower than during 1965 in MISSOURI. Counts throughout the season averaged 0-6 per head, with an occasional high count. Face fly counts ranged 1.2-37.3 per head during a survey in Missouri in August.

Face fly was observed on cattle during mid-May on Calumet County, WISCONSIN. Cool weather during May and June inhibited development, but populations increased during July. Face fly was a problem on a few farms in Wisconsin during August, but was much less troublesome than in previous years. Face fly was generally noneconomic to light throughout NORTH DAKOTA and was recorded for the first time in Barnes County. Face fly populations were much lower in SOUTH DAKOTA than during 1965. Very few had been observed by mid-July and by mid-August counts increased to 2 per face in untreated cattle herds. Treatment applied for horn fly (Haematobia irritans) was also effective for face fly. Highest face fly counts, less than 3 per face, were found during late August in eastern counties of South Dakota. An exceptional count of 10-30 per face was observed on a small herd in Lincoln County. In late August, counts ranged 4-5 per head on horses in Gregory County, South Dakota. Heavy populations of face fly built up late in the year in NEBRASKA. Face fly was first recorded in MONTANA in 1963 and is now found in several areas of that State. In IDAHO, face fly was first reported from Moscow on August 23, 1965, and has since been recorded from Moon National Monument and from 2 homes in St. Maries and 2 homes in Rocky Point. Face fly has been collected from livestock at Bonners Ferry and at Southwick. Infestations are presently isolated in Idaho. Face fly was sufficiently abundant to be a nuisance around homes in Pend Orielle County, WASHINGTON, and was again collected in Whitman County.

HOUSE FLY (Musca domestica) was annoying around hog and poultry operations in ALABAMA and was heavier than normal in ARKANSAS where it was a major pest in poultry houses. House fly became active during early April in OKLAHOMA and continued active through November. Populations in Oklahoma were not heavy until late June. In TEXAS, house fly was a nuisance in many areas. House fly was first observed in WISCONSIN during late May. Populations increased slowly during June and July and were numerous about barnyards. House fly populations were lower in CALIFORNIA than usual this season. LITTLE HOUSE FLY (Fannia canicularia) was extremely annoying statewide in IDAHO despite summer drought during 1966.

HORN FLY (Haematobia irritans) populations in TEXAS were the heaviest of the last several years and were annoying to livestock over the entire State during late summer and early fall, probably because of wet weather during late summer and early fall. Populations were light to moderate in OKLAHOMA through April and heavy during May and early June. Numbers decreased during late June and July with the fall increase beginning in early August. Counts were heavy through August and September and activity continued through November. Heaviest numbers, up to 50 per head, occurred during early July. Horn fly was heavier in ARKANSAS than in 1965 and was the most important pest of range cattle in KANSAS. Horn fly was also the most serious pest of cattle in MISSOURI where counts ranged 10-300 per animal in scattered areas. Horn fly averaged more than 200 per animal in the eastern section of NEBRASKA and over 100 per animal in the northern portion of the State by early July. Populations remained low during much of the season in NORTH DAKOTA, but increased by late summer. Severe infestations were evident by September.

Horn fly was again serious on cattle throughout WYOMING. Counts ranged 70-250 per side which was comparable to similar counts taken in 1965. Sprays and backrubbers were generally effective in the State. Horn fly was a major pest of cattle in Big Horn, Carter, and Missoula Counties, MONTANA but populations were about normal in NEVADA. A large amount of control was applied to cattle in CALIFORNIA for horn fly, although occurrence was normal in the State this season. Horn fly was annoying to cattle in ALABAMA throughout the season, and was a problem on beef cattle during the summer at several locations in Frederick and Talbot Counties, MARYLAND. Horn fly was exceptionally heavy on pastured cattle in VERMONT. Horn fly numbers remained low in INDIANA until July 8, when peak populations of 100-400 per animal on pastured cattle occurred in the Ohio River area and counts ranged 20-200 per pastured animal in the northwest, north-central and west-central districts of Indiana. Horn fly populations were heavy in southern ILLINOIS June 10-25 with counts ranging 0-1,000 per animal on pastured cattle. Populations remained low throughout the season in northern part of the State. Populations were low in western Illinois most of the season with up to 400 per animal observed on some cattle in early September:

STABLE FLY (Stomoxys calcitrans) was very light throughout the season in INDIANA and the highest populations of the season in ILLINOIS ranged 0-24 per animal in the western area of the State during late June. Stable fly was the most annoying fly affecting cattle in WISCONSIN. This pest was first observed in the State in mid-May and became a nuisance in August, being very numerous in central and south-central counties. Stable fly was light to severe on cattle herds in eastern NORTH DAKOTA and counts ranged 25-50 per side per cow during late July and early August in SOUTH DAKOTA compared with 75-100 in 1965. Stable fly counts in WYOMING ranged 6-15 per animal in the southern area and 8-20 in the north-eastern area. These counts were slightly lower than those of 1965, at which time populations ranged 10-40 per animal in more heavily infested areas. The highest populations during 1966 occurred in Goshen, Platte, Campbell, Sheridan, and Johnson Counties. Stable fly ranged light to moderate on cattle throughout the year in NEBRASKA, with an increase noted in late August. In KANSAS, stable fly continued the most annoying pest of cattle in feed lots. Stable fly was sufficiently numerous to be annoying to cattle in MISSOURI, but was not a major problem in beach areas along the gulf coast in FLORIDA.

As a result of extensive Federal-State-local cooperative activities, the United States is now free of self-sustaining SCREW-WORM (Cochliomyia hominivorax) populations. This was accomplished through successive stages beginning with the southeastern States in 1958; proceeding westward to the States of Arkansas, Louisiana, Oklahoma, New Mexico, and Texas in 1962; and finally ending in the States of Arizona and California in 1965. The last established screw-worm populations in the U. S. were eliminated by the spring of 1966.

In the absence of a natural barrier in the Southwest, such as a high mountain range or a wide expanse of water, a unique sterile fly barrier has been established. It is not a "solid wall" against screw-worm migrating from Mexico.

The barrier is a designated area presently extending along the Mexico-United States border from the Gulf of Mexico to the Pacific Ocean. It includes an area of approximately 482,500 square miles in the United States and Mexico. The northern limits include portions of those States bordering Mexico, and the southern limits extend into northern Mexico.

The barrier zone operation is the only available means for protecting the entire country against the natural migration of screw-worm from Mexico. The economic benefits to the livestock industry are enormous. Livestock production is increased by greater numbers of healthy animals. Production costs are greatly decreased by eliminating the need for special care and handling of diseased animals.

During 1966, the following 1,883 laboratory-confirmed cases of screw-worm were reported in the United States: Texas 1,204, New Mexico 93, Arizona 515, California 71. A total of 2,051,769,250 sterile flies was released in the United States during 1966. From the Mexico portion of the barrier zone there were 8,653 laboratory-confirmed cases of screw-worm and a total of 3,898,921,200 flies was released. The cost of maintaining the sterile fly barrier zone is approximately \$5,000,000 per year. For the past two years, screw-worm eradication activities have been hampered by weather conditions which favor the spread of native screw-worms. No cases of screw-worm have been reported in New Mexico since November 8, 1966.

HORSE BOT FLY (*Gasterophilus intestinalis*) was present around horses from early June to late November in OKLAHOMA and was reported in northern counties of CALIFORNIA.

CATTLE GRUBS (*Hypoderma* spp.) were about normal in NEVADA in 1966. The running of animals by adults was noted in WYOMING in early spring and summer, particularly in eastern areas. The use of systemic insecticides for control is increasing each year. Survey for cattle grubs during February in KANSAS indicated counts of 0.02-8.1 grubs per animal. The percent of infested cattle ranged 2-86. Populations were heaviest in southeast and south-central areas of the State. Cattle grub larvae averaged 14 per yearling and 5-9 on older animals during late April on untreated stock in central SOUTH DAKOTA. Infestations on range cattle in western NORTH DAKOTA ranged 0-41 larvae per animal. Larvae averaged 9.4 per head in 34 percent of these animals.

COMMON CATTLE GRUB (*Hypoderma lineatum*) populations decreased from previous years in ALABAMA and were light in ARKANSAS. Infestations ranged light to heavy in backs of cattle to mid-March in OKLAHOMA. Adults were active during April and May and early November. Common cattle grub adults were active over MONTANA, where the use of a systemic insecticide apparently diminished fly activity in 15 counties. The occurrence of common cattle grub in CALIFORNIA was complicated by restocking with shipped-in herds.

BLACK HORSE FLY (*Tabanus atratus*) was abundant on pastured cattle in Shoreham, VERMONT, with counts of 2-3 per animal. Adults of HORSE FLIES (*Tabanus* spp.) were very annoying to man and animals during the summer in tidewater areas of MARYLAND. Horse fly populations were very low throughout the season in Illinois, and were common throughout summer in WISCONSIN where numbers were very annoying in July. Horse flies were severe on cattle in some areas of MINNESOTA and were moderate on cattle in eastern areas of NORTH DAKOTA. Horse flies were very annoying to man and animals over WYOMING as they were in 1965. Insecticides and repellents on riding horses afforded some relief. Populations were most numerous in Laramie, Goshen, Platte, Hot Springs, Lincoln, and Teton Counties, Wyoming. Horse flies became active in OKLAHOMA during late April. Moderate numbers were present from mid-June to late September in many areas. STRIPED HORSE FLY (*Tabanus lineola*) and DEER FLIES (*Chrysops* spp.) were annoying to man and animals at many locations in Oklahoma.

Adult DEER FLIES were very annoying to man and animals during the summer in tide-water areas of MARYLAND. Chrysops spp. very common and annoying throughout INDIANA during June, and unspecified deer flies occurred in central and northeast MISSOURI during early to mid-June. Deer flies were common throughout summer in WISCONSIN and very annoying during July. Deer fly populations were higher than during recent years in MINNESOTA. Deer flies were again very annoying to man and animals throughout WYOMING. Insecticides and repellents on riding horses were partially successful. Deer flies were most numerous in Laramie, Goshen, Platte, Hot Springs, Lincoln, and Teton Counties, Wyoming.

CATTLE BITING LOUSE (Bovicola bovis), LONG-NOSED CATTLE LOUSE (Linognathus vituli) and SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) were serious throughout ALABAMA, especially on range beef cattle and caused heavy losses during the late winter months. Various CATTLE LICE were moderate to heavy on cattle in many areas of OKLAHOMA until early April. Fall activity began in early November. Populations of cattle lice in WYOMING were comparable to those of 1965. These pests remain a problem in Wyoming although cattle are treated more effectively each year. Cattle lice were not a severe problem on cattle in CALIFORNIA.

HOG LOUSE (Haematopinus suis) infested hogs in OKLAHOMA until late March and fall activity was underway by mid-November. Hog louse was present throughout ALABAMA, but was not a problem on swine produced under well-managed conditions.

FLEAS (Ctenocephalides spp.) were present in normal numbers in CONNECTICUT, especially during the period of higher summer temperatures. There were more reports of fleas in NEW JERSEY than in 1965, especially from late July through September. Fleas were very annoying in ALABAMA homes throughout the year and control efforts were continuous and difficult. Fleas were very prevalent in CALIFORNIA during the summer and fall.

PUSS CATERPILLAR (Megalopyge opercularis) was heavy in areas of Cochise, Santa Cruz, and Pima Counties, ARIZONA, and caused concern to residents. GREATER WAX MOTH (Galleria mellonella) was more active than usual in KANSAS, with up to 5 percent of the live brood uncapped and killed in weaker bee hives. DERMESTID BEETLES (Trogoderma parabile and Trogoderma spp.) caused heavy mortality to a leafcutting bee (Megachile rotundata) in several alfalfa seed-growing areas of NEVADA.

WESTERN BLOODSUCKING CONENOSE (Triatoma protracta) was reported to have bitten numerous people during heavy migrations in foothill areas of Pima and Santa Cruz Counties, ARIZONA, and more occurrences and several instances of severe reactions to bites were reported in CALIFORNIA. BED BUG (Cimex lectularius) was more of a problem than during the previous 2 years in homes and chicken houses in Hughes, Jerauld, and Yankton Counties, SOUTH DAKOTA.

Heavy numbers of EUROPEAN EARWIG (Forficula auricularia) entered homes in Rockland, Camden, and Thomaston, MAINE, in late July, and was unusually abundant and annoying to homeowners in Cumberland and Kennebec Counties during early August. An EARWIG (Labidura riparia) continued to increase in ARIZONA where it was a problem to homeowners and necessitated continuous controls to prevent movement into homes. YELLOW JACKETS (Vespa spp.) were reported to have attacked domestic rabbits in Jackson County, OREGON. There were numerous reports during September of yellow jackets being annoying in and around school buildings, patios, and various recreation areas in the State.

AMERICAN DOG TICK (Dermacentor variabilis) adults were more abundant than usual in southern and central MARYLAND. Several cases of Rocky Mountain spotted fever were reported in Baltimore County. This tick was much more abundant throughout CONNECTICUT than usual. First seasonal activity of American dog tick in MICHIGAN was reported during May and populations were high during the year, especially in the Upper Peninsula. American dog tick was initially reported during late June in OHIO and peak periods of irritation occurred in central and south-central areas



in late June. American dog tick was active in Washburn County, WISCONSIN, in early May. Populations were heavy by late May throughout the northern two-thirds of the State and as far south as Winnebago, Columbia, and Crawford Counties. This tick continued active in Wisconsin through June. American dog tick was active by mid-May in MINNESOTA and was very numerous during June and July. American dog tick was numerous in most eastern areas of NORTH DAKOTA, but only a few occurrences were reported in CALIFORNIA. American dog tick was of much concern to pet owners in many areas of OKLAHOMA.

WINTER TICK (*Dermacentor albipictus*) was epidemic on deer in PENNSYLVANIA during the winter of 1966 and 1967. Winter tick was light on cattle, horses, and deer through mid-April in OKLAHOMA. Fall activity began in mid-November with heavy, local populations present on horses in Oklahoma during late December. Winter tick was locally heavy on horses at a few locations in CALIFORNIA. ROCKY MOUNTAIN WOOD TICK (*Dermacentor andersoni*) was plentiful in a few localized areas of MONTANA, but numbers were generally lower than during 1965. PACIFIC COAST TICK (*Dermacentor occidentalis*) caused paralysis of livestock in a few locations of CALIFORNIA, but populations were not unusually heavy.

BROWN DOG TICK (*Rhipicephalus sanguineus*) infestations increased sharply in Clark County, NEVADA, and occurrence in CALIFORNIA was more frequent in the fall due to warm weather. Brown dog tick was heavy on pets in ARIZONA throughout the year. Brown dog tick infested dogs in areas of ARKANSAS, was present in most areas of PENNSYLVANIA, and was abundant in CONNECTICUT. The occurrence of brown dog tick in homes and apartments in NEW JERSEY increased compared with 1965.

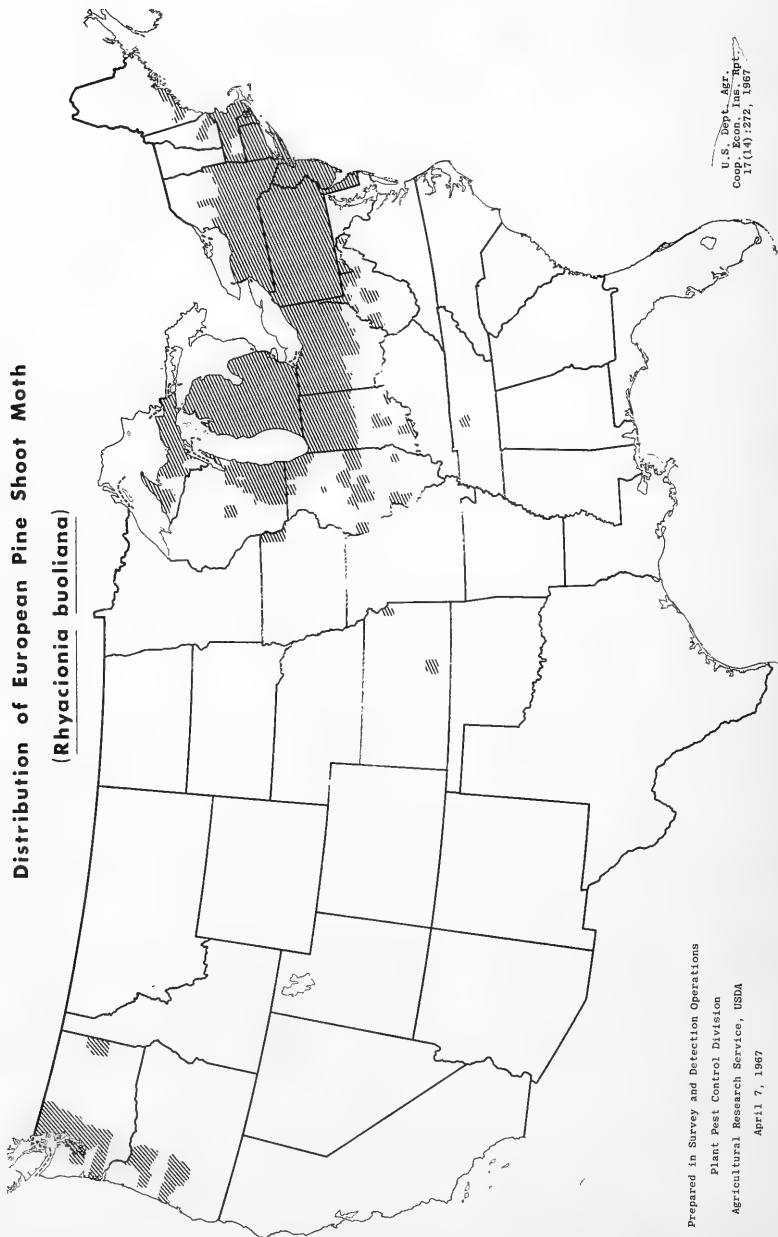
LONE STAR TICK (*Amblyomma americanum*) ranged light to moderate on cattle in eastern OKLAHOMA from late February to mid-April and was heavy from late April through mid-August. Lone star tick continued heavy in wooded areas and in brushy pastures in ARKANSAS. Lone star tick was found for the first time in ILLINOIS during 1966, being collected from deer during March in Williamson County and from deer in Pope County in February or March. The first occurrence of lone star tick on a human host in INDIANA was reported June 14 in Tippecanoe County. A heavy infestation was also reported on deer at the Crane Naval Depot in Martin County. Two other ticks, were minor problems in PENNSYLVANIA. *Ixodes cookei* was frequently encountered on wood chucks, opossum, dogs, man, and other medium sized mammals, and *I. dentatus* infested rabbits in the southern portion of the State.

NORTHERN FOWL MITE (*Ornithonyssus sylviarum*) infestations were variable on poultry in ARKANSAS, but were heavy on 5 percent of infested flocks. This mite was found for the first time in Hempstead County, Arkansas. Infestations increased in CALIFORNIA due to resistance to control measures. TROPICAL RAT MITE (*Ornithonyssus bacoti*) infestations were reported in many homes in CALIFORNIA and numerous individuals were annoyed by this mite in native habitats. There was some increase in occurrence of CHICKEN MITE (*Dermanyssus gallinae*) in California. Chicken mite also caused some degree of annoyance in homes and camps in various areas of Kennebec County, MAINE. CHIGGER MITES (*Trombicula* spp.) were initially reported this season during late June in OHIO and peak periods of irritation occurred in central and south-central areas of the State later the same month.

BLACK WIDOW SPIDER (*Latrodectus mactans*) was more prevalent in CALIFORNIA than in many years, but was frequently reported around homes in Jackson, Lane, Marion, and Multnomah Counties, OREGON. A BROWN RECLUSE SPIDER (*Loxosceles reclusa*) continued active in homes throughout OKLAHOMA, and several persons were bitten this year. A single specimen of *L. reclusa* was found in Tucson, ARIZONA, during August after a man had been bitten. This was a new State record. No other specimens were found after that recovery.

# Distribution of European Pine Shoot Moth

(Rhyacionia buoliana)



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17 (14): 272, 1967

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Plant Pest Control Division  
Agricultural Research Service, USDA  
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*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

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## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

GREENBUG and APPLE GRAIN APHID on small grains in southwest Missouri. (p. 275).

ALFALFA WEEVIL reported from 15 States this period. Causing severe damage and requiring control in some areas. PEA APHID populations heavy in Missouri, Kansas, Oklahoma, and Arizona. (pp. 277-278).

MEXICAN BEAN BEETLE overwintering populations 10 percent higher in parts of Nebraska. (p. 280).

Record high populations for March of CITRUS RUST MITE and TEXAS CITRUS MITE on citrus in Florida. (p. 281).

EASTERN TENT CATERPILLAR larvae appearing on fruit trees and wild cherry from Virginia to Oklahoma. (p. 283).

Detection

A WALSHIID MOTH was collected in Nebraska for a new State record. (p. 278).

For new county records, see page 286.

Some First Occurrences of Season

EUROPEAN CORN BORER, MEADOW SPITTLEBUG, APPLE APHID, and ROSY APPLE APHID in Maryland; MEADOW SPITTLEBUG and EASTERN TENT CATERPILLAR in Ohio; ARMYWORM in Wisconsin; AEDES MOSQUITOES in Minnesota; ELM LEAF BEETLE in Oklahoma; PINK BOLLWORM in Arizona; TOBACCO BUDWORM in Alabama and HICKORY SHUCKWORM in Georgia.

Prediction

CHINCH BUG could develop into economic populations in Nebraska if weather continues dry. (p. 276).

Special Reports

Summary of Insect Conditions in the United States - 1966

Households and Structures (pp. 287-288)  
Stored Products (pp. 288-289)  
Beneficial Insects (pp. 289-291)  
Federal and State Plant Protection Programs (pp. 291-294)  
Weather of the Year (pp. 295-297)  
List of Contributors (pp. 298-299)

Distribution of a Japanese Weevil (map). (p. 300).

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WEATHER OF THE WEEK ENDING APRIL 10

HIGHLIGHTS: Third warm week in most central areas as the struggle between winter and summer continued; spotty showers, thunderstorms, some hail, and a few tornadoes marked the battle line.

PRECIPITATION: Early week showers were light from eastern Kansas to New England. Weekend frontal activity set off substantial showers and thunderstorms, some with hail, from Oklahoma to the Great Lakes and New England. Showers exceeded 4 inches locally in Oklahoma. A tornado was seen Sunday near Catoosa, Oklahoma, as violent winds and hail lashed parts of the Sooner State. An inch or more of rain fell over a belt extending from Oklahoma to southern New England. Lighter amounts fell north of the rain belt but little or none to the southward. Some of the Gulf States have received no rain of consequence in 4 weeks and the spring fire hazard is high. Soil moisture is short over much of the western Plains; winds, 25 to

Weather continued on page 286.

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**GREENBUG** (*Schizaphis graminum*) - ALABAMA - Heavy on a 20-acre field of Monantha vetch in Escambia County. (Simpson et al.). ARKANSAS - Low in wheat surveyed in southwest, northeast, and west areas. (Ark. Ins. Sur.). OKLAHOMA - Decreased in some areas due to parasites (mostly a BRACONID (*Lysiphlebus testaceipes*)) and predators. Scattered moderate to heavy populations continue in Cleveland, Canadian, Kingfisher, Garvin, Murray, Mayes, and Ottawa Counties. Heavy counts in Major County are spotty, but range up to 2,000 per linear foot in a few areas. (Okla. Coop. Sur.). MISSOURI - This species and *Rhopalosiphum fitchii* damaged orchard grass and bromegrass throughout the southwest area. Ranged from 100 to several thousand per square foot of orchard grass. Ranged 50-4,000 per foot of row of wheat and barley. (Munson). KANSAS - Light to moderate in many wheat fields in southeast, south-central, and southwest districts. Ranged from 60 per 100 sweeps in Greenwood County to 5 per 10 sweeps in Barber, Comanche, and Clark Counties. (Simpson). NEBRASKA - Surveys negative in northwest area. (Anderson).

**SPOTTED ALFALFA APHID** (*Therioaphis maculata*) - FLORIDA - Nymphs and adults common on alfalfa at Gainesville. (Mead). MISSISSIPPI - Light on alfalfa in Pontotoc County. (Dinkins). ARKANSAS - Low in Faulkner, Conway, and Logan Counties. May build up if dry weather continues. (Ark. Ins. Sur.). OKLAHOMA - Ranged 5-310 per 10 sweeps on alfalfa in northeast and east-central areas. Light in other areas. Parasitized aphids noted in Tulsa County. (Okla. Coop. Sur.).

**CORN LEAF APHID** (*Rhopalosiphum maidis*) - ARIZONA - Light to moderate on small grains in Yuma, Maricopa, Pinal, and Graham Counties. Heavy and damaging wheat in Kansas Settlement area of Cochise County; controls required. (Ariz. Coop. Sur.). NEW MEXICO - Light to medium, 25 winged adults per 50 sweeps, in Dona Ana County barley. (Elson, Nielsen). MISSISSIPPI - Light on virus-infected Johnson grass around newly planted cornfields in Yazoo County. (Dinkins).

**SIX-SPOTTED LEAFHOPPER** (*Macrosteles fascifrons*) - WISCONSIN - Up to 8 per 100 sweeps in Crawford County. None found 25 miles east of the Mississippi River. Occasional females present. (Wis. Ins. Sur.). KANSAS - Light to moderate on wheat in southern half of State. (Simpson). FLORIDA - Up to 81 adults per 100 sweeps on oats; common on rye at Gainesville, Alachua County. (Mead).

**BET BEET LEAFHOPPER** (*Circulifer tenellus*) - CALIFORNIA - Nymphs found throughout breeding grounds from Los Banos Hills south through Kern County; none found north of Los Banos Hills. Heaviest population remains in the Pyramid Hills near the Kings and Kern County line; largest acreage for potential reproduction from Belridge to Taft in Kern County. With warm weather, populations should be heavy enough to necessitate treatment within a few days. (Cal. Coop. Rpt.). ARIZONA - Adults light on sugarbeet seedlings near Safford in Graham County. (Ariz. Coop. Sur.).

**POTATO PSYLLID** (*Paratrioza cockerelli*) - ARIZONA - Nymphs increased on potatoes and required treatment in Maricopa and Pinal Counties. Light; controlled in Yuma County. (Ariz. Coop. Sur.).

**ARMY CUTWORM** (*Chorizagrotis auxiliaris*) - NEVADA - Larvae caused medium damage to alfalfa in Smith Valley, Lyon County. (Batchelder, Martinelli). COLORADO - Larvae, 3-9 per square foot in new seedling alfalfa near Platteville, Weld County. Soil was powder dry in top 6-8 inches. Also damaging winter wheat near Ault, Weld County. (Urano, Jenkins).

**ARMYWORM** (*Pseudaletia unipuncta*) - WISCONSIN - Moths appearing in Madison black-light trap; 1 collected April 2 and 2 on April 4. (Wis. Ins. Sur.).

**TOBACCO BUDWORM** (*Heliothis virescens*) - ALABAMA - First adults of season observed in Mobile County. One adult collected in Lee County. (McQueen).

## CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - WISCONSIN - Survival of overwintering larvae 88 percent in southwestern counties. (Wis. Ins. Sur.). MARYLAND - First pupa of season found April 6 near Centreville, Queen Annes County. (U. Md., Ent. Dept.). DELAWARE - No pupation to date. (Burbutis).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - OKLAHOMA - Larvae present in 10 percent of cornstalks checked in Beckham County. (Okla. Coop. Sur.).

FALL ARMYWORM (*Spodoptera frugiperda*) - FLORIDA - Infesting sweetcorn 2-6 inches tall and damage noticed where controls not applied at Sanford, Seminole County. (Greene).

## SMALL GRAINS

BROWN WHEAT MITE (*Petrobia latens*) - OKLAHOMA - Continues active in wheat in western areas; ranged 300-900 per linear foot in Major County. (Okla. Coop. Sur.). KANSAS - Low in eastern area due to recent rains. Ranged 300-800 per linear foot in Sedgwick, Sumner, Harper, Baker, and Comanche Counties. Counts of 2,000-3,000 per linear foot reported from Stevens County. Egg laying continues. (Simpson). COLORADO - Ranged 1-6 per leaf near Ault, Weld County; numerous in Logan County. (Jenkins, Read). UTAH - Active but not numerous on winter wheat on Levan Ridge, Juab County. (Knowlton).

PALE WESTERN CUTWORM (*Agrotis orthogonia*) - KANSAS - Averaged less than 2 per square foot on wheat in Finney, Scott, and Logan Counties. (Simpson). NEBRASKA - Surveys negative in northwest area. (Anderson). COLORADO - Larvae damaging winter wheat near Ault, Weld County; 2-5 per linear foot. (Jenkins).

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - FLORIDA - Nymphs and adults common on rye and oats; 200-300 per 100 sweeps at Gainesville, Alachua County. (Mead). MISSISSIPPI - Moderate, some damage on small grains in Webster and Oktibbeha Counties. (Dinkins). ARKANSAS - Low in wheat in southwest, northeast, and west areas. (Ark. Ins. Sur.). OKLAHOMA - Present in most wheat fields in northeast and east-central areas; ranged 3-35 per linear foot. (Okla. Coop. Sur.). KANSAS - Low, 0-10 per linear foot in most southeast, south-central, and southwest area wheat. (Simpson). WISCONSIN - Winged forms swept from nearly all grassy areas. Up to 5 per 100 sweeps present in wheat and rye plantings from the Mississippi River to Rock County. (Wis. Ins. Sur.).

CHINCH BUG (*Blissus leucopterus*) - KANSAS - Adults, 1-10 per linear foot, on wheat in southeast and south-central areas. (Simpson). NEBRASKA - Overwintering populations average 180-245 per square foot in Lancaster, Gage, and Jefferson Counties. Economic populations expected in these areas if weather continues dry. (Rhine).

LEAF-FOOTED BUG (*Leptoglossus phyllopus*) - FLORIDA - Up to 3-4 adults per 100 feet of row on oats and rye; occasional high concentrations on oats at Gainesville, Alachua County. (Mead).

STINK BUGS - FLORIDA - *Nezara viridula* and *Euschistus servus* adults averaging 3 per 100 sweeps on rye and oats at Gainesville, Alachua County. (Mead). ALABAMA - *N. viridula*, *E. servus*, and *Acrosternum hilare* adults light, feeding on wheat heads and crimson clover in Mobile, Baldwin, and Escambia Counties. (McQueen).

A LEAFHOPPER (*Graminella nigrifrons*) - FLORIDA - Up to 68 adults per 100 sweeps taken on oats; observed on rye at Gainesville, Alachua County. (Mead).

## TURF, PASTURES, RANGELAND

A PLANT BUG (*Irbisia californica*) - CALIFORNIA - Light to medium on native grasses at Crestmore, San Bernardino County. (Cal. Coop. Rpt.).

BANKS GRASS MITE (*Oligonychus pratensis*) - NEVADA - Medium on timothy in Smith Valley, Lyon County. (Farias).

## FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - UTAH - Adults active on warm days at Willard, Box Elder County. (Knowlton). COLORADO - Trace numbers of larvae on alfalfa 2-3 inches high. Adult feeding very evident in Larimer County. (Simpson). SOUTH DAKOTA - Adults 1 per square yard of alfalfa near Spearfish, Lawrence County. (Jones). KANSAS - Adults 5-10 and larvae 10-18 per 10 sweeps in Finney County. (Simpson). MISSOURI - Very high in southeast area; many fields treated. No larvae collected in the southwest area this period. (Munson). ARKANSAS - Feeding signs on 50-75 percent of alfalfa stems in Faulkner and Conway Counties. Various sized larvae present, but no adults found. (Ark. Ins. Sur.). MISSISSIPPI - Averaged 99 larvae per square foot of untreated alfalfa in Pontotoc County. Averaged 88 per square foot of alfalfa flame-treated in January. First-generation larvae pupating. (Dinkins). ALABAMA - Larval damage heavy on alfalfa in Limestone and Tallapoosa Counties. (Agee, Sowell). Larvae collected from Regal clover at the Fairhope Substation on March 10. Feeding damage light to medium on Regal clover in Baldwin, Wilcox, and Elmore Counties. Det. by D. M. Anderson. (McQueen). SOUTH CAROLINA - Pupae present; adults expected by April 12. (Thomas). VIRGINIA - All stages of larvae in most fields checked in Amelia, Chesterfield, Dinwiddie, and Nottoway Counties; averaged 8 larvae and 3 adults per 10 sweeps. (Isakson). MARYLAND - First and second instars infested 44 of 50 alfalfa stems at Fairland, Montgomery County. Feeding injury noticeable on alfalfa in Montgomery and Queen Annes Counties. Averaged 1 adult per 10 sweeps on alfalfa at Fairland, Montgomery County. (U. Md., Ent. Dept.). DELAWARE - Larvae increased on alfalfa; averaged 14 per 10 stems in New Castle and Kent Counties and over 30 per 10 stems in Sussex County, with light to moderate injury. (Burbutis). INDIANA - Deposited 323 viable eggs per square foot by February 15 at Laconia, Harrison County. (Hintz). Larvae present in southern two-thirds of State, however, economic infestations restricted to southern third, while up to 20 percent of alfalfa infested in central districts. Larvae ranged 64-463 per square foot and infested 40-100 percent of 5-7 inch alfalfa; all larval stages present. In central areas little change since last period. New records are Clinton, Tipton, Howard, Miami, Cass, Carroll, and White Counties. (Huber). OHIO - First and second instars common in alfalfa terminals in southeast area. Infested 20-60 percent of stems with 1-8 larvae per terminal in 3 fields in Jackson, Meigs, and Perry Counties. Damage light on 3-6 inch alfalfa. (Rose).

EGYPTIAN ALFALFA WEEVIL (*Hypera brunneipennis*) - ARIZONA - Decreasing rapidly on alfalfa in Yuma, Maricopa, and Pinal Counties. Some controls were necessary during past period in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

CLOVER LEAF WEEVIL (*Hypera punctata*) - NEVADA - Larvae light to medium on alfalfa in Smith Valley, Lyon County; pupation beginning. (Batchelder, Martinelli). KANSAS - Up to 12 larvae per square foot reported in Barton County; less than 1 larva per square foot found in southeast and south-central alfalfa. (Simpson). ILLINOIS - Damage moderate; ranged 1-35 per sweep in southeast area, and up to 6 per sweep in the southwest area. (Ill. Ins. Rpt.). INDIANA - Early instars heavier than past few years on clover and alfalfa in southern two-thirds of State. Disease organisms that usually control this insect, not evident. (Huber). OHIO - Hatch in progress; larvae in Champaign County. (Rinehart, Blair). MARYLAND - Larvae damaged red clover near Centreville, Queen Annes County. (U. Md., Ent. Dept.).

CLOVER HEAD WEEVIL (Hypera meles) - ALABAMA - Larvae heavy on developing seed heads of crimson clover in central area. (McQueen).

CLOVER ROOT CURCULIO (Sitona hispidula) - MARYLAND - Few adults swept from alfalfa in Montgomery and Queen Annes Counties. (U. Md., Ent. Dept.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ARKANSAS - Light on most legumes. (Ark. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) - NEVADA - First occurrence of season in Smith Valley, Lyon County; numbers very light. (Batchelder, Martinelli). ARIZONA - Appearing heavy in many alfalfa fields of Yuma, Maricopa, and Pinal Counties. Light in Graham and Cochise Counties. (Ariz. Coop. Sur.). NEW MEXICO - Generally light on alfalfa. (N. M. Coop. Rpt.). OKLAHOMA - Up to 8,000 per 10 sweeps in alfalfa in Muskogee County; populations high in several other east-central counties. Parasites, probably Aphidius pulcher and other species, are numerous in some areas. (Okla. Coop. Sur.). KANSAS - Present in all alfalfa fields checked; up to 2,500 per 10 sweeps in south-central area. (Simpson). ARKANSAS - Medium to heavy, but noneconomic on alfalfa, crimson clover, and vetch in all areas. A few fields in Logan County treated. (Ark. Ins. Sur.). MISSOURI - Unusually high in southwest area; weather dry and warm in this area. Ranged 210-1,000 per 10 sweeps of alfalfa and clovers. Damage to new alfalfa observed. (Munson).

ILLINOIS - Parasitized in many fields in southeast and southwest districts; ranged 20-90 per sweep in southeast and up to 300 per sweep in the southwest. (Moore). WISCONSIN - Eggs hatched in most alfalfa fields in southern counties. (Wis. Ins. Sur.). INDIANA - All stages on alfalfa in southern two-thirds of State; ranged 8-47 per sweep in south-central and southeastern districts. (Huber). OHIO - Appearing on alfalfa in southeast area. (Niemczyk, Flessel). DELAWARE - Increased, averaged 4 per alfalfa stem in 1 area of Sussex County. (Burbutis). MARYLAND - Less than 1 per sweep on alfalfa in Montgomery and Queen Annes Counties. (U. Md., Ent. Dept.). VIRGINIA - Light on alfalfa in Amelia, Chesterfield, Dinwiddie, and Nottoway Counties. (Isakson). FLORIDA - Nymphs and adults common on alfalfa at Gainesville, Alachua County. (Mead). MISSISSIPPI - Light on alfalfa in Pontotoc County. (Dinkins).

TARNISHED PLANT BUG (Lygus lineolaris) - ARKANSAS - Low, 30-40 in 100 sweeps on alfalfa and clover. A few nymphs present. (Ark. Ins. Sur.). OKLAHOMA - Ranged 2-14 per 10 sweeps in alfalfa checked in northeast and east-central areas. (Okla. Coop. Sur.). KANSAS - Ranged 5-15 per 10 sweeps in south area. (Simpson). NEW MEXICO - Lygus spp. averaged from 2-5 to 10-15 adults and nymphs per 25 sweeps in Chaves County alfalfa fields. (Mathews).

MEADOW SPITTLEBUG (Philaenus spumarius) - INDIANA - Early instars remain common in southern areas; ranged 1-64 per square foot in southeastern district clover and alfalfa. First nymphs of season in Dubois, Washington, and Jackson Counties on March 29. (Huber). OHIO - First nymphs of season in Meigs County on March 29. (Niemczyk, Flessel). MARYLAND - First nymphs of season observed April 6 on alfalfa in Montgomery and Queen Annes Counties. (U. Md., Ent. Dept.).

GREEN CLOVERWORM (Plathypena scabra) - ALABAMA - Larvae light to medium on crimson clover and vetch in Mobile, Baldwin, and Escambia Counties. (McQueen). ARKANSAS - Larvae light in most alfalfa, vetch, and clover in all south areas. (Ark. Ins. Sur.).

VARIEGATED CUTWORM (Peridroma saucia) - NEW MEXICO - Light; alfalfa less damaged than past period in Eddy and Chaves Counties. (Mathews).

MITES - GEORGIA - Undetermined species light to very heavy on crimson and white clover in Early and Dougherty Counties. (Hays, Morgan).

A WALSHIID MOTH (Walshia miscecolorella) - NEBRASKA - Collected in sweetclover during September and October in 1966 in Lancaster, Saunders, Cass, Otoe, and Johnson Counties. Seriously damaged some sweetclover breeding nurseries. Det. by R. W. Hodges. A new State record. (Manglitz).

## COTTON

COTTON APHID (Aphis gossypii) - ALABAMA - Winged adults migrating to young two-leaf cotton on a large planting in Montgomery County. (McQueen).

## TOBACCO

FLEA BEETLES - GEORGIA - Undetermined species light to moderate in Tift, Colquitt, Cook, and Atkinson Counties. (Miles, French).

WIREWORMS - GEORGIA - Undetermined species heavy in Cook, Tift, and Berrien Counties. (Girardeau, Wood).

APHIDS - GEORGIA - Undetermined species light in Cook County. (Miles, Smith).

## SUGARBEETS

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - COLORADO - Larvae found in some fields at depths of 6-8 inches. An early emergence of adults could occur in Weld County. (Jenkins).

## POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - ALABAMA - A few overwintered adults observed on potatoes in Baldwin County. First egg laying observed this period. (Garrett). OKLAHOMA - Adults active on potatoes in home gardens in Payne and Creek Counties. (Okla. Coop. Sur.).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - ALABAMA - Adults, 2-4 per plant, feeding on top growth of potatoes in several fields in Baldwin County. Causing plants to wilt, due to drought conditions. (Turner et al.).

POTATO APHID (Macrosiphum euphorbiae) - FLORIDA - All stages on stems and leaves of tomato plants at Reddick, Marion County. (Graham). ALABAMA - Light on potatoes in Mobile, Baldwin, and Escambia Counties. Some fields treated. (McQueen).

TOBACCO THRIPS (Frankliniella fusca) - ALABAMA - Light on potatoes in Mobile, Baldwin, and Escambia Counties. Some fields treated. (McQueen).

## COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Egg numbers greatly decreased during past 2 weeks; larval populations still high on cabbage at Sanford, Seminole County. (Greene). ALABAMA - Larvae, medium to heavy in a 24-acre planting of maturing cabbage in Mobile County; population controlled with treatment. (Mavrat et al.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Heavy on cauliflower heads; serious damage in areas of Yuma County. (Ariz. Coop. Sur.).

## CUCURBITS

SQUASH BEETLE (Epilachna borealis) - ALABAMA - Numerous adults observed in hibernation under bark of large pecan tree at Irvington, Mobile County. (Deakle et al.).

MELON APHID (Aphis gossypii) - ARIZONA - Heavy on cantaloups in Yuma County. Additional fields treated. (Ariz. Coop. Sur.).

## GENERAL VEGETABLES

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - ALABAMA - Few adults emerged from winter hibernation in Mobile County. (Seibels). NEBRASKA - Overwintering populations 10 percent higher than 1966 in Morrill, Scotts Bluff, and Sioux Counties. Some controls will probably be needed. (Hagen).

FLEA BEETLES - GEORGIA - Undetermined species light to moderate in Tift, Colquitt, Cook, and Atkinson Counties. (Miles, French).

WHITE GRUBS - SOUTH CAROLINA - Undetermined species damaged sweetpotatoes. (Thomas, March 13).

CABBAGE LOOPER (*Trichoplusia ni*) - NEW MEXICO - Spotty on lettuce; eggs abundant in some Dona Ana County fields. (Elson, Nielsen).

GREEN PEACH APHID (*Myzus persicae*) - OKLAHOMA - Ranged up to 1,000 on larger leaves in a commercial spinach field in Bixby area of Tulsa County. Aphids killing some plants. Numbers much lighter in other fields in Tulsa and Wagoner Counties. (Okla. Coop. Sur.).

WESTERN FLOWER THRIPS (*Frankliniella occidentalis*) - NEW MEXICO - Limited controls begun on onions in Dona Ana County. (Elson et al.).

SPIDER MITES (*Tetranychus* spp.) - OKLAHOMA - Heavy populations damaging sweetpotatoes in a greenhouse in Payne County. (Okla. Coop. Sur.).

BULB MITE (*Rhizoglyphus echinopus*) - CALIFORNIA - Heavy on stems and bulbs of garlic in Holtville, Imperial County. (Cal. Coop. Rpt.).

## DECIDUOUS FRUITS AND NUTS

EUROPEAN RED MITE (*Panonychus ulmi*) - NEW JERSEY - Usual abundance of overwintering eggs found in Burlington, Camden, Gloucester, Atlantic, and Cumberland County orchards; no hatch observed. (Ins.-Dis. Newsltr.). CONNECTICUT - Eggs abundant in most areas. (Savos).

SPIDER MITES (*Tetranychus* spp.) - COLORADO - Active, moderate to heavy populations in a few apple orchards in Mesa County area. Delayed dormant sprays being applied. (Bulla).

APPLE APHID (*Aphis pomi*) - COLORADO - Nymphs abundant in some apple orchards in Mesa County. (Bulla). INDIANA - Hatching nearly complete in Vincennes area; some nymphs nearing maturity. (Dolphin, April 3). MARYLAND - First nymphs of season found April 1 on apple at Hancock, Washington County. (U. Md., Ent. Dept.).

APPLE GRAIN APHID (*Rhopalosiphum fitchii*) - NEW JERSEY - Abundant in most orchards. (Ins.-Dis. Newsltr.). OHIO - Infested approximately 70 percent of budding leaf clusters in an orchard in Jackson County. (Rose). WISCONSIN - First instar nymphs beginning to congregate in commercial apple orchards. (Wis. Ins. Sur.).

ROSY APPLE APHID (*Dysaphis plantaginea*) - MARYLAND - First nymphs of season found April 1 on apple at Hancock, Washington County. (U. Md., Ent. Dept.).

PEAR PSYLLA (*Psylla pyricola*) - CONNECTICUT - Adults active and laying eggs at Storrs. Both adults and eggs easy to find in an abandoned orchard. (Savos).

SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata howardi*) - ARIZONA - Feeding on blossoms of pears, apples, and peaches in Stewart area of Cochise County; damage severe. (Ariz. Coop. Sur.).



MAY BEETLES - GEORGIA - Extensively damaged pecan foliage in Jasper and Upson Counties. (Tanner, Burns).

SAY STINK BUG (Chlorochroa sayi) - ARIZONA - Light on fruit tree blossoms in Lone Star area of Graham County. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - INDIANA - Adults feeding on pink peach buds; also present in apple trees at Vincennes. (Dolphin, April 3).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - INDIANA - Adults of overwintering generation taken from bait traps at Vincennes. (Dolphin, April 3).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - COLORADO - Collected in bait traps March 28 at Palisade, Mesa County; ranged 1-11 moths per 5 traps. (Bulla).

CODLING MOTH (Carpocapsa pomonella) - INDIANA - Pupation underway at Vincennes although most immatures still in prepupal stage. (Dolphin, April 3).

LESSER PEACH TREE BORER (Synanthedon pictipes) - INDIANA - Larvae feeding in cankers of peach trunks and scaffold branches at Vincennes. (Dolphin, April 3).

LESSER APPLEWORM (Grapholitha prunivora) - INDIANA - Two adults found in bait trap at Vincennes. (Dolphin, April 3).

A NOCTUID MOTH (Lithophane unimoda) - OHIO - Hatch began in Wayne County, April 6. (Rings).

A CLIMBING CUTWORM (Eupsilia morrisoni) - OHIO - Hatch began in Wayne County April 6. (Rings).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Larval populations high in pecan shucks on ground in Baldwin, Mobile, and Escambia Counties. (Robinson et al.). GEORGIA - First moth of season collected in blacklight trap March 21. Collections increasing daily in Dougherty County. (Osburn).

PECAN NUT CASEBEARER (Acrobasis caryae) - ALABAMA - Overwintered larvae light to medium in a pecan orchard in Mobile County. (Garrett et al.). GEORGIA - Moderate in Dougherty County. (Hays).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - GEORGIA - Moderate in Dougherty County. (Hays).

## CITRUS

Citrus Insect Situation in Florida - End of March - CITRUS RUST MITE (Phyllocoptruta oleivora) On leaves: Infested 68 percent of groves (norm 56 percent); 59 percent economic (norm 35 percent). On fruit: Infested 82 percent of groves (norm 44 percent); 57 percent economic (norm 26 percent). Population on leaves decreased slightly from the record high level at mid-March, but increased on fruit to a new 16 year record high for March. Although a downward trend is expected in April, the statewide population will continue to be in the high range. All districts high. North district has more mites on fruit than on leaves. TEXAS CITRUS MITE (Eutetranychus banksi) infested 56 percent of groves (norm 32 percent); 36 percent economic (norm 12 percent). Population established a new record high level for March. Little change is expected in the statewide population. Infestations will vary greatly among districts and groves. Highest districts west, central, and north. CITRUS RED MITE (Panonychus citri) infested 59 percent of groves (norm 41 percent); 27 percent economic (norm 16 percent). Although more abundant than usual for March, it is still at a moderate level. Slight increase is expected. Infestations will be localized. Highest districts west, north, and central. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) is present in only 4

percent of survey groves and all infestations are light. This below-normal condition will continue. GLOVER SCALE (Lepidosaphes gloverii) infested 84 percent of groves; 20 percent economic. Population is near the normal of recent years. It will continue in high range with slight increase expected. Highest districts east, south, and central. PURPLE SCALE (L. beckii) infested 78 percent of groves; 9 percent economic. Population is below normal and in moderate range with slight increase expected. Highest district central. YELLOW SCALE (Aonidiella citrina) infested 77 percent of groves; 6 percent economic. Population is near normal and in a moderate range. Little change expected. Highest district central. CHAFF SCALE (Parlatoria pergandii) infested 61 percent of groves; 6 percent economic. Population is below normal and in the low range. Slight increase expected. Highest district central. BLACK SCALE (Saissetia oleae) infested 24 percent of groves; 9 percent economic. Population is below normal and very low. It will start to increase in April. All districts low. WHITEFLIES infested 65 percent of groves; 15 percent economic. Population is near normal. Adults will be very numerous in April. APHIDS are reaching peak population about a week earlier than normal and will decrease in April.

ARMORED SCALES - CALIFORNIA - Lepidosaphes beckii and Aonidiella aurantii heavy on dooryard citrus at San Diego, San Diego County. (Cal. Coop. Rpt.).

SPIDER MITES - CALIFORNIA - Eotetranychus, probably E. sexmaculatus heavy on citrus trees in Santa Cruz, Santa Cruz County. (Cal. Coop. Rpt.). ARIZONA - E. yumensis light on citrus in Yuma County. One area of Yuma Mesa required treatment. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Citrus in Yuma and Maricopa Counties still require controls. Some decrease in Yuma County. (Ariz. Coop. Sur.).

#### SMALL FRUITS

ROSE SCALE (Aulacaspis rosae) - CALIFORNIA - Heavy on boysenberry plantings in Cressy, Merced County. (Cal. Coop. Rpt.).

STRAWBERRY APHID (Chaetosiphon fragaefolii) - MARYLAND - Light on strawberries at Fairland, Montgomery County. (U. Md., Ent. Dept.).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - NEW JERSEY - Active on new growth of strawberries. (Ins.-Dis. Newsltr.).

#### ORNAMENTALS

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - OKLAHOMA - Adults emerging from ornamental pines in Stillwater, Payne County. (Okla. Coop. Sur.).

APHIDS - FLORIDA - Myzus hemerocallis adults causing light damage to 50 percent of 100,000 day lily plants at Dover, Polk County. (Simmons). ARIZONA - Acyrtosiphon barri damaged calendula in yards throughout Yuma, Yuma County. (Ariz. Coop. Sur.). NEVADA - Cinara tujafilina heavy on arborvitae in Reno, Washoe County; honeydew heavy. (Gallaway). CALIFORNIA - Macrosiphum euphorbiae heavy on saxifraga plants at Vallejo, Solano County. M. rosae heavy on rose bushes at Vallejo; species has been noticeably absent in many locations this spring. (Cal. Coop. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - NEW MEXICO - Light to moderately heavy on pinyon and ponderosa pine at shopping center in Albuquerque, Bernalillo County. (Heninger).

EUONYMUS SCALE (Unaspis euonymi) - NEW MEXICO - Medium to very heavy on euonymus in Albuquerque, Bernalillo County. Some plants dying. (Heninger).

CACTUS SCALE (Diaspis echinocacti) - ARIZONA - Heavy on cactus in Yuma and Maricopa Counties. Heaviest on Echinocæius spp. (Ariz. Coop. Sur.).

AN ARMORED SCALE (Phenacaspis cockerelli) - FLORIDA - All stages severe on bird-of-paradise plants at Holly Hill, Volusia County, and Oviedo, Seminole County. (Kipp, March 30).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - MARYLAND - Above normal on American holly in central sections. Pupation well advanced at College Park. (U. Md., Ent. Dept.).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - CALIFORNIA - Heavy on erythrina nursery stock at El Centro, Imperial County. (Cal. Coop. Rpt.).

SPRUCE SPIDER MITE (Oligonychus ununguis) - MARYLAND - Hatching on spruce at College Park, Prince Georges County. (U. Md., Ent. Dept.).

PRIVET MITE (Brevipalpus obovatus) - CALIFORNIA - Medium on gazania nursery stock at Vista, San Diego County; species occurring on more hosts than usual. (Cal. Coop. Rpt.).

AN ERIOPHYID MITE (Eriophyes insidiosus) - CALIFORNIA - Taken from flowering peach in Madera, Madera County. This is new county record and most northerly occurrence. No disease associated with species north of Tehachapi Mountains. (Cal. Coop. Rpt.).

BULB MITE (Rhizoglyphus echinopus) - CALIFORNIA - Heavy on Easter lily nursery stock roots at San Diego, San Diego County. (Cal. Coop. Rpt.).

#### FOREST AND SHADE TREES

EASTERN TENT CATERPILLAR (Malacosoma americanum) - FLORIDA - Adults taken in black-light trap at Gainesville, Alachua County. (Perry, Mead). GEORGIA - Infesting wild cherry and apple trees. (Coleman). VIRGINIA - Small tents noticeable on cherry in Montgomery, Roanoke, Bedford, Campbell, Charlotte, Halifax, Pittsylvania, and Botetourt Counties. (Isakson et al.). MARYLAND - First tents of season observed April 5 on wild cherry in Anne Arundel County. (U. Md., Ent. Dept.). NEW JERSEY - Larvae appearing on wild cherry in Hartford and Pemberton areas of Burlington County on April 4. (Ins.-Dis. Newsltr.). OHIO - First report of larval activity in Scioto County on April 3. (Mowbray). Hatch in progress in Washington County; small webs common on apple and wild cherry. Larvae not generally present in damaging numbers. (Racer, Rose). INDIANA - Egg hatch began in Ohio River areas. (Huber). Eggs beginning to hatch; larvae forming webs about the egg masses at Vincennes. (Dolphin, April 3). OKLAHOMA - Moderate to heavy, damaging peach and plum trees in Major, Garfield, and Mayes Counties; also, common on wild plum in northeast and east-central areas. (Okla. Coop. Sur.).

SPRING CANKERWORM (Paleacrita vernata) - WISCONSIN - Females noted on twigs of elm in Maxomanie area. No eggs observed. (Wis. Ins. Sur.). IOWA - Adults in tanglefoot bands at Oskaloosa, Mahaska County. (Iowa Ins. Sur.).

ELM BORER (Saperda tridentata) - IOWA - Larvae collected in elm bark at Oskaloosa, Mahaska County. (Iowa Ins. Sur.).

RED-HEADED ASH BORER (Neoclytus acuminatus) - OKLAHOMA - Adults active on elm in Payne County. (Okla. Coop. Sur.).

MAY BEETLES (Phyllophaga spp.) - OKLAHOMA - Emerging in moderate to heavy numbers in several areas of State. (Okla. Coop. Sur.).

ELM LEAF BEETLE (Pyrrhalta luteola) - OKLAHOMA - First adults of season noted in Beckham and Haskell Counties. (Okla. Coop. Sur.).

APHIDS - NEW MEXICO - Cinara sp. caused heavy honeydew on ponderosa pine in Albuquerque, Bernalillo County. (Heninger). OHIO - C. pini clusters of 25-30 first instars on terminal buds of Scotch pine in Wayne County, April 3. Early instars of Eulachnus agilis on Scotch pine in same area. (Campbell).

OAK LECANIUM (Lecanium quercifex) - GEORGIA - Heavy on oak trees in Tattnall County. (Johnston).

A MARGARODID SCALE (Matsucoccus paucicatricis) - CALIFORNIA - All stages heavy on stands of pine at Challenge, Butte County. (Cal. Coop. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - CALIFORNIA - Medium on pine nursery stock in Valley Center, San Diego County. (Cal. Coop. Rpt.).

#### MAN AND ANIMALS

HEAD LOUSE (Pediculus humanus capitis) - CALIFORNIA - Unusually heavy on students at 3 schools in Anaheim; abated by treating. (Cal. Coop. Rpt.).

MOSQUITOES - COLORADO - Activity of first Culex tarsalis adults observed March 20 and increased week of March 27 near Windsor, Weld County. Adults of Anopheles earlei and Culiseta inornata taken in natural resting sites week of March 27. Larvae of Aedes increpitus fairly abundant in open marshy pools at Nunn, week of March 20. A few larvae of Aedes dorsalis on March 28 near Fort Collins. (Harmston). MINNESOTA - Metropolitan Mosquito Control District reported first hatch of Aedes in Twin City area occurred March 27. (Minn. Ins. Rpt.). LOUISIANA - Larval collections in Jefferson Parish contained Aedes vexans, Anopheles quadrimaculatus, Culex pipiens quinquefasciatus, C. restuans, and C. salinarius; adult activity increased slightly. Psorophora confinnis and Mansonia perturbans collected in light traps. (Stokes).

EYE GNATS (Hippelates spp.) - FLORIDA - Becoming a nuisance at Gainesville, Alachua County. (Mead).

SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) - OKLAHOMA - Mainly this species, moderate to heavy on cattle in Bryan, Garvin, and Mayes Counties. (Okla. Coop. Sur.).

CATTLE GRUBS (Hypoderma spp.) - NORTH DAKOTA - Survey results from February through April at livestock auctions. Up to 3 per back of beef cattle at Dickinson on February 21; a third of the grubs had cut holes. At Dickinson and Mandan, 59 percent of the animals averaged 7.9 grubs per head. This compares with 34 percent averaging 9.4 grubs at the same locations last year. Highest populations at Dickinson; 1-25 grubs, average 7.9 per animal, infested 52 percent of beef animals. At Mandan, 1-15 grubs, average 4.4, infested 28 percent of beef animals. Low populations at Minot; 1-11 grubs, average 3.4 per animal, infested 13 percent. (Brandvik). WISCONSIN - Higher than normal in cattle in northern counties; 20-30 per animal in Marathon County. (Wis. Ins. Sur.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Averaged 250 per head in Blaine County; 125 per head in Major County. (Okla. Coop. Sur.). MISSISSIPPI - Increased during past period in Oktibeha and Lowndes Counties. Averaged approximately 200 flies per animal. (Dinkins). ALABAMA - Heavy and widespread on untreated animals in Mobile County. (Deakle et al.).

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U. S. April 2-8. Total of 61 cases reported in portion of Barrier Zone in Republic of Mexico March 26-April 1 as follows: Territorio sur de Baja California 25, Sonora 23, Chihuahua 3, Nuevo Leon 4, Tamaulipas 6. Fourteen cases in Mexico south of Barrier Zone. Barrier Zone is area where eradication operations are underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released April 2-8: Texas 168,000; Arizona 40,000; Mexico 108,072,000. (Anim. Health Div.).

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) - COLORADO - Abundant in Poudre River area, Larimer County. (Wellso).

#### HOUSEHOLDS AND STRUCTURES

TERMITES (Reticulitermes sp.) - DELAWARE - Several spring flights observed this period. (Burbutis). VIRGINIA - Winged adults reported from Gordonsville, Orange County. (Isakson).

A TERMITE (Zootermopsis laticeps) - TEXAS - Collected from pecan tree in El Paso. (Dickson, Mar. 31). Previously recorded from this area in 1950. (PPC).

#### BENEFICIAL INSECTS

LADY BEETLES - CALIFORNIA - Lindorus lophanthae feeding on rose scale in boysenberry plantings at Cressy, Merced County. (Cal. Coop. Rpt.). COLORADO - Hippodamia convergens active in Larimer County alfalfa fields, but not numerous. (Simpson). KANSAS - Many adults of unspecified species present in wheat and alfalfa. (Simpson). OKLAHOMA - All stages of H. convergens numerous in wheat and alfalfa. Less Coleomegilla maculata fuscilabris adults in northeast and east-central areas. (Okla. Coop. Sur.). ARKANSAS - Coleomegilla maculata reproduction well underway; variable sized larvae in legumes and small grains in south, central, and east areas. (Ark. Ins. Sur.). INDIANA - Adalia bipunctata and Chilocorus stigma observed in apple trees in Vincennes area. (Dolphin, April 3).

GREEN LACEWINGS - ARKANSAS - Chrysopa spp. adults numerous but larvae very scarce in legumes and small grains in south and central areas. (Ark. Ins. Sur.). KANSAS - Adults very numerous in alfalfa, particularly where pea aphid populations high. (Simpson).

A BIG-EYED BUG (Geocoris punctipes) - ARKANSAS - Only adults in crimson clover in south area. (Ark. Ins. Sur.). UTAH - Geocoris sp. active in Hurricane area of Washington County. (Knowlton).

DAMSEL BUGS (Nabis spp.) - COLORADO - Fairly abundant in alfalfa and weeds in the Fort Collins area of Larimer County. (Simpson).

MINUTE FLOWER BUG (Orius insidiosus) - INDIANA - Associated with apple aphids on developing apple foliage. (Dolphin, April 3).

FLOWER FLIES - ARKANSAS - Only adults on wheat in Lincoln County. (Ark. Ins. Sur.). INDIANA - Active around aphid clusters on foliar terminals. Eggs of these flies common in immediate vicinity of aphids. (Dolphin, April 3). OHIO - Larvae and eggs present in about 20-30 percent of aphid colonies in Jackson County. (Rose).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - OKLAHOMA - Egg pods averaged 0.25 per square foot at 8 rangeland stops in Beaver and Woodward Counties. Development ranged from coagulation to eye spots. First-instar Ageneotettix deorum and Aulocara elliotti ranged 3-5 per sweep in southwest grassland. First instar nymphs of a Melanoplus found in wheat and alfalfa margins in the same areas. (Okla. Coop. Sur.). KANSAS - First-instar nymphs in many alfalfa fields in Harper, Barber, Comanche, and Clark Counties. (Simpson).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Emergence increasing in experimental traps and cages in Maricopa County. First moth emergence from cages in Graham County occurred March 28 at Safford. (Ariz. Coop. Sur.).

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Increased rapidly during past 2-3 weeks. Over 2,000 adults collected in 110 traps in Dade County March 18-24; following week 3,062 adults were trapped. Adults common in Lee, Manatee, Sarasota, Pinellas, and Highlands Counties. (Fla. Coop. Sur.).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - FLORIDA - Ranged 5-20 mounds per acre in pastures at Groveland, Lake County. (Henderson, Mar. 30).

#### INSECT DETECTION

##### New State Record

A WALSHIID MOTH (*Walshia misecolorella*) - NEBRASKA - Collected on sweetclover during September and October 1966 in 5 southeastern counties. Det. by R. W. Hodges. (p. 283).

##### New County Records

ALFALFA WEEVIL (*Hypera postica*) - INDIANA - Found in Clinton, Tipton, Howard, Miami, Cass, Carroll, and White Counties. (p. 277).

AN ERIOPHYID MITE (*Eriophyes insidiosus*) - CALIFORNIA - Collected from flowering peach in Madera County. (p. 283).

#### CORRECTIONS

CEIR 17(13):233 - Last paragraph - CITRUS MEALYBUG (*Pseudococcus citri*) should read Planococcus citri.

CEIR 17(13):235 - Fourth paragraph - A FULGORID PLANTHOPPER (*Ormenia pruinosa*) should read A FLATID PLANTHOPPER (Metcalfa pruinosa).

CEIR 17(13):230 - Last paragraph. BLACK PECAN APHID (*Myzocallis caryaefoliae*) killed several ..... in New Jersey, should read BLACK PECAN APHID (*Brachycaudus persicaecola* killed .....

CEIR 17(14):242 - NEVADA- CORN LEAF APHID (*Rhopalosiphum maidis*) should read ENGLISH GRAIN APHID (Macrosiphum avenae)

CEIR 17(14):242 - Under BURROWING STINK BUGS change Panagaeus to read Pangaeus.

CEIR 17(14):245 - WOOLLY APPLE APHID (*Eriosoma langerum*) should read Eriosoma lanigerum.

Weather continued from page 274.

40 m.p.h. (gusts to 50 m.p.h.) caused moderate to severe wind erosion. The weekend brought snow to the upper Great Lakes and to spots in the Northeast. Early in the week, Pacific air brought an inch or more of rain to western coastal areas with lighter amounts inland. The lower Colorado River Valley remained dry.

TEMPERATURE: Northerly winds held average temperatures to near normal in all the northern border States; temperatures dropped to the 20's east of the Rockies and freezing occurred as far south as the Ohio River and the southern Appalachians. Brisk southerly winds brought warm moist air over most of the Nation east of the Rocky Mountains. For the second or third week, much of the central and southern Plains averaged 10° to 15° warmer than normal. The clash of the cold and warm air masses produced a typical seesaw weather pattern. For instance, maximum temperatures at Washington, D.C., were 86° on Monday, 56° on Tuesday, 82° on Thursday and 61° on Friday. There was little day-to-day temperature change west of the Rockies where the weather averaged slightly cooler than normal. (Summary supplied by Environmental Data Service, ESSA).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1966  
(continued from page 271)

HOUSEHOLDS AND STRUCTURES

Highlights:

COCKROACHES were the most troublesome pests in households and TERMITES were the most serious pests of structures over the country during 1966. ELM LEAF BEETLE was a household nuisance in several areas, but BOXELDER BUG was less of a nuisance in some States. EARWIGS continued to spread and were particularly troublesome in some areas. CLOVER MITE was a normal nuisance pest, especially in new housing developments.

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BLACK CARPET BEETLE (Attagenus piceus) was a very frequent pest of clothing and furnishings in many homes in MARYLAND. Black carpet beetle was an important pest in CONNECTICUT and was frequently reported in homes in VERMONT. CIGARETTE BEETLE (Lasioderma serricorne) was dominant pest of foods in homes throughout ALABAMA. DERMESTID BEETLES (Dermestes spp.) were constant pests during the year in CALIFORNIA. A WEEVIL (Trachyphloeus bifoveolatus) was a nuisance in households in western WASHINGTON throughout season. A JAPANESE WEEVIL (Calomycterus setarius) was collected during July in Johnson County for the first record in KANSAS; caused considerable annoyance to homeowners. STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) adults migrated into houses and other protective structures from mid-July through August in OHIO. Fewer number of ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) entered homes in VIRGINIA than last year. ELM LEAF BEETLE (Pyrrhalta luteola) caused the usual amount of annoyance to homeowners in KANSAS. In MARYLAND, elm leaf beetle adults entered homes and buildings during spring and fall months; occurrence was greater than in 1965 in NEW JERSEY. TULE BEETLE (Agonum maculicolle) was normal in CALIFORNIA. Several POWDER-POST BEETLES (Lyctus spp.) were household nuisances and caused severe damage to structures in California; BAMBOO POWDER-POST BEETLE (Dinoderus minutus) was an occasional pest, but not as frequent as some years in State. WHARF BORER (Nacrerdes melanura) was abundant in areas of reconstruction in CONNECTICUT where wood and timbers had been buried in moist areas. Map C. setarius, p. 300

SMOKY-BROWN COCKROACH (Periplaneta fuliginosa) was collected in a house trailer in Amador County; for first record in CALIFORNIA; eradication treatment applied. GERMAN COCKROACH (Blattella germanica) and BROWN-BANDED COCKROACH (Supella supellectilium) were widespread and common in California. Several species harassed homeowners in several areas of TEXAS. Cockroaches caused usual amount of annoyance to homeowners in KANSAS. Pests were widespread in ALABAMA; German cockroach was the most important pest of the 5 species present. German cockroach and brown-banded cockroach infested numerous apartments, homes, and buildings in metropolitan areas of MARYLAND; some species increased slightly in CONNECTICUT and INDIANA. CRICKETS (Gryllus spp.) were extremely abundant from late August to mid-September in northern Indiana; up to 20 per square foot were observed in corn, soybeans, and along roadsides. Movement into homes caused considerable annoyance in many areas.

TERMITES - Reticulitermes species was abundant in CONNECTICUT. SUBTERRANEAN TERMITE swarms were very prevalent throughout NEW JERSEY and more common than in 1965. EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) was reported extensively in PENNSYLVANIA; increase was noted in the Harrisburg area. Reticulitermes species were the number one pest of structures throughout MARYLAND; winged forms during spring were above normal abundance. Termites were the most important structural insects in VIRGINIA. Eastern subterranean termite continued as major structural pest throughout ALABAMA. Winged forms in and near homes were present in Mellette, Butte, and Brown Counties, SOUTH DAKOTA. Reticulitermes tibialis is present every year in Helena, MONTANA; during 1966, it was reported in homes along the Clark Fork River and also from Billings, Roundup, and Ryegate.

WESTERN SUBTERRANEAN TERMITE (*R. hesperus*) and a TERMITE (*R. tibialis*) infestations were more abundant in NEVADA than last season, especially in Clark, Douglas, Humboldt, and Washoe Counties. WESTERN DRYWOOD TERMITE (*Incisitermes minor*) infested a home in Mineral County, Nevada, for a new county record. Western subterranean termite occurred frequently in CALIFORNIA; increasing its range and importance.

ODOROUS HOUSE ANT (*Tapinoma sessile*) invaded many residences in CALIFORNIA; CARPENTER ANTS (*Camponotus* spp.), were pests in northern California and warm weather provided a long season for ARGENTINE ANT (*Iridomyrmex humilis*). Carpenter ants annoyed homeowners in areas of TEXAS. Unspecified species caused usual amount of annoyance to homeowners in KANSAS. YELLOW ANTS (*Acanthomyops* spp.) were common in many homes in the spring and fall in VIRGINIA. LARGER YELLOW ANT (*A. interjectus*) swarms were prevalent during the fall months in NEW JERSEY, and PAVEMENT ANT (*Tetramorium caespitum*) was common throughout the State. *Camponotus* spp. and *T. caespitum* were abundant in CONNECTICUT.

CASEMAKING CLOTHES MOTH (*Tinea pellionella*) and WEBBING CLOTHES MOTH (*Tineola bisselliella*) were major pest of clothes, carpets, and upholstery materials in ALABAMA. Casemaking clothes moths annoyed homeowners in TEXAS. A PSYCHID MOTH (*Apterona crenulella*) was observed near Pocatello, IDAHO, on alfalfa and in Boise, Buryley, and Paris around houses. Larvae were abundant on buildings in Boise.

BOXELDER BUG (*Leptocoris trivittatus*) was a nuisance in several central NEW JERSEY counties; however, not as prevalent as in 1965. In INDIANA, populations were very low in 1966 and reports of adult migrations into homes were rare. Boxelder bug caused usual amount of annoyance to homeowners in KANSAS. A COREID BUG (*Arhyssus scutatus*) was widespread and heavier than for many years in CALIFORNIA. THRIPS caused usual amount of annoyance to homeowners in KANSAS. EUROPEAN EARWIG (*Forficula auricularia*) was a nuisance throughout CALIFORNIA; slowly spreading to new areas. Earwigs annoyed homeowners in several areas of TEXAS. European earwig was very abundant in CONNECTICUT. It appeared quite often in and around homes in VERMONT. Earwigs were particularly troublesome and reported from widely scattered localities in NEW HAMPSHIRE.

CLOVER MITE (*Bryobia praetiosa*) was a nuisance in many homes in VERMONT. Clover mite was troublesome throughout NEW JERSEY; as in previous years, the majority of reports were from housing developments. This pest entered homes and caused annoyances in many suburban areas in MARYLAND. Clover mite was the usual pest to homeowners in KANSAS, but was less numerous in WYOMING. Clover mite entered homes throughout IDAHO during March and April; many homes were treated. In CALIFORNIA, activity was about the same as in past years. MAPLE BLADDER-GALL MITE (*Vasates quadripedes*) continued to be a nuisance to householders in VERMONT. Numerous reports of MILLIPEDS entering homes in VIRGINIA during spring and fall.

#### STORED PRODUCTS

RED FLOUR BEETLE (*Tribolium castaneum*) and CONFUSED FLOUR BEETLE (*T. confusum*) were general pantry pests in CALIFORNIA. They also occurred in packaged dehydrated dog food containing cereal products early in the year. Other species reported from California were LESSER GRAIN BEETLE (*Rhyzopertha dominica*) and DERMESTIDS (*Trogoderma simplex* and *T. parabibile*). A GRAIN BEETLE (*Cryptolestes* sp.), GRANARY WEEVIL (*Sitophilus granarius*), *R. dominica*, and SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*) heavily infested stored barley and wheat in Pershing County, NEVADA. A DERMESTID (*T. parabibile*) was the most common species in food in homes. A DARKLING BEETLE (*Tribolium madens*) was recorded for first time in WASHINGTON from an alfalfa leaf-cutting bee nest shelter in Franklin County; later collected in large quantities in Walla Walla and Moses Lake areas. LESSER MEALWORM (*Alphitobius diaperinus*) was heavy in poultry litter in Thurston County Washington; previously recorded from Pierce County. Confused flour beetle, red flour beetle, and saw-toothed grain beetle were general kitchen, elevator,



and granary pests in MONTANA. A severe infestation of saw-toothed grain beetle occurred in stored oats in Cass County, NORTH DAKOTA. A DARKLING BEETLE (Cynaesus angustus) was collected in a blacklight trap in a forest in Champaign County, ILLINOIS, June 14, 1966. This is the first record of species taken anywhere except in stored grain in State. DERMESTID BEETLES were more numerous in 1966 than for several years in packaged dried foods, in INDIANA. BEAN WEEVIL (Acanthoscelides obtectus) in beans from Beaver County, PENNSYLVANIA, while saw-toothed grain beetle was the most common pest of food in State. Confused flour beetle was noted in corn and small grain in Pennsylvania. Granary weevil seriously damaged stored barley in Montgomery County, MARYLAND. Saw-toothed grain beetle and INDIAN-MEAL MOTH (Plodia interpunctella) were most common species of stored products in CONNECTICUT. RICE WEEVIL (Sitophilus oryzae) was a serious pest of stored corn and grain sorghum in central and south ALABAMA.

MEDITERRANEAN FLOUR MOTH (Anagasta kuehniella) infested grain in Susquehanna County and bird seed in Northumberland County, PENNSYLVANIA. ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) infested corn in Centre County, Pennsylvania. POTATO TUBERWORM (Phtorimaea operculella) infested stored potatoes on farms in 5 counties in MARYLAND. Indian-meal moth infested a variety of stored products including dry dog food and wild bird seed in suburban sections of Maryland. Angoumois grain moth was medium to heavy in farm stored corn in St. Marys and Wicomico Counties, Maryland, and damaged peanuts, corn, and grain sorghum in ALABAMA. ALMOND MOTH (Cadra cautella) was serious pest of stored peanuts in Alabama.

An undetermined PSOCID infested stored barley in Renville and Steele Counties, NORTH DAKOTA, during the fall.

#### BENEFICIAL INSECTS

In WASHINGTON, HONEY BEE (Apis mellifera) satisfactorily pollinated most commercial fruit trees in Washington. A LEAF-CUTTING BEE (Megachile rotundata) was active and renested well during the generally favorable pollinating season on alfalfa, but possibly due to cool weather, sizable numbers of second-generation bees failed to materialize in most areas. The use of M. rotundata in NEVADA increased in seed alfalfa while that of ALKALI BEE (Nomia melanderi) decreased. Alkali bee nest sites were severely damaged in certain localities of WASHINGTON by 1.5 inch rainfall July 1-3.

Many parasitic hymenopterans controlled pests throughout the U.S. AN ICHNEUMON WASP (Bathyplectes curculionis) controlled about 70 percent of the alfalfa weevils in CALIFORNIA but controlled only 20-25 percent of the Egyptian alfalfa weevils. The situation was further complicated by Egyptian alfalfa weevil invading alfalfa weevil areas. In southeastern and northwestern areas of WYOMING, B. curculionis parasitized 4-25 percent of the alfalfa weevil larvae or an average of 12.3 percent. In ILLINOIS, an ENCYRTID WASP (Tetrastichus incertus) controlled alfalfa weevils in 10 counties in the southern third of the State. In OREGON, Trechmites insidiosus, another ENCYRTID WASP, attacked the hard shell stage of pear psylla in Jackson County, but hyperparasites were numerous later in the season.

The BRACONID WASPS were important in several States. Aphidius pulcher, a major aphid parasite in WASHINGTON, provided good control of pea aphids in several alfalfa fields in the Columbia Basin and in Walla Walla County. In NEVADA, Aphidius spp. reduced many pea aphid populations to noneconomic levels. Lysiphlebus testaceipes was active in some areas of OKLAHOMA during April and May. In ALABAMA, it was an especially important parasite of aphids infesting cotton, grain, and cole crops. In MARYLAND, above normal levels of Apanteles congregatus parasitized Manduca spp. on tobacco. A MINUTE EGG PARASITE (Trichogramma minutum) in ALABAMA was an important parasite of bollworms and tobacco budworm eggs

found in cotton. A EULOPHID WASP (Sympiesis viridula) parasitized 32 percent of the corn borer larvae in a single field in Cass County, NORTH DAKOTA. CICADA KILLER (Sphecius speciosus) was very conspicuous late in the summer in many central areas of MARYLAND.

DAMSEL BUGS (Nabis spp.) and other predators and parasites in NEVADA held most cotton pests below economic levels. Damsel bugs were very abundant on nearly all crops in WYOMING. Up to 75-100 nymphs and adults per 10 sweeps were found throughout the growing season of alfalfa. Quantities in legumes were higher than for 1965 in NEBRASKA.

BIG-EYED BUGS (Geocoris spp.) and other predators and parasites held most cotton pests below economic levels in NEVADA. G. punctipes attacked eggs and larvae of bollworms and tobacco budworms on cotton, corn, tomatoes, soybeans, and beans in ALABAMA. Geocoris sp. occurred frequently in large numbers on turf in several parts of RHODE ISLAND.

A FLOWER BUG (Orius insidiosus) reached high levels on alfalfa in May and June, but declined later. Orius spp. in Alabama attacked eggs and larvae of bollworms and tobacco budworms on cotton, corn, tomatoes, soybeans, and beans.

LADY BEETLES were reported from many States. Hippodamia sinuata, H. convergens, and other predators effectively controlled pea aphids in several seed alfalfa fields in Walla Walla and Franklin Counties, WASHINGTON. Lady beetles abounded in CALIFORNIA early in the year. Cryptolaemus montrouzieri effectively controlled citrophilus and citrus mealybug. VEDALIA (Rodolia cardinalis) did not control scales as effectively as in previous years. Lady beetles were active in NORTH DAKOTA alfalfa fields throughout the season. Hippodamia convergens was abundant on cereal crops in SOUTH DAKOTA; they were often 10 or more times as numerous than any spring population since 1963. Various species kept aphids at low levels in many areas of KANSAS throughout the season. A very high population during spring had a definite effect on pea aphids in alfalfa fields. H. convergens and Coleomegilla maculata were the most numerous species in ARKANSAS.

Probably due to the low populations of pea aphids in ILLINOIS, Hippodamia spp. were rather low in clover and alfalfa fields this season. Cornfields in the northern half of the State, which were heavily infested with corn leaf aphid, had fairly high lady beetle populations. H. convergens and other predators in MARYLAND effectively reduced aphid populations on alfalfa and tobacco. Great numbers of H. convergens and Coleomegilla maculata fuscilabris in ALABAMA controlled aphids in many cotton, grain, and vegetable fields. A MELYRID BEETLE (Collops bipunctatus) preyed on aphids and alfalfa weevil larvae in Carbon County and on corn leaf aphids in the Havre area of MONTANA.

Three weevils effectively controlled weeds in CALIFORNIA. A PUNCTURE-VINE SEED WEEVIL (Microlarinus lareynii) and a PUNCTURE-VINE STEM WEEVIL (M. lypriformis) were well established and very effective statewide. A GORSE WEEVIL (Apion ulicis) was very active and effective in the north coast area. Beneficial dipterous species were reported from four States. About 2,000 adults of an ANTHOMYIID FLY (Hylemya seneciella) were released in Benton County, OREGON, for control of tansy ragwort during late June. FLOWER FLY larvae in MONTANA fed on aphids to a lesser degree in 1966 than in 1965. They were numerous wherever aphids were present in ARKANSAS during 1966. Larvae in ALABAMA were also important predators of aphids in grains, cotton, shade trees, and vegetables.

Greatest migratory flights of PAINTED LADY (Vanessa cardui) occurred in WASHINGTON since 1958; they were observed in early May. Larvae reduced thistles throughout the State. The heaviest populations in years appeared throughout western OREGON from April to August on several species of thistles and other weed plants. Larvae infested Scotch thistle in Ormsby and Washoe Counties, NEVADA; numerous on Canada thistle in most MONTANA counties. Numerous painted lady larvae fed on thistle in NEBRASKA. Other lepidopterous species were reported feeding on weeds. In CALIFORNIA, a CINNABAR MOTH (Tyria jacobaeae) established itself and built up well. In Oregon, an OECOPHORID MOTH (Agonopterix costosa), originating from Europe, was reared from gorse.

LACEWINGS and other predators and parasites in NEVADA, held most cotton pests below economic levels. Larvae and adults of GREEN LACEWINGS (*Chrysopa* spp.) were particularly numerous in alfalfa and corn during the growing season throughout WYOMING especially in Goshen, Platte, Fremont, Park, and Big Horn Counties. Light numbers of *Chrysopa* sp. appeared on alfalfa throughout the season in NORTH DAKOTA. Numbers of *Chrysopa* sp. on legumes were higher than that of 1965. Various species kept aphids at low levels in many areas of KANSAS throughout the season. GOLDEN-EYE LACEWING (*Chrysopa oculata*) was scarce in clover and alfalfa fields of ILLINOIS, but was fairly numerous in cornfields infested with aphids. Larvae of golden-eye lacewing were important predators of aphids infesting grains, cotton, shade trees, and vegetables in ALABAMA.

A PHYTOSEIID MITE (*Typhlodromus occidentalis*) prevented outbreaks of *Tetranychus mcDanieli* mites from occurring in many apple orchards of central WASHINGTON. In OREGON, they kept spider mites in check during most of the season in Umatilla County. AN ACARID MITE (*Thyreophagus entomophagus*) fed on euonymus scale eggs during September in Payne County, OKLAHOMA.

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

##### Highlights

GRASSHOPPERS caused damage in several scattered areas this season. Fall survey outlook indicates less extensive infestations for 1967. PINK BOLLWORM extended its range in California and was found for the first time in Nevada. GYPSY MOTH was detected in Michigan for the first time since 1961. RANGE CATERPILLAR infested 200,000 acres of rangeland in New Mexico. CEREAL LEAF BEETLE extended its range in Ohio and Indiana. MEDITERRANEAN FRUIT FLY was detected for the first time in Texas and was eradicated in 44 days. ORIENTAL FRUIT FLY adults were trapped in California.

GRASSHOPPERS damaged many rangeland areas in OKLAHOMA. In mid-July a cooperative control program was conducted on 22,000 acres of range and cropland in Comanche and Kiowa Counties. Grasshoppers caused considerable damage to alfalfa in Bernalillo, Valencia, and Rio Arriba Counties, NEW MEXICO; a rangeland control program was completed on 405,479 acres in Lea, Chaves, and Eddy Counties in July. Adult surveys in August and September indicated 2,167,000 acres were economically infested. If conditions are favorable next spring this could be a very serious problem. Several species infested 5,000 acres of range and cropland during June in Apache County, ARIZONA; controls were required. Populations appeared in many areas where they have been absent for the past 5 years in CALIFORNIA. In May, light populations began along the eastern foothills in the Sierras. During June and July spotted infestations developed statewide. The pests damaged rangeland primarily. Localized infestations occurred on grain, alfalfa, and a few shade trees and shrubs. Row crops, cotton, and fruit were slightly damaged. Populations in range areas were light to moderate in southeastern WASHINGTON, and were scattered lightly in the northeastern counties. In Columbia County, 7,000 acres of wheat were damaged. The fall adult survey indicated much lighter infestations than in several previous years. Early season surveys in IDAHO indicated hundreds of thousands of acres would require treatment to save rangeland and crops. Populations of 70-150 grasshoppers per square yard were common and counts exceeding 200 were often encountered in southern Idaho. About 225,000 acres were treated, but a drought suppressed most infestations. Fall rains improved conditions for egg deposition.

GRASSHOPPERS and MORMON CRICKET (*Anabrus simplex*) were lowest in several years in NEVADA, with less than 400 acres treated for grasshoppers in 1966. Surveys indicate infested acreage less; 6,430 acres for Mormon cricket and 52,640 acres for grasshoppers. Grasshopper numbers were relatively high and caused substantial damage in UTAH. Outbreaks occurred in several counties and were quite general

along the "Wasatch Front." Damage exceeded approximately 1 million dollars. Egg deposits represent potential grasshopper damage to at least 487,560 acres of cropland and rangeland during 1967. Populations were of economic importance in southeastern COLORADO. Melanoplus spp. were observed on wheat and several species occurred in alfalfa. Melanoplus nymphs and adults were numerous on alfalfa in northwestern WYOMING especially Fremont, Big Horn, and Park Counties, with 10-25 per square yard. Controls were necessary in Park and Big Horn Counties. Populations were not as severe on small grains as in 1965. Several economic infestations of rangeland grasshoppers occurred in Wyoming during 1966. Controls were undertaken in Natrona and Johnson Counties, and the Wind River Indian Reservation in Fremont County; total of 66,541 acres was treated. Adult survey indicates 1,711,000 acres of rangeland is economically infested. Drought accompanied by poor growth of range forage and coupled with the presence of grasshoppers resulted in more anxiety in 1966 than 1965 in MONTANA. Infestations were spotty; the greater concentrations infested weedy or overgrazed areas. Drought alone, without any grasshoppers, seemed to cause as much variation in range forage production as a heavy population of damaging grasshopper species. Some 475,000 acres were treated for grasshopper control in 1966.

Cold, wet spring reduced threat of grasshoppers in NORTH DAKOTA 1966 season. Adult cropland survey showed decrease in several areas and increase in south-central and northwestern areas. Light marginal damage occurred to row crops and late flax in southeast, where controls were applied. Rangeland infestations were noneconomic throughout State. Grasshoppers were noneconomic to light in nearly all areas of MINNESOTA. Unfavorable weather delayed hatch and retarded grasshopper activity through mid-June in SOUTH DAKOTA. During July, populations increased up to 50 per square yard in Tripp County. Melanoplus differentialis was very heavy along the Cheyenne River in Pennington County, where severe damage occurred by the end of July; some apple trees were defoliated. Fall survey indicated a threatening to severe potential on 82,000 acres of rangeland. Grasshoppers increased throughout NEBRASKA but were generally light to moderate; light crop damage was noted statewide. Should hatching and development conditions continue favorable, Nebraska could be faced with severe grasshopper problems in 1967. Controls were required on pastures and rangeland in KANSAS during summer. Fall adult survey revealed light to moderate populations in northeast, southeast, and south-central districts with remainder of State having noneconomic numbers.

Melanoplus nymphs were first observed in extreme southern MISSOURI early in May. Damage was confined to marginal rows of crops in southeast and southwest areas. Two small isolated areas in southwest and west-central had high numbers; remainder of State light and noneconomic. Populations were lightest in many years in WISCONSIN. Cold temperatures and the late cutting of first crop of alfalfa prolonged the hatch into late July. On September 1, only 50 percent had reached adult stage. Egg laying began in mid-September. Melanoplus spp. populations were lowest in many years in ILLINOIS. The annual adult survey made in 315 fields in 47 counties showed only 4 fields with threatening populations. There were 52,156 acres treated during 1966 compared with 64,570 acres in 1965. Melanoplus spp. were generally more abundant in INDIANA during 1966 than in past several years. Ranged 8-23 per square yard along roadsides in southeast and south-central districts from late July through mid-August. Nymphs began to increase on legume forage by late June in southern OHIO; 5 or more nymphs per sweep were reported from various parts of the State during July and August. Grasshoppers occurred throughout ALABAMA; most damage occurred on clover seedlings during fall. Grasshoppers were very heavy on corn and in pastures in northern VIRGINIA throughout August and September. Melanoplus spp. adults and nymphs caused damage to border rows of tobacco in Calvert County MARYLAND, and to soybeans in Talbot and Queen Annes Counties. For map of adult survey, Fall 1966, see 17(1):12.

During May, MORMON CRICKET (Anabrus simplex) bands were migrating from fields in 40 sections of the Midvale and Cambridge area, IDAHO. Bands varied from 20-400 acres in size with populations ranging 4-120 per square yard. Over 10,000 acres

were baited in these areas. Noneconomic Mormon cricket infestations were found in Daggett, Uintah, Millard, Sanpete, Tooele, San Juan, and Juab Counties, UTAH. Light infestations of Mormon cricket were detected in vicinity of Page in northern Coconino County, ARIZONA during May.

PINK BOLLWORM (*Pectinophora gossypiella*) severely infested the Palo Verde Valley, Riverside County and the Bard and Imperial Valleys, Imperial County of CALIFORNIA. It spread into the Coachella Valley, Riverside County; Lancaster, Los Angeles County; Cantil, Kern County; and the Needles and Sandy Valley, San Bernardino County. Controls were applied to 116,000 acres in the desert cotton area. No record of moths or larvae were taken in the San Joaquin Valley. Pink Bollworm was found in NEVADA for first record. Adults were collected in Nye and Clark Counties. Total collections as follows: Clark County-14 moths, 14 larvae; Nye County-10 moths, 4 larvae. Bloom infestations began to appear during early May in Maricopa County and eventually in all areas of ARIZONA. Mohave and Yavapai Counties were found infested for first time. Extremely heavy infestations occurred throughout Maricopa, Pinal, and Graham Counties. Generally light in Santa Cruz, Pima, Cochise and Greenlee Counties. Found infesting okra for first time in State. Late buildup occurred again in cotton-growing areas of Eddy, Chaves, Luna, and Dona Ana Counties, NEW MEXICO. Losses were not as severe as in 1965. An early frost during October damaged bolls and eliminated at least one generation of the pest. Pink bollworm was the most serious cotton insect in TEXAS; overwintered in exceptionally heavy numbers in the majority of fields in the Trans-Pecos area. Populations occasionally damaged cotton in OKLAHOMA. Inspections of gin trash and lint cleaners were negative in 6 counties in the southeastern tip of MISSOURI. Inspections using 3 methods were negative in ARKANSAS.

GYPSY MOTH (*Porthetria dispar*) was detected after three years of negative trapping in MICHIGAN. A larval infestation was discovered near the northeast corner of Duck Lake, during July, in Clarence Township, Calhoun County. Approximately 15,000 acres scheduled for treatment. Egg clusters were detected at 20 positive trap sites in 4 counties in PENNSYLVANIA. Scouting was conducted around trap sites in NEW JERSEY. Egg clusters were found in Monmouth, Sussex, and Ocean Counties. Only 3 counties remain negative. Defoliation was recorded for the first time since early 1920's. Gypsy moth was a major pest in CONNECTICUT, but fewer acres were defoliated than in past. General hatch occurred during mid-May in RHODE ISLAND. Oviposition was observed mid-July. Populations were apparently less heavy than in previous 2 years, probably due to high frequency of dipterous larval parasites. Was noneconomic in VERMONT in 1966. Gypsy moth defoliation was light in NEW HAMPSHIRE. BROWN-TAIL MOTH (*Nygmia phaeorrhoea*) infested only 9 of 192 towns scouted in New Hampshire; heavy infestations in MAINE defoliated oaks in Outer Brothers Island (Casco Bay) by late June and partially stripped oaks on two other islands during same period.

RANGE CATERPILLAR (*Hemileuca oliviae*) infested approximately 200,000 acres of rangeland in Colfax, Union, and Harding Counties, NEW MEXICO during July with 5-100 or more larvae per square yard. A cooperative control program was conducted on 177,074 acres of rangeland in Colfax and Union Counties. Larvae were moderate to heavy during late summer. Moth flights extended over a wide area in Colfax, Union, Harding, and Mora Counties. Larvae were also found near Encinoso, Lincoln County, during the fall, approximately 150 miles from other known infestations. An eradication treatment was applied to infestations of WESTERN GRAPE LEAF SKELETONIZER (*Harrisina brillians*) in Kings, Yolo, and Sacramento Counties, CALIFORNIA.

JAPANESE BEETLE (*Popillia japonica*) was detected in ALABAMA for first State record. New county records were established in several States; in general, populations were light in 1966.

EUROPEAN CHAFER (*Amphimallon majalis*) was recorded for the first time in MASSACHUSETTS during 1966; new county records totaled 12 in Massachusetts,

NEW YORK, and PENNSYLVANIA. For status of European chafer, see 17(3):35-36.

WHITE-FRINGED BEETLES heavily infested soybeans in Jackson County, FLORIDA, and were detected for new county records in ALABAMA, GEORGIA, LOUISIANA, ARKANSAS, MISSISSIPPI, and KENTUCKY.

BOLL WEEVIL COMPLEX (Anthonomus grandis complex) greatly reduced this year in ARIZONA, compared with 2 previous years. Light to moderate in a few fields in Stanfield area of Pinal County and in western Maricopa County.

CEREAL LEAF BEETLE (Oulema melanopus) continued to spread in OHIO and INDIANA; 4 specimens were collected in 2 counties in ILLINOIS. Cool weather delayed development in MICHIGAN by 2 weeks.

MEXICAN BEAN BEETLE (Epilachna varivestis) infested 18 properties at Boise, IDAHO; all were treated. An intensive survey of all bean fields near Rupert, Minidoka County, revealed only 1 or 2 plants in 6 fields infested. Infestations were controlled by burning.

IMPORTED FIRE ANT (Solenopsis saevissima richteri) was detected for new county records in FLORIDA, GEORGIA, ALABAMA, TEXAS, MISSISSIPPI, and TENNESSEE during 1966. It caused increased concern to farm operators and laborers in ALABAMA.

This was the second consecutive year in which no MEDITERRANEAN FRUIT FLY (Ceratitis capitata) was trapped in FLORIDA; however, it was the first year in which it had ever been found in TEXAS. On June 13, 1966, an adult was taken from a Steiner trap in Brownsville, Texas. The trap was in a calamondin tree within a few yards of the International Bridge. First larval infestation was found on June 16. Three adults were recorded from Matamoros, Tamaulipas, Mexico, on July 20. This area was included in the eradication effort, which was accomplished in 44 days from first discovery on June 13 to last specimen trapped on July 27.

A single male of ORIENTAL FRUIT FLY (Dacus dorsalis) was trapped in Lomita, Los Angeles County, CALIFORNIA, in June. Three male flies were trapped at Anaheim, Orange County, from early November to the end of the year. Eradication methods were applied in each area.

CITRUS WHITEFLY (Dialeurodes citri) eradication treatment was applied to infestations that occurred in dooryards of 3 cities in CALIFORNIA. No commercial acreages were infested.

WHITE GARDEN SNAIL (Theba pisana) infested 7 city blocks in Manhattan Beach, CALIFORNIA. Eradication treatment began after summer aestivation.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1966

WEATHER OF THE YEAR 1966 <sup>1/</sup>

Highlights:

DROUGHTS: At the beginning of the year record to near record low reservoir and ground water supplies prevailed from northern West Virginia and northern and eastern Virginia to southeastern New York and central New England. Moderate precipitation during January and February only temporarily eased this Northeast Drought. Precipitation was much below normal during spring and summer and the drought intensified. By the end of August this meteorological drought was rated as extreme by the Palmer Index in northeastern West Virginia, northern and central Virginia, middle and northwestern Maryland, northern Delaware, south-central and eastern Pennsylvania, New Jersey, southeastern New York and southern New England. The Potomac River was at its lowest level in history. The area of severe drought gradually diminished with generous rains in September and October and by the end of the latter month was limited to a small area in south-central Pennsylvania.

Moderate to severe drought developed in east-central Indiana and parts of Ohio in July and moderate drought continued into September. A severe drought prevailed in the Nevada area until November. Deficient precipitation in the middle and southern Great Plains since September was detrimental to small grains.

WINTER TYPE STORMS: A coastal storm January 23-24 brought snowfall ranging from 0.5 to 1.5 feet in Maryland to over 2 feet in much of New York and New England. Only 2 to 3 days later another coastal storm covered northern Georgia with 4 inches of snow and ice, produced the most damaging ice storm in 50 years in coastal areas of the Carolinas, and left 0.5 to over 1 foot of snow from Virginia to eastern Canada. This stormy situation was climaxed in the closing days of January by the worst blizzard in the East since February 1958. From the lower Appalachians and Virginia to New York and New England snowfall was 1 to 3 feet, winds 30 to over 60 m.p.h., snow drifts to over 20 feet, and low temperatures from the midteens to subzero. Transportation was at a standstill, marooning thousands of persons and closing schools for several days to over a week. Most Federal offices and businesses were closed at least 1 day. There were over 50 deaths.

One of the most severe blizzards of record swept across the northern Great Plains into Minnesota on March 2-5. It continued unabated for 4 days in some areas. Snowfall was 1 to 3 feet, winds averaged 30 to 50 m.p.h. several days with gusts to over 100 m.p.h., snowfall drifted to over 30 feet, visibility was reduced to zero the 3rd and 4th, and temperatures dropped to 10°. At least 15 persons died, traffic was paralyzed, and over 100,000 head of livestock were lost. Another severe March storm moved northeastward from Kansas and Nebraska to Minnesota and Upper Michigan on the 22nd to 24th, with blizzard to near blizzard conditions. The rain, glaze, sleet, hail, and snow, with high winds, caused heavy damage in the central Great Plains.

Record-breaking snowstorms for so early in the season occurred in the central Rockies and north-central areas about mid-October and in the lower Ohio Valley and northern portions of the Gulf States November 2-3. A snowfall of 13 inches in 24 hours set a new November record at Louisville, Kentucky. On December 23 to 25, heavy snowfall of 0.5 to 2 feet fell from the Arkansas-Tennessee-North Carolina area to eastern Canada, disrupting Christmas holiday traffic.

MANY COLD AND HOT PERIODS: Arctic air was much more prevalent than usual over the northern Great Plains during January with record to near record number of

<sup>1/</sup> Prepared by L. H. Seamon, Climatologist, Environmental Data Service, Environmental Science Service Administration, Washington, D. C.

days below zero at many stations. Fargo, North Dakota, and International Falls, Minnesota, reported that minimum temperatures on 30 of 31 days in January were below zero.

An unusually late spring freeze, May 9 to 11, damaged fruit and vegetables from North Carolina and Tennessee northward, with heaviest losses in Ohio and Michigan. Many stations from the upper Mississippi Valley to the Atlantic recorded their lowest temperatures of record for May. Among these were 26° at Lexington, Kentucky, on the 10th and 28° at Philadelphia, Pennsylvania, on the 11th.

In mid-September, record low temperatures for so early in the season occurred at many stations from the Great Lakes to New England. Another early freeze for so far south extended to central Florida and almost to the tip of southern Texas the beginning of November, with 28° on the 3rd at New Orleans for the lowest in November since 1871. On December 12 to 14, freezing temperatures extended to the extreme southern tip of Texas, along the gulf coast, and to central Florida. Temperatures as low as the middle 20's in the McAllen Weslaco-Harlingen area and 30° at Brownsville caused moderate to locally severe damage to most vegetables in southern Texas.

Temperatures rose to 100° or higher from the Dakotas and Wyoming eastward over the Mississippi and Ohio Valleys to the middle Atlantic coast the last part of June. The heat wave became widespread the first half of July. In the Northeast, temperatures reached 100° or higher on 5 days at many stations. Harrisburg, Pennsylvania, and New York, New York, reported 107° on July 3, alltime records. In July, temperatures reached 100° or higher on 24 days at Wichita Falls, Texas, and on 6 days at Huron, South Dakota. The heat wave was blamed for about 70 deaths in the St. Louis area where the maximum was over 100° each of the 6 days, July 9-14. The heat contributed to hundreds of other deaths elsewhere east of the Rockies. Santa Ana winds caused record high November temperatures in southern California on November 1, with 101° at Los Angeles (82-year record) and 97° at San Diego (95-year record)

NOTABLE TORNADOES: A tornado on March 3 moved across Mississippi. Its path lay through Jackson, the capital, where the greatest destruction occurred. For the State 67 persons were killed, 504 injured, and total damage was about \$18 million. On June 8, of 16 tornadoes in Oklahoma and Kansas, the one at Topeka, Kansas, was the most destructive. About 17 persons were killed and 550 injured as the twister caused almost total destruction along an 8-mile path in downtown Topeka. Damage estimates exceeded \$100 million, one of the highest totals of record for a single tornado.

A tornado moved eastward through extreme southeast Cleveland on September 29, injuring 22 persons and causing considerable damage.

On October 14 an outbreak of tornadoes occurred in Minnesota, Iowa, and Missouri, one of which virtually destroyed Belmond, Iowa. It killed 6 persons, injured 172, destroyed 119 buildings, and damaged 468 in that town. This was the most destructive late season tornado ever to occur in Iowa.

FLOODS: Severe flooding occurred in the Valley of the Red River of the North in March and flooding continued into April. Total damage was estimated at nearly \$8 million.

HURRICANES: Hurricane Alma moved inland just 20 miles east of Apalachicola, Florida, and June 9, the earliest hurricane of record to cross the U. S. coast line. Alma was blamed for 6 deaths in Florida. Scattered damage, mostly in Florida, totaled about \$10 million.

Hurricane Inez crossed extreme southern Florida on October 4. Rainfall ranged from 2 to over 4 inches and wind speeds reached 115 m.p.h. The hurricane was blamed for 3 deaths, 11 injuries, and property losses estimated at about \$5 million in Florida. Continued on bottom of page 297.





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Included in the "Summary of Insect Conditions in the United States - 1966" are the following special reports:

1. The highlight section of Forest Insect Conditions in the United States - 1966, compiled by the Forest Service, U.S. Department of Agriculture.
2. Screw-worm (*Cochliomyia hominivorax*) Summary compiled by Animal Health Division, U.S. Department of Agriculture.
3. The highlight section of the weekly Weather summary for the United States - 1966, compiled by the Environmental Data Service, U. S. Department of Commerce.

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#### HAWAII INSECT REPORT

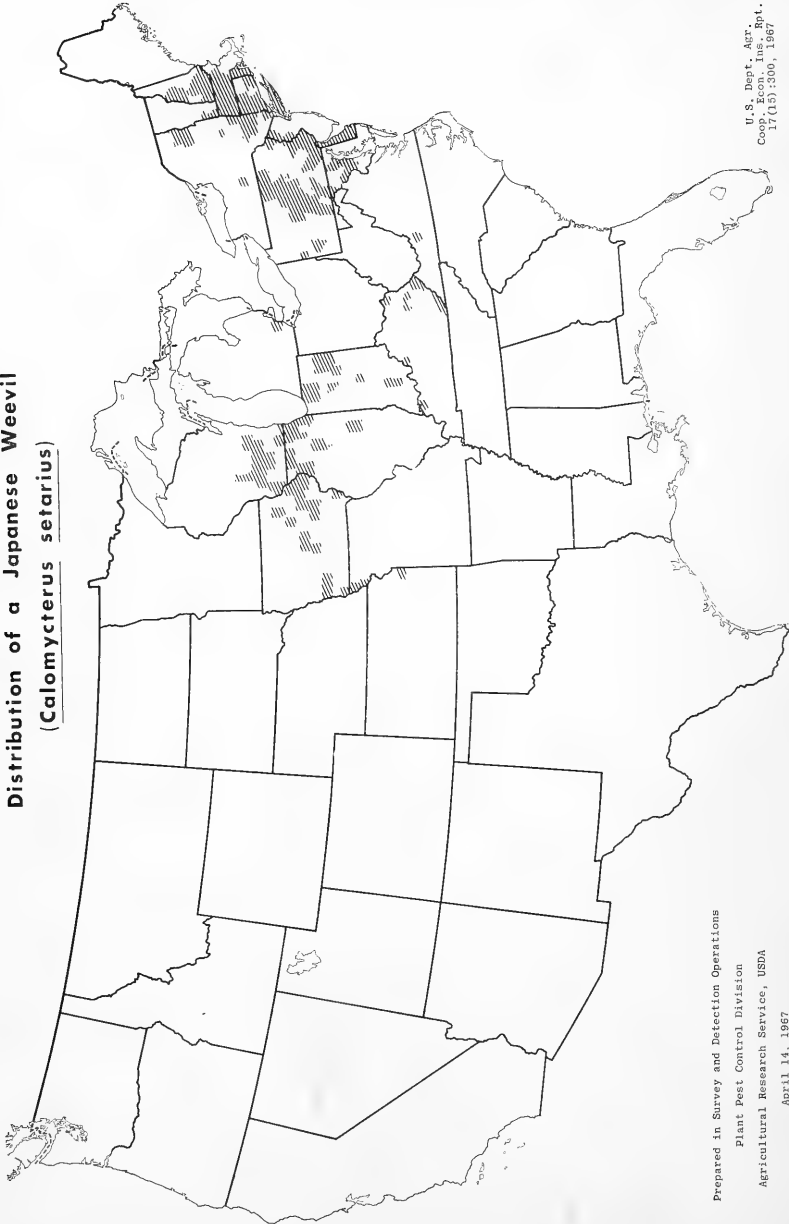
Fruits - CLOUDY-WINGED WHITEFLY (*Dialeurodes citrifolii*) heavy on citrus especially lime at Hilo, Hawaii. (Yoshioka). ORIENTAL FRUIT FLY (*Dacus dorsalis*) damage moderate to orange and grapefruit at Kokomo and Makawao, Maui. (Miyahira)

Ornamentals - On Oahu, all stages of A PLATASPID BUG (*Coptosoma xanthogramma*) medium on Coral trees, sesban, and jade vine at Kaneohe; numerous adults on fire station walls at Hauula; adults heavy on mango flower stems and pigeon pea branches at Kailua. (Toyama, Mihata). All stages of BLACK TWIG BORER (*Xylosandrus compactus*) severe on dwarf pomegranate at a Hilo nursery, Hawaii. (Yoshioka). AN ARMORED SCALE (*Phenacaspis cockerelli*) very heavy on dragon trees at Waikiki, Honolulu, Oahu. (Kim). COTTONY-CUSHION SCALE (*Icerya purchasi*) heavy, as many as 70 nymphs on leaves on nettlespurge, at Kailua-Kona, Hawaii. On Kauai, light to medium on cassia and Florida beggarweed at Omao and Lawai. A few vedalia (*Rodolia cardinalis*) on infested plants. (Yoshioka, Au).

Forest and Shade Trees - A PSYLLID (*Psylla uncatoides*) adults in trace numbers (1 per 5 sweeps) on Formosa koa in the Pali Golf Course grounds in Kaneohe, Oahu. (Funaski).

Miscellaneous - Two adults of VAGRANT GRASSHOPPER (*Schistocerca vaga*) collected at Barking Sands, Mana, Kauai. These make the tenth specimens caught on Kauai since July, 1966. (Au). A large colony of mostly juvenile GIANT AFRICAN SNAIL (*Achatina fulica*) discovered on 2 acres near previous infestation at Kailua-Kona, Hawaii. Majority under rubbish and rock piles at a residence and on oyster plants and jade tree. Eradication in progress. On Kauai, 3-inch snail found at Poipu and 2 smaller ones at Kalaheo in empty produce crates from Honolulu. Baiting and surveillance continues. On Oahu and Maui, snails still active in wet areas. (Yoshioka, Au, Nakao).

**Distribution of a Japanese Weevil**  
**(Calomycterus setarius)**



Prepared in Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service, USDA  
April 14, 1967

U.S. Dept., Agr.  
Econ. Res. Adm.  
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**ECONOMIC INSECT  
REPORT**

*Issued by*

  
**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**



# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782



## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

CORN LEAF APHID is heavy in parts of Arizona and Texas, requiring control in Arizona. (p. 303). EUROPEAN CORN BORER overwintering survival high in Kansas, North Dakota, Wisconsin, and Ohio. (p.304).

ALFALFA WEEVIL causing considerable damage; control applied in several States. CLOVER LEAF WEEVIL damaging alfalfa in Missouri, heavier than normal in southern Indiana. PEA APHID heavy in Kansas, Missouri, Illinois, and Indiana (pp. 306-307).

COTTON APHID reaching economic numbers in Arizona; moderate in Texas and Alabama (p. 308)

FLEA BEETLES higher than normal on tobacco in Florida, moderate in Georgia. (p. 308).

Correction

European Pine Shoot Moth; map in 17(14): 272. Delete records for Oregon as all infestations considered eradicated. Corrected map page 320 this issue.

Prediction

BEEF LEAFHOPPER expected to build up north of 30° parallel in desert areas of central Arizona, southeast California, south Nevada, and Utah. (p. 303). BOLL WEEVIL could be serious in Tennessee (p. 321). Spring populations of CORN FLEA BEETLE expected to be high in Maryland. (p. 304).

Special Reports

Second Beet Leafhopper Survey in Desert Areas of Central Arizona, Southeastern California, South Nevada, and Utah. (p. 303).

Potato Psyllid Survey, Spring Breeding Areas of Arizona and California - 1967. (p. 304).

Report on Survival of Boll Weevil as Determined by Surface Trash Examinations During the Spring - 1967. (pp. 321-323).

Survey Method for Three-Cornered Alfalfa Hopper (Spissistilus festinus) in Soybeans in Arkansas (pp. 324-325).

Survey Methods. Selected References. 1964. Part II. (pp. 326-336).

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WEATHER BUREAU'S 30-DAY OUTLOOK

MID-APRIL TO MID-MAY

The Weather Bureau's 30-day outlook for the period mid-April to mid-May calls for temperatures to average below seasonal normals west of the Continental Divide with greatest departures over the southern plateau. Above normal temperatures are indicated for the eastern two-thirds of the Nation except for near normal temperatures in New England. The most unseasonable warmth is expected over the southeastern quarter of the Nation. Precipitation is expected to exceed normal over the western two-thirds of the country except for near normal in the west coast States. Sub-normal amounts are predicted for the Atlantic Coast States. Elsewhere near normal totals are in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - IOWA - Adult collected at Ames, Story County, April 12 for earliest collection on record in State. Collections made at Alleman, Polk County, April 13. (Iowa Ins. Sur.). MISSOURI - First larvae of season on small grain in southeast area; light trap collections increasing. (Munson).

ARMY CUTWORM (Chorizagrotis auxiliaris) - NEBRASKA - Light on alfalfa in Keith County. (Rhine).

BOLLWORM (Heliothis zea) - ALABAMA - Light on crimson clover in Covington County. These are first larvae reported this season. (McQueen).

TOBACCO BUDWORM (Heliothis virescens) - FLORIDA - Larvae 1 per 7-8 plants of flue-cured type tobacco in field plots at Gainesville, Alachua County, April 5. (Kuitert). Early instar larvae, 1-3 per plant at 2 locations in Alachua County April 13. Moderate to heavy larval populations on newly set flue-cured tobacco in Lafayette County during early April. (Strayer).

TOBACCO HORNWORM (Manduca sexta) - FLORIDA - Scarce on agronomy plots at Gainesville. (Kuitert, April 5).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Decreasing very rapidly in all areas; problem only in scattered fields in extreme northern part of State. Predators and parasites controlling infestations. (Okla. Coop. Sur.). KANSAS - Trace still present in many northeast wheat fields. (Simpson). MISSOURI - Still found in all small grains. Ranged 25-300 per foot of row in southeast and east-central areas. Wheat beginning to head in extreme southeast area. (Munson). NEBRASKA - Surveys negative in wheat in Keith County. (Rhine).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Medium in a field in Moapa Valley, Clark County. (Zoller). NEW MEXICO - Appearing light on alfalfa in Eddy County. (Mathews). KANSAS - Trace, 0-2 per 10 sweeps in 2 alfalfa fields checked in Brown County. None elsewhere in northeast district. (Simpson). MISSISSIPPI - Increasing, moderate to heavy on alfalfa in Pontotoc County. Adults and nymphs heavy, averaged over 300 aphids per square foot on vetch in Oktibbeha County. (Dinkins).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Heavy, continues to require control on Cochise County small grains. Increasing on small grains in Graham County. (Ariz. Coop. Sur.). NEW MEXICO - Generally light on barley in Socorro and Dona Ana Counties. (Elson, Campbell). TEXAS - Heavy on Johnson grass and barley but light on corn in "Brazos bottom", Brazos County. (Randolph).

SIX-SPOTTED LEAFHOPPER (Macrostelus fascifrons) - MISSISSIPPI - Increasing but moderate on small grains in east-central area. (Dinkins).

BEET LEAFHOPPER (Circulifer tenellus) - UTAH - One per 25 sweeps on sugarbeets for seed in Washington County and 1 per 25 sweeps on Russian thistle at Santa Clara, Washington County. (Knowlton).

#### Second Beet Leafhopper Survey in Desert Areas of Central Arizona, Southeastern California, Southern Nevada, and Utah: March 20-27, 1967.

Additional buildup of beet leafhopper (Circulifer tenellus) is expected in areas north of the 34° parallel. These areas include southern Nevada and Utah and parts of California and Arizona adjacent to the Colorado River. Additional beet leafhoppers are expected to mature because host plants, which remained green despite unseasonably dry and hot weather, revived under recent rains. South of the 34° parallel, however, similar dry weather conditions stunted host development. Movement to cultivated areas is expected to be light to moderate in central Arizona, southeastern California, and western Nevada; moderate to heavy

in southern Nevada, southern and eastern Utah, and western Colorado; light to moderate in central Utah; and light in northern Utah. For results of preliminary survey see CEIR 17(9):131.

#### Potato Psyllid Survey, Spring Breeding Areas of Arizona and California - 1967

The 1967 survey for potato psyllid (Paratrioza cockerelli) in the overwintering areas of Arizona and California was conducted March 30-April 3. Weather conditions were unfavorable for development of wild Lycium spp., preferred host in the winter-breeding areas. Host plants were partially or wholly defoliated at a majority of stops. Potato psyllid populations were low, averaging 8 per 100 sweeps in the Blythe-Barstow area to 34 per 100 sweeps in the Tucson-Phoenix area.

Results of survey indicate a light migration potential this season. Comparison of average per 100 sweeps on overwintering hosts during spring surveys 1962 through 1967 as follows:

<u>State</u>	<u>District</u>	<u>1967</u>	<u>1966</u>	<u>1965</u>	<u>1964</u>	<u>1963</u>	<u>1962</u>
Arizona	Tucson-Phoenix	34	73	507	158	715	2,236
California	Blythe-Barstow	8	228	87	100	185	909

#### **CORN, SORGHUM, SUGARCANE**

EUROPEAN CORN BORER (Ostrinia nubilalis) - KANSAS - Averaged 273 borers per 100 stalks in Brown County, 46 percent reduction since last fall; 228 borers per 100 stalks in Doniphan County, 56 percent reduction since last fall. (Simpson).

NORTH DAKOTA - Winter mortality rate 30 percent in Ransom and 38 percent in Cass County. (Brandvik). WISCONSIN - Early estimate of overwintering survival in southeast area, 90 percent. (Wis. Ins. Sur.). OHIO - Late instar, overwintering larvae were considerably higher during fall, 1966, than in previous 3 years. Highest in northwestern counties; averaged 55.1 borers per 100 plants. (Barry). DELAWARE - No pupation to date. (Burbutis).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - TEXAS - Completely destroyed large field of corn in Waller County and greatly reduced second planting. (Parker).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Favorable winter temperatures again indicate heavy spring populations. (U. Md., Ent. Dept.).

CHINCH BUG (Blissus leucopterus) - TEXAS - Heavy, severely stunted much grain sorghum and corn in Falls, Waller, and Burleson Counties. Light to moderate in Denton County. (Richardson et al.). KANSAS - Damaged corn in Montgomery County. (Simpson).

A FALSE CHINCH BUG (Nysius sp.) - TEXAS - Light to moderate on young corn in Live Oak and Fort Bend Counties. As high as 1-2 bugs per plant in several fields of Fort Bend County caused some concern. (McMenemy).

#### **SMALL GRAINS**

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Greatly reduced in western and northwestern areas; averaged less than 100 per linear foot in Major County wheat. (Okla. Coop. Sur.). COLORADO - Abundant and causing some wilting of plants. Recent precipitation will tend to reduce mite effects. Ranged 1-25 per leaf in Weld, Morgan, Washington, Yuma, Phillips, Sedgwick, and Logan Counties. (Jenkins).

WHEAT CURL MITE (Aceria tulipae) - COLORADO - Symptoms of wheat streak mosaic ' on some wheat in Logan County. (Jenkins).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Averaged 10-50 per linear foot on wheat in Cherokee, Muskogee, Okmulgee, and Wagoner Counties. (Okla. Coop. Sur.). ARKANSAS - Growers concerned where wheat is heading; infestations of this pest seldom reach economic importance in State. (Ark. Ins. Sur.). ILLINOIS - Averaged 40 per sweep in 14-inch wheat in southeast district, 5-20 in southwest and 5-7 in east-southeast district. (Moore, Kuhlman). WISCONSIN - Ranged 1-5 per 100 sweeps on rye in southeastern counties, and grasses in western area. (Wis. Ins. Sur.).

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Ranged 10-50 per linear foot on wheat in Cherokee, Muskogee, Okmulgee, and Wagoner Counties. (Okla. Coop. Sur.).

SAY STINK BUG (Pitedia sayi (Stal))\* - ARIZONA - Light in barley scattered throughout Graham County. No economic damage. (Ariz. Coop. Sur.).

GREEN STINK BUG (Acrosternum hilare) - TEXAS - Moderate, blasting wheat heads near Floresville, Wilson County. Damage warranted controls. (Bippert).

A LEAFHOPPER (Homalodisca insolita) - FLORIDA - Averaged 3-4 adults per 100 sweeps of oats and wheat in Jackson County. (Tipton et al.).

PALE WESTERN CUTWORM (Agrotis orthogonia) - COLORADO - Larve active, 2-5 per linear foot of row, in some wheat in Morgan, Washington, and Yuma Counties. Low 0-2 in Phillips, Sedgwick, and Logan Counties. (Jenkins). KANSAS - Damaging populations 4-15 per square foot in Finney, Seward, and Morton Counties. (DePew, Marvin).

SUGAR-BEET WIREWORM (Limonius californicus) - IDAHO - Observed feeding on newly planted wheat kernels near Parma, Canyon County, March 8. Population about 2 per square foot. (Scott).

A THRIPS (Rhipidothrips brunneus) - CALIFORNIA - Heavy on barley at Hollister, San Benito County. (Cal. Coop. Rpt.).

#### TURF, PASTURES, RANGELAND

MOLE CRICKETS (Scapteriscus spp.) - FLORIDA - Heavy on 400-acre mixed centipede grass pasture in northern Marion County. Control required to save remainder of pasture. (Strayer, Habeck, April 4).

WHITE GRUBS (Phyllophaga spp.) - OKLAHOMA - Medium to heavy in isolated lawns in Kingfisher County; heavy in Texas County. (Okla. Coop. Sur.).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Occasional egg masses observed but no pupae found in rangeland areas sprayed last year. Pupae and egg masses heavy in unsprayed areas near Abbott, Colfax County, where larval populations were heavy last fall. (Kloepfer, Nielsen).

GRASS BUGS (Irbisia spp.) - UTAH - Second to third-instar nymphs infesting crested wheatgrass south of Alton, Kane County. (Knowlton, Davis). CALIFORNIA - I. californica heavy on native grasses at Seaside, Monterey County. (Cal. Coop. Rpt.).

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\* As the genus Chlorochroa Stal, 1872 is preoccupied, Pitedia Reuter, 1888 replaces it. (China, W. E. 1943. The generic names of the British Hemiptera-Heteroptera with a check list of the British species. Roy. Ent. Soc. London (Generic names of British insects) part 8:225.

BANKS GRASS MITE (Oligonychus pratensis) - NEVADA - Increasing in older fields of timothy in Smith Valley, Lyon County; very light in younger fields. (Batchelder, Martinelli).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - ALABAMA - Causing considerable damage to alfalfa in Limestone and Cherokee Counties. (Agee, Young). MISSISSIPPI - Approximately 80-90 percent of first-generation adults emerged in north. Larval counts unchanged in Pontotoc County; 85-90 per square foot in Oktibbeha County. (Dinkins). ARKANSAS - Larvae light to medium in Lee and Crittenden Counties; nearly all fields in area treated. (Ark. Ins. Sur.). Larvae, pupae, and adults observed in Independence County. Adults light in Stone County. (Roberts). NEW MEXICO - Larvae generally light; some damage to alfalfa at Albuquerque, Bernalillo County. (Heninger). MISSOURI - Most alfalfa in extreme southeast counties treated. High in east-central, south-central, and southwest fields; ranged 80-460 larvae per 10 sweeps outside treated area. Percent pupation in southeast 35 percent. (Munson). IOWA - Negative in southeast area. (Iowa Ins. Sur.). SOUTH DAKOTA - Adults present but little activity noted in northern Black Hills area. (Jones). ILLINOIS - Larvae, 8-64 per sweep in 10-12 inch alfalfa in southeast district. Percent feeding ranged 10-40 percent averaged 28 percent. Some pupae present. Fewer numbers and less damage in remainder of southern section. (Moore et al.). INDIANA - Controls initiated in many areas in southern third of State where infestations range 60-100 percent. Pupation underway in untreated alfalfa; all larval stages present. Infestations range 10-50 percent and larvae range 16-87 per square foot in southern counties of central district. (Huber). OHIO - Early instars damaging alfalfa and clover in Knox and Coshocton Counties. (Rose, Blair). VIRGINIA - Larvae and adults light in Buchanan County. (Barnes). Medium in Chesterfield and Hanover Counties. (Innes). Larvae averaged 20 per 10 sweeps in Roanoke County; alfalfa ranged 5-7 inches. (Isakson). MARYLAND - Development of larvae and visible damage considerably ahead of corresponding period last year. Stem counts indicate populations will be above normal in all sections. (U. Md., Ent. Dept.). DELAWARE - Larvae averaged 25-30 per 10 stems. All instars present with first and second most common. (Burbutis). NEW JERSEY - Larvae common in Cumberland, Salem, Middlesex, and Gloucester County alfalfa. (Ins.-Dis. Newsltr.)

CLOVER LEAF WEEVIL (Hypera punctata) - VIRGINIA - Larvae medium in ladino clover in Prince Edward and Prince William Counties. (Isakson et al.). MICHIGAN - First to third-instar larvae collected on Monroe County alfalfa April 4. (Dowdy). WISCONSIN - Larvae numerous on alfalfa in southeastern counties. Ranged first to third instar and averaged 3 per plant. Feeding damage noticeable. (Wis. Ins. Sur.). INDIANA - Larval infestations remain heavier than in past several years on clover and alfalfa in southern two-thirds of State. All stages present, range 8-75 per square foot. (Huber). ILLINOIS - Larvae ranged 0-2 per sweep in southeast district with many diseased larvae present. In east district, counts ranged 6-23 larvae per square foot in red clover and alfalfa fields. In east-southeast district, 1-40 larvae per square foot were found. (Moore, Kuhlman). MISSOURI - Damaging alfalfa in several areas of State. (Thomas). ALABAMA - First-generation adults heavy in crimson clover in central and southern areas. (McQueen). TEXAS - Few in east area. (Teetes). KANSAS - Ranged 0-5 per 10 sweeps on alfalfa in Marshall, Nemaha, and Brown Counties. Ranged 3-4 per square foot of crown in Douglas County. (Simpson). UTAH - Larvae causing some damage to alfalfa in Flowell area, Millard County. (Davis, Knowlton). CALIFORNIA - Larvae medium on 20 acres of alfalfa in Lancaster, Los Angeles County. (Cal. Coop. Rpt.).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - CALIFORNIA - Larvae of probably this species heavy on burclover at Carpenteria, Santa Barbara County; heavy larval populations flagging alfalfa and burclover in Live Oak, Sutter County. The Sutter County infestations may be mixed populations of H. postica and H. brunneipennis. (Cal. Coop. Rpt.).

CLOVER HEAD WEEVIL (Hypera meles) - TEXAS - Larvae appearing heavy in heads of crimson clover in east areas. Counts of 2 larvae per head common in several Nacogdoches County fields. (Teetes).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - ALABAMA - Larvae and adults light on crimson clover in central and southern areas. (McQueen).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ARKANSAS - Ranged 0-2 per 10 sweeps on legumes in southwest area. (Warren).

PALE WESTERN CUTWORM (Agrotis orthogonia) - KANSAS - Reports of damage received from Hamilton, Kearny, Scott, and Finney Counties. Ranged 3-10 per square foot; heavier in dead spots throughout infested fields. Chemical control effective. (DePew).

GREEN CLOVERWORM (Plathypena scabra) - ARKANSAS - Averaged 3-10 per 10 sweeps of legumes in southwest area. (Warren).

BLACK CUTWORM (Agrotis ipsilon) - IOWA - Adults collected April 13, at Alleman, Polk County. (Iowa Ins. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARKANSAS - Ranged 0-4 per 10 sweeps on legumes in southwest area. (Warren). ARIZONA - First larvae of season observed on alfalfa in Cochise County. (Ariz. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - CALIFORNIA - Medium on burclover at Red Bluff, Tehama County. (Cal. Coop. Rpt.). NEVADA - Remains low in Moapa Valley, Clark County alfalfa; predators, especially anthocorid bugs, heavy. (Zoller). Increasing on alfalfa in Smith Valley, Lyon County. (Batchelder, Martinelli). UTAH - Light in Washington County; fewer on short alfalfa at Kanab, Kane County. (Knowlton, Davis). ARIZONA - Beginning to increase on alfalfa in Cochise and Pima Counties but decreasing in Pinal, Maricopa, and Yuma Counties. (Ariz. Coop. Sur.). NEW MEXICO - Light on alfalfa. (N. M. Coop. Rpt.). OKLAHOMA - Averaged 90-150 per 10 sweeps in Jackson County. Medium in Cleveland, Kingfisher, Garvin, Bryan, and Adair Counties. Averaged 10 per sweep in Beckham County. (Okla. Coop. Sur.). KANSAS - Populations ranged per 10 sweeps as follows: 1,000 in Cowley, Chautauqua, and Cherokee Counties; 2,000 in Montgomery County; and 3,000 in Labette County. (Redding). Averaged less than 50 per 10 sweeps in alfalfa checked in northeast area. (Simpson). ARKANSAS - Ranged light to heavy; 50-250 per sweep on legumes in southwest and south-central area and 50-150 per sweep on alfalfa in northwest area; many winged forms present. (Ark. Ins. Sur.). MISSOURI - Ranged 30-600 per 10 sweeps of alfalfa in southeast and south-central areas. Very high, 1,200-2,500 per 10 sweeps of vetch in southeast area. (Munson). ILLINOIS - Ranged 0-180 per sweep in southeast district and 1-75 in east-southeast districts on 6-8 inch alfalfa. Diseased aphids found in southeast, southwest, and east-southeast districts. (Moore, Kuhlman). WISCONSIN - Appeared higher in Kenosha and Racine Counties than in other counties checked. (Wis. Ins. Sur.). INDIANA - Populations heavy in untreated alfalfa in southwestern district; ranged 60-141 per sweep. (Huber). MARYLAND - Generally light on alfalfa; up to 10 per sweep on alfalfa in Howard County. (U. Md., Ent. Dept.). VIRGINIA - Light on alfalfa in Montgomery, Roanoke, and Botetourt Counties. (Isakson).

APHIDS - CALIFORNIA - Myzus persicae and Aphis craccivora medium on burclover at Red Bluff, Tehama County. (Cal. Coop. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - MICHIGAN - Adults active in hay crops on warm days since late March in Ingham County. High winter survival appears evident. (Dowdy). KANSAS - Ranged 5-35 per 10 sweeps on alfalfa in Cowley, Chautauqua, Montgomery, Labette, and Cherokee Counties. (Redding). Averaged less than 5 per 10 sweeps on alfalfa in northeast area. (Simpson). ALABAMA - Nymphs and adults 10-30 per sweep in crimson clover and vetch in central and southern areas. (McQueen). NEW MEXICO - Lygus spp. remain light on alfalfa; increased in some

southern area fields. (N. M. Coop. Rpt.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - NEW MEXICO - Averaged 4-6 per 25 sweeps in Eddy County alfalfa. (Mathews). ARIZONA - Light on alfalfa in Cochise, Pima, Pinal, and Maricopa Counties. (Ariz. Coop. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - INDIANA - Egg hatch has begun in central districts. (Huber).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - ARIZONA - Moderate to heavy on alfalfa in Yuma and Maricopa Counties; light in Pima and Cochise Counties. (Ariz. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - NEW MEXICO - Moderately light on alfalfa in Bernalillo County. (Heninger). KANSAS - Recent rains of 1-inch or more decreased populations in southwestern area. Further damage unlikely. (DePew).

#### COTTON

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Survey of 17 farms in Henry, Covington, Monroe, Dallas, and Montgomery Counties was negative. Cotton in two-leaf stage. (McQueen). TEXAS - In Cottle and King Counties, sufficient numbers of overwintering weevils survived in certain areas to develop damaging infestations if weather permits. Causing concern in Rio Grande Valley. (Deer).

BOLLWORM (Heliothis zea) - ARKANSAS - None found this period (Boyer, Warren).

GARDEN WEBWORM (Loxostege similalis) - TEXAS - Affecting terminal growth of several fields in Rio Grande Valley; not serious. (Deer).

COTTON APHID (Aphis gossypii) - ARIZONA - Increasing, approaching economic numbers in Yuma County. (Ariz. Coop. Sur.). TEXAS - Spotted infestation in Grande Valley. (Deer). ALABAMA - Winged adults with 2-15 young occurring on two-leaf stage cotton in all fields examined in Henry, Covington, Monroe, Dallas, and Montgomery Counties except where systemic insecticides had been applied. (McQueen).

FLEAHOPPERS - TEXAS - Unspecified species averaged 1-4 per 100 terminals in many fields in Rio Grande Valley. (Deer).

TOBACCO THRIPS (Frankliniella fusca) - ALABAMA - Light on two-leaf stage cotton in Henry, Covington, Monroe, Dallas, and Montgomery Counties. (McQueen).

#### TOBACCO

FLEA BEETLES - GEORGIA - Unspecified species light to moderate across tobacco belt. (French). FLORIDA - Unspecified adults higher this spring than in recent years in flue-cured tobacco district of Suwanne, Columbia, Lafayette, Jefferson, and adjoining counties. (Strayer, April 6).

WIREWORMS - FLORIDA - Unspecified species heavy on flue-cured tobacco in Lafayette County; 10 acres reset on one farm during early April. (Strayer).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - FLORIDA - Larvae damaged newly set shade-grown tobacco plants in Gadsden County. (Tappan, Mar. 22).

#### POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MISSOURI - First adults and eggs of season observed in southeast area. (Munson).



FALSE POTATO BEETLE (Leptinotarsa juncta) - ALABAMA - Numerous adults and a few larvae feeding on nightshade plants in Dallas County. (McQueen).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - FLORIDA - Adult damage economic on potatoes and turnips at Jay, Santa Rosa County. (Fla. Coop. Sur., Mar. 20).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Caused leaf distortion and yellowing of foliage of pimento peppers in Hardee County. (Skipper, Lamb, Mar. 28).

#### BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Light on snap beans in Colquitt County. (Campbell).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ALABAMA - Heavy on two-leaf stage of beans in Dallas County home garden; a few adults on vetch. (McQueen).

CUTWORMS (Agrotis spp.) - OKLAHOMA - Damaged peas and beans in Okfuskee County. (Okla. Coop. Sur.).

#### COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Larvae increasing but not economic on lower Rio Grande Valley cole crops. (Neeb).

DIAMONDBACK MOTH (Plutella xylostella) - TEXAS - Spotty infestations in lower Rio Grande Valley cole crops. (Neeb).

CABBAGE MAGGOT (Hylemya brassicae) - CONNECTICUT - Adults emerged week ending April 7 at Cheshire. (Savos).

HARLEQUIN BUG (Murgantia histrionica) - OKLAHOMA - Heavy on cabbage in few home gardens in Pushmataha County. (Okla. Coop. Sur.). TEXAS - Heavy, damaged rape near Hillsboro, Hill County. (Hoermann, Rummel).

CARMINE SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Probably this species, medium on cabbage in Arlington, Riverside County. (Cal. Coop. Rpt.).

#### CUCURBITS

MELON APHID (Aphis gossypii) - ARIZONA - Heavy, damage continues on cantaloups in Yuma County; damage severe in watermelon field at Wellton. (Ariz. Coop. Sur.).

BEET LEAFHOPPER (Circulifer tenellus) - ARIZONA - Increased adults necessitated controls on watermelons on the Wellton-Mesa in Yuma County. (Ariz. Coop. Sur.).

SEED-CORN MAGGOT (Hylemya platura) - CALIFORNIA - Larvae bored 2.5 acres of cucumber stems in Reedley, Fresno County. (Cal. Coop. Rpt.).

#### GENERAL VEGETABLES

ARTICHOKE PLUME MOTH (Platyptilia carduidactyla) - CALIFORNIA - Light, infesting 5 acres of artichokes in Ferndale, Humboldt County. Previously not a problem in north area. (Cal. Coop. Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Limited control in progress on lettuce in Mesilla Valley, Dona Ana County. (N. M. Coop. Rpt.).

CUTWORMS (Agrotis spp.) - OKLAHOMA - Damage light on beets in Okfuskee County. (Okla. Coop. Sur.).

APHIDS - CALIFORNIA - Myzus persicae and Macrosiphum euphorbiae nymphs and adults medium on lettuce in Mendota, Fresno County. Medium on 5 acres of radishes at Fresno, Fresno County. (Cal. Coop. Rpt.).

THRIPS - NEW MEXICO - Generally light to medium on onions in Dona Ana County. Good results with sprays. (Campbell).

#### INSECT DETECTION

##### New County Records

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - IDAHO - Collected at Bonneville and Latah Counties. (p. 314).

A ROUNDHEADED WOOD BORER (Tetropium velutinum) - IDAHO - Collected in Idaho and Bonner Counties. (p. 314).

FACE FLY (Musca autumnalis) - IDAHO - Collected in Clearwater, Kootenai, Lewis, and Boundary Counties. (p. 316).

#### WEATHER OF THE WEEK ENDING APRIL 17

HIGHLIGHTS: RAIN! The Western Plains, critically dry for several weeks, received moderate to heavy rains over very large areas.

PRECIPITATION: A well-developed storm brought heavy snow to the southern and Central Rocky Mountains and copious rains from the eastern slopes to the Ohio River Valley. Flagstaff, Arizona, received 16 inches of snow on Wednesday; by Friday the snow had accumulated to 36 inches in parts of Colorado. Some of the heaviest rains fell in south-central Oklahoma, an area which had been very dry a few weeks ago. The storm failed to provide appreciable rain to New Mexico and extreme western Texas but, as the cold front moved southward, it set off heavy thunderstorms and a few tornadoes in the lower Mississippi Valley. On Friday, about 11 inches of rain fell at Baton Rouge, Louisiana, in 9 hours, causing considerable flooding. Scattered tornadoes occurred from Kansas and Missouri southward to Mississippi at midweek and from Iowa and Illinois to Wisconsin and Michigan on Friday but damage was not extensive. Moist Pacific air brought more than 2 inches of rain to the Washington and Oregon coast with lesser amounts inland and over California and Arizona. Much of the Great Basin and the southern deserts received no rain, or only light sprinkles. Strong gusty winds raised clouds of dust in the dry areas of New Mexico. Another area that received no rain was southern Florida where precipitation since March 1 has been less than a fourth of normal.

TEMPERATURE: Temperatures averaged below normal west of the Continental Divide and over New England and warmer than normal elsewhere. Much of the middle part of the country averaged 5° to 8° warmer than seasonal. In general, it was the third cool week in the far West, the fourth warm week in the north-central area and the seventh warm week over the Southeast. Afternoon temperatures continued in the 80's over the Gulf States but cool air from Canada held afternoon maximums farther north to the 40's and 50's early in the week with minimums dropping to freezing or lower as far south as the Ohio River and the southern Appalachians. By the weekend, maximums had climbed to the 80's as far north as eastern Pennsylvania. In the west, minimums dropped to below freezing over the Great Basin and the Rocky Mountains. Northern Arizona and northern New Mexico registered minimums in the 20's on 1 or 2 days. Maximums ranged from the 50's in Washington to the 80's in southern Arizona and New Mexico. (Summary supplied by Environmental Data Service, ESSA).

## DECIDUOUS FRUITS AND NUTS

OLETHREUTID MOTHS - OKLAHOMA - Grapholitha molesta infested native plums in Payne County and peaches in McCurtain County. (Okla. Coop. Sur.). INDIANA - G. molesta adult collected for first time this season April 6 at Vincennes. G. prunivora was most abundant moth species in bait traps; 495 recorded. About 50 percent of overwintering Carpocapsa pomonella have entered pupal stage in Vincennes area. (Dolphin).

PEACH TREE BORERS- IDAHO - Probably Sanninoidea exitiosa infested 90 percent of prune trees in young orchard near Parma, Canyon County. Damage occurred at lower crotches and soil line. (Scott). INDIANA - S. exitiosa larvae nearing maturity at Vincennes. Mature Synanthedon pictipes larvae and pupae in cankers on trunks and scaffold branches of peach trees at Vincennes. (Dolphin).

PEACH TWIG BORER (Anarsia lineatella) - UTAH - Light on twigs in Washington County. (Davis, Knowlton).

SPRING CANKERWORM (Paleacrita vernata) - INDIANA - Recently hatched larvae present on apple foliage at Vincennes. (Dolphin).

PECAN CASEBEARERS (Acrobasis spp.) - GEORGIA - A. juglandis moderate in Emanuel and Tattnall Counties. (Harris et al.). ALABAMA - A. juglandis larvae heavy in 2 orchards in Barbour and Montgomery Counties; 5-8 larvae per terminal branch of numerous trees in the Montgomery County orchard. (Bagby et al.). ALABAMA - A. caryae larvae light to medium in some pecan orchards in Barbour, Covington, Autauga, and Montgomery Counties. Larvae near pupation. (Hagler et al.). TEXAS - A. caryae light to moderate; half-grown larvae boring into pecan shoots throughout Denton and Guadalupe Counties. (Turney, New).

A CASEBEARER MOTH (Coleophora sacramenta) - CALIFORNIA - Probably this species damaged fruit and leaves of almonds in Princeton, Colusa County. Cases attached to developing nuts and larvae boring into nuts. (Cal. Coop. Rpt.).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Few adults and eggs observed in pecan orchard in Dallas County. Hatch expected soon. (McQueen).

CARPENTERWORM (Prionoxystus robiniae)-GEORGIA - Heavy on young pecan trees in Wilkes County. (Powell).

ARMORED SCALES - GEORGIA - Pseudaulacaspis pentagona severe on some peach trees in Bartow County. (Holland). ALABAMA - Heavy on several peach, mulberry, and catalpa trees in Covington County. (Linder et al.). CALIFORNIA - Epidiaspis leperii heavy on bark of prune tree nursery stock in San Jose, Santa Clara County. (Cal. Coop. Rpt.).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Egg laying continues at high rate on check trees at Storrs. (Savos). MASSACHUSETTS - Active in South Amherst area April 14. Overwintering adults and newly laid eggs occurred earlier than last year. (Crop Pest Cont. Mess.).

APHIDS - MICHIGAN - Rhopalosiphum fitchii nymphs hatched in southwest. (Carpenter). OHIO - R. fitchii and Dysaphis plantaginea eggs began hatch in Fairfield County by April 6. Flower fly larvae 8 per aphid in orchard checked. (Holdsworth). INDIANA - A few D. plantaginea nymphs on new apple foliage at Vincennes. Aphis pomi completed hatch; distorted some foliage where stem mothers and progeny congregated. (Dolphin). UTAH - Myzus persicae curled some peach leaves at Santa Clara, St. George, and Hurricane in Washington County. (Knowlton, Davis).

A LEAFHOPPER (Erythroneura spp.) - INDIANA - Both color phases of E. lawsoniana and E. maculata were active on apples at Vincennes. (Dolphin).

PECAN SPITTLEBUG (Clastoptera achatina) - GEORGIA - Light to moderate in Emanuel, Tattnall, and Ware Counties. (Harris et al.). ALABAMA - Light on a few pecan trees in orchard in Montgomery County. (McCabe et al.).

PECAN PHYLLOXERA (Phylloxera devastatrix) - TEXAS - Galls dotting pecans in north-central area. (Turney, New).

PLUM CURCULIO (Conotrachelus nenuphar) - INDIANA - Adults collected in new growth of apple trees at Vincennes. (Dolphin). ALABAMA - Egg laying heavy on plums in Barbour, Henry, Houston, and other southern counties; lighter on peaches. (McQueen). OKLAHOMA - Damaged native plums in McCurtain and Payne Counties. (Okla. Coop. Sur.).

A FALSE POWDER-POST BEETLE (Xylobiops basilaris) - ALABAMA - Adults active on dead and dying limbs of pecan trees in Barbour and Montgomery County orchards. (Clapp et al.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - INDIANA - Adult emergence continues; 43 taken from bait traps is slightly over double the last period. Small larvae feeding in leaf rolls in Vincennes area. (Dolphin).

THRIPS - CALIFORNIA - May damage deciduous fruits in Fresno County because wet weather prevents treatments. (Cal. Coop. Rpt.).

EUROPEAN RED MITE (Panonychus ulmi) - INDIANA - Eggs beginning to hatch; larvae on foliage of apples and peaches at Vincennes. (Dolphin).

#### CITRUS

Quarterly Citrus Insect and Mite Outlook in Florida - April through June - This outlook is based on the assumption that weather beyond the period of the current U.S. Weather Bureau 30-day Outlook will be normal. Therefore, the forecasts given below cannot be viewed with the same degree of confidence as those in the "Insect and Disease Summary" usually released twice each month by this Station.

CITRUS RUST MITE (Phyllocoptruta oleivora) populations will continue abnormally high despite decreases in April and May. Fruit will become infested earlier and heavier than usual. A strong June increase is expected. TEXAS CITRUS MITE (Eutetranychus banksi) population will be above average. It will hold near current moderate level through April and then increase rapidly into the high range in May and June. Scattered heavy infestations of CITRUS RED MITE (Panonychus citri) will occur in about 10 percent of groves during April and May. A rapid increase in June is expected in a majority of groves. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) increase is expected through April but population will be below average and very few infestations will be important. BLACK SCALE (Saissetia oleae) population will decrease through April. Buildup of crawlers and young stages will be rapid in May with adults becoming abnormally numerous through June. Light to moderate infestations of GLOVER SCALE (Lepidosaphes gloverii) will occur in a majority of groves in all districts. These infestations will become moderate or heavy during June in about 30 percent of groves. Gradual increase of YELLOW SCALE (Aonidiella citrina) will result in a peak population at moderate level in June. Less than 5 percent of infestations will be heavy and most of these will be in the central district. CHAFF SCALE (Parlatoria pergandii) and PURPLE SCALE (L. beckii) will be less abundant than normal but may occur with Glover scale in sufficient numbers to present a scale problem. MEALYBUGS will increase in May and June. They are expected to be near normal abundance and less numerous than in the prior two years. WHITEFLY population is expected to be slightly below normal.

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Still heavy in scattered groves in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

A NOCTUID MOTH (Xylomyges curialis) - CALIFORNIA - Larvae on citrus at Woodcrest, Riverside County. (Cal. Coop. Rpt.).

#### SMALL FRUITS

THRIPS - CALIFORNIA - May damage grapes in Fresno County since weather prevents treatment. (Cal. Coop. Rpt.).

A MILLIPED (Oxidus gracilis) - CALIFORNIA - Medium on golden bamboo in nursery at San Jose, Santa Clara County. (Cal. Coop. Rpt.).

GRAY GARDEN SLUG (Deroceras reticulatum) - IDAHO - Active in leaf mulch about raspberry and rose canes and under juniper and mugho pines at Moscow, Latah County. (Portman, April 2).

#### ORNAMENTALS

APHIDS - FLORIDA - All stages of Aphis spiraeicola infest 75 percent of 100 viburnum plants at Lake Monroe, Seminole County. (Kipp). Myzus persicae adults infest 80 percent of 500 fatschedera plants at a Pembroke nursery, Polk County. (Schmidt, Stoll). ALABAMA - Extremely numerous Macrosiphum rosae damaged unprotected roses in central area. Heavy buildups 5-7 days after treatment indicate general migration of adults. (McQueen). PENNSYLVANIA - Cerataphis lantaniae infests orchids at Montrose, Susquehanna County. (Gesell, Mar. 13).

EUONYMUS SCALE (Unaspis euonymi) - OKLAHOMA - Medium to heavy on euonymus in Cleveland County. (OKla. Coop. Sur.). TEXAS - Light to moderate; increasing throughout north-central area. (Turney).

AZALEA BARK SCALE (Eriococcus azaleae) - ALABAMA - Damage extreme on isolated azalea plants in Lee and Dallas Counties. (Clark et al.).

A WHITEFLY (Bemisia berbericola) - CALIFORNIA - Nymphs medium on mahonia in nursery stock at San Diego, San Diego County and on Oregon-grape at the county park in Chowchilla, Madera County. (Cal. Coop. Rpt.).

A MEALYBUG (Antonina pretiosa) CALIFORNIA - Nymphs medium on mahonia in nursery at San Diego, San Diego County and on Oregon-grape at the county park in Chowchilla, Madera County. (Cal. Coop. Rpt.).

A PSYLLID (Psylla ribesiae) - CALIFORNIA - Probably these adults heavy on fatsia in nursery at San Jose, Santa Clara County. (Cal. Coop. Rpt.).

AN OLETHREUTID MOTH (Epinotia subviridis) - CALIFORNIA - Larvae heavy on leaves and twigs of juniper trees at Santa Cruz, Santa Cruz County. (Cal. Coop. Rpt.).

A CUTWORM (Euxoa sp.) - CALIFORNIA - Larvae heavy; damaged ranuncullus plants at San Jose, Santa Clara County. (Cal. Coop. Rpt.).

A PLUME MOTH (Pterophorid sp.) - MICHIGAN - Larvae infesting geranium cuttings in Wayne County. (Juchartz).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - OHIO - Overwintering female adults begin emergence in Wayne County. (Barth).

A FLOWER THRIPS (Frankliniella bispinosa) - FLORIDA - All stages severely damaged Marchal Niel rose flowers in dooryards at Gainesville. Other rose varieties slightly affected. (Mead).

YUMA SPIDER MITE (Botetranychus yumensis) - ARIZONA - On purple bauhinia in Yuma County. This is a new host record. Det. by D. M. Tuttle. (Ariz. Coop. Sur.).

MITES - MISSOURI - Undetermined species heavy on juniper in southeast area. (DiCarlo).

#### FOREST AND SHADE TREES

EASTERN TENT CATERPILLAR (Malacosoma americanum) - FLORIDA - First adults of season appearing in blacklight trap at Gainesville. (Hetrick, April 10). Larvae severe on oak trees at Sandy Hills, Pasco County. (Hill, April 3). VIRGINIA - Tents becoming conspicuous in Montgomery, Pulaski, Roanoke, Botetourt, Rockbridge, and Craig Counties. (Isakson). MARYLAND - Tents very conspicuous on wild cherry and crabapple in central and southern areas. (U. Md., Ent. Dept.). DELAWARE - First larvae of season observed on wild cherry in eastern Kent County April 6. (Franklin). OHIO - Larval active in Clinton and Clermont Counties. (Fladt, Hamilton). INDIANA - Small webs present on wild cherry as far north as Vermillion County. (Huber). OKLAHOMA - Damage moderate to severe on native plums in most northern and western counties. (Okla. Coop. Sur.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - FLORIDA - Larvae defoliating oak trees at Belleview, Marion County. (Habeck).

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) - UTAH - Hatching formed tents on cottonwood at Caineville, Wayne County. (Knowlton). Larvae defoliating 10-26 percent of cottonwood trees along Virgin River in Washington County. (Knowlton, Davis).

A TENT CATERPILLAR (Malacosoma incurvum discoloratum) - NEVADA - Larvae heavy on poplar in Moapa and Virgin Valleys, Clark County. Controls applied. (Nichols, Zoller). COLORADO - Eggs hatching in Larimer County. (Thatcher).

A PINE TIP MOTH (Rhyacionia sp.) - ARKANSAS - Second and third-instar larvae beginning to bore into new growth wood. Relatively light so far. (Warren).

BUCK MOTH (Hemileuca maia) - FLORIDA - Partly-grown larvae feeding on oak foliage at Gainesville. (Hetrick, April 6).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - NEVADA - Larvae light to heavy on elm in Las Vegas, Clark County. (Zoller).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - IOWA - No pupation of specimens from Oskaloosa, Mahaska County April 13, 1967. (Iowa Ins. Sur.). IDAHO - Adults collected at Idaho Falls, Bonneville County and Moscow, Latah County during February for new county records. (Manis et al.).

ELM LEAF BEETLE (Pyrrhalta luteola) - TEXAS - Overwintering adults appearing on elms in usual areas. Some feeding activity in Hall, Childress, Donley, Wilbarger, Wichita, and Collingsworth Counties. No larvae or eggs found. (Thomas). OKLAHOMA - Adults feeding in Payne, Major, Adair, and Texas Counties. (Okla. Coop. Sur.). COLORADO - Adults active at Brighton, Adams County. (Hoff).

A LEAF BEETLE (Chrysomela interrupta) - MISSISSIPPI - Larvae damaging leaves of several willow trees in Oktibbeha County. (Dinkins).

A ROUNDHEADED WOOD BORER (Tetropium velutinum) - IDAHO - Adults reported from fire wood in Idaho County and furniture in Bonner County for new county records. (Manis et al.).

A LONG-HORNED BEETLE (Neoclytus caprea) - OHIO - Overwintering adults have begun to emerge in Delaware County. (Galford).

A DARKLING BEETLE (Eleodes clavicornis) - CALIFORNIA - Adults heavy on 4 acres of oak tree trunks in Paradise, Butte County. (Cal. Coop. Rpt.).

PINE ENGRAVER (Ips pini) - COLORADO - New attacks on Ponderosa pine in Larimer County. (Thatcher).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - OHIO - Eggs hatching on mugho pine at Dayton, Montgomery County. High populations expected with continuous warm weather. (Beck, Kennedy).

A SAWFLY (Neodiprion taedae linearis) - ARKANSAS - Larval feeding near completion; damage lighter in 1967 than any year since 1957. (Ark. Ins. Sur.).

APHIDS - MISSISSIPPI - Unidentified species severely damaged foliage of several shade trees in Oktibbeha County. (Dinkins).

A WAX SCALE (Ceroplastes sp.) - MARYLAND - Infesting loblolly pine in cypress swamp near Pocomoke, Wicomico County. (U. Md., Ent. Dept.).

EUROPEAN ELM SCALE (Gossyparia spuria) - CALIFORNIA - Heavy in Chinese elm tree nursery stock at San Jose, Santa Clara County. (Cal. Coop. Rpt.).

A PIT SCALE (Asterolecanium minus) - CALIFORNIA - Heavy on oak nursery stock at San Jose, Santa Clara County. (Cal. Coop. Rpt.).

#### MAN AND ANIMALS

MOSQUITOES - FLORIDA - Mainly Mansonia perturbans caused considerable annoyance in Gainesville area. (Kuitert). Other annoying mosquitoes were Culex pipiens quinquefasciatus and C. salinarius. (Mead). TEXAS - C. salinarius was the most numerous species but was restricted to southern Jefferson County. In urban Beaumont mostly C. pipiens quinquefasciatus was present in stagnant water. A Psorophora confinnis was taken on March 31 in north Beaumont. Anopheles crucians occurred in small numbers throughout the county. Anopheles quadrimaculatus was taken only 1 time. First Uranotaenia sapphirina of-season was taken in light trap in Beaumont March 13, an early occurrence. U. lowii collected in Beaumont. Culiseta inornata small numbers but still present in County, March 31. (Thompson).

A BLACK FLY (Simulium tescorum) - CALIFORNIA - High nuisance in recreational and trailer park areas along the Colorado River in Parker area. State relatively free of problems in past. (Grothouse, Ennik).

A BROWN SPIDER (Loxosceles reclusa) - CALIFORNIA - An adult male spider collected and det. by W. G. Waldron from a wood pile of discarded packing crates at San Gabriel, Los Angeles County. This species is not established. (Waldron).

SCREW-WORM (Cochliomyia hominivorax) - One case reported at Texas in U.S. April 9-15. Total of 49 cases reported in portion of Barrier Zone in Republic of Mexico April 2-8 as follows: Territorio sur de Baja California 20, Sonora 20, Chihuahua 5, Nuevo Leon 3, Tamaulipas 1. Six cases in Mexico south of Barrier Zone. Barrier Zone is area where eradication operations are underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released April 9-15: Texas 6,168,000; Arizona 62,000; Mexico 112,438,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Light to medium in Cleveland and Garvin Counties; averaged 400-600 per head on range cows and 1,000 on bulls in Major County. Built up rapidly. ALABAMA - Adults increasing on range cattle especially in Bibb County. Most beef herds have received control treatment in Bullock County. (Odom et al.). SOUTH CAROLINA - First report of season from Clemson. GEORGIA - Heavy on beef cattle in Clarke County. (Nolan).

FACE FLY (Musca autumnalis) - IDAHO - Collected at Orofino, Clearwater County and Harrison, Kootenai County week ending March 17 for new county records. (Fitzsimmons, Stranahan). Reported from Lewis and Boundary Counties for new county records. (Manis et al.)

HOUSE FLY (Musca domestica) - GEORGIA - Numerous around caged layer operations. (Nolan).

COMMON CATTLE GRUB (Hypoderma lineatum) - OHIO - Most larvae have emerged; populations on Herefords exceptionally high in Wayne County. Averaged 15 or more grubs each of 20 animals. (Treece). OKLAHOMA - Adults annoying cattle in Garvin County. (Okla. Coop. Sur.).

DOG SUCKING LOUSE (Linognathus setosus) - NEVADA - Medium to heavy on several dogs in Reno-Sparks, Washoe County. (Nev. Coop. Rpt.).

ODONATA - FLORIDA - Primarily damselfly naiads fed on young fry of valuable tropical fish at hatchery south of Tampa, Hillsborough County. (Strayer).

HARD-BACKED TICKS - GEORGIA - Amblyomma americanum appearing numerous on beef cattle in Hancock County. (Ellis). INDIANA - Dermacentor variabilis first collection of season on human reported April 9 from Lafayette area, Tippecanoe County. (Osmun).

#### HOUSEHOLDS AND STRUCTURES

TERMITES - IOWA - Probably Reticulitermes flavipes swarmed at Mitchellville, Pold County, April 12. (Iowa Ins. Sur.).

A LONG-HORNED BEETLE (Neoclytus conjunctus) - CALIFORNIA - Adults medium in firewood in Santa Clara County and on an outside wall and window sill in Solano County. (Cal. Coop. Rpt.).

A POWDER-POST BEETLE (Lyctus africanus) - WISCONSIN - Infested newly purchased bamboo curtain. (Wis. Ins. Sur.).

#### STORED PRODUCTS

INDIAN MEAL MOTH (Plodia interpunctella) - TEXAS - Larvae exceptionally heavy in sacked grain sorghum near Morton, Cochran County. (Stephens). PENNSYLVANIA - Numerous in homes in Centre and Blair Counties during March and April. (Gesell, Udine).

#### BENEFICIAL INSECTS

GREEN LACEWINGS (Chrysopa spp.) - OKLAHOMA - Averaged 3.5 per 10 sweeps in alfalfa in Jackson County. (Okla. Coop. Sur.). ARKANSAS - More numerous than usual for this time of year. (Ark. Ins. Sur.). MISSISSIPPI - Numerous adults in flight in alfalfa and vetch; few larvae present. (Dinkins). INDIANA - Eggs beginning to hatch in fruit trees at Vincennes. (Dolphin).

LADY BEETLES - OKLAHOMA - Hippodamia convergens built up rapidly in all small grains and alfalfa. Successfully controlled greenbugs. Averaged 2.4 - 2.6 per linear foot of row in several Major County wheat fields. Reduced average of 60



greenbugs per linear foot of row to 1 greenbug per 30 feet of row in a week at 2 check fields in Major County. (Okla. Coop. Sur.). ARKANSAS - LADY BEETLES are more numerous than usual for this time of year. (Ark. Ins. Sur.). MISSISSIPPI - H. convergens larvae and adults abundant on vetch infested with pea aphids in Oktibbeha County. (Dinkins).

FLOWER FLIES - INDIANA - Eggs of 2 species began to hatch at Vincennes. (Dolphin). ARKANSAS - More numerous than usual for this time of year. (Ark. Ins. Sur.).

BIG-EYED BUGS (Geocoris spp.) - ARKANSAS - More numerous than usual for this time of year. (Ark. Ins. Sur.).

DAMSEL BUGS (Nabis spp.) - OKLAHOMA - Moderate on Jackson County alfalfa. (Okla. Coop. Sur.).

BENEFICIAL INSECTS - NEW MEXICO - All beneficial insects heavier than usual at this time. (N. M. Coop. Rpt.).

#### FEDERAL & STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - UTAH - Hatched in San Rafael area, Wayne County. (Thornley). COLORADO - Grasshopper nymphs and adults abundant and active in foothills area of Larimer County. (Thatcher). OKLAHOMA - Hatching in crop margins and grasslands in Caddo, Comanche, Cotton, and Jefferson Counties. First instar ranged 1-3 per sweep. Hatching species are Melanoplus bivittatus, Ageneotettix deorum, and Aulocara ellioti.

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - For the eleventh consecutive week, inspections of 1,765 Steiner traps baited with methyl eugenol failed to disclose any additional adults in Orange County. Canec bait stations still in place. (Cal. Coop. Rpt.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Larvae becoming very abundant in Surinam cherries in Miami. (Fla. Coop. Sur.).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - In San Diego County, 45 blocks were sprayed. Increased personnel aided in speeding program before summer hosts would have to be included also. Because inspected area is finally well delimited, original estimate was revised downward to 1,000 blocks to be treated. At Bakersfield 5 blocks, plus 19 buffer blocks were treated for first time. At Fresno, 1,697 hosts on 22 blocks were negative. In Sacramento, treatment of citrus, gardenia, privet, lilac, and persimmon plants was completed on 35 infested blocks. (Cal. Coop. Rpt.).

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - No migration of adults from overwintering observed. (Connin, Haynes).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Moth emergence from experimental cages increased in Graham County. (Ariz. Coop. Sur.).

HAWAII INSECT REPORT

Turf - HUNTING BILLBUG (Sphenophorus venatus vestitus) adults light in Bermuda grass pastures in Waiaikoa, Maui. (Miyahira). On Oahu, RHODES-GRASS SCALE, (Antonina graminis) light to medium on Bermuda grass lawns in Kaneohe and on Bermuda grass along road shoulders and irrigation ditches in Ewa. (Funasaki).

Vegetables - GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) medium to heavy on Oahu in 1 acre of Chinese squash in Waimanolo and medium on snap beans and eggplant in Waianae. On Maui, very light in 4 acres of cucumbers at Pulehu. (Sato).

Fruits and Nuts - COCONUT LEAF ROLLER (Hedylepta blackburni) larvae caused moderate to heavy foliar damage in Waiehu, Maui. Newly emerged adults very heavy on coconut trees. (Ah Sam). ORIENTAL FRUIT FLY (Dacus dorsalis) adults light to medium in 2.5 acres of citrus in Haiku, Maui. Spraying has not produced desired control due to frequent rainfall. (Takishita).

Ornamentals - SMALL GARDEN SNAIL (Bradybaena similaris) caused moderate damage to Dendrobium blossoms occurred in Honolulu, Kona District, Hawaii Island; some flowers completely destroyed. (Yoshioka).

Shade trees - GREENHOUSE THRIPS (Heliothrips haemorrhoidalis) light to medium on foliage of golden shower trees, a new host record, in the Punchbowl and Manoa areas of Honolulu, Oahu. (Funasaki, Haramoto). MONKEYPOD MOTH (Polydesma umbricola) larvae and pupae in light numbers under bark of monkeypod trees in Pearl City and Kailua, Oahu. Further increase and spread expected within next few months. (Funasaki).

Beneficial Insects - A COCCINELLID BEETLE (Azya luteipes) larvae abundant on gardenia plants heavily infested with Coccus viridis in scattered areas of Kaneohe, Oahu. (Shibara). SOUTH AFRICAN EMEX WEEVIL (Apion antiquum) larvae, pupae, and adults in great abundance and inflicting heavy damage to Emex in Waiaikoa, Maui. (Miyahira).

Miscellaneous Insect - A survey for a GRASSHOPPER (Trimerotropis pallidipennis) was negative in sugarcane fields of Ewa, Oahu. (Funasaki).

**CORRECTIONS**

CEIR 17(14):261 - Sixth paragraph - Cerotomia should read Ceratomia.

CEIR 17(14):263 - Last paragraph - Adelges cooley should read Adelges cooleyi.

CEIR 17(14):264 - Second paragraph - Clastoptera airzonana should read arizonana. In same paragraph - change SYCAMOR to SYCAMORE.

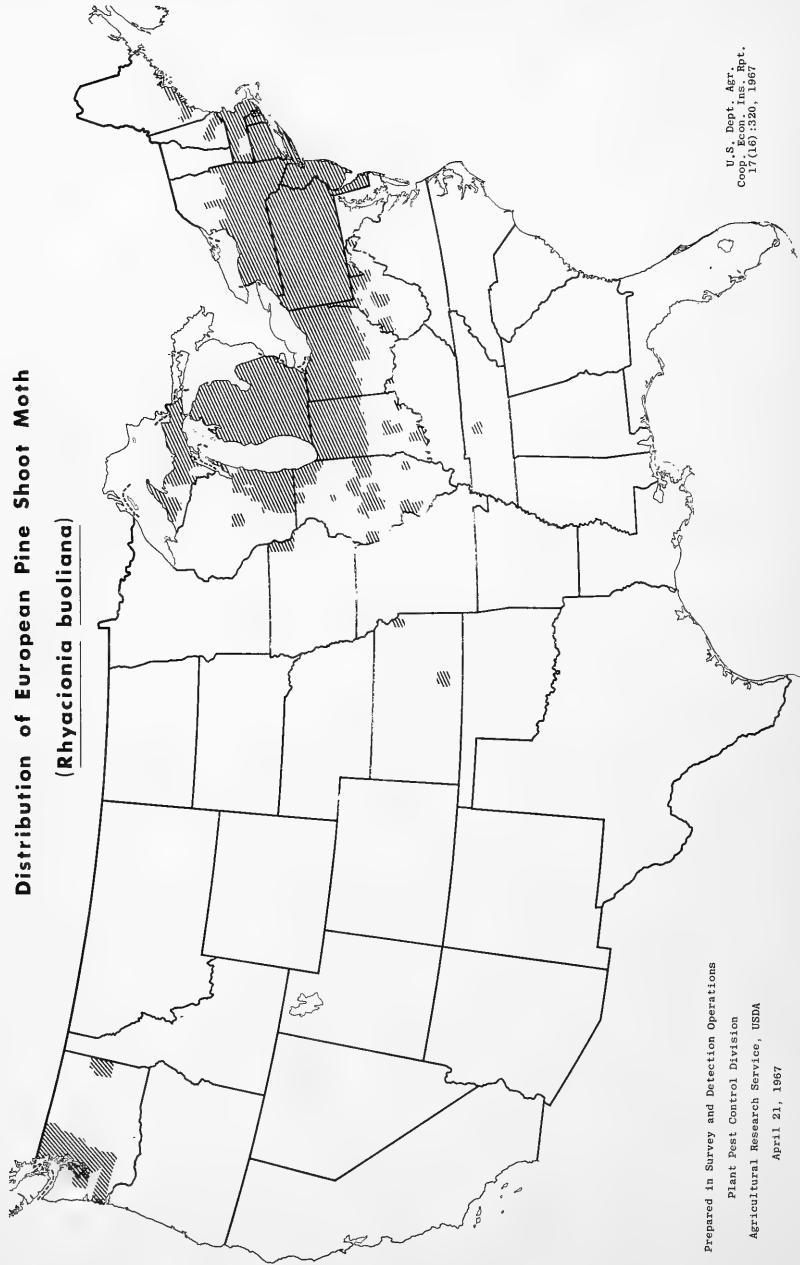
CEIR 17(14):270 - Seventh paragraph - Change Forificula to read Forficula.

CEIR 17(15):286 - Under corrections - BLACK PECAN APHID (Brachycaudus persicae-cola) should read BLACK PEACH APHID.

CEIR 17(15):289 - Second paragraph - POTATO TUBERWORM (Pthorimaea operculella) should read Pthorimaea operculella.



**Distribution of European Pine Shoot Moth**  
**(Rhyacionia buoliana)**



Prepared in Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service, USDA  
April 21, 1967

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
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Report on Survival of Boll Weevil as Determined by Surface Trash  
Examinations During the Spring - 1967

Spring collections of surface ground (woods) trash samples (two square yards per sample) have been completed in six Southern States. Wherever possible, samples were taken from the same locations that were sampled in the fall of 1966. The number of live boll weevil (Anthonomus grandis) adults per acre of ground trash examined and the percent survival are reported in the following paragraphs. For details of the fall (1966) hibernation survey in these six States, see CEIR 17(4):53-55.

In NORTH and SOUTH CAROLINA, samples were taken March 14-24 in the same four representative areas in which fall examinations were made in 1966. In each area, a total of 30 locations (farms sites) was sampled with 3 samples from each location. The areas are as follows: South-central South Carolina (Orangeburg, Dorchester, and Bamberg Counties), Coastal Plain of South and North Carolina (Florence, Darlington, and Marlboro Counties, S.C. and Scotland County, N.C.), Piedmont section of South and North Carolina (Greenville, Anderson, and Spartanburg Counties, S.C. and Mecklenburg, Cleveland, and Union Counties, N.C.) and North-central North Carolina (Northampton, Nash, Wilson, and Edgecombe Counties). The average number of two weevils per acre in these areas was 3,899, 1,542, 1,801, and 645 respectively. Percent survival for these areas was 32.6, 30.5, 22.6, and 12.9 respectively. Percent survival was lowest in north-central North Carolina and highest in south-central South Carolina. In Florence County, South Carolina, an average of 1,560 live weevils per acre was found for the spring of 1967, with a winter survival of 26.1 percent. The number of weevils surviving in Florence County is about 61 percent less the number surviving in the spring of 1966. (Taft, Hopkins).

In TENNESSEE, a survey was made in McNairy, Hardin, Hardeman, and Fayette Counties to determine the adult population which overwintered in the western portion of the State. The fall trash examinations indicate an average of 7,120 weevils per acre, which is the highest number on record for this area. The spring counts indicate an average of 3,388 live adults per acre compared with 1,089 per acre in the spring of 1966. This is a survival of 48 percent for 1967. If the weather during the summer is favorable for weevil buildup, this could be the worst weevil season on record for Tennessee. The mild winter did not reduce the population of overwintering weevils enough, so there is a very serious threat to this season's cotton crop. There are more weevils at this time than there has been since this survey was started in 1950. Infestations in the southern counties will be more general this season, rather than occurring in spots within the fields which has been the case in the past. (Locke).

Collections were started March 2 in MISSISSIPPI and all examinations completed by March 15. Three samples were taken from each location, and either 7 or 8 locations sampled in each county. Wherever possible, samples were taken from locations sampled last fall. Two counties made up each area and the State was divided into 4 areas as follows: Area 1 - south delta (Sharkey and Yazoo Counties), Area 2 - central delta (Washington and Leflore Counties), Area 3 - north delta (Coahoma and Panola Counties), Area 4 - hill section (Holmes and Monroe Counties). Forty-five samples were taken from a total of 15 locations in each of the 4 areas. The average number of weevils found per acre in Areas 1, 2, 3, and 4 was 1,782, 1,296, 1,512, and 1,512, respectively. The State average was 1,525 compared with 1,425 in 1966, 995 in 1965, 289 in 1964, 13 in 1963, 1,132 in 1962, 1,246 in 1961, and 821 in 1960. The percent survival for Areas 1, 2, 3, and 4 was 76.74, 55.81, 46.66, and 38.35, respectively. The State average (percent survival) was 51.60 compared with 19.45 in 1966, 22.19 in 1965, 9.68 in 1964, 0.2 in 1963, 13.59 in 1962, 8.59 in 1961, and 16.23 in 1960. (Pfrimmer).

Collections were made in northeast LOUISIANA March 13-16. This area includes Madison, East Carroll, and Tensas Parishes. Three samples were collected at each location and 20 locations were used in Madison Parish, 10 in Tensas Parish, and

10 in East Carroll Parish. A total of 120 samples was taken. The average number of weevils per acre of trash was 3,388 in Madison Parish, 806 in East Carroll Parish, and 647 in Tensas Parish, or an average of 2,057 for the triparish area. Based on the 3,166 live boll weevil adults found per acre of trash in the fall of 1966, winter survival in the triparish area was 65 percent. In Madison Parish, where similar records have been kept for the past 31 years, survival for the winter of 1966-1967 was 73 percent as compared with the average of 40 percent for the 31-year period. The total rainfall recorded at the Tallulah Laboratory from November 9, 1966 to March 16, 1967, at which time the spring ground trash collections were completed, was 15.22 inches. In this same period, there were 40 days when the minimum temperature was 32 degrees or less, and 12 days when the temperature was 25 degrees or less. The lowest temperature recorded was 18 degrees on November 2. (Cleveland).

In central TEXAS, spring collections were made March 7-16 from the same locations in Falls, Hill, Limestone, and McLennan Counties as in the fall of 1966. Three samples were taken from each location and 6 or 7 locations were sampled in each county; 75 samples were taken from a total of 25 locations in the 4 counties. The average number of weevils found per acre in Falls, Hill, Limestone, and McLennan Counties was 1,210, 1,613, 1,478, and 922 respectively, with an average of 1,292. This compared with 4,570, 5,779, 3,494, and 5,530 found in these respective counties in the fall of 1966, with an average of 4,877 weevils per acre for the area. The percent survival was 26.5, compared with 24.8 in 1966, 100 in 1965, 18.8 in 1964, 25.4 in 1963, 33.1 in 1962, 33.7 in 1961, and 31.1 in 1960. The indicated spring survival of 26.5 percent in 1967 was lower than any previous year except 1963, 1964, and 1966. Winter weather was comparatively mild with subfreezing temperatures on 34 days. A minimum of 15° was recorded on December 24. Total rainfall was 1.59 inches, or 5.84 inches below normal during the 3 months. (Cowan).

See tabulation and map on the following pages.



BOLL WEEVIL SURVIVAL SURVEYS - SPRING 1967

Area (County and State)	Number of Weevils Per Acre	
	1966	1967
<u>NORTH and SOUTH CAROLINA</u>		
South-central South Carolina (Orangeburg, Bamberg and Dorchester Counties).	484	3,899
Coastal Plain of South and North Carolina (Florence, Darlington and Marlboro Counties, S. C.; Scotland County, N. C.).	3,307	1,542
Piedmont of South and North Carolina (Anderson, Greenville and Spartanburg Counties, S. C.; Mecklenburg, Cleveland, and Union Counties, N. C.).	3,469	1,801
North-central North Carolina (Nash, Wilson, Edgecombe, and Northampton Counties).	1,425	645
<u>TENNESSEE</u>		
McNairy, Hardin, Hardeman, and Fayette Counties.	1,089	3,388
<u>MISSISSIPPI</u>		
South Delta (Sharkey and Yazoo Counties (area 1)).	2,366	1,782
Central Delta (Washington and Leflore Counties (area 2)).	1,076	1,296
North Delta (Coahoma and Panola Counties (area 3)).	1,076	1,512
Hill Section (Holmes and Monroe Counties (area 4)).	1,183	1,512
<u>LOUISIANA</u>		
Northeastern (East Carroll, Madison, and Tensas Parishes).	247	2,057
<u>TEXAS</u>		
Central (Falls, Hill, Limestone, and McLennan Counties).	1,098	1,292

Survey Method for Three-Cornered Alfalfa Hopper  
(Spissistilus festinus) in Soybeans in Arkansas 1/

W. P. Boyer, Survey Entomologist  
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Increasing reports of infestations of this pest in soybeans created the need for a survey method to use in estimating populations and determining the economic level of infestations.

Boyer and Dumas (1963) stated that the plant shaking method of survey adopted at that time for soybean insects appeared to be adequate for all current economic pests of soybeans except the three-cornered alfalfa hopper. Thus a survey method primarily for this species was needed.

The habits of this species, however, require a different approach. The adult, an extremely active insect, hops or flies at the least disturbance whereas the nymph remains in place when plants are examined. During most of the season, nymphs feed on the main stems just above the ground level. A survey method for both adults and nymphs, based on these habits, was established.

A standard 15-inch sweep net was used to survey adults. The following three methods of sweeping were tested:

1. Walk fast in row middle parallel with rows. Reach forward as far as possible and sweep the top of one row of beans pulling the net toward the surveyor in the manner of rowing a boat with a single oar. Approximately three feet of row are swept.
2. Walk fast in row middle parallel with rows. Sweep across the tops of the two rows between which the surveyor is walking.
3. Walk across rows. Reach over a row and sweep three feet of tops of plants of second row from surveyor.

Ten sweeps by each method were made 12 times near midday August 30, 1966, in Desha County. A 15-inch sweep net was used. Results are presented in Table 1

Table 1. S. festinus adults taken per 10 sweeps by 3 methods of sweeping.

Test No.	No. of Adults Taken		
	Method 1	Method 2	Method 3
1	7	8	3
2	5	6	3
3	11	16	7
4	8	11	5
5	9	5	8
6	10	9	4
7	8	10	6
8	9	9	6
9	11	15	16
10	11	7	13
11	13	8	17
12	13	14	8
Total	115	118	96
Mean	9.58	9.83	8.0
Standard deviation	2.39	3.54	4.80
Coefficient of variation	24.9%	36.0%	60.0%



Method 1, which had the lowest coefficient of variation (24.9), was adopted. Methods 1 and 2 were much easier to use than number 3. The total number of insects collected by the first 2 methods was 16-18 percent greater than by number 3.

An easy way to locate nymphs is to bend plants over on 3 feet of row. By this method stems may be observed immediately above the ground level. Make records of the number of nymphs and total number of plants including the number of those girdled and lodged.

The adopted survey method consists of making 10 sweeps and examining 3 row feet, in a nearby area, in each of 10 locations per field. Final data include adults per 100 sweeps and nymphs along with girdled, lodged and total plants on 30 row feet. Most of these data are quantitative. Plant and nymph numbers per acre are easily calculated as are percentages of plants girdled and lodged.

The economic level of infestation has not been determined at this time. Work on this was conducted in 1966 and further work will be done.

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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

GREENBUG collected in Minnesota and Wisconsin. (p. 339).

EUROPEAN CORN BORER overwintering mortality reported from Iowa, Minnesota, and North Dakota; mortality less than normal in Minnesota. (p. 339).

ALFALFA WEEVIL continues a threat; reported from 13 States this period. PEA APHID is most serious pest of alfalfa in Missouri; heavy in Illinois and increasing in Ohio, Virginia, and Delaware. (pp. 341-342).

ENGRAVER BEETLES killed red pine in Pennsylvania during winter. (p. 348).

CEREAL LEAF BEETLE is moving into wheat and native grasses in Michigan, mating observed in Indiana. (p. 352).

Detection

For new island and county records see page 352.

Predication

FALL CANKERWORM and an OAK LEAF ROLLER may be serious again in Pennsylvania. Heavy defoliation indicated in Cameron and Lycoming Counties. (p. 349).

Some First Occurrences of Season

GARDEN WEBWORM adults in Washington; ALFALFA WEEVIL larvae in Nebraska; CORN EARWORM and BLACK CUTWORM adults in Kansas; SMALLER EUROPEAN ELM BARK BEETLE adults in Missouri; AMERICAN PLUM BORER adults in Indiana; LESSER CLOVER LEAF WEEVIL and TOBACCO FLEA BEETLE adults in Maryland; YELLOW-STRIPED ARMYWORM adults in Delaware; and GRAPE LEAF SKELETONIZER adults in Florida.

Special Reports

Insects Not Known to Occur in the United States

BLACK VINE THRIPS (Retithrips syriacus (Mayet)) (p. 354).

Survey Method for Thrips in Cotton in Arkansas. (p. 356).

Japanese Beetle Quarantine (Map). See centerfold.

Reports in this issue are for week ending April 21 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING APRIL 24

HIGHLIGHTS: Winter returns to the Plains and Northeast. Severe tornadoes strike near Chicago. A few dry areas remain.

PRECIPITATION: Many areas in the Far West received substantial precipitation. Rain fell over the lower elevations and snow in the mountains on several days. The desert areas of California, Arizona, and New Mexico received no rain or only widely scattered light sprinkles. East of the Rockies, precipitation came mostly early and late in the week except for some thunderstorm activity at mid-week in the central Plains. Weekly totals exceeded 2 inches over a narrow band from central Texas to northwestern Arkansas and at a few widely scattered localities elsewhere. Much of the area from the Great Lakes to the northern portions of the Gulf States received more than 1 inch of rain. Rain brought some relief from the prolonged dry conditions in Mississippi, Alabama, and Georgia but the long dry spell continued over the southern parts of those States and Weather of the week continued on page 353.

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**GREENBUG (*Schizaphis graminum*)** - OKLAHOMA - Decrease continued in most areas. None in Ellis County wheat field; moderate in Mayes County. (Okla. Coop. Sur.). KANSAS - Low; less than 50 per 10 sweeps on most wheat checked in eastern area. Parasites and predators increased during past 14 days. (Martinez). NEBRASKA - Survey on wheat in northwest negative. (Andersen). MINNESOTA - Collected with a suction-type insect trap after strong southerly winds April 14. (Minn. Ins. Rpt.). WISCONSIN - Winged forms light on rye and roadside grasses in Holmen and Trempealeau areas April 19. (Wis. Ins. Sur.).

**SPOTTED ALFALFA APHID (*Therioaphis maculata*)** - OKLAHOMA - Heavy on alfalfa in Craig and Mayes Counties; moderate in Cleveland and Garvin Counties. (Okla. Coop. Sur.). NEW MEXICO - Light on alfalfa in Chaves County. (Mathews). COLORADO - Overwintered in low numbers in Baca County; averaged 1 per 6-square-inch soil sample in field north of Walsh, February 25. Noneconomic at present. (Schweissing).

**CORN LEAF APHID (*Rhopalosiphum maidis*)** - NEW MEXICO - Light on barley in Dona Ana County. (Campbell). UTAH - Light on barley from Santa Clara through Washington, Washington County. (Knowlton, Davis).

**SIX-SPOTTED LEAFHOPPER (*Macrostelus fascifrons*)** - FLORIDA - More abundant on oats than rye; nymphs increasing at Gainesville, Alachua County. (Mead). WISCONSIN - No appreciable increase in southwest; averaged about 4 per 100 sweeps in most grain fields. (Wis. Ins. Sur.). MINNESOTA - Collected with a suction-type insect trap after strong southerly winds April 14. Ranged 1-15 per 100 sweeps of rye and roadside grasses in southeast and east-central districts. (Minn. Ins. Rpt.).

**POTATO PSYLLID (*Paratrioza cockerelli*)** - ARIZONA - Moderate; continues to require controls on potatoes in western Maricopa County. Light in Queen Creek area. (Ariz. Coop. Sur.).

**ARMYWORM (*Pseudaletia unipuncta*)** - FLORIDA - Larvae 12 per 100 sweeps on rye and oats at Gainesville. (Mead). DELAWARE - Adults 2 per night in blacklight trap in Sussex County. (Burbutis). ILLINOIS - Moths, but no larvae in south-central area wheat. (Ill. Ins. Rpt.). MISSOURI - Less than 1 small larva per square foot of small grain in extreme southeast area. (Jones, Keaster).

**ARMY CUTWORM (*Chorizagrotis auxiliaris*)** - UTAH - Light on alfalfa at Lynndyl. (Knowlton). COLORADO - Active on wheat at Johnstown, serious at Ault and Keota. (Rothman, Boyes). NEBRASKA - Less than 1 per square foot on wheat in 4 western counties. (Andersen).

**CORN EARWORM (*Heliothis zea*)** - KANSAS - First adults of season in blacklight trap at Great Bend. (Martinez). FLORIDA - Dominant "budworm" of corn at Sanford. (Greene).

For Beet Leafhopper see page 343.

### CORN, SORGHUM, SUGARCANE

**EUROPEAN CORN BORER (*Ostrinia nubilalis*)** - DELAWARE - Pupation 35 percent in Kent and Sussex Counties. (Burbutis). MARYLAND - Pupating rapidly on Eastern Shore; averaged 40 percent at Hebron, Wicomico County. (U. Md., Ent. Dept.). IOWA - Percent mortality by area: Northwest 11.1, northeast 18.1, central 10.0, southwest 39.0. (Iowa Ins. Sur.). MINNESOTA - Overwintering mortality less than normal; percent averaged as follows: Southwest 10, south-central 7, west-central 6, southeast 25. (Minn. Ins. Rpt., April 14). NORTH DAKOTA - Winter mortality of 21 percent in southeast and east-central districts same as in 1966. Mortality in untilled corn 0-50 percent; lowest in Sargent and Richland Counties, highest in Cass and Dickey Counties. Live borers ranged 1,136-51,304 averaged 12,100, an increase over 3,388 borers per acre in 1966. (Brandvik).

BLACK CUTWORM (Agrotis ipsilon) - KANSAS - First adults of season taken in black-light trap in Barton County. (Martinez).

CHINCH BUG (Blissus leucopterus) - KANSAS - Ranged 4-10 per 4-inch corn plant in Montgomery County. Controls successful. (Gates).

SUGARCANE BEETLE (Euethoela rugiceps) - ALABAMA - Adults heavy, damaging 40-acre field of young corn in Cherokee County. Controls applied. (Young et al.).

#### SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - MARYLAND - Nymphs and winged forms light on young barley near Cambridge, Dorchester County. (U. Md., Ent. Dept.). FLORIDA - Common on oats, less so on rye; apparently decreasing at Gainesville. (Mead). MISSISSIPPI - Medium to heavy on wheat in Clay County. (Dinkins). MISSOURI - Most common aphid on small grains in south-central and southwest areas. Ranged 0-150 per foot of row of wheat and barley; averaged 28 per foot. (Munson). ILLINOIS - Adults decreasing, only 0.2 per sweep in east district. (Ill. Ins. Rpt.). INDIANA -- All stages on wheat in south area; up to 5 per sweep. (Huber). WISCONSIN - Averaged 1-5 per 100 sweeps of rye; found uniformly in rye throughout southern area. Nearly full-grown wingless nymphs present in many instances. (Wis. Ins. Sur.). MINNESOTA - Collected with a suction-type insect trap after strong southerly winds on April 14. (Minn. Ins. Rpt.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - UTAH - Light on barley from Santa Clara through Washington in Washington County. (Knowlton, Davis).

A LEAFHOPPER (Graminella nigrifrons) - FLORIDA - Adults unchanged on rye and oats; nymphs increasing, heavier on oats at Gainesville. (Mead).

STINK BUGS - FLORIDA - Nezara viridula very low on rye, increasing on oats; 20 adults and 3 nymphs taken per 100 sweeps of oats at Gainesville. (Mead). MISSISSIPPI - Oebalus pugnax adults light on flowering wheat in Clay County; averaged 10 per 100 sweeps. (Dinkins). CALIFORNIA - Euschistus conspersus adults medium in 120-acre barley field near Kettleman City, Kings County. (Cal. Coop. Rpt.).

A FLOWER THRIPS (Frankliniella bispinosa) - FLORIDA - Continues numerous on oats at Gainesville; several thousand per 100 sweeps. (Mead).

WIREWORMS (Ctenicera spp.) - IDAHO - Found among roots and tillers of wheat in Nez Perce County; decreased plant stands 0-30 percent along field margins and in rod-diameter areas. (Kambitsch, Portman).

WINTER GRAIN MITE (Penthaleus major) - CALIFORNIA - Medium on barley in Armona area, Kings County. (Cal. Coop. Rpt.).

#### TURF, PASTURES, RANGELAND

GREEN JUNE BEETLE (Cotinis nitida) - MISSOURI - Heavy in southwest area; full-grown larvae, 2 per square foot killed stand of orchard grass. Probably attracted to field when heavy application of manure made last year. (Munson).

MAY BEETLES (Phyllophaga spp.) - ARKANSAS - Emergence heavy in central and southern areas; light in northwest. Damaged golf greens by digging into ground for ovipositing. (Barnes).

A JOINTWORM (Harmolita opuntiae) - UTAH - Caused numerous galls on a short grass, evidently Hilaria sp., in Cisco and La Sal area of Grand and San Juan Counties, and near Cedar City, Iron County. High incidence of these galls in some localities. (Knowlton et al.).

GRASS BUGS - UTAH - Labops sp. nymphs damaging sizable area of crested wheatgrass at New Harmony, Washington County, and in Iron County. (Knowlton, Sjoblom). Second to third instars of Irbisia sp. infested crested wheatgrass south of Alton, Kane County. (Knowlton, Davis, April 13).

ENGLISH GRAIN APHID (Macrosiphum avenae) - DELAWARE - On ryegrass in Kent County. (Burbutis).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - UTAH - Adults active on alfalfa in Wayne, Sevier, Sanpete, Utah, and Salt Lake Counties. (Knowlton et al.). COLORADO - Larvae 5-20 per 100 sweeps in Mesa County; 50-60 percent parasitized. (Bulla). NEBRASKA - First larvae of season feeding on alfalfa in Dawson County. (Manglitz). MISSOURI - Adult emergence heavy in extreme southeast area. (Jones). Larvae 0-34 per sweep in south-central and southwest areas; occasional adult collected. Alfalfa nearing first cutting in south-central and southwest areas. (Munson). ILLINOIS - Ranged 18-60 per sweep in southwest in 14 to 18-inch alfalfa; larvae per sweep, 10-70 in southeast, 0-2 in east. (Ill. Ins. Rpt.). MISSISSIPPI - Larvae per square foot in Pontotoc County, approximately 40 in treated and 70 in untreated plots. (Dinkins). ALABAMA - First-generation adults heavy in alfalfa in Cherokee County field. (Patterson et al.). INDIANA - Economic throughout area below U. S. Highway 40. Larvae 4-138 per sweep. Untreated first-growth alfalfa in south severely damaged; completely defoliated in many instances. Pupation underway in southern area; adult emergence underway in Ohio River areas. (Huber). OHIO - Larval damage economic in southwest; 90 percent or more of terminals damaged in most fields. Yield of first cutting will be greatly reduced. (Rose). VIRGINIA - Very heavy with much damage on untreated alfalfa in Orange and Prince Edward Counties; some pupae present. Prepupae at lower elevations in Montgomery County. (Pienkowski). Larvae 10 per sweep in Goochland County field flamed in January. (Innes). Larvae 30-60 per 10 sweeps in alfalfa in Washington, Smyth, and Bland Counties; 2-15 per sweep, on ladino clover in Mecklenburg, Halifax, and Brunswick Counties with damage evident. (Isakson). MARYLAND - Larvae 15 per sweep in Dorchester County. Foliage damage increasing in all sections. (U. Md., Ent. Dept.). DELAWARE - Larvae per 10 sweeps, 30-40 in Kent County, over 200 in some Sussex County fields. Injury moderate in most areas. (Burbutis). NEW JERSEY - Larvae abundant in Cumberland, Salem, and Gloucester County alfalfa. (Ins.-Dis. Newsltr.).

CLOVER LEAF WEEVIL (Hypera punctata) - UTAH - Larvae injuring some alfalfa at Flowell, Millard County. (Davis, Knowlton). MISSOURI - Low or nonexistent in southwest. Ranged 4-13 per square foot in central area. A fungus, Entomophthora sphaerosperma, attacking these weevils in this area. (Munson). ILLINOIS - Averaged 8 per sweep in east area. (Ill. Ins. Rpt.). INDIANA - Late instars beginning to show disease symptoms, but early and middle instars remain unusually abundant (4-46 per sweep) on alfalfa and clover in southern two-thirds of State. (Huber). WISCONSIN - Larvae common on alfalfa in Spring Green area but very few noted in area to west. (Wis. Ins. Sur.).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - MARYLAND - First adults of season on red clover April 18 at Easton, Talbot County. (U. Md., Ent. Dept.).

WEEVILS (Hypera spp.) - CALIFORNIA - Larvae, probably H. brunneipennis, heavy in burclover pasture at Piru, Ventura County. Hypera sp. medium in Dixon, Solano County; medium in Chino, San Bernardino County; heavy at Hickman, Stanislaus County. H. postica and H. brunneipennis complex has complicated distribution of these 2 species in State. (Cal. Coop. Rpt.).

CLOVER ROOT CURCULIO (Sitona hispidula) - ILLINOIS - Adults averaged 4 per sweep in alfalfa. (Ill. Ins. Rpt.).

LEAF BEETLES - KANSAS - Few adults of Diabrotica undecimpunctata howardi and Cerotoma trifurcata on southeast alfalfa. C. trifurcata averaged less than 3 per 10 sweeps. (Simpson).

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Light, but increasing on alfalfa in Graham and Cochise Counties. Continues moderately heavy in Maricopa, Yuma, and Pinal Counties. (Ariz. Coop. Sur.). UTAH - Light on alfalfa in Washington and Kane Counties. (Knowlton). NEW MEXICO - Light on alfalfa. (N. M. Coop. Rpt.). COLORADO - Ranged 20-30 per 100 sweeps in western area. (Bulla). OKLAHOMA - Moderate on alfalfa in Mayes, Muskogee, Cleveland, Bryan, and north-central areas. (Okla. Coop. Sur.). KANSAS - Ranged from 50 to over 5,000 per 10 sweeps in southeast district. Predators low; a few lady beetle and lacewing larvae appearing. (Simpson). NEBRASKA - Averaged less than 2 per 100 sweeps on alfalfa in Dawson County. (Manglitz). MISSOURI - Most serious pest of alfalfa in southwest; damage common. Ranged 100-3,000 per 10 sweeps. Reported killing vetch in southeast. (Jones). ILLINOIS - Average counts per sweep in alfalfa by district as follows: Southeast 125, east-southeast 40, southeast 15, east 2. (Ill. Ins. Rpt.). WISCONSIN - Remains low in alfalfa; few winged forms have developed on sandy-soiled areas. Parasites becoming numerous; more than 30 percent of pea aphids show evidence of disease or parasitism in many fields. (Wis. Ins. Sur.). INDIANA - Heavy on alfalfa in southwest and south-central areas. Ranged 46-340 per sweep in fields where alfalfa weevil has not destroyed canopy. (Huber). OHIO - Increasing on alfalfa in southwest; 18-65 per sweep. (Rose). VIRGINIA - Building up in red clover in Mecklenburg County; up to 1,000 per 10 sweeps. (Isakson). MARYLAND - Averaged 10 per sweep on alfalfa in Dorchester County; alates present. (U. Md., Ent. Dept.). DELAWARE - Increased on alfalfa; 25 per 10 sweeps in Kent and Sussex Counties. Few alates present. (Burbutis). NEW JERSEY - Extremely light; 0-12 per 100 sweeps. (Ins.-Dis. Newsltr.).

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - Adults and nymphs heavy in field of alfalfa in Cherokee County. (Patterson et al.). OKLAHOMA - Averaged 6 per 10 sweeps in Payne County alfalfa. (Okla. Coop. Sur.). KANSAS - Continues low; 5-12 per 10 sweeps in southern area alfalfa. (Simpson). INDIANA - Early instars present on alfalfa throughout southern half of State; adults average 1 per sweep. (Huber). OHIO - Averaged 1 adult per sweep on alfalfa in southwestern area. (Rose).

LYGUS BUGS (Lygus spp.) - MINNESOTA - Active in alfalfa. (Minn. Ins. Rpt.). COLORADO - Range 5-20 per 10 sweeps in alfalfa fields and peach orchards in western area. (Bulla). NEW MEXICO - Nymphs and adults increasing on alfalfa in Mesilla Valley, Dona Ana County. (Campbell). Light on alfalfa in Chaves County. (Mathews). UTAH - Mostly L. elisus active in Wayne and Sevier County alfalfa. (Knowlton). WASHINGTON - Few adults and many half-grown nymphs observed on wild mustard in bloom at Vernita, Benton County. (Landis).

MEADOW SPITTLEBUG (Philaenus spumarius) - WISCONSIN - Eggs began hatching by April 19 in alfalfa field with a pronounced southern exposure. (Wis. Ins. Sur.). MARYLAND - Nymphs light but increasing on red clover in Talbot County. (U. Md., Ent. Dept.).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - DELAWARE - Averaged 3 adults per 10 sweeps on alfalfa in Kent County. (Burbutis).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Increasing on alfalfa. Light in Graham, Cochise, and Pima Counties; moderate in Pinal, Maricopa, and Yuma Counties. (Ariz. Coop. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - MISSOURI - Early instars up to 5 per 10 sweeps in southwest area alfalfa. (Munson). DELAWARE - A few overwintered adults in Sussex County blacklight trap. (Burbutis).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - DELAWARE - First adults of season taken in Sussex County blacklight trap. (Burbutis).

CLOVER MITE (Bryobia praetiosa) - ARIZONA - Light numbers appearing on alfalfa in San Simon and Stewart areas of Cochise County. (Ariz. Coop. Sur.).

#### COTTON

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Light numbers appearing in few fields throughout Maricopa County. (Ariz. Coop. Sur.).

THRIPS - ARIZONA - Frankliniella occidentalis increasing rapidly; damage moderate in Yuma County; light in Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

ALABAMA - F. fusca light on two-leaf stage cotton in Cherokee County. (Patterson et al.).

COTTON APHID (Aphis gossypii) - ALABAMA - Light to heavy on two-leaf stage cotton in Cherokee County. (Patterson et al.).

SPIDER MITES (Tetranychus spp.) - ALABAMA - Light on two-leaf stage cotton near field borders in Cherokee County. Heavy on vetch near cotton in several northern locations. (Patterson et al.).

#### TOBACCO

FLEA BEETLES - SOUTH CAROLINA - Unspecified species damaged some tobacco in Dorchester County. (Nettles et al.). MARYLAND - First Epitrix hirtipennis adults of season found April 18 on tobacco beds in Prince Georges County. (U. Md., Ent. Dept.).

#### SUGARBEETS

GARDEN WEBWORM (Loxostege similalis) - WASHINGTON - First adults observed April 15 at Yakima, Yakima County; could be serious since damage occurred during 1966. (Landis).

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Light numbers appearing in Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

BEE T LEAFHOPPER (Circulifer tenellus) - UTAH - On seed sugarbeets at Santa Clara, Washington County, 1 per 25 sweeps. (Knowlton).

SUGAR-BEE T ROOT MAGGOT (Tetanops myopaeiformis) - COLORADO - Adults emerging from 1966 sugarbeet field in Weld County. Numerous pupae, 8-18 per square foot, in last year's fields; adults expected as pupation rapid. (Marsh et al.).

#### MISCELLANEOUS FIELD CROPS

LYGUS BUGS (Lygus spp.) - ARIZONA - Nymphs increasing rapidly on safflower in Maricopa and Pinal Counties; some controls applied. (Ariz. Coop. Sur.).

#### POTATOES, TOMATOES, PEPPERS

NOCTUID MOTHS - FLORIDA - Larvae of Spodoptera exigua and Feltia subterranea infested peppers at Belle Glade, Palm Beach County. (Wilson, April 14).

POTATO TUBERWORM (Phthorimaea operculella) - FLORIDA - Larvae infesting about 5 percent of 100,000 eggplants at Webster, Lake County. (Bentley, April 12).

FLEA BEETLES - ALABAMA - Chaetocnema pulicaria and Epitrix cucumeris adults light to heavy on several hundred acres of tomatoes in Chandler Mountain in St. Clair County. Most acreages treated twice for control of these and other pests. (Eubanks et al.).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - ALABAMA - Adults heavy, 1 per foot of row, damaging young plants in 40-acre commercial tomato planting on Chandler Mountain in St. Clair County. Planting operations destroyed native winter weed host; controls applied twice to several hundred acres of tomatoes in area. (Eubanks et al.).

A LEAF MINER FLY (Liriomyza sp.) - ALABAMA - Infested isolated tomato plants in commercial acreages on Chandler Mountain in St. Clair County. (Eubanks et al.).

A CRANE FLY (Trichocera sp.) - IDAHO - Abundant larvae associated with tare dirt and decaying tubers in potato storage cellars at Idaho Falls, Bonneville County. (Monroe).

#### BEANS AND PEAS

BEAN LEAF BEETLE (Cerotoma trifurcata) - ALABAMA - Adults damaged 10 percent of two-leaf stage pole beans in 30-acre planting on Chandler Mountain in St. Clair County. Similar infestations in home gardens in Lee, Cherokee, Greene, and other counties. (Eubanks et al.). FLORIDA - Larvae moderate on 20 percent of 400 wax bean plants at Port Orange, Volusia County. (Pott, Apr. 7).

A WEEVIL (Pantomorus taeniatulus) - ALABAMA - Adults heavy, 15-20 per hill of beans, in Greene County home garden. Garden in native weeds and grass for past few years; normal hosts destroyed. (McDonald et al.).

#### COLE CROPS

A NOCTUID MOTH (Prodenia sunia) - FLORIDA - Ten larvae collected from cabbage at Homestead, Dade County. First report of economic importance in State. (Wolfenbarger, Habeck).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Few eggs in cabbage; most larvae full grown or died due to a virus disease. Light trap collections have increased at Sanford. (Greene). ALABAMA - Light and localized on cabbage in St. Elmo area, Mobile County; first-generation adults emerging. (Dillier, Seibels).

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Larvae heavy, 2-3 per plant, on several hundred acres of commercial cabbage in De Kalb County. (Smith).

DIAMONDBACK MOTH (Plutella xylostella) - UTAH - Larvae light on wild mustard at St. George, Washington County. (Knowlton).

#### CUCURBITS

MELON APHID (Aphis gossypii) - ARIZONA - Moderate to heavy; required controls to protect cantaloups and melons in Yuma Valley and Wellton areas of Yuma County. (Ariz. Coop. Sur.).

#### GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Some control in progress on lettuce for this species and Heliothis zea in the Mesilla Valley, Dona Ana County; results very good. (N. M. Coop. Rpt.).



DINGY CUTWORM (Feltia subgothica) - DELAWARE - Larvae of this species or F. ducens damaged asparagus in Kent County. (Burbutis).

HARLEQUIN BUG (Murgantia histrionica) - OKLAHOMA - Heavy and damaging radishes and greens in home gardens in Bryan County. (Okla. Coop. Sur.).

THRIPS - NEW MEXICO - Light to medium on onions in Dona Ana County. (Campbell).

ONION MAGGOT (Hylemya antiqua) - COLORADO - Adults increased in traps in Vineland area of Pueblo County during past 14 days. (Schweissing).

#### HAWAII INSECT REPORT

Sugarcane - RUSTY PLUM APHID (Hysteroneura setariae) heavily infested a sugarcane tassel at Kailua, Oahu, on January 2. Previously found only on wire-grass at Ewa, Oahu, during September 1961. (Bianchi).

Turf, Pasture, Rangeland - Nymphs and adults of a LEAFHOPPER (Deltocephalus hospes) heavy, about 15 adults per sweep, on Bermuda grass lawns at Kaneohe, Oahu. (Funasaki). Scattered infestations of a BILLBUG (Sphenophorus venatus vestitus) in Kohala District, Hawaii, occurring in approximately 18,000 acres of Kikuyu grass pastureland, an increase of about 3,000 acres since December 1966. (Garcia et al.). An undescribed TARSONEMID MITE (Steneotarsonemus sp.) reported for the first time from Hawaii; infesting Bermuda grass in Manoa Valley, Oahu. (Haramoto, April 14).

Vegetables - LEAF MINER FLIES (Liriomyza spp.) light to medium in large plantings of watermelon, honeydew, and cantaloup at Kahuku, medium to heavy in snap bean fields at Waiānae, and medium on 0.5 acre of tomatoes at Hauula, Oahu. (Thistle, et al.). GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) medium to heavy on snap beans and tomatoes at Waiānae and Waimanalo. (Yamamoto, Kubota).

Ornamentals - BEAN BUTTERFLY (Lampides boeticus) adults heavy on flowers of sea-shore cowpea on Oahu at Waiānae and Waimanalo. (Morris).

Forest and Shade Trees - ARGENTINE ANT (Iridomyrmex humilis) medium to heavy on Acacia koa and A. decurrens at Kokee, Kauai. Populous community nests easily found in soil. (Au).

General Pests - Mostly third to fifth instars of SOUTHERN GREEN STINK BUG (Nezara viridula) light on black nightshade and castor bean plants at Koko Head and Waimanalo, Oahu. Eggs of a TACHINA FLY (Trichopoda pennipes var. pilipes var. on 75 percent of adults. On Maui, N. viridula remains light. T. pennipes var. pilipes eggs present on 80 percent of adult stink bugs in lowlands of Kahului and Lahaina. (Nakao, Miyahira).

Man and Animals - Mosquito light trap collections from 47 stations on Oahu for March increased; Aedes vexans nocturnus averaged 34.6 and Culex pipiens quinquefasciatus averaged 105.9 per station. Aedes counts highest at Waiahole, Kahuku, and Ewa. Culex counts highest at Waihole and Kailua on windward side of island and at Nanakuli-Waiānae on leeward side. (Mosquito Control Branch, Dept. of Health, Oahu).

Beneficial Insects - A CRYPTOCHETID FLY (Cryptochetum iceryae) moderate on cottony-cushion scale infesting 5 acres of tickclover at Waimanalo, Oahu. (Hale). A CLICK BEETLE (Chalcolepidus erythroloma) adult found in a farm building at Kainaliu-Kona, Hawaii. The larvae are reported to be predacious. This is a new island record. (Iwane).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Carpocapsa pomonella) - COLORADO - Few taken in attractant traps in Mesa County. (Bulla). INDIANA - About 90 percent of overwintering larvae have pupated in caged corrugated bands at Vincennes. (Dolphin).

UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) - INDIANA - Adults present on apple foliage at Vincennes. (Dolphin).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - INDIANA - Overwintering generation declining at Vincennes. (Dolphin).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - Adult emergence continues; total of 102 adults collected in bait traps compared with 52 adults previous week at Vincennes. (Dolphin).

PEACH TWIG BORER (Anarsia lineatella) - INDIANA - Nearly full-grown larvae feeding on new growth of peach trees at Vincennes. (Dolphin).

AMERICAN PLUM BORER (Euzophera semifuneralis) - INDIANA - First adults of season emerged from field-caged peach April 10 at Vincennes. (Dolphin).

A PHYCITID MOTH (Acrobasis tricolorella) - MICHIGAN - Larvae began leaving hibernacula and feeding on cherry buds April 11 in Oceana County; emergence completed by April 18. (Boldt).

PECAN NUT CASEBEARER (Acrobasis caryae) - LOUISIANA - Two adults collected April 18, and one April 21 in light trap at Shreveport; all were males. (Calcote).

ROSY APPLE APHID (Dysaphis plantaginea) - COLORADO - Few colonies noted in Mesa, Delta, and Montrose Counties. (Bulla). CONNECTICUT - Active at Storrs. (Schroeder).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - WISCONSIN - Fundatrices moved to petioles of Prunus spp. flower buds in Western Dade County. (Wis. Ins. Sur.).

GREEN PEACH APHID (Myzus persicae) - INDIANA - Alates collected from peach foliage at Vincennes. (Dolphin). UTAH - Curling some apical growth peach leaves in Washington County. (Knowlton, Davis).

BLACK PEACH APHID (Brachycaudus persicaecola) - NEW JERSEY - Reported in several Camden County blocks of newly planted fruit trees. (Ins.-Dis. Newsltr.).

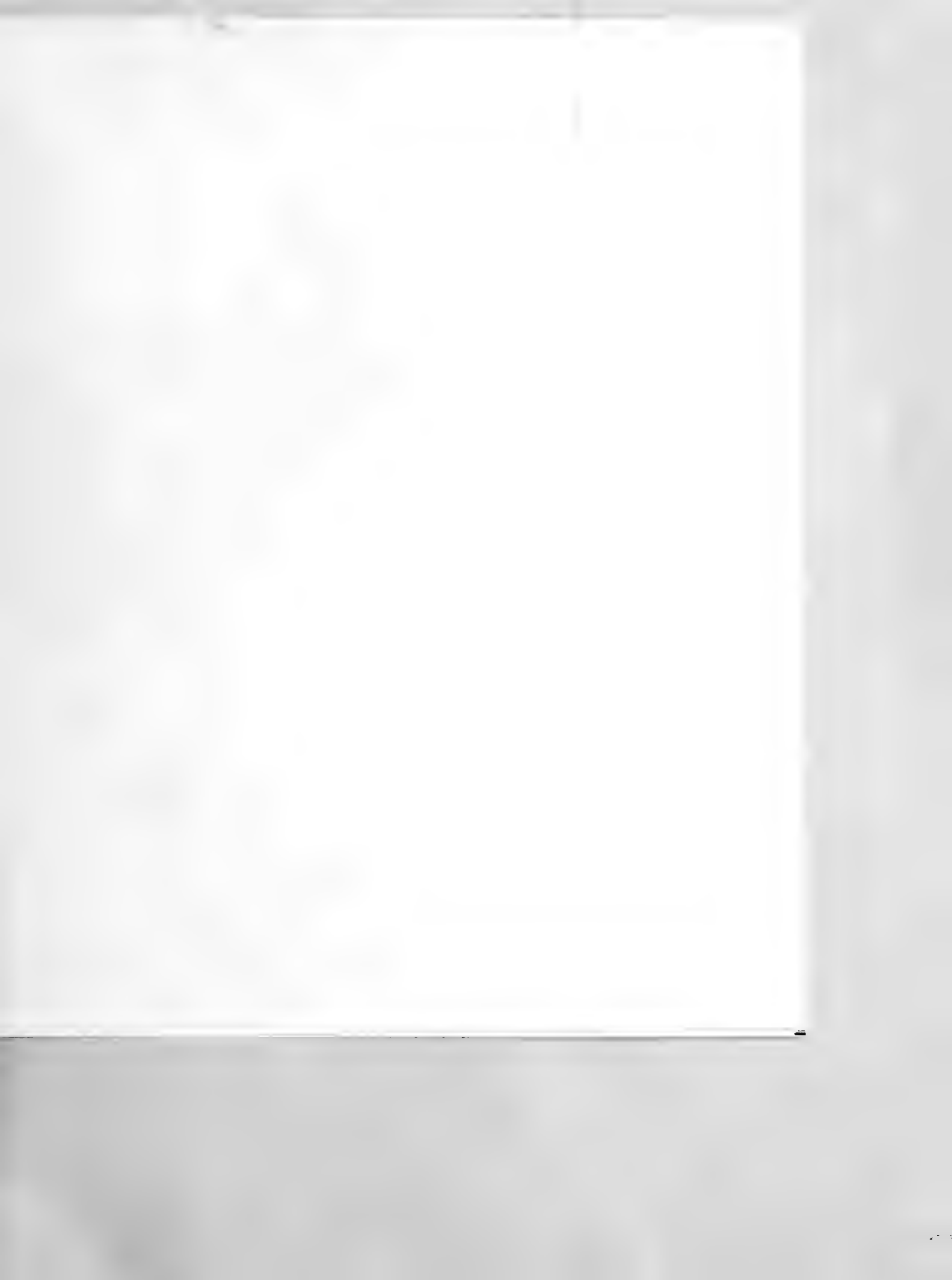
APHIDS - INDIANA - Aphis pomi and Dysaphis plantaginea colonies present but less conspicuous than in previous weeks at Vincennes. Small colonies of Eriosoma lanigerum found on pruning scars. (Dolphin).

PLUM CURCULIO (Conotrachelus nenuphar) - ALABAMA - Plum drop heavy at Lee County location as result of egg laying punctures. Infestations very light on these trees in 1966. Overwintering adults appear much heavier throughout southern and central areas than during past 2-3 winters. (Bagby).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Eggs observed in New Haven. Some eggs in Storrs expected to hatch in 7-10 days. Fewer newly laid eggs, probably due to low temperatures. (Schroeder). MICHIGAN - Egg laying underway. (Dowdy).

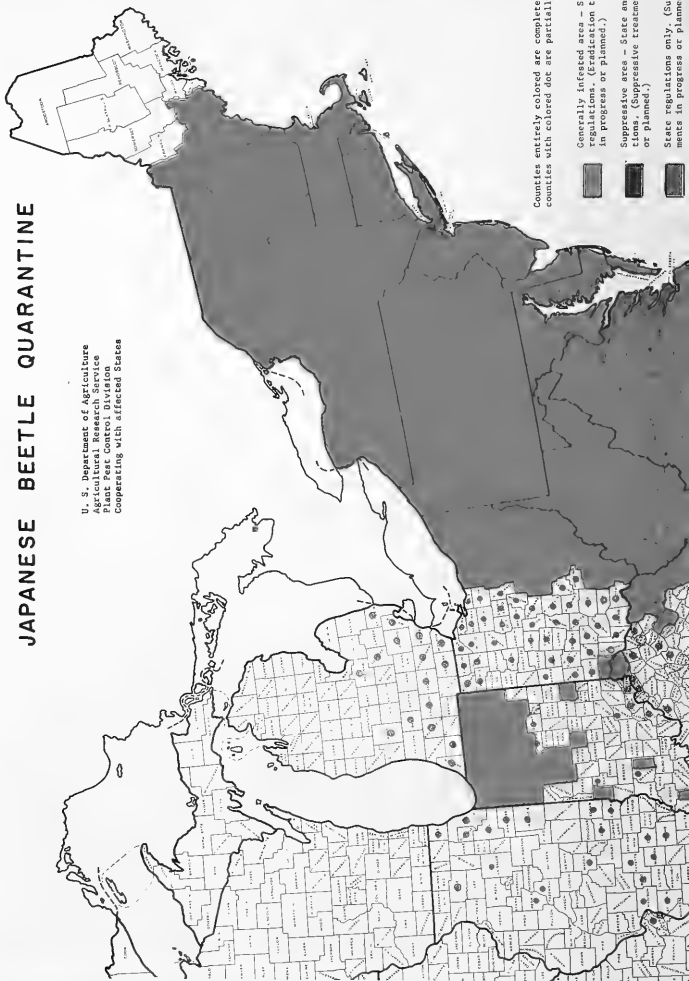
SPITTLEBUGS - SOUTH CAROLINA - Infesting new growth of pecan trees in Hampton County. (Jones).

EUROPEAN RED MITE (Panonychus ulmi) - MARYLAND - Eggs observed hatching April 17 at Hancock, Washington County. (U. Md., Ent. Dept.). DELAWARE - Eggs hatching on apple in Kent County. (MacCreary). NEW JERSEY - No hatch noted in southern



# JAPANESE BEETLE QUARANTINE

U. S. Department of Agriculture  
 Agricultural Research Service  
 Plant Pest Control Division  
 Cooperating with affected States



\*Exempt when moved by mail or common carrier on a through bill of lading.  
\*Exemptions required by the appropriate State quarantine or by an authorized inspector.

**CONSULT YOUR STATE OR FEDERAL PEST CONTROL INSPECTOR OR YOUR COUNTY AGENT FOR ASSISTANCE REGARDING EXACT AREAS UNDER REGULATION AND REQUIREMENTS FOR MOVING REGULATED ARTICLES.**



**THE FOLLOWING CROPS OR ARTICLES MUST BE MOVED UNDER CERTIFICATE OR LIMITED PERMIT YEAR-ROUND EXCEPT AS INDICATED.**

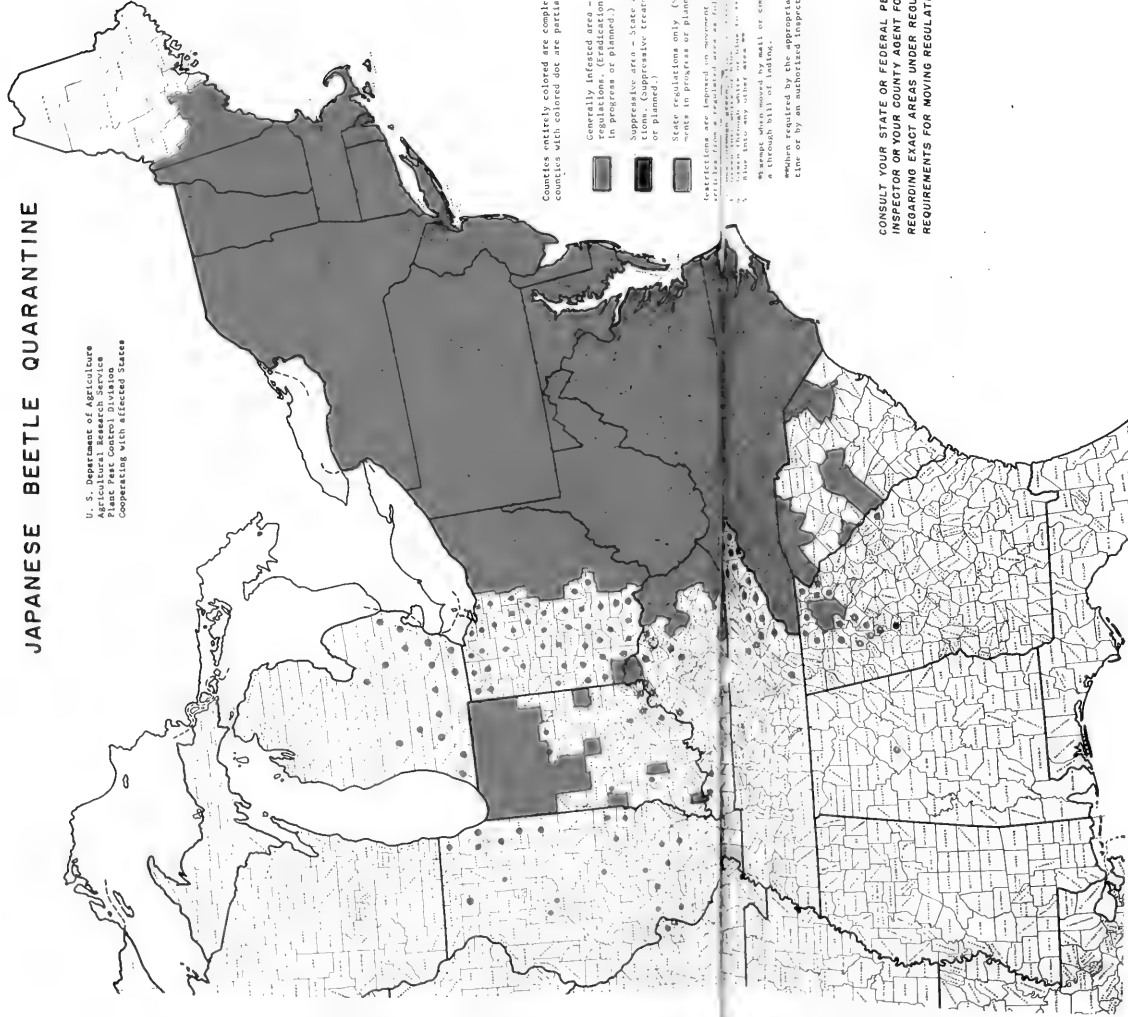
1. Soil, except soil samples shipped to Corps of Engineer Laboratories and soil samples of one pound or less shipped to designated laboratories\* are exempt.
  2. Humus, compost, and decomposed manure, EXCEPT any of these articles if dehydrated, ground, pulverized, or compressed are exempt.\*\*
  3. Forest, field, nursery or greenhouse grown woody or herbaceous plants with roots, EXCEPT the following are exempt:\*\*
    - a. Any plant grown exclusively in Osmonds fiber or chipped or shredded bark
    - b. Free trailing vines or twoflower (Gelsemium species)
    - c. Soil-free moss, club moss, and ground-pine or mannikinspine
    - d. Soil-free aquatic plants
    - e. Soil-free ferns
    - f. Soil-free rooted cuttings which, at the time of shipment, have not developed a root system sufficient to conceal larvae of the Japanese beetle.
  4. Grass seed
  5. Plant crowns or roots for propagation
  6. True bulbs, corms, tubers, and rhizomes of ornamental plants when recently harvested or uncured, EXCEPT single dahlia tubers or small dahlia cuttings, if free from scales, rot, and soil are exempt.\*\*
- \*Information as to designated laboratories may be obtained from an inspector.  
\*\*Exempt if not covered in information or if practices practices are maintained as prescribed by or to the satisfaction of the inspector.

Rev. March 1, 1957.



# JAPANESE BEETLE QUARANTINE

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Counties entirely colored are completely regulated; counties with colored dot are partially regulated.

Completely Infested areas - State and Federal regulations (eradication treatments not in progress or planned.)

Suppressive area - State and Federal regulations (Suppressive treatments in progress or planned.)

State regulations only (Suppressive treatments in progress or planned.)

REGULATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

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1. Soil, EXCEPT soil samples shipped to Corps of Engineer laboratories and soil samples of one pound or less shipped to designated laboratories are exempt.
2. Nurseries, and decomposed manure, EXCEPT any of these articles if dahurifolia, ground, pulverized, or compressed are exempt.
3. Forest trees, EXCEPT any of these articles if:
  - a. Any plants grown mechanically in Gemmae fiber or chipped or shredded bark.
  - b. Soil-free trailing arbutus or Mayflower (GIJIKAKI EXEMPT).
  - c. Soil-free aquatic plants, and ground-pine or Yunnan pine.
  - d. Soil-free aquatic plants.
  - e. Soil-free woody plants.
  - f. Soil-free woody plants which, at the time of shipment, have not developed a root system sufficient to conceal larvae of the Japanese beetle.

4. Grass seed
5. Plant crowns or roots for propagation
6. True bulbs, corms, tubers, and rhizomes of ornamental plants when shipped in their original containers, if free from stems, cullives, and soil are exempt.
 

\*Information as to designated laboratories may be obtained from an inspector.

EXEMPT: If not exposed to infestation or if sanitation practices are maintained as prescribed by or to the satisfaction of the inspector.

Rev. March 1, 1967.





area apple orchards to date. Hatch occurred week ending April 15 during 1966. (Ins.-Dis. Newsltr.). OHIO - Light numbers hatching in Wayne County. Hatch appears well in progress in Clermont and Brown Counties in southwestern area. (Forsythe, Rose). INDIANA - Few first-generation adults observed in Vincennes area. (Dolphin).

#### CITRUS

Citrus Insect Situation in Florida - Mid-April - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 69 percent of groves (norm 58 percent); 59 percent economic (norm 36 percent). Population again at record high level for time of year; will continue high. New leaves now almost as heavily infested as old leaves. Highest districts west, south, central, and north. TEXAS CITRUS MITE (Eutetranychus banksi) infested 67 percent of groves (norm 37 percent); 42 percent economic (norm 16 percent). April population is already higher than in any prior April. A further increase into high range is expected. Highest districts west, central, and north. CITRUS RED MITE (Panonychus citri) infested 66 percent of groves (norm 45 percent); 33 percent economic (norm 15 percent). April population increasing. A further expected increase will result in more and heavier infestations than in any April of the past 6 years. Highest districts north, west, and central. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) infested 6 percent of groves; none economic. This mite is expected to remain below normal and of little concern. GLOVER SCALE (Lepidosaphes gloverii) infested 87 percent of groves; 21 percent economic. Population is expected to remain in high range at current level. This level is near normal for April of recent years. Highest districts east, south, and central. PURPLE SCALE (L. beckii) infested 81 percent of groves; 11 percent economic. Slight increase will occur but population will be near normal and few if any infestations will be heavy. Highest district is central. YELLOW SCALE (Aonidiella citrina) infested 76 percent of groves; 4 percent economic. Population will decrease and infestations will be lighter than in past 3 years. Very few groves will have damaging numbers. Highest district central. CHAFF SCALE (Parlatoria pergandii) infested 60 percent of groves; 7 percent economic. Population will remain below average and in low range. Highest district central. BLACK SCALE (Saissetia oleae) infested 24 percent of groves; 6 percent economic. This scale is currently below average abundance and at very low level. Little change expected until May when spring generation of crawlers will appear. Highest district east. APHIDS infested 54 percent of groves; 14 percent economic. Spring peak abundance occurred first half of April and was above normal. MEALYBUGS very scarce. Population is expected to be near normal and smaller than last spring. WHITEFLY Adults will be present through April, but population will not exceed normal. (W. A. Simanton, (Citrus Expt. Sta., Lake Alfred)).

CHAFF SCALE (Parlatoria pergandii) - FLORIDA - All stages severe on 10 tangelo plants at Glen Saint Mary, Baker County. (Collins, April 11).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Remains heavy in some groves in Yuma and Maricopa Counties. Some controls still necessary. (Ariz. Coop. Sur.).

#### SMALL FRUITS

GRAPE FLEA BEETLE (Altica chalybea) - ARIZONA - Light to moderate on most grape plantings in western Maricopa County. (Ariz. Coop. Sur.).

GRAPE LEAF SKELETONIZER (Harrisina americana) - FLORIDA - First adults of season observed near Lake Emerald hybrid grapevines at Gainesville; may soon oviposit on leaves. (Mead).

CRANBERRY WEEVIL (Anthonomus musculus) - NEW JERSEY - Active in blueberries. (Ins.-Dis. Newsltr.).

STRAWBERRY APHID (Chaetosiphon fragaefolii) - MARYLAND - Averaged 1 nymph per leaf on strawberries at Glendale, Prince Georges County. (U. Md., Ent. Dept.).

A LEAFHOPPER (Erythroneura sp.) - ARIZONA - Moderate on grape plantings in Maricopa County. (Ariz. Coop. Sur.).

#### ORNAMENTALS

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - OHIO - Larvae active and feeding on roots of taxus in northeastern area; averaged 4-5 per tree around roots in Lake and Columbiana Counties. No pupae or prepupae found. (Walker).

A WEEVIL (Piazorhinus tuberculatus) - FLORIDA - Adults damaging several seagrape and dove-plum plants in Ft. Lauderdale, Broward County. (Stringfellow, Clinton).

ROSE APHID (Macrosiphum rosae) - ARIZONA - Very heavy on roses in Maricopa and Yuma Counties; controls required. (Ariz. Coop. Sur.).

COWPEA APHID (Aphis craccivora) - ARIZONA - Heavy and damaged snail-vine in Yuma County. (Ariz. Coop. Sur.).

BLACK CITRUS APHID (Toxoptera aurantii) - CALIFORNIA - Nymphs and adults medium on camellia foliage at Chico, Butte County. (Cal. Coop. Rpt.).

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - Heavy on Prunus serrulata nursery stock at San Jose, Santa Clara County. (Cal. Coop. Rpt.).

A MEALYBUG (Trionymus diminutus) - CALIFORNIA - Adults heavy on Phormium sp. nursery stock in San Jose, Santa Clara County. (Cal. Coop. Rpt.).

A WHITEFLY (Pealius kelloggi) - CALIFORNIA - Heavy on Catalina cherry plants at Fallbrook, San Diego County. (Cal. Coop. Rpt.).

AZALEA LACE BUG (Stephanitis pyriodes) - MARYLAND - Adults active on blooming azaleas at New Carrollton, Prince Georges County. (U. Md., Ent. Dept.).

#### FOREST AND SHADE TREES

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - NEBRASKA - Adults emerged in Lincoln, Lancaster County, approximately 3 weeks earlier than 1966, (Roselle). MISSOURI - First emergence of adults from caged elm logs in central area occurred April 15. (Munson).

NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) - IOWA - Adult collected at Shenandoah, Page County, April 18. (Oldenberg).

ELM LEAF BEETLE (Pyrrhalta luteola) - OKLAHOMA - Eggs hatching on elms checked in Payne County. Adults light to moderate in Cleveland County. (Okla. Coop. Sur.).

NEW MEXICO - Adults moving on ground and starting to fly. Light in elms at Albuquerque, Bernalillo County. (Heninger).

MAY BEETLES (Phyllophaga spp.) - MISSISSIPPI - Adults heavily defoliated several oak and pecan trees in Oktibbeha County. (Dinkins). OKLAHOMA - Adult damage continues moderate to heavy on shade trees in Cleveland and Sequoyah Counties. (Okla. Coop. Sur.).

ENGRAVER BEETLES (Ips spp.) - PENNSYLVANIA - Several instance of red pine kill reported during winter. With amount of pine mortality evident in plantations last fall, large overwintering populations are present. (Pa. For. Pest Rpt., Apr. 11). OKLAHOMA - I. avulsus, I. grandicollis, and I. calligraphus adults emerging in southeast. (Okla. Coop. Sur.).

HEMLOCK BORER (Melanophila fulvoguttata) - PENNSYLVANIA - Continues to kill hemlocks weakened by drought. (Pa. For. Pest Rpt., Apr. 11).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - MISSISSIPPI - Mostly third and fourth instars infested approximately 10-15 percent of terminals and lateral shoots throughout east-central area. (Dinkins)

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) - UTAH - Hatching and forming tents on cottonwood trees at Cañeville and along Fremont River, Wayne County, April 11. (Knowlton). Defoliation 10-20 percent along Virgin River from Santa Clara to near Zion National Park, Washington County. (Knowlton, Davis).

FOREST TENT CATERPILLAR (Malacosoma disstria) - ILLINOIS - Larvae severely infested oaks in Perry County. (Ill. Ins. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ALABAMA - Infestations in black cherry, apple, crab apple, and peach heavier throughout most of northern area than usual; 2-15 colonies on larger trees common. Pupating in St. Clair, Cherokee, and counties southward. (Patterson et al.). VIRGINIA - Tents conspicuous on wild cherry and other host plants. Defoliation apparent in most southwest and south-central counties. (Isakson). MARYLAND - Larvae damaging wild cherry and isolated apple trees in central and southern areas. (U. Md., Ent. Dept.). OHIO - Common on wild cherry and apple trees in Hamilton, Butler, Clermont, Brown, and Highland Counties. Larvae migrating to new food supply. (Rose). MICHIGAN - Some egg masses hatched by April 17 in Washtenaw County. First instars active, tents 3 inches long on wild cherry trees. (Dowdy). INDIANA - Moderate to heavy on wild cherry and unkept fruit trees in southeastern third of State. Tents 1-15 per tree, with some defoliation of wild cherry in south-central district. (Huber). Tents conspicuous in unsprayed apple trees with larvae approximately one inch in length at Vincennes. (Dolphin). WISCONSIN - Eggs hatching in Sauk, Iowa, and Rock Counties April 18. Tents appearing in Rock County. (Wis. Ins. Sur.).

FALL CANKERWORM (Alsophila pometaria) - PENNSYLVANIA - This species and Croesia semipurpurana may be serious again this season in many localities. Branch sampling for C. semipurpurana eggs indicates heavy defoliation of oak in parts of Cameron and Lycoming Counties and in other areas where defoliation occurred in 1966. Heavy defoliation by A. pometaria indicated on Bald Eagle Mountain south of Williamsport. These predictions contingent upon parastism, disease, and weather conditions this spring. (Pa. For. Pest Rpt., Apr. 11). WISCONSIN - Eggs common on elm near Mazomanie. (Wis. Ins. Sur.).

LARCH CASEBEARER (Coleophora laricella) - WISCONSIN - Heavy and feeding on new larch needles. (Wis. Ins. Sur.).

BUCK MOTH (Hemileuca maia) - NEW MEXICO - Heavy on Havad oak on rangeland in northern Lea, southern Roosevelt, and eastern Chaves Counties. Moths emerging. (Judd).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - OHIO - Eggs hatched April 14 in Portage County; about 2 weeks earlier than last year. (Kelly). In Greene County, small larvae observed April 14; caused heavy damage to Scotch pine. (Kennedy).

PINE BARK APHID (Pineus strobi) - WISCONSIN - Laying eggs on white pine near Madison. Egg laying nearly completed at Fort Atkinson, Jefferson County, by April 20. (Wis. Ins. Sur.).

AN APHID (Adelges strobilobius) - WISCONSIN - Completed egg laying on European larch in Grant County. (Wis. Ins. Sur.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - CALIFORNIA - Heavy on pussywillow in Dos Palos, Merced County. (Cal. Coop. Rpt.).

MAN AND ANIMALS

MOSQUITOES - FLORIDA - Mansonia perturbans continues to be considerable nuisance in Gainesville area. Salt-marsh and floodwater mosquitoes light in most areas, apparently due to unusually dry weather. (Mead). LOUISIANA - Larval collections in Jefferson Parish contained Aedes sollicitans, Culex pipiens quinquefasciatus, and Psorophora ciliata. M. perturbans very active in many parts of parish. (Stokes). MICHIGAN - First to late instars of Aedes spp. abundant in woodland ponds in Washtenaw, Lenawee, and Ingham Counties. (Dowdy). MINNESOTA - Larvae averaged 2-3 per dip in 1,200 samples; mostly late second or early third instars. As of April 14, following Aedes have been identified: excrucians, aberratus, trichurus, spencerii, fitchii, cinereus, and canadensis. (Minn. Ins. Rpt.). UTAH - Mosquitoes annoying at Hanksville, Wayne County. (Knowlton).

HOUSE FLY (Musca domestica) - MISSISSIPPI - Very heavy in all untreated commercial laying houses in Simpson County. (Dinkins). OKLAHOMA - Averaged 10 per scudder grid in barns on favorable days in Payne County. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Some decrease noted; approximately 375 flies per beef animal in Lowndes and Oktibbeha Counties. (Dinkins). OKLAHOMA - Ranged 400-500 per head on yearlings in McCurtain County; light to moderate in Mayes and Cleveland Counties; heavy in Garvin County. (Okla. Coop. Sur.). MISSOURI - Averaged 20-40 per animal in south-central area (Peters); 10-30 in southwest area (Munson).

COMMON CATTLE GRUB (Hypoderma lineatum) - ALABAMA - Oviposition occurred in several herds April 10-15 in southern area. (McQueen).

SCREW-WORM (Cochliomyia hominivorax) - Total of 7 cases reported in the U.S. April 16-22 as follows: TEXAS - Mitchell 2, Medina 1, Uvalde 1, Kenedy 1, Starr 1, Maverick 1. Total of 47 cases reported in portion of Barrier Zone in Republic of Mexico April 9-15 as follows: Territorio sur de Baja California 15, Sonora 8, Chihuahua 2, Coahuila 3, Nuevo Leon 5, Tamaulipas 14. Three cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operations are underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released April 16-22: Texas 14,468,000; Arizona 62,000; Mexico 106,560,000. (Anim. Health Div.).

SHEEP KED (Melophagus ovinus) - UTAH - Few sheep treated in Loa and Bicknel area of Wayne County. (Knowlton).

CATTLE LICE - UTAH - Causing cattle to rub in Utah, Sevier, and Juab Counties. Most cattle in Sevier County to be treated. (Knowlton, Rickenbach). OKLAHOMA - Mainly Haematopinus eurysternus common, but decreasing on yearlings in McCurtain County; light in Mayes County. (Okla. Coop. Sur.).

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) - IDAHO - Population of 50-100 per lamb in upper Poison Creek area, Owyhee County. Approximately 1,500 lambs and 800 ewes treated. Partially engorged ticks affected and all replete ticks dead or morbid following day. Earlier report indicating insecticides used for tick control were no longer effective not verified. Inadequate control probably due to poor coverage of infested animals. Rapid rate of reinfestation may also have contributed to apparent "insecticide failure." (Portman, Homan).

AMERICAN DOG TICK (Dermacentor variabilis) - MISSOURI - Heavy on dry dairy and beef cattle in southwest area. (Munson). OKLAHOMA - Annoying to humans and pets in Noble, Payne, Logan, Lincoln, and Tulsa Counties. (Okla. Coop. Sur.). IDAHO - Numerous adults observed on dog in Lewiston, Nez Perce County. (Saxton).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Adults and nymphs very numerous on cattle and horses checked in Cherokee and Muskogee Counties; light on cattle in Seminole County. (Okla. Coop. Sur.).

## HOUSEHOLDS AND STRUCTURES

A POWDER-POST BEETLE (Trogoxylon prostomoides) - SOUTH DAKOTA - Collected February 10, 1967, from handles of a set of maracas at Winner, Tripp County. Item purchased out of Country. Det. by E. U. Balsbaugh, confirmed by T. J. Spilman. (Jones).

CARPENTER BEES (Xylocopa spp.) - OKLAHOMA - Active and boring in barns and sheds in Payne County. (Okla. Coop. Sur.).

A DORYLINE ANT (Neivamyrmex opacithorax) - NORTH CAROLINA - Adults generally covered water surface of a 60-foot open well in Catawba County, April 10. Their presence caused a foul odor and taste in the water. Collected by W. O. Deason. (Moore).

## BENEFICIAL INSECTS

LADY BEETLES - MISSISSIPPI - Very active on small grains in Clay County; 26 adults and 12 larvae per 100 sweeps on wheat. (Dinkins). SOUTH CAROLINA - Adults and larvae numerous on aphid-infested plants. (Nettles et al.). VIRGINIA - Adults and larvae numerous on red clover in Halifax and Mecklenburg Counties; averaged 2-3 per sweep. (Isakson). INDIANA - Adults, mostly Hippodamia convergens and Coleomegilla maculata, averaged 8 per sweep in alfalfa with heavy pea aphid infestations. Larvae also present; 1-3 per sweep. (Huber). Adults and larvae of Chilocorus stigma, Adalia bipunctata and other species common on foliage of apple and peach trees at Vincennes. (Dolphin),

GROUND BEETLES - MINNESOTA - Larvae numerous and destroying many grasshopper egg pods. (Minn. Ins. Rpt.).

A WIREWORM (Hemicrepidius carbonatus) - IDAHO - This predatory species collected in Nez Perce County wheat March 28. Det. by M. C. Lane. (Kambitsch, Portman).

A LYCAENID BUTTERFLY (Everes amyntula) - CALIFORNIA - Larvae collected from locoweed in Malibu area, Ventura County. Infestation heavy and destroyed much locoweed in area. (Cal. Coop. Rpt.).

FLOWER FLIES - UTAH - Active in Hanksville and Caineville alfalfa fields, Wayne County. (Knowlton). INDIANA - Larvae ranged 1-3 per sweep in most southern area wheat. (Huber). PENNSYLVANIA - Metasyrphus americanus depositing eggs on new foliage of hawthorn in Centre County. (Gessell, Apr. 16). SOUTH CAROLINA - Larvae of unspecified species active on aphid-infested plants. (Nettles et al.).

DAMSEL BUGS (Nabis spp.) - MISSISSIPPI - Activity increasing on small grains; 6 nymphs per 100 sweeps collected on wheat in Clay County. (Dinkins).

## FEDERAL & STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - MICHIGAN - First instars of several species observed April 17 in Washtenaw County. (Dowdy). MINNESOTA - Survey north of Minneapolis and St. Paul showed no development of Melanoplus femurrubrum, M. differentialis, M. packardii eggs. M. bivittatus eggs generally in clear stage; few egg pods on sunny, protected sites showed some coagulation and early eye-spot. (Minn. Ins. Rpt.). No egg development observed in southwest district. M. sanguinipes, M. femurrubrum, and M. differentialis eggs found. Egg depredation light and mainly due to bee fly larvae. (Minn. Ins. Rpt., Apr. 14). OKLAHOMA - Eggs hatching in Garvin, Carter, Pontotoc, Johnston, and McClain Counties in crop margins and grassland; first and second instars ranged 1-4 per sweep. Ranged 3-5 per square yard on rangeland in Major County and 1-3 in Ellis County. (Okla. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Cool weather slowed moth emergence and moth catches in traps and cages. Few trapped in Graham and Maricopa Counties; 6 moths trapped at Parker, Yuma County, from cages containing trash and surface bolls. Emergence was heavy in field that was cotton last year in Rainbow Valley area. (Ariz. Coop. Sur.).

CEREAL LEAF BEETLE (Oulema melanopus) - INDIANA - Mating first observed April 13 in New Carlisle area, St. Joseph County. (Shade). MICHIGAN - Adults migrating from overwintering sites in southwest area. Approximately 50 percent of total population has moved into wheat fields and patches of native grasses. Two hundred adults per 100 sweeps were collected from research wheat field near Galien, Barrien County. First egg of season collected April 10 on brome grass near Galien. (Gomulinski et al.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ALABAMA - Collected in Cherokee County for new county record. (PPC South Reg., Mar. Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - Two adults collected in traps in Hidalgo County and one in Webb County. Trapping negative in Cameron, Dimmit, La Salle, Starr, Willacy, Zapata, and Zavala Counties. (PPC South Reg., Mar. Rpt.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Larvae collected from calamondins at several locations in St. Petersburg, Pinellas County, (Carroll, April 18); from loquat at Lake Wales, Polk County, (Pettigrew, Wyles, April 10); and from dooryard grapefruit at Ft. Myers, Lee County (Curtis, April 18).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Rains delayed treatment in Sacramento; only 73 of planned 300 blocks treated. Despite rain and wind in San Diego, 20 blocks inspected, 43 sprayed. Additional 5 city blocks confirmed infested making known total of 301 infested blocks. (Cal. Coop. Rpt.).

#### INSECT DETECTION

##### New Island and County Records

A CLICK BEETLE (Chalcolepidus erythroloma) - HAWAII - Found at Kainaliu-Kona, Hawaii Island. (p. 345).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ALABAMA - Collected in Cherokee County. (p. 352).

#### CORRECTIONS

CEIR 17(15):289 - Second paragraph under BENEFICIAL INSECTS - In ILLINOIS, an ENCYRTID WASP (Tetrastichus incertus) controlled ... should read (Tetrastichus incertus) was released in 10 counties...

CEIR 17(16):304 - EUROPEAN CORN BORER (Ostrinia nubilalis) - NORTH DAKOTA - Should read: Winter mortality rate 23 percent in Ransom County and 27 percent in Cass County. (Brandvik).

**LIGHT TRAP COLLECTIONS**

State	County	Date	Time	Precipitation	Type of storm	Aerial traps		Ground traps		Crops		
						No. of traps	No. of captures	No. of traps	No. of captures	No. of traps	No. of captures	
FLORIDA	Gainesville 4/8	Sanford 4/9, 11-13	36-74	0.33	BL	1	5	1	1	1	24	
						10	23	2	2	57	119	
ILLINOIS (County)	Champaign 4/14-20	Tunica 4/15-21	51-83	0.56	2BL	4	1	27	5	2	119	
						34	4	9	2	48	8	
						16	1	13	2	8	2	
SOUTH CAROLINA	Charleston 4/17-23				1BL	1	1	3	1	1	1	
						4	4	4	4	4	4	
TENNESSEE (Counties)	Madison 4/11-17	Meury 4/11-17	Robertson 4/11-17	Cumberland 4/11-17	Knox 4/11-17	Johnson 4/11-17	5	2	6	1	52	4
							3	4	1	2	5	4
							14	4	2	2	94	22
							10	4	4	4	22	22
							4	4	4	4	4	4
TXAS	Brownsville 4/15-21	Waco 4/15-21	70-90	0	2BL	13	38	58	117	4	4	
						19	35	6	132	49	61	34

Weather continued from page 338.  
 over Florida where some areas have received less than 0.1 inch of rain in 6 weeks. A weekend storm dropped several inches of snow over the Northern States from Montana to New England and as far south as Nebraska. High winds raised clouds of blowing dust in parts of the western Great Plains especially in Colorado.

**TORNADOES:** Spring storms brought scattered tornadoes to the South. Numerous tornadoes struck Missouri, Illinois, Wisconsin, Indiana, and Michigan Friday afternoon. The storms killed 35 persons in northeastern Illinois and injured about 1,000 others. Damage was very heavy.

**TEMPERATURE:** Temperatures west of the Continental Divide averaged below normal for the fourth consecutive week. As Arctic air advanced southward east of the Rocky Mountains, most areas were not so warm as in the past several weeks. Temperatures east of the Divide averaged below normal as far south as southern Missouri and the Ohio River. Areas farther south averaged warmer than normal for the 8th week in some places. By the end of the week, the Arctic air had not yet reached the southern parts of the Gulf States and unusually warm weather continued with afternoon maximums in the high 80's. (Summary supplied by Environmental Data Service, ESSA).

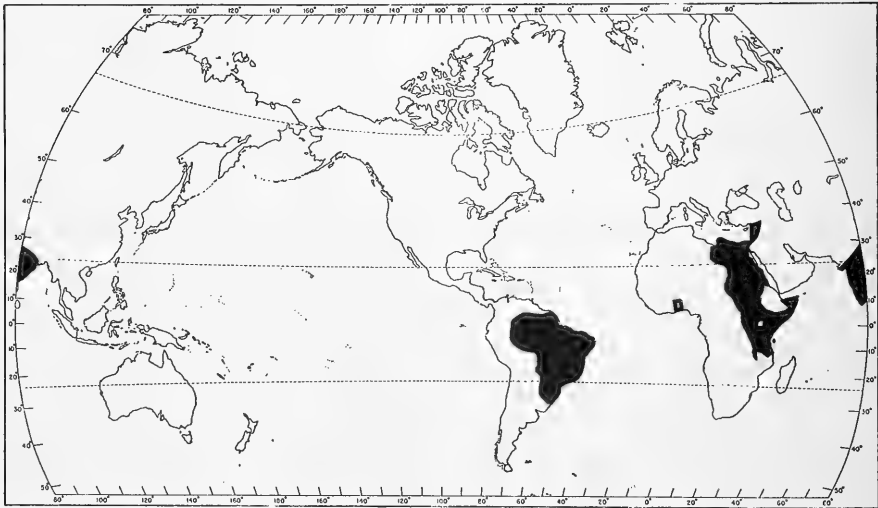
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

BLACK VINE THRIPS (Retithrips syriacus (Mayet))

**Economic Importance:** Although the species is principally a pest of grapevines, it may cause severe loss to leaves and bolls of cotton in southern India, Malawi and Tanzania when conditions are hot and dry. Black vine thrips sucks sap from the leaves and mars the fruit of many plants. As a result, defoliation and shriveling occur. In the Near East where this important thrips is best known as a pest of grapes, trees and shrubs, serious infestations of castorbeans have been recorded. R. syriacus damage generally hinders the normal development of the host plants.

**Distribution:** Brazil, Egypt, Ghana, India, Israel, Kenya, Lebanon, Libya, Malawi, Somalia, Sudan, Syria, Tanzania, and Uganda.

**Hosts:** The host list of more than 50 species includes grape, cotton, pear, plum, quince, rose, pecan, walnut, persimmon, avocado, castorbean, coffee, myrtle, vegetables and other plants.



General Distribution of Retithrips syriacus (Mayet)

**Life History and Habits:** Bionomics in Israel are as follows: Mating occurs shortly after emergence, but sometimes reproduction is parthenogenetic. The female lays a maximum of 80 eggs usually in the leaf tissue, but occasionally on the leaf surface. The egg stage lasts 10-30 days. Larvae do not wander about after hatching but feed immediately, usually in groups. As the larva feeds, it carries a droplet of feces on the tip of the abdomen. Often, the collection of feces is larger than the insect. When the material becomes too heavy, the larva deposits the drop on a leaf and a new droplet begins to form. The older the



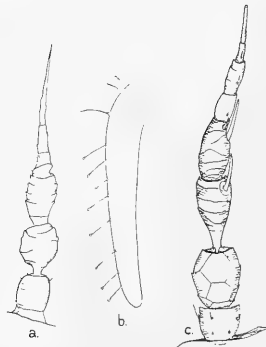
larva, the smaller the drops become. Both larvae and pupae often arrange themselves in groups of 6-50 in a circle with the heads toward the center. The larval stage lasts 6-35 days and pupal stage 2-21 days. A generation may be completed in little more than 3 weeks in late June to early September. During this time 4 generations usually occur and 3 others occur from late September to May. Adults overwinter and oviposit during warm periods. Mortality is high during the winter generations. The most favorable temperature range for development of the black vine thrips is 77-86°F. Temperatures above 98° may be lethal to all stages.

**Description:** ADULT - Dark, blackish brown, with appendages lighter brown, tarsi and 5th antennal segment pale. Newly emerged adults lighter and redder. Body about 1.5 mm. long in female, 1.3 mm. in male, heavily reticulate, with no visible bristles. Antennae 8-segmented, short, with terminal style slender. Ocellar hump pronounced, overhanging frontal costa. Head and prothorax small, decidedly wider than long. Pterothorax, or wing bearing thoracic segments, of female very stout, of male stout. Abdomen stout, as broad as pterothorax at base, tapering to narrow apex. Forewings short (about 0.9 mm. in female, 0.7 mm.) in male, broad; without visible bristles, with large thickened area in basal part of fore vein and 3 smaller thickened areas distally along costal margin. PUPA - Less brilliant red than larva. Entire body truncate with sensory bristles. Wing pads longer than in prepupa. Eyes large, compound, resembling those of adult. LARVA - Vermilion red with yellow head and appendages. First 4 segments of antenna large and bulky but last 3 filiform.

**Synonymy:** Retithrips syriacus (Mayet) has been recorded as Heliothrips syriacus Mayet, Retithrips aegyptiacus Marchal, Dictyothrips zanoniana Del Guercio and Stylothrips bondari Morgan.



Adult Male  
Retithrips syriacus



a. Antenna of newly hatched larva.  
b. Wing pad of pupa.  
c. Antenna of adult female.

**Selected References:** 1. Del Guercio, G. 1918. L'Agricoltura Coloniale 12(5): 273-286. 2. Gentry, J. W. 1965. U.S. Dept. Agr. Handbk. 273:9. 3. Pearson, E. O. 1958. The insect pests of cotton in tropical Africa. pp. 301-303, London. 4. Rivnay, E. 1939. Societe Fouad 1<sup>er</sup> d'Entomologie 32:150-182. Adult illustration from Del Guercio; antennae and pupal pad from Rivnay.

Prepared in Survey and Detection  
Operations in cooperation with  
other ARS agencies.

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
17(17):354-355, 1967

Survey Method for Thrips in Cotton in Arkansas 1/

Charles Lincoln 2/, Gordon Barnes 3/ and W. P. Boyer 4/

Winged migrant thrips, black or tan, may invade cotton anytime after it emerges to a stand. In another week or so the wingless, straw-colored larvae become numerous unless the infestation is controlled by rain.

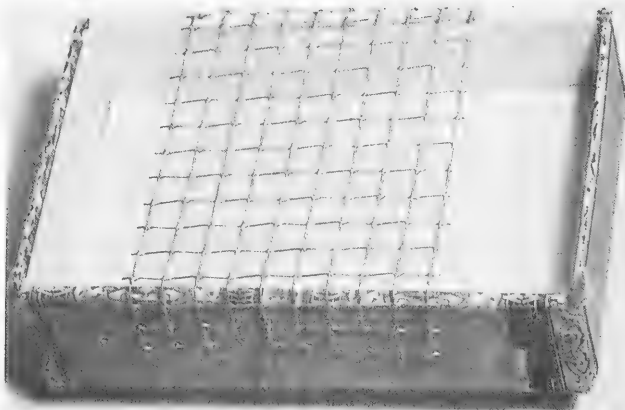
Begin scouting for thrips when cotyledons (seed leaves) have spread flat. Continue checking until the first 2 true leaves are full spread which takes about 2 weeks in warm weather and about 3 weeks in cool weather. After cotton has 2 fully expanded true leaves, thrips have little effect on cotton plants in Arkansas.

Scout by slapping hills of cotton against a beater-box. On 20 plants:

0-20 thrips is none  
20-50 thrips is light  
50-100 thrips is medium  
over 100 thrips is heavy

Control recommendations in Arkansas are made on the basis of this survey method and the above classification.

After cotyledons have fully spread for one week or longer, make applications of insecticides for heavy infestations. Prior to this time, light or medium infestations of adults show the potential for a heavy infestation. If no rain is forecast, it may be advisable to make an application for a light infestation of adults during the cotyledon stage.



Beater-box

1. Published with approval of the Director, Agricultural Experiment Station
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No

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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Plant Pest Control Division  
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United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMY CUTWORM and PALE WESTERN CUTWORM caused extensive damage to wheat in areas of Kansas; controls applied. (pp. 359, 361). TOBACCO BUDWORM severe on flue-cured tobacco in Florida. (p. 361). SEED-CORN MAGGOT population above normal in Illinois. (p. 361).

ALFALFA WEEVIL adults heavy in southeast Missouri and Alabama. Larval damage heavy in Maryland and Virginia; populations increasing in Delaware. Reported for first time in several Illinois, Indiana, and Missouri Counties. (p. 362).

COLORADO POTATO BEETLE active on potatoes on Eastern Shore of Virginia and MEXICAN BEAN BEETLE damaging beans in Florida. (p. 364). GREEN PEACH APHID heavy on spinach in Virginia. (p. 365). EUROPEAN RED MITE active in fruit-growing areas of Indiana, Ohio, Delaware, and New Jersey; some controls applied. (p. 367).

HOUSE FLY a major problem in Gainesville, Florida, and some areas of Mississippi and Georgia. (p. 369). Twelve SCREW-WORM cases reported from southern Texas; one case from San Diego County, California. (p. 370).

Detection

Detection Reminder - Three Important Pests of Small Grains. (p. 375)

For new county and island records see page 365.

Predictions

POTATO PSYLLID population low in spring breeding areas of Texas and southeastern New Mexico; seasonal buildup unlikely. (p. 361). STRAWBERRY SPIDER MITE could be a problem on strawberries on Eastern Shore of Virginia. (p. 367). EUROPEAN PINE SAWFLY expected to be damaging in Ohio and Lower Michigan. TULIPTREE SCALE expected to be heavy on yellow-poplar in Ohio. (p. 369). GRASSHOPPERS not expected to be a problem in North Dakota. (p. 370).

Some First Occurrences of the Season

CORN EARWORM adults in Oklahoma. MEXICAN BEAN BEETLE adults in Florida and Georgia. IMPORTED CABBAGEWORM adults in Michigan. CODLING MOTH adult and LESSER PEACH TREE BORER males in Indiana. WESTERN GRAPE LEAF SKELETONIZER adults in Nevada.

Special Reports

Insects Not Known to Occur in the United States

STONE-FRUIT TREE BORER (*Cerambyx dux* (Faldermann)). (p. 373).

Distribution of Vetch Bruchid (Map). (p. 376).

Reports in this issue are for week ending April 28 unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK - MAY

The Weather Bureau's 30-day outlook for May calls for temperatures to average below seasonal normals in a broad area extending from the Great Lakes through the northern and central Plains and into the southwest quarter of the Nation. Near to above normal temperatures are indicated for the Pacific Northwest. Above normal temperatures are predicted in the South. In areas not specified temperatures are expected to average near seasonal normals except for below normal in New England. Precipitation is expected to total less than normal along the Pacific coast as well as in southern border and south Atlantic Coast States. On the other hand heavy precipitation is indicated over the northern two-thirds of the Nation extending from the intermountain area to the Atlantic seaboard.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year. For Weather of the week see page 372.



**SPECIAL INSECTS OF REGIONAL SIGNIFICANCE**

ARMYWORM (*Pseudaletia unipuncta*) - ARKANSAS - Few fields infested in Desha and Chicot Counties; larvae about 1-inch long and ranged 2-4 per square foot. None in Jackson County. (Ark. Ins. Sur.). MISSOURI - Remains low in small grains in southeast area. (Munson). MICHIGAN - Adults taken at Livingston and Clinton County blacklight stations. (Dowdy). VIRGINIA - Moths taken in blacklight trap on Eastern Shore. (Hofmaster). DELAWARE - Adults averaged one per night in blacklight trap collections in Sussex County. (Burbutis).

ARMY CUTWORM (*Chorizagrotis auxiliaris*) - KANSAS - Ranged 4-10 per square foot of wheat in Finney County. Damage extensive; controls being applied. (Gates).

TOBACCO BUDWORM (*Heliothis virescens*) - FLORIDA - Severe on flue-cured tobacco throughout Hamilton County. (Andrews, Clark).

CORN EARWORM (*Heliothis zea*) - OKLAHOMA - First adults of season on alfalfa in Jackson County April 14; no eggs or larvae found. (Okla. Coop. Sur.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - NEVADA - Light, spotted infestations on alfalfa in Pahrump Valley, Nye County. (Zoller). ARIZONA - Increasing but still light on alfalfa in Cochise County. (Ariz. Coop. Sur.). NEW MEXICO - Very light on alfalfa in Chaves County. (Mathews, Nielsen). OKLAHOMA - Heavy on alfalfa in Mayes County; light to moderate in Garvin County. (Okla. Coop. Sur.).

GREENBUG (*Schizaphis graminum*) - KANSAS - Trace numbers continue on most wheat in northeast, north-central, and central districts. Numbers decreased during past 14 days. (Simpson). MINNESOTA - Trace numbers found in roadside grasses in central and east-central districts. (Minn. Ins. Rpt.).

CORN LEAF APHID (*Rhopalosiphum maidis*) - ARIZONA - Increasing on barley in Maricopa County; controls necessary to protect barley heads. (Ariz. Coop. Sur.). MISSISSIPPI - Alates present on 40 percent of Johnson grass infected with mosaic virus. Approximately 1-5 alates per infected plant. Alates present on less than one percent of 2-week-old corn in Yazoo County; however, mosaic virus present in young corn. Aphid buildup expected with increased migration to corn plants. (Dinkins).

SIX-SPOTTED LEAFHOPPER (*Macrostelus fascifrons*) - MINNESOTA - Ranged 0-30 per 100 sweeps of rye, grassy alfalfa, and roadside grass in central and east-central districts. (Minn. Ins. Rpt.). MICHIGAN - Adults per 100 sweeps of wheat 3 in Livingston County, 5 in Ingham County, and 19 in Washtenaw County. (Dowdy).

Potato Psyllid Survey, Spring Breeding Areas of Texas  
and Southeastern New Mexico

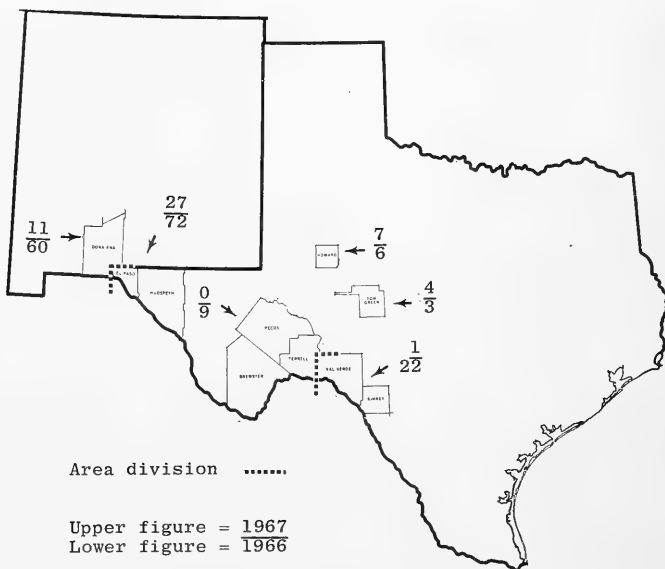
The potato psyllid (*Paratrioza cockerelli*) survey in Texas and southeastern New Mexico was completed April 4, 1967. The condition of wild *Lycium* host plants varied considerably in all areas except El Paso, where irrigation contributed to uniform growth and leafing. Potato psyllid populations decreased markedly in the Del Rio, Marathon-Sanderson, El Paso, and Las Cruces areas, but remained about the same as 1966 in the Big Spring and San Angelo sampling areas. The winter was unusually cold in the Del Rio, Marathon-Sanderson vicinities with snow on one occasion. Other than this snowfall, all psyllid sampling areas were severely affected by drought conditions. Eggs were completely absent in three areas and very scarce in the other two areas. The potato psyllid population is low this year and a seasonal buildup in these areas is unlikely.

See table and map on page 360.

Potato Psyllid Survey on Overwintering Hosts

Average Number Per 100 Sweeps

<u>State</u>	<u>District</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>
Texas	Big Spring (Howard County)	48	6	7
Texas	San Angelo (Tom Green County)	14	3	4
Texas	Del Rio (Val Verde and Kinney Counties)	30	22	< 1
Texas	Marathon-Sanderson (Terrell, Pecos, and Brewster Counties)	15	9	0
Texas	El Paso (El Paso and Hudspeth Counties)	31	72	27
New Mexico	Las Cruces (Dona Ana County)	6	60	11



**CORN, SORGHUM, SUGARCANE**

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - MISSOURI - Winter survival in north-west area estimated to be 75 percent. (Munson). IOWA - Overwintering mortality averaged 17.6 percent this year compared with 17.7 percent last year. Percent mortality by area as follows: Northwest 11, northeast 18, central 10, southwest 39, southeast 10. (Iowa Ins. Sur.). WISCONSIN - Overwintering larvae active and boring in cornstalks. (Wis. Ins. Sur.). OHIO - Small numbers pupating in Muskingum County. (Rose). DELAWARE - Approximately 45 percent pupation in south Kent and Sussex Counties. (Burbutis).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - FLORIDA - This and Feltia subterranea caused 95 percent reduction of 30-acre stand of 2-inch field corn at High Springs, Alachua County; replanting necessary. (Strayer).

FALL ARMYWORM (Spodoptera frugiperda) - FLORIDA - Larvae light on 45 acres of field corn at Alachua, Alachua County. (Strayer).

CUTWORMS - MISSISSIPPI - Damage light to moderate on 3-week-old corn in Yazoo County. (Dinkins).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - MISSISSIPPI - Pupation of overwintering generation underway in Oktibbeha County; no adult emergence observed. (Dinkins). SOUTH CAROLINA - Damaged up to 60 percent of corn planted on black soil near Charleston. Chlorinated hydrocarbons did not control infestation. (Nettles et al.).

FLEA BEETLES - GEORGIA - Moderate on sweet corn in Jasper County. (Tanner). NEW YORK - Two specimens of Chaetocnema pulicaria collected in 400 sweeps of 7-inch rye in Hudson Valley near New Paltz. (Adams, Apr. 21).

SUGARCANE BEETLE (Euethoea rugiceps) - GEORGIA - Cutting small corn plants in Henry County. (Pipkin).

BILLBUGS - GEORGIA - Light to heavy on corn in Baker, Tift, and Worth Counties. (Drennon et al.).

A LEAFHOPPER (Graminella nigrifrons) - MISSISSIPPI - Approximately 1-2 per plant on week-old corn in Yazoo County. (Dinkins).

CHINCH BUG (Blissus leucopterus) - MISSISSIPPI - Very light on 3 to 4-week-old corn in Yazoo County. (Dinkins).

SEED-CORN MAGGOT (Hylemya platura) - ILLINOIS - Adult population above normal at Champaign. (Broersma).

#### SMALL GRAINS

GRAIN APHIDS - CALIFORNIA - Rhopalosiphum padi medium on 5 acres of oats at Live Oak, Sutter County. (Cal. Coop. Rpt.). MINNESOTA - Macrosiphum avenae extremely light in central and east-central areas; averaged 5 per 200 sweeps in most rye and roadside grasses; one field of rye had 10 per 100 sweeps in Scott County. (Minn. Ins. Rpt.). WISCONSIN - Up to 10 M. avenae per 25 sweeps in Arena area, Sauk County. Very scarce or absent in fields surveyed in Marquette and Waushara Counties. (Wis. Ins. Sur.). VIRGINIA - Unspecified species building up on barley and rye and Northumberland County. (Rowell).

A LEAFHOPPER (Graminella nigrifrons) - MISSISSIPPI - Building up on small grains and grasses in Yazoo County. (Dinkins).

PALE WESTERN CUTWORM (Agrotis orthogonia) - KANSAS - Ranged 4-10 per square foot in wheat in Haskell and Kearny Counties. Damage extensive, controls being applied. (Gates).

BROWN WHEAT MITE (Petrobia latens) - COLORADO - Ranged 1-2 per leaf in Weld and Larimer Counties. Recent rains reduced evidence of feeding. (Jenkins).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - COLORADO - All stages on winter wheat near Sterling, Logan County; populations low, 3 per plant causing slight damage. (Hantsbarger).

## TURF, PASTURES, RANGELAND

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Larvae and adults heavy on grassland at Lemoore, Kings County. (Cal. Coop. Rpt.).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - NEVADA - Cool weather retarded weevil activity and egg laying at Fallon area of Churchill County and other counties. (Coop. Rpt.). Adults active on warm days at Fallon; averaged 4-6 per crown in some fields. Small numbers of eggs also present. (Hilbig). COLORADO - Adults per 10 sweeps: 3 in Weld County and 4 in Larimer County. (McLaughlin, Jenkins). KANSAS - Averaged 1 larva per tip of alfalfa in Finney County; 3 per 10 sweeps in Haskell and Kearny Counties. (Bates). MISSOURI - Adult emergence continued heavy in extreme southeast area. (Jones). Collected for first time in Boone, Cooper, and Moniteau Counties. (Peters). Adults and larvae collected from vetch in southeast area. (Munson). ILLINOIS - Damage moderate in southern third of State; many fields treated. Many adults present. Larval counts remain 20-30 per sweep in east-southeast district. Found in Lee County for first time. (Moore et al.). INDIANA - Reported for first time in Blackford, Wells, Huntington, Wabash, Grant, Kosciusko, Marshall, and Fulton Counties. Mating common during day in northern counties of central district. (Huber). OHIO - Larvae light on alfalfa in north-central area. Considerably higher, 33 per sweep, in a Muskingum County field; all instars present. (Rose). VIRGINIA - Appeared more than 2 weeks earlier than in 1966 at Shenandoah Research Station, Rockbridge County. Unsprayed alfalfa now gray or brown. (Woodside). MARYLAND - Larval damage on alfalfa medium to heavy in Kent and Prince Georges Counties. Development retarded somewhat by low temperatures. (U. Md., Ent. Dept.). DELAWARE - Building up in Kent and Sussex Counties; control required in some fields. (MacCreary). ALABAMA - Unusually numerous adults emerged from white clover and burclover on lawns and fields in Madison and other northern counties. Severe on these clovers and light to medium on crimson clover and hairy vetch throughout State. Heavy adult migration from burclover at one location in Madison County alarmed cotton grower. (Magnusson et al.).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - CALIFORNIA - Larvae, probably this species, on sweetclover at Santee, San Diego County. (Cal. Coop. Rpt.).

CLOVER LEAF WEEVIL (Hypera punctata) - GEORGIA - Larvae light on clover in Harris County. (Salter, Nolan). ILLINOIS - Larvae decreasing in southern districts; various instars in east district ranged 0-12 per square foot; ranged 0-10 per square foot in west and northwest districts. (Moore, Kuhlman). WISCONSIN - Third and fifth instars as high as 5 per plant in southwest counties; damage noticeable in many fields. (Wis. Ins. Sur.). IDAHO - Feeding damage minor in several clover fields in Boundary County. (Studer).

PEA APHID (Acyrtosiphon pisum) - CALIFORNIA - Medium on vetch at Yuba City, Sutter County. (Cal. Coop. Rpt.). NEVADA - Heavy on 1,000-2,000 acres of alfalfa in Smith Valley, Lyon County. Many plants discolored; growth severely retarded; some plants possibly killed. Appearing in Mason Valley, Lyon County; insecticide applications underway or planned. Predator and parasite populations low. (Batchelder). A. pisum averaged 10 per sweep in Pahrump Valley, Nye County, alfalfa. (Zoller). NEW MEXICO - Continues light in alfalfa in Socorro, Valencia, and Chaves Counties. (Mathews et al.). OKLAHOMA - Heavy on Mayes County alfalfa. Moderate on alfalfa in Cleveland County and on alfalfa and vetch in Bryan County. (Okla. Coop. Sur.). KANSAS - Counts in alfalfa as follows: 100-600 per 25 sweeps in Sedgwick, Harvey, Marion, and McPherson Counties (Reeding); 1,000 per 10 sweeps in Riley County (Berry); light in southwest district (Gates); averaged less than 100 per 10 sweeps in Republic, Jewell, Smith, Phillips, Rooks, and Osborne Counties. Predators and parasites still light but increasing. (Simpson). MISSOURI - Counts range from 20-1,000 per 10 sweeps in central area (Peters) to 20-80 per sweep in northwest area (Thomas).

ILLINOIS - Remains same or higher than last period. Counts per sweep ranged 300-400 in west-southwest district, 40-200 in east-southeast district, and 1-15 in east district. (Moore, Kuhlman). WISCONSIN - Ranged 1-64 per sweep throughout southern area. Parasitism as high as 50 percent in some fields; mummies increasingly evident. (Wis. Ins. Sur.). MINNESOTA - Occasional specimen found in alfalfa. (Minn. Ins. Rpt.). MARYLAND - Unusually light on alfalfa in Kent and Prince Georges Counties. (U. Md., Ent. Dept.). DELAWARE - Increasing in most areas. (MacCreary).

TARNISHED PLANT BUG (Lygus lineolaris) - KANSAS - Remains light, 1-10 per 10 sweeps in all areas. (Simpson). MISSOURI - On most alfalfa checked. Ranged 5-10 per 10 sweeps in northwest area. (Munson).

LYGUS BUGS (Lygus spp.) - ARIZONA - Adults light but increasing on alfalfa in Maricopa and Yuma Counties. (Ariz. Coop. Sur.). NEW MEXICO - Average counts per 25 sweeps of alfalfa by county as follows: Chaves 4-6 adults, 3-5 nymphs; Socorro 2-3 adults; Dona Ana 4-7 adults, 12-28 nymphs. (Kloepfer et al.). COLORADO - Adults increasing, 5-15 per 10 sweeps; damage unapparent. (Jenkins). MINNESOTA - Counts ranged 5-40 per 100 sweeps of alfalfa in central and east-central districts. (Minn. Ins. Rpt.).

MEADOW SPITTLEBUG (Philaenus spumarius) - WISCONSIN - Nymphs 0-16 per 10 alfalfa stems in southern counties. (Wis. Ins. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - NEW MEXICO - Averaged 0-4 adults per 25 sweeps of alfalfa in Chaves County (Mathews); 1 per 25 sweeps in Socorro County (Kloepfer).

BLACK CUTWORM (Agrotis ipsilon) - VIRGINIA - Moths taken in blacklight trap on Eastern Shore. (Hofmaster). MICHIGAN - Adults taken in light traps in Livingston and Clinton Counties. (Dowdy). WISCONSIN - Few moths caught in blacklight trap at Madison, Dane County. (Wis. Ins. Sur.).

VARIEGATED CUTWORM (Peridroma saucia) - VIRGINIA - Moths taken in blacklight trap on Eastern Shore. (Hofmaster). WISCONSIN - Few moths caught in blacklight trap at Madison, Dane County. (Wis. Ins. Sur.).

NOCTUID MOTHS (Heliothis spp.) - ALABAMA - Fifth and sixth instars heavy, 1 per sweep, on crimson clover in several Barbour County pecan orchards. Few first and second instars present in Lee County. H. zea adults numerous in St. Elmo area of Mobile County. (Diller et al.).

ALFALFA CATERPILLAR (Colias eurytheme) - KANSAS - Light in most north-central area alfalfa. (Simpson).

GARDEN WEBWORM (Loxostege similalis) - ARIZONA - Light numbers appearing in alfalfa in areas of the Yuma Valley, Yuma County. (Ariz. Coop. Sur.).

## COTTON

BOLLWORMS (Heliothis spp.) - ALABAMA - Fifth and sixth instars heavy in crimson clover in several Barbour County pecan orchards; averaged one per sweep or 45,000 per acre. Few first and second instars observed in Lee County. Numerous H. zea adults flying in St. Elmo area, Mobile County. (Diller et al.).

VARIEGATED CUTWORM (Peridroma saucia) - ARKANSAS - Few fields of cotton in Desha County damaged. (Ark. Ins. Sur.).

BEEET ARMYWORM (Spodoptera exigua) - ARIZONA - Light to moderate in Maricopa and Pinal Counties. Damage apparent in a few fields. (Ariz. Coop. Sur.).

COTTON APHID (Aphis gossypii) - ARIZONA - Cool weather reduced activity in Yuma County. (Ariz. Coop. Sur.).

## TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Adults light in beds at Aquasco, Prince Georges County. (U. Md., Ent. Dept.).

## SUGARBEETS

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - COLORADO - Pupae have not developed as expected due to recent wet, cool weather; ranged 5-18 per square foot in Weld County. Adults continue to emerge southeast of Berthoud. (Aldredge et al.).

FLEA BEETLES - COLORADO - Larvae continue to reduce stands in Weld and Larimer Counties. (Aldredge, Hantsbarger).

## MISCELLANEOUS FIELD CROPS

BEEF ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae increasing on safflower throughout Maricopa County. (Ariz. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Adults light but increasing on safflower in Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

## POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - VIRGINIA - Adults active on potato seedlings on Eastern Shore. Mating observed but no eggs found. (Hofmaster). FLORIDA - All stages throughout tomato-growing areas of Alachua, Putnam, and Marion Counties. (Graham, Apr. 21). OKLAHOMA - Light to moderate on home garden potatoes in Cleveland County. (Okla. Coop. Sur.).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - ARKANSAS - Damaged tomatoes in Lincoln County. (Ark. Ins. Sur.).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - ALABAMA - Adults heavy along edges of potato fields in St. Elmo area, Mobile County. (McQueen).

LEAF MINER FLIES (Liriomyza spp.) - FLORIDA - Larvae more abundant and more damaging than in recent years to tomato transplants in Marion County. (Graham, Apr. 15).

## BEANS AND PEAS

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSISSIPPI - Damage to foliage of peas, lima beans, and snap beans heavy in gardens for past 2 weeks in Oktibbeha County. Treatment necessary in many gardens. (Dinkins).

MEXICAN BEAN BEETLE (Epilachna varivestis) - FLORIDA - Adults present but causing no damage to string beans at truck garden in southeast Columbia County. First occurrence in this part of county. (Graham, Apr. 22). GEORGIA - Overwintering adults on string beans in Dougherty County. (Osburn).

SEED-CORN MAGGOT (Hylemya platura) - GEORGIA - Heavy on lima bean seed in Jackson County. (Welborn).

### COLE CROPS

CABBAGE CURCULIO (Ceutorhynchus rapae) - VIRGINIA - Adult feeding damage extensive to cabbage on Eastern Shore. (Hofmaster).

IMPORTED CABBAGEWORM (Pieris rapae) - MICHIGAN - First flight of season noted April 26 in Ingham and Washtenaw Counties. (Newman).

ROOT MAGGOTS (Hylemya spp.) - GEORGIA - Heavy on cabbage roots in Polk County. (Stowe).

### CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittatum) - MISSOURI - Heavy on watermelons in southeast area. Chemical controls applied in some instances. (DiCarlo).

### GENERAL VEGETABLES

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Larvae heavy on spinach leaves in Buellton, Santa Barbara County. (Cal. Coop. Rpt.). ARIZONA - Heavy numbers damaging vegetables in Phoenix area, Maricopa County. (Ariz. Coop. Sur.). ALABAMA - Medium and widespread in Fayette County gardens. (Pitts).

A WIREWORM - IDAHO - Numerous enough to damage roots of carrot seed-stecklings in field near Caldwell, Canyon County. Field in red clover in 1966. (Bechtolt).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Medium on acre of radishes at Fresno, Fresno County. (Cal. Coop. Rpt.). VIRGINIA - Heavy on spinach on Eastern Shore; control poor. Warm days in March produced present heavy infestation. Dead aphids stuck to leaves by a fungus more damaging than live aphids; will not wash off. (Hofmaster).

ROOT MAGGOTS (Hylemya spp.) - GEORGIA - Heavy on onion roots in Polk County. (Stowe).

### INSECT DETECTION

#### New County and Island Records

ALFALFA WEEVIL (Hypera postica) - ILLINOIS - Lee County. INDIANA - Blackford, Fulton, Grant, Huntington, Kosciusko, Marshall, Wabash, and Wells Counties. MISSOURI - Boone, Cooper, and Moniteau Counties. (p. 362).

A PLATASPID BUG (Coptosoma xanthogramma) - HAWAII - Found for first time on Hawaii Island. (p. 371).

### CORRECTIONS

CEIR 17(16):313 - A MEALYBUG (Antonina pretiosa) - CALIFORNIA - Delete note. Should read: Medium on golden bamboo nursery stock at San Jose, Santa Clara County. (Cal. Coop. Rpt.).

CEIR 17(17):350 - MOSQUITOES - LOUISIANA - Psorophora ciliata should read Psorophora ciliata.

**DECIDUOUS FRUITS AND NUTS**

**ORIENTAL FRUIT MOTH** (*Grapholitha molesta*) - ALABAMA - First-generation larvae light to medium and killing first 1-3 inches of new growth on several peach trees in Lee County. (McQueen). INDIANA - Bait trap collections declined to 9 from 22 collected previous week in Vincennes area. (Dolphin, Apr. 24).

**CODLING MOTH** (*Carpocapsa pomonella*) - INDIANA - First adult (male) of season collected in virgin-female trap April 17 in Vincennes area. Total of 32 males collected in 2 traps, each containing 5 laboratory-reared females. (Dolphin, Apr. 24).

**EYE-SPOTTED BUD MOTH** (*Spilonota ocellana*) - WISCONSIN - Larvae boring apple buds in Madison area, Dane County. (Wis. Ins. Sur.).

**RED-BANDED LEAF ROLLER** (*Argyrotaenia velutinana*) - INDIANA - Total of 18 males taken in 2 virgin-female traps in unsprayed orchard at Vincennes. (Dolphin, Apr. 24).

**AMERICAN PLUM BORER** (*Euzophera semifuneralis*) - INDIANA - Total of 31 taken from field cage containing 10 cords of peach wood in Vincennes area. (Dolphin, Apr. 24).

**LESSER PEACH TREE BORER** (*Synanthedon pictipes*) - INDIANA - First males of season captured in orchard April 20 in Vincennes area; 60 virgin-female traps attracted 19 males. Total of 50 males caught during week ending April 24. (Dolphin).

**PEACH TWIG BORER** (*Anarsia lineatella*) - COLORADO - Third to fourth instars present; pupation beginning in peach orchards. Population light to moderate. (Bulla).

**CIGAR CASEBEARER** (*Coleophora serratella*) - WISCONSIN - Observed on untended apple trees in Madison area, Dane County. (Wis. Ins. Sur.). GEORGIA - Light on pecans in Dougherty County. (Harris).

**PECAN CASEBEARERS** (*Acrobasis* spp.) - ALABAMA - First pupation and adult emergence of *A. caryae* for year observed on unprotected pecan orchard in Barbour County; infestation very light. *A. juglandis* larvae light to medium and about to pupate in pecans in Barbour County. (Walton et al.).

**HICKORY SHUCKWORM** (*Laspeyresia caryana*) - ALABAMA - Numerous larvae observed in old pecan shucks on ground and in trees in several Barbour County orchards, about to pupate. (Walton et al.).

**FALL WEBWORM** (*Hyphantria cunea*) - ALABAMA - First and second instars observed on isolated pecan trees in Baldwin and Barbour Counties. (Wilson et al.).

**PLUM CURCULIO** (*Conotrachelus nenuphar*) - OKLAHOMA - Light on wild plums in Payne County. (Okla. Coop. Sur.).

**ROSE CHAFER** (*Macrodactylus subspinosus*) - OKLAHOMA - Damaging pecan blossoms in Seminole County. (Okla. Coop. Sur.).

**SHOT-HOLE BORER** (*Scolytus rugulosus*) - COLORADO - Pupae and adults ranged 40-50 per 16 inches of 1-inch diameter apple limb in Pueblo, Pueblo County. (Hantsbarger, Thatcher).

**PECAN APHIDS** (*Monellia* spp.) - ALABAMA - Yellow species light but increasing on leaves of unprotected pecan trees in Barbour and other central counties. Few recurring infestations noted in orchards where insecticides applied. (Walton et al.).

**SPITTLEBUGS** - GEORGIA - Adults moderate on pecans. (Fletcher).



WHITE PEACH SCALE (Pseudaulacaspis pentagona) - GEORGIA - Heavy on peach tree in Bartow County. (Holland). First generation eggs observed March 15 in Barney, Brooks County, and March 21 in Fort Valley, Peach County. First crawlers observed March 22 in Barney and April 4 in Fort Valley. (Jacklin).

PECAN LEAFROLL MITE (Aceria caryae) - ALABAMA - First infestation of year observed on pecan tree in Barbour County; infestation very light. (Walton et al.).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - INDIANA - All stages present in trace numbers in samples from commercial orchards in Vincennes area. (Dolphin, Apr. 24).

EUROPEAN RED MITE (Panonychus ulmi) - INDIANA - Populations dependent on spray schedules; range from nearly zero to high of 2.5 mobile forms per leaf in commercial orchards sampled in Vincennes area. (Dolphin, Apr. 24). OHIO - Eggs beginning to hatch in north-central area. (Rose). DELAWARE - Hatching observed April 20 near Dover. (MacCreary). NEW JERSEY - Controls applied on apples in southern and central areas. (Ins.-Dis. Newsltr.).

#### CITRUS

SIX-SPOTTED MITE (Eotetranychus sexmaculatus) - FLORIDA - Heavy in 3 citrus groves near Dade City, Pasco County; 90 percent trees infested. Light in many nearby groves. (Baker).

YUMA SPIDER MITE (Eotetranychus yumensis) - CALIFORNIA - Heavy and damaging Temple orange trees in Indio, Riverside County. (Cal. Coop. Rpt.).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Increasing rapidly in Yuma County citrus groves. Infestations heavier than last year; controls necessary. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Heavy infestations required increased controls in citrus areas of Yuma County. (Ariz. Coop. Sur.).

#### SMALL FRUITS

GRAPE LEAF SKELETONIZERS (Harrisina spp.) - FLORIDA - First H. americana eggs of season noted on dooryard plantings of Lake Emerald hybrid grape at Gainesville. (Mead). NEVADA - First H. brillians adults of season observed April 15 in Las Vegas, Clark County, about one month earlier than usual. (Zoller).

GRAPE PHYLLOXERA (Phylloxera vitifoliae) - ALABAMA - Light on new leaves of grapes in several central area home plantings. (McQueen).

SPIDER MITES - NEW JERSEY - Tetranychus spp. observed on strawberries in Hammonton area. (Ins.-Dis. Newsltr.). VIRGINIA - Few T. atlanticus observed on strawberries on Eastern Shore. Problem could develop should dry weather continue. (Hofmaster). FLORIDA - Eotetranychus cilius a problem on blackberry at Pine Hills, Orange County. (Ware, Apr. 4).

#### ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - OKLAHOMA - First small larvae of year on evergreens in Stillwater area of Payne County. (Okla. Coop. Sur.).

A LEAF ROLLER MOTH (Argyrotaenia sp.) - CALIFORNIA - Medium on roses at Encinitas, San Diego County. (Cal. Coop. Rpt.).

A PLUME MOTHS (Platyptilia antirrhina) - CALIFORNIA - Larvae heavy and boring on snapdragon stems at Sacramento, Sacramento County. (Cal. Coop. Rpt.).

AN APHID (Neophyllaphis araucariae) - FLORIDA - Adults infesting all podocarpus inspected at nursery in Ft. Lauderdale. (Clinton, Apr. 18).

ARMORED SCALES - ALABAMA - Fiorinia theae crawlers heavy on camellia and Burford holly and Unaspis euonymi crawlers heavy on euonymus in Lee County. (McQueen). CALIFORNIA - Aspidiotus nerii medium on New Zealand flax nursery stock at Los Banos, Merced County. A. camelliae heavy on camellia nursery stock at Vista and Encinitas, San Diego County. (Cal. Coop. Rpt.).

SOFT SCALES - CALIFORNIA - Carulaspis minima heavy on plum juniper nursery stock and Lecanium cerasorum medium on dogwood nursery stock at Napa, Napa County. (Cal. Coop. Rpt.). FLORIDA - All stages of Saissetia coffeae severe on sago-palm at nurseries in Sharpes and Cocoa, Brevard County. (Levan, Apr. 21). MARYLAND Ceroplastes sp. heavy on English holly at College Park, Prince Georges County. (U. Md., Ent. Dept.).

LONG-TAILED MEALYBUG (Pseudococcus adonidum) - CALIFORNIA - Heavy on Oregon-grape nursery stock at Encinitas, San Diego County. (Cal. Coop. Rpt.).

WHITEFLIES - ALABAMA - Adult emergence heavy on gardenia and other plants in Lee and other central counties. New generation crawlers in large numbers on new leaves. (Leeper et al.).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - VIRGINIA - Adults emerging on Eastern Shore. Damage to holly extensive in 1966; should be severe in 1967. (Hofmaster).

#### FOREST AND SHADE TREES

EASTERN TENT CATERPILLAR (Malacosoma americanum) - VIRGINIA - Small tents visible on Eastern Shore. (Hofmaster). Many wild cherry trees with 10-15 large tents show moderate defoliation in central area. (Isakson). CONNECTICUT - Hatching observed April 21 at East Windsor and Naugatuck. (Johnson et al.). NEW YORK - Emergence observed April 14 in Ontario County. (Smith). OHIO - Infestations on wild cherry, apple, and crab apple earliest and heaviest yet in southwestern and south-central areas. (Cooley). Development slow in northern area. In Mohican State Forest, Ashland County, larvae small but common on wild cherry trees. Webbing more common in this area than last year; up to 20 or more colonies per tree. (Rose). OKLAHOMA - Larvae preparing to pupate in Major County. (Okla. Coop. Sur.).

A TUSSOCK MOTH (Hemerocampa sp.) - CALIFORNIA - Larvae heavy on salt-bush in Carpinteria area, Santa Barbara County. (Cal. Coop. Rpt.).

MAY BEETLES (Phyllophaga spp.) - ARKANSAS - Continued to feed on deciduous trees in southeast area; noneconomic in most cases. Little or no feeding signs observed in remainder of State. (Ark. Ins. Sur.).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEW MEXICO - Moderately heavy populations feeding on elm trees in Belen area, Valencia County. (Heninger).

A LEAF-MINING WEEVIL (Odontopus calceatus) - OHIO - Adults active and feeding on buds and unfolded foliage of yellow-poplar in Mohican State Forest, Ashland County, and Dillon Reservoir State Park, Muskingum County. (Donley, Apr. 20).

A BARK BEETLE (Xylosandrus compactus) - FLORIDA - Adults associated with camphor twigs April 1 and killing twigs of redbay at Gainesville, April 15. These new host records. (Hetrick).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - OHIO - Populations were very damaging in the Mohican State Forest, Ashland County, last year; situation apparently will be repeated in 1967. Large percentage of pine trees currently infested and many show damage from previous years' feeding, (Rose). MICHIGAN - High populations anticipated this year in Lower Peninsula. Larval activity noted in Livingston County. (Dowdy).

PINE SPITTLEBUG (Aphrophora parallela) - ALABAMA - Nymphs heavy on 6 to 20-foot loblolly pine trees in several isolated locations southeast of Tuscaloosa, Tuscaloosa County; south of Marvin in Lee and Bullock Counties; and north of Clayton in Barbour County. Spittle masses ranged 5-20 on numerous pines in valley areas; only occasional infestations noted on higher ground. (McQueen).

TULIPTREE SCALE (Toumeyella liriodendri) - OHIO - Large numbers overwintered in Ashland and Muskingum Counties. High populations expected on yellow-poplar this season. (Donley, Apr. 20).

#### MAN AND ANIMALS

MOSQUITOES - MINNESOTA - During week ending April 22, 1,388 larval samples collected. Dominant species were Aedes excrucians, Culiseta inornata and C. norsitans. Cool weather has delayed development. Approximately 14,000 acres were treated by air and 4,000 acres with ground equipment. (Minn. Ins. Rpt.). WISCONSIN - Aedes spp. larvae numerous and full grown in floodwater pools in Sauk County. No pupation observed. (Wis. Ins. Sur.). MICHIGAN - Aedes spp. larvae relatively few to very numerous in ponds sampled April 26 in Washtenaw, Livingston, Ingham, and Shiawassee Counties. Approximately 70 percent late instars, 20 percent early instars, and 10 percent pupae. (Dowdy). FLORIDA - Aedes taeniorhynchus very light in most light traps April 7; however, 2,048 females caught night of April 11 at Big Pine Key, Monroe County. (Fla. State Bd. of Health). LOUISIANA - Larval collections in Jefferson Parish contained Culex pipiens quinquefasciatus, C. restuans, and C. salinarius. Mansonia perturbans dominated in light trap collections throughout parish. (Stokes). CALIFORNIA - Above normal rainfall may result in above normal numbers of Culex tarsalis larvae; widespread intensified surveillance for C. tarsalis being established. (Keh).

HOUSE FLY (Musca domestica) - FLORIDA - Serious for past 2 weeks in western and northwestern Gainesville, Alachua County. This is worst fly problem experienced by county health officer. Breeding traced to poultry droppings dumped on 15-20 acre area 2.5 miles southwest of Gainesville. Breeding grounds treated. (Strayer et al.). GEORGIA - Large numbers around caged layer operations in northern area. (Smith). MISSISSIPPI - Increasing around feed mills and in commercial chicken houses in east-central area. (Dinkins). OKLAHOMA - Averaged 6 per Scudder grid in barns in Payne County. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - IDAHO - Several hundred adult males observed clustered on a car April 23 in Moscow, Latah County. (O'Keefe). UTAH - Active at Providence, Cache County, during warmer days in late March. (Hanson, Knowlton).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Approximately 350 flies per animal observed on beef cattle in Lowndes and Oktibbeha Counties. (Dinkins). OKLAHOMA - Decreased due to cool weather in many areas. Counts per head averaged 400 in Major, 200 in Ellis, and up to 100 in Payne Counties. Light to moderate in Mayes, Cleveland, and Cotton Counties; heavy in Garvin County. (Okla. Coop. Sur.).

CATTLE GRUBS (Hypoderma spp.) - NORTH DAKOTA - Only 12 percent of grubs have dropped from infested animals examined at a Dickinson livestock auction. At this time last year 50 percent had emerged. (Brandvik). COLORADO - H. lineatum eggs found on hair of cattle in northern Weld County. (Hantsbarger).

SCREW-WORM (Cochliomyia hominivorax) - Total of 13 cases reported in the U.S. April 23-29 as follows: TEXAS - Presidio 2, Kinney 1, Uvalde 1, Frio 1, Live Oak 1, Jim Wells 1, Brooks 1, Kenedy 1, Starr 1, Willacy 2. CALIFORNIA - San Diego 1. Total of 27 cases reported in portion of Barrier Zone in Republic of Mexico April 16-22 as follows: Territorio sur de Baja California 6, Sonora 7, Chihuahua 1, Coahuila 3, Nuevo Leon 1, Tamaulipas 9. Three cases reported in Mexico south of the Barrier Zone. Barrier Zone is area where eradication operations are underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released April 23-29: Texas 26,008,000, Arizona 50,000, California 200,000, Mexico 106,500,400. (Anim. Health Div.).

AN EARTHWORM MITE (Fuscuropoda agitans) - CALIFORNIA - All stages of this and Caloglyphus sp. heavy in a worm barrel at Sutter Creek, Amador County. (Cal. Coop. Rpt.).

TICKS - OKLAHOMA - Amblyomma americanum adults and nymphs continue to annoy vacationers in eastern areas. Ranged 600-700 per head on yearlings and up to 1,000 per head on cows: Ixodes scapularis ranged 15-20 per head. These species and Dermacentor albipictus present on deer; A. americanum dominant. Death of fawns noted due to blood loss and reaction to ticks. (OKla. Coop. Sur.).

#### BENEFICIAL INSECTS

LADY BEETLES - NEVADA - Adults heavy in many alfalfa fields in Mason and Smith Valleys, Lyon County, earlier, but now very light in fields infested with pea aphid. No larvae observed. (Batchelder). NEW MEXICO - Abundant in alfalfa infested with pea aphid in northern Dona Ana County. No larvae observed. (Nielsen). COLORADO - Hippodamia convergens adults more active this period. (Jenkins). INDIANA - Microneisea spp. and Stethorus spp. common in apple and peach trees in Vincennes area. Other beneficial species also present. (Dolphin, Apr. 24). ALABAMA - Adults and larvae of H. convergens and Coleomegilla maculata fuscilabris heavy and feeding on aphids infesting clover and other crops in Mobile County and generally throughout State. Olla abdominalis adults and larvae feeding on aphids infesting turnips and smartweed in St. Elmo area, Mobile County; appearing on pecan trees in Barbour, Lee, and other southern and central counties. (Diller et al.). FLORIDA - H. convergens most common lady beetle during April on rye, oats, and alfalfa at Gainesville, and on rye, wheat, and oats in Washington and Jackson Counties. (Mead et al.).

GOLDEN-EYE LACEWING (Chrysopa oculata) - ALABAMA - Large numbers of adults and larvae feeding on aphids infesting clovers in Mobile, Barbour, and Lee Counties; also general throughout State. (Diller et al.).

AN ICHNEUMON WASP (Bathyplectes curculionis) - COLORADO - Adults of this alfalfa weevil parasite noted April 23 in Larimer and Weld County area. Numbers highly variable throughout area. (McLaughlin).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - NORTH DAKOTA - Egg development retarded due to below normal temperatures. Very few eggs in segmented stage and up to 16 percent desiccated. Infestations generally noneconomic and light throughout most of State. Not expected to be a problem this season. (Brandvik). MINNESOTA - No egg development noted in central and east-central districts. (Minn. Ins. Rpt.).

CEREAL LEAF BEETLE (Oulema melanopus) - INDIANA - First eggs of season found in wheat April 20 in New Carlisle area. Adult counts in wheat ranged 80-600 per 100 sweeps (average 250) April 21. (Shade). MICHIGAN - Adult activity in wheat and grasses reduced due to cool weather. Eggs averaged 22 per square yard in Berrien County research wheat plot April 18. (Haynes).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ALABAMA - Larvae destroyed one-third of stand of corn on 50-100 acres in Crenshaw County. (Reeder). Larvae caused heavy damage to old 7-acre planting of strawberries in Belleville Community, Conecuh County. (Lemons et al.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Moth emergence continues light throughout State as result of continued cool weather. Emergence from cages placed over cotton trash at ends of fields in Maricopa County showed 6 moths at Red Mountain Ranch, 3 in Deer Valley, and 2 on East Baseline Road. (Ariz. Coop. Sur.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Larvae taken on orange jasmine at Ft. Lauderdale, Broward County, for new host record. (Runfeldt, Apr. 24.).

#### HAWAII INSECT REPORT

Cucurbits - All stages of LEAF MINER FLIES (Liriomyza spp.) medium to heavy in watermelon and cantaloup fields in Kahuku, Oahu. Intensive chemical control in progress. (Sato). Larvae of MELON FLY (Dacus cucurbitae) caused medium to heavy damage on cucumbers in Waimanalo, Oahu. Control hampered by heavy rains. Increasing on cucurbits on Kauai at Lawai, Kalahoe, Hanapepe, Kaumakani, and Waimea. (Oshiro, Au).

General Vegetables - BEE T ARMYWORM (Spodoptera exigua) larvae light to medium in green onion fields at Koko Head, Oahu; light and scattered on green onions at Waimanalo. (Nakao). SOUTHERN GARDEN LEAFHOPPER (Empoasca solana) nymphs and adults heavy, 20 adults per sweep, in 1 acre of yard-long beans at Waimanalo, Oahu. SWEETPOTATO VINE BORER (Omphisa anastomosalis) larvae medium on small plantings of sweetpotato at Koko Head, Oahu. (Nakao).

Fruits and Nuts - PURPLE SCALE (Lepidosaphes beckii) and FLORIDA RED SCALE (Chrysomphalus aonidium) heavy, mostly on fruits, of several citrus trees at Waianae, Oahu. (Harvey). An ARMORED SCALE (Phenacaspis cockerelli) medium to heavy on coconut trees in scattered areas of Kailua-Kona, Hawaii Island. (Yoshioka).

Ornamentals - Nymphs and adults of a PLATASPID BUG (Coptosoma xanthogramma) moderate on mucuna at Hilo, Hawaii. This is a new island record. Previously found only on Oahu. (Yamayoshi et al.).

Households and Structures - FORMOSAN SUBTERRANEAN TERMITE (Coptotermes formosanus)- Light trap collections indicate large swarms occurring for first time this year in many areas of Oahu. (Haw. Ins. Rpt.).

Miscellaneous Pests - Moderate infestation of GIANT AFRICAN SNAIL (Achatina fulica) detected at Wahiawa, Kauai. Surveys to ascertain extent of infestation continuing. (Au).



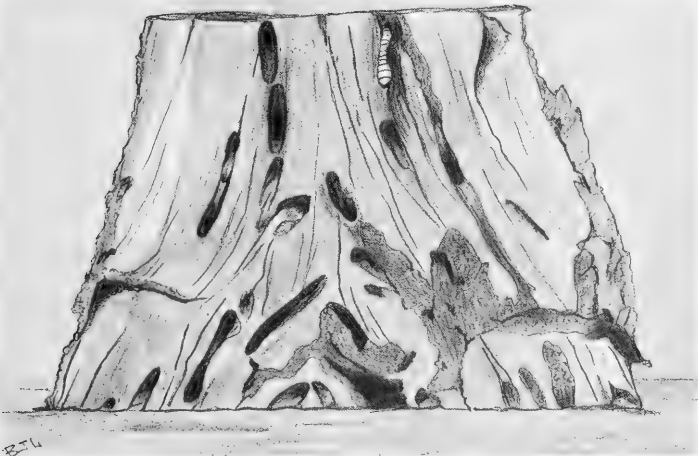
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

STONE-FRUIT TREE BORER (Cerambyx dux (Faldermann))

Economic Importance: The stone-fruit tree borer is a serious pest of apricot, peach and almond in Jordan, Lebanon and Israel. In the vicinity of Jerusalem, apricot and peach production, up to an altitude of about 2,600 feet, is not practical if rigid control measures are not followed. Larvae are mainly trunk borers and seldom penetrate the roots. The most frequently attacked part of the tree is the trunk below the crotch. In heavily infested trees, this part is riddled with larval borings. Thirty to 50 larvae of different sizes and ages may be found in a heavily infested tree. As a result, yield is greatly reduced.

Distribution: Cyprus, Greece, Iran, Israel, Lebanon, Jordan, Syria, Turkey, and southern USSR.

Hosts: Apricot, almond, peach, plum and walnut. Oak and to a less extent beech are the important hosts in the forested areas.



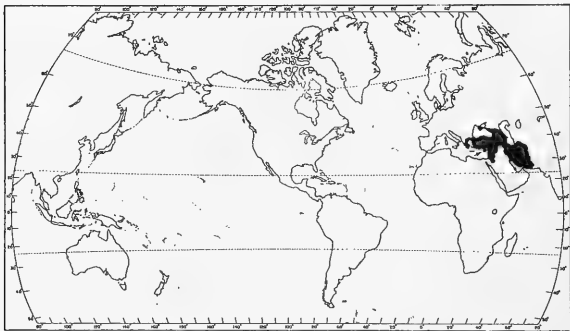
Vertical section of almond log showing borings of larvae of *C. dux*. (Redrawn, by permission, from Bulletin of Entomological Research 23(2), 1932.).

Life History and Habits: Under field conditions in Jordan and Israel, the biology is as follows: Adults are common from mid-May to mid-June. Mating occurs a few days after emergence. Females deposit 30-40 eggs in cracks and crevices of tree trunks and branches. Mature trees are preferred for oviposition. Young larvae feed as soon as they emerge and throw out frass through holes made in the trunk. In a heavily infested tree, heaps of frass appear around the base. The larva prepares a pupal cell within a tunnel by clogging the end with frass. The complete life cycle requires about 2 years as follows: Egg 1-3 weeks (May or June), larva 15-16 months from June of one year to August or September of the next, pupa 1-2 months (August through November), dormant adult within pupal cell 7 months (November to May).

Description: EGG - Length 4 mm., width 2 mm. Oval, markedly pointed at one end. Color dirty white. Surface roughened. LARVA - When full grown length 55-65 mm. Small, brown head invaginated into prothorax and containing two strongly developed and powerful mandibles. Prothoracic segments broadest; body tapers gradually to anal segment which is narrowest. Prothorax rising at 45 degree angle from head; used with head to push frass out of tunnels. Young larva closely resembles full-grown specimens except for size. PUPA - Length 45-55 mm. Dirty white but darkening later. ADULT - Length 19-45 mm. Head with longitudinal grooves between antennae, rising between the eyes and the depression behind the elevation. Eyes very large, covering all the lateral side of the head. Antennae of male slightly longer than body or equal to its length, that of female reaching to middle of elytra. Elytra black, with short delicate or soft hairs, bearing a type of powdery coating, lower side with somewhat more noticeable pubescence.



Adult of Cerambyx dux



General Distribution of Cerambyx dux

- Selected References: 1. Jolles, P. 1932. Bul. Ent. Res. 23(2):251-256.  
2. Plavilstshikov, N. N. 1940. Fauna SSSR, Coleopterous Insects. 22:97 (Akad. Nauk, SSSR, Zool. Inst.).

Prepared in Survey and Detection  
Operations in cooperation with  
other ARS agencies.

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
17(18):373-374, 1967



# LOOK FOR THESE IN SMALL GRAINS

**Senn Pest** Look for an oval, tan to brownish stink bug on heads or stems of small grains. Margins of adult abdomen have alternating dark and light areas. This insect can be easily seen but often drops quickly to the ground when disturbed. Can be taken readily in a sweep net. Often congregates under windrows of straw or other collections of debris.

Hosts include wheat, barley, rye, oats, millet, sorghum, spurge, sunflower, flax, clover and thistle. This pentatomid occurs in Afghanistan, Crete, Greece, Iran, Cyprus, Iraq, Israel, Lebanon, West Pakistan, Syria, Turkey, and USSR (southern). Eurygaster integriceps Puton is one of the most destructive pests of grain in the Middle East. Adults feed on stems of young plants and adults and nymphs damage kernels. Entire wheat crops may be destroyed; yield is often reduced 25 percent or more. Senn pest also affects quality of flour and germination. Heavy damage has been reported from areas of USSR. For more details see CEIR 7(5):88.

**Cereal Leaf Miner** Yellowed or brown patches in grain fields may be indicative of presence of *Syringopais temperatella* (Led.). This lepidopterous miner feeds within the leaves, leaving the epidermis transparent. Larvae are about 5 mm. in length when full grown, and grayish yellow in color. Wing expanse of moth is from 12-18 mm. Forewings are brown, thorax and abdomen black.

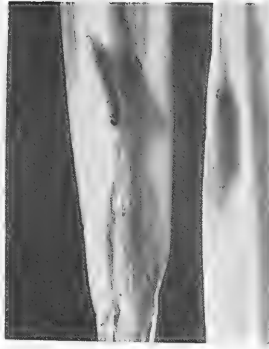
Wheat, barley, and oats are preferred hosts. The pest occurs in Cyprus, Turkey, Lebanon, Syria, Jordan, Iraq, Israel, and Iran. Larvae mine leaves from November to April; may kill entire plantings. Major pest of cereals in Middle East; annual loss in Jordan 15-20 percent; 20-25 percent in Turkey; severe losses reported from other areas. As many as 60-90 larvae per plant have been reported in Iran. For more details see CEIR 9(38):873.

Senn pest and cereal leaf miner are not known to occur in the United States.

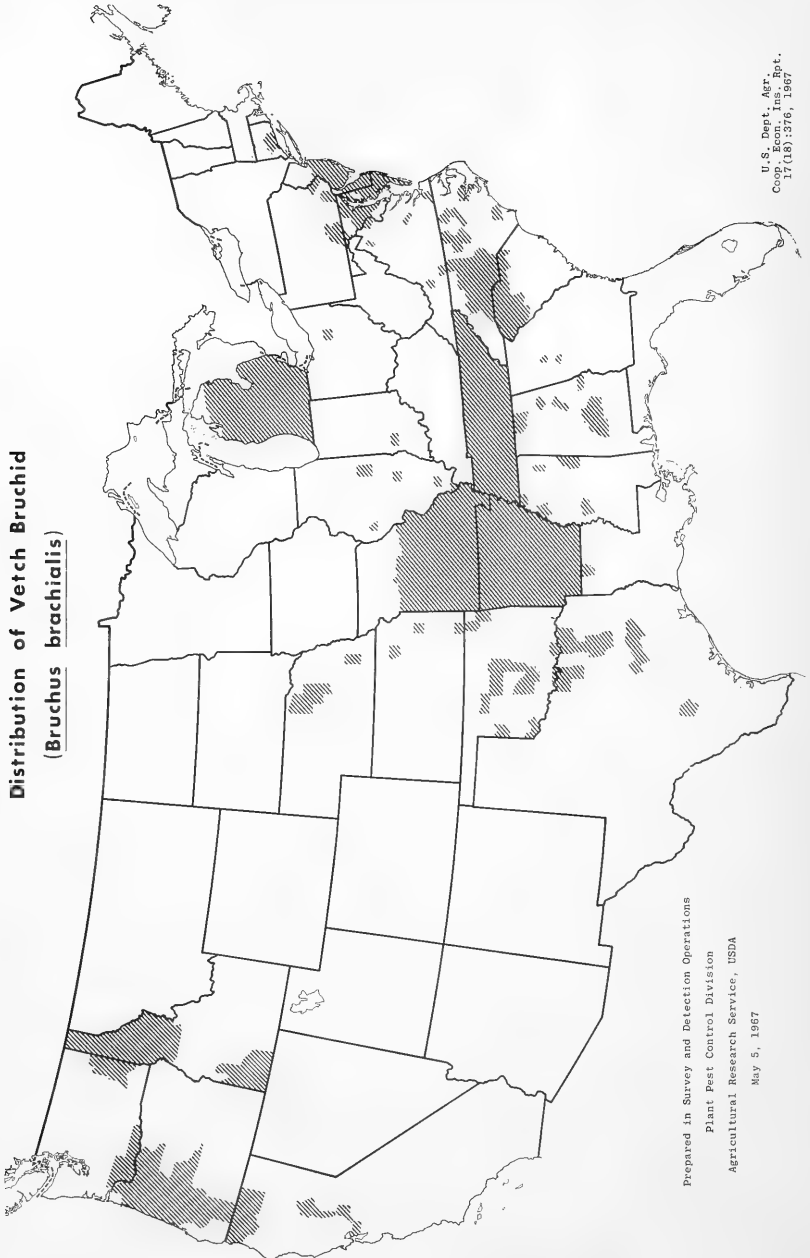
## Cereal Leaf Beetle

Presence of this introduced pest in grain fields may be first apparent from a streaked appearance of the leaves. In heavy infestations, plants appear yellowish white. Adults of *Oulema melanopus* (L.) are approximately 5 mm. in length. Wing covers and head are metallic bluish black. Legs and thorax light reddish brown, and head are metallic longer than adult. It is yellowish, with brownish black legs. Coloring is obscured by a covering of fecal matter. Adults may be taken in sweep nets on warm spring days.

This chrysomelid attacks small grains and other grasses. Distribution includes Tunisia, Turkey, Cyprus, Israel, Iran, Morocco, and Europe east to Siberia. Also occurs in a small area of U. S. and has been reported in Canada. Serious damage to small grains has been reported in areas of Europe, and in areas of Michigan where the insect was discovered in 1962. The pest now occurs in wide areas of Michigan, Indiana, and Ohio; also reported from 3 counties in northeast Illinois. A cooperative State-Federal control program is in operation against the pest.



**Distribution of Vetch Bruchid**  
**(Bruchus brachialis)**



Prepared in Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service, USDA  
May 5, 1967

U.S. Dept. of Agriculture  
Commodity Report  
CP-118:376, 1967



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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

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Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMYWORM damaging wheat and oats in Jefferson County, Georgia; moths appearing in light traps in other States. ARMY CUTWORM severely damaged alfalfa in Nez Perce County, Idaho. CORN EARWORM heavy in corn in 2 Georgia counties. CORN LEAF APHID necessitated controls on barley in Maricopa County and increasing in Graham County, Arizona. First POTATO LEAFHOPPER adults of season reported in Illinois and Indiana. Presence of SIX-SPOTTED LEAFHOPPER in Michigan prompted recommendation for protection of some crops. SPOTTED ALFALFA APHID increasing and spreading in southern New Mexico counties. TOBACCO BUDWORM severe on flue-cured tobacco in areas of Florida; light to heavy across Tobacco Belt of Georgia. (p. 379).

First EUROPEAN CORN BORER adult of season collected in Delaware. SOUTHERN CORN ROOTWORM caused severe damage to corn in Mississippi. PALE WESTERN CUTWORM damaged wheat in some fields in Morton and Stanton Counties, Kansas. (p. 380).

ALFALFA WEEVIL of primary concern in Ohio and increasing in other States. (p. 382). PEA APHID increasing on and damaging alfalfa in several areas, decreasing in others. (p. 383).

BOLL WEEVIL winter survival very high in Alabama. (p. 384).

CITRUS RUST MITE and TEXAS CITRUS MITE increased to new record highs for April on Florida citrus. EUROPEAN EARWIG causing some bud and fruit damage to oranges at Oroville, California. (p. 388). STRAWBERRY APHID unusually heavy on strawberries for this time of year at Vancouver, Washington. (p. 389).

Detection

- A LACE BUG reported from Washington; first record for U. S. (p. 393).

A GELECHIID MOTH reported for first time in Delaware. (p. 393).

For new county and island records see page 393.

Special Reports

The Preservation and Shipment of Dead Insects for Determination. (pp. 396-400). Reprints available from Plant Pest Control Division offices.

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WEATHER OF THE WEEK ENDING MAY 8

HIGHLIGHTS: It was another wet and even colder week as spring retreated and winter held fast to the Great Plains and a blizzard hit Wyoming and Nebraska. Tornadoes and severe thunderstorms struck the middle and lower Mississippi Valley. Dry in Florida.

PRECIPITATION: The Far Southwest, from California to the High Plains of Texas, received no rain or only light sprinkles. Only light precipitation fell from the Far Northwest to the northern Great Plains. A May Day blizzard brought substantial precipitation to portions of Wyoming and Nebraska. Snowfall in Nebraska measured 3-5 inches, but areas near Stromsburg received 8-10 inches. Eastern Kansas received slow soakers on several days with weekly totals exceeding one inch. Rainfall over wide areas from central Texas to southern New England exceeded 1 inch with many 4- to 5-inch totals in parts of Arkansas, Louisiana, Mississippi, and Alabama. Parts of the lower Rio Grande Valley and the Florida Peninsula received no rain or only light sprinkles. Tornadoes and severe thunderstorms with hail and high winds occurred over some Central and Southeastern States with a few areas suffering considerable damage. One of the worst tornadoes struck Birmingham, Alabama, at 5:50 p.m. Saturday. Reports indicate 1 death, 100 persons injured, and damages in excess of \$1 million.

Weather continued on page 394.



**SPECIAL INSECTS OF REGIONAL SIGNIFICANCE**

ARMYWORM (Pseudaletia unipuncta) - GEORGIA - Cutting off seed heads and feeding on foliage of oats and wheat in Jefferson County. (Eubank, Nolan). ARKANSAS - Absent in wheat in Conway and Jefferson Counties. Few light infestations reported in Chicot and Desha Counties. (Ark. Ins. Sur.). ILLINOIS - Larvae 12 per linear foot of row in wheat field in southwest district. (Ill. Ins. Rpt.). OHIO - Moths appearing at blacklight traps in Wayne County. (Berry). MARYLAND - Adults averaged 8 per night in blacklight trap at Centreville, Queen Annes County. (U. Md., Ent. Dept.). DELAWARE - Very numerous in blacklight traps in Sussex County. (Burbutis). NEW JERSEY - First moths of season collected near New Brunswick April 29. (Ins.-Dis. Newsltr.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - IDAHO - Larvae, up to 6 per plant, caused moderate to severe damage on several acres of alfalfa near Spalding, Nez Perce County. (Kambitsch). NEBRASKA - Counts decreased in panhandle area. (Andersen).

BEEF LEAFHOPPER (Circulifer tenellus) - ARIZONA - Light in all sugarbeet fields in Graham County. (Ariz. Coop. Sur.).

CORN EARWORM (Heliothis zea) - GEORGIA - Heavy in whorls of corn in Lee and Baker Counties. (Andrews, French). ALABAMA - Full-grown and first-stage larvae light to medium on corn in several Houston and Henry County fields. (McQueen). MISSOURI - Ranged 1-6 first and second instars per 10 sweeps in alfalfa in extreme southwest area. (Munson).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Building up on late-planted barley in Graham County. Controls still necessary in some Maricopa County fields. (Ariz. Coop. Sur.). MARYLAND - Small colonies on upper leaf bracts of barley at Easton, Talbot County. (U. Md., Ent. Dept.).

GREENBUG (Schizaphis graminum) - NEBRASKA - Light in Saunders County wheat. (Keith). Surveys negative in panhandle area. (Andersen). KANSAS - Trace numbers, 1-5 per sweep, in few south-central and southwest area wheat fields. (Simpson).

POTATO LEAFHOPPER (Empoasca fabae) - INDIANA - First adults of season collected on alfalfa in southwest and south-central districts May 1. (Huber). ILLINOIS - First adults of season found in south-southeast and southeast districts; 1 per 5 to 25 sweeps. (Ill. Ins. Rpt.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MICHIGAN - This vector of aster yellows collected in sweepings for second week. Protection recommended for such crops as celery, lettuce, and carrots as plants emerge. (Dowdy).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Becoming more numerous and more generally distributed in alfalfa in most southern counties. Populations may increase rapidly as weather becomes more favorable. (N. M. Coop. Rpt.). KANSAS - None found in alfalfa in central, south-central, and southwest districts. (Simpson). NEBRASKA - Trace, 2-4 per 100 sweeps, on alfalfa in Saunders and Lancaster Counties. (Keith).

TOBACCO BUDWORM (Heliothis virescens) - FLORIDA - Continues severe on flue-cured tobacco in Hamilton County (Strayer); serious on flue-cured tobacco at Live Oak, Suwannee County (Lundy). ALABAMA - Egg laying and first instars heavy in 6-acres of young tobacco at Red Level, Covington County. Few adults resting on plants. Older larvae controlled in another field of older tobacco. (McQueen). GEORGIA - Light to heavy across the Tobacco Belt. (French).

## CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - DELAWARE - Approximately 55 percent pupation of overwintering borers in south Kent and Sussex Counties. First adult of season May 1 in blacklight trap in Sussex County. (Burbutis). MARYLAND - Pupation nearly complete on Eastern Shore, but no moths taken in blacklight traps. (U. Md., Ent. Dept.). ILLINOIS - Pupation 50 percent in Pulaski County. (Ill. Ins. Rpt.). MINNESOTA - Woodpecker predation of overwintering larvae high in Carver County. (Minn. Ins. Rpt.). NORTH DAKOTA - Bird predation evident in unharvested corn field near Fargo, Cass County. Fall population reduced 40 percent. (Brandvik).

BLACK CUTWORM (*Agrotis ipsilon*) - SOUTH CAROLINA - Damage in Hampton County. (Nettles et al.). MARYLAND - Adults averaged 7 per night in blacklight trap at Centreville, Queen Annes County. (U. Md., Ent. Dept.).

FALL ARMYWORM (*Spodoptera frugiperda*) - ALABAMA - Isolated infestations of larvae reaching full growth in a corn field in Houston County. (McQueen).

SOUTHWESTERN CORN BORER (*Zea diatraea grandiosella*) - MISSISSIPPI - Adult emergence underway in Oktibbeha County. (Davis).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - MISSOURI - Light, 1-6 beetles per 10 plants, on seedling corn in southwest area. (Munson). NEW JERSEY - Controls applied to sweet corn in Burlington County. Higher than average winter temperatures indicate greater numbers this spring than last. (Ins.-Dis. Newsltr.). NEW YORK - Numerous on sweet corn in Ulster County during dry, cool weather. (N. Y. Wkly. Rpt., May 1).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - MISSISSIPPI - Larvae severely damaged 150 acres of young corn in Warren County. Entire acreage plowed and replanted. (Young, Apr. 28).

A CERAMBYCID BEETLE (*Derobrachus brevicollis*) - GEORGIA - Heavy, damaged corn following Bahia grass in Baker County. (Morgan).

BILLBUGS - GEORGIA - Heavily damaged seedling corn in Telfair County. (McKinnon). SOUTH CAROLINA - Some adult damage on young corn in Clarendon County; scattered feeding in lower part of State. (Nettles et al.).

SEED-CORN MAGGOT (*Hylemya platura*) - NEW JERSEY - Adults numerous on 4 sticky boards at Cedarville April 26 and May 3. (Ins.-Dis. Newsltr.).

## SMALL GRAINS

WHEAT HEAD ARMYWORM (*Faronta diffusa*) - KANSAS - Light, 1-3 per 10 sweeps, in several wheat fields in 3 south-central and southwest counties. (Simpson).

PALE WESTERN CUTWORM (*Agrotis orthogonia*) - KANSAS - Ranged 4-8 per square foot of wheat in Morton and Stanton Counties; damage extensive in some fields. Previous numbers of 4-10 per square foot continue in Finney, Haskell, Hamilton, and Scott Counties. (Simpson). NEBRASKA - Decreased on small grains in northwest area. (Andersen).

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - KANSAS - Occasional aphid on wheat in south-central and southwest districts. (Simpson). NEBRASKA - Light on wheat in Saunders County. (Keith). WISCONSIN - Varied 8-35 per 50 sweeps in rye in central and southwestern counties. (Wis. Ins. Sur.). OHIO - Averaged 7 per sweep in

Agams County wheat. Growing conditions favorable in southern counties; some wheat heading. (Rose). MARYLAND - Common, causing some injury to bottom leaves, of barley and wheat at Easton, Talbot County. (U. Md., Ent. Dept.).

APHIDS - CALIFORNIA - Several species moderate to heavy on barley in Fresno County. Barley showing some stress from excess moisture and aphid infestations. (Cal. Coop. Rpt.). VIRGINIA - Colonies on top leaves of heading barley in King George County. (Isakson, Hall). MARYLAND - Rhopalosiphum padi collected May 2 from barley and wheat at Easton, Talbot County. Det. by L. M. Russell. (U. Md., Ent. Dept.).

THRIPS - ARKANSAS - Very light on wheat in Conway and Jefferson Counties. (Ark. Ins. Sur.).

HESSIAN FLY (Mayetiola destructor) - VIRGINIA - Puparia medium in volunteer wheat in Pittsylvania County. (Isakson, Blair).

WHEAT CURL MITE (Aceria tulipae) - NEBRASKA - Symptoms of wheat streak mosaic on wheat in Kimball, Cheyenne, and Scotts Bluff Counties. (Andersen).

BROWN WHEAT MITE (Petrobia latens) - NEBRASKA - Declining in panhandle area. (Andersen).

#### TURF, PASTURES, RANGELAND

GREEN JUNE BEETLE (Cotinis nitida) - OKLAHOMA - Larvae damaging lawns in Payne County. (Okla. Coop. Sur.). SOUTH CAROLINA - Larvae caused moderate loss of stand of Coastal Bermuda grass in Hampton County. (Nettles et al., May 3).

MAY BEETLES (Phyllophaga spp.) - KANSAS - White grubs seriously damaged bromegrass in Mitchell, Cloud, and Harvey Counties. (Gates). NORTH DAKOTA - Larvae ranged up to 4 per square foot in grassy field margins in eastern Richland County. (Brandvik). MICHIGAN - First adult activity in Ingham County May 3. (Hoffman). NEW YORK - Brood C beetles should be in flight this year. Readily found in diggings; may be heaviest in several years. Brood C heaviest and most important of three broods occurring in State. P. anxia most common of 23 species. Heavy flight anticipated. (N. Y. Wkly. Rpt., May 1).

BROWN WHEAT MITE (Petrobia latens) - COLORADO - Averaged 100 per plant on bromegrass and orchard grass in irrigated pasture near Longmont, Boulder County; causing extensive damage. Controls applied. (Hantsbarger).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MISSOURI - Very low; collected in Dallas, Howard, Laclede, McDonald, Morgan, and Webster Counties for new county records. (Munson). NEBRASKA - Larvae increasing in Dawson County, but still low; 0-4 per 100 sweeps, averaged 1. (Manglitz). KANSAS - As high as 175 larvae per 10 sweeps in Finney County field. Considerable feeding damage noted. Alfalfa being cut in this area. Larvae, 1-7 per 10 sweeps, collected in following 6 counties comprise new county records: Kiowa, Ford, Meade, Stanton, Grant, and Hodgeman Counties. (Simpson). ARKANSAS - Survey negative in Conway County. (Ark. Ins. Sur.). ILLINOIS - Causing much damage in southern third of State; most fields in area treated. New adults emerging in this area, but larval counts remain high; egg hatch continues. Larvae per sweep averaged 39 in the southwest, 24 in southeast, 21 in east-southeast, and 6 in west-southwest. (Ill. Ins. Rpt.). INDIANA - Adult emergence well underway in southern third; all stages present and pupae range as high as 121 per

square foot on untreated alfalfa. (Huber). WISCONSIN - Adult collected in Kenosha County indicates species successfully overwintered in State. (Wis. Ins. Sur.). MICHIGAN - Adults per 1,000 sweeps April 28: 1 in Wayne County field; 5 in Washtenaw County field. Both new county records. (Behnke). NEW YORK - Two adults collected on alfalfa in Cattaraugus County April 20. One adult collected April 26 near Hannibal, Cayuga County, for first activity in north-central area. No activity in Ulster County. (N. Y. Wkly. Rpt., May 1). OHIO - Remains of primary concern. Damage to alfalfa by large larval populations continues to increase in southern, central, and eastern counties. Very little alfalfa being raised in southeast area because of large, established populations. Alfalfa cannot be grown in this area or in many southwestern, central, and east-central counties without application of controls. Alfalfa appears "frosted" in southern counties. Larvae over 100 per sweep in one Adams County field and crop 50-70 percent destroyed. Larvae 27 per sweep in Franklin County field and crop 10-20 percent damaged. Noted on clover in Lawrence and Adams Counties; larvae ranged 1-5 per sweep. (Rose). Destructive populations developing more slowly in Wayne and Ashland Counties, but damage apparent and increasing. Percentage of damaged tips ranged 0-50 in numerous fields with most fields having 0-10 percent of tips damaged. Alfalfa 6-14 inches tall in these counties. (Glass).

NEW JERSEY - Marked increase of larvae on alfalfa due to warm weather. Most fields in Cumberland, Salem, and Gloucester Counties, show 50-75 percent injury. By May 2, 40-140 larvae per 25 tips injured 64-92 percent of tips in 3 fields. Organic phosphates and a carbamate gave good control. Treated fields in Cumberland and Gloucester Counties contained, respectively, 135 and 25 larvae per 100 sweeps. Untreated fields in other areas contained 1,000-5,000 larvae per 100 sweeps. Population of 7,000 larvae per 100 sweeps in Cumberland County greater than last year's population. A few adults present in some untreated fields. Egg masses ranged 1-3 per 10 stems. Pupation beginning in 1 field in Gloucester County. (Ins.-Dis. Newsltr.). DELAWARE - Heavy feeding injury in Kent and Sussex Counties. (Burbutis). MARYLAND - Larvae averaged over 50 per sweep on untreated alfalfa in Queen Annes County. Damage heavy to severe on untreated alfalfa in Carroll and Frederick Counties. Eggs found May 5 in stems of treated alfalfa at Fairland, Montgomery County. (U. Md., Ent. Dept.). VIRGINIA - Larvae 10 per sweep in 10-12 inch alfalfa in Roanoke County; pupation underway; much foliar damage apparent. (Isakson). SOUTH CAROLINA - Still numerous. Adults, larvae, and pupae present. Damage expected to continue. (Thompson). NEVADA - Large numbers of eggs present in most alfalfa in Fallon and Stillwater areas, Churchill County, and Mason Valley, Lyon County. Few first instars present in some fields in Churchill County. In several Churchill County fields, few larvae ranging from first instar to two-thirds grown, indicate some egg laying occurred during warm period in February. Egg laying continues with major hatch still to come. (Arnett et al.). Adult activity low in Eureka and White Pine Counties due to cool weather. (Lauderdale). IDAHO - Averaged 1 adult per square foot in field of alfalfa at Caldwell, Canyon County, April 17. No eggs found; feeding damage present. Averaged 1 and 3 adults per square foot in 2 experimental fields at Aberdeen, Bingham County, April 19. (Bishop).

CLOVER LEAF WEEVIL (*Hypera punctata*) - MARYLAND - Larvae, some diseased, averaged 5 per square foot on red clover near Centreville, Queen Annes County. (U. Md., Ent. Dept.). KANSAS - Very few larvae in examined alfalfa. Decreased substantially during last 3 weeks. (Simpson).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - OHIO - Adults on clover in southern counties; ranged 1-3 per sweep in 2 fields in Lawrence and Adams Counties. Clover 15-18 inches high. (Rose).

WEEVILS (*Hypera* spp.) - CALIFORNIA - Probably *H. brunneipennis*, damaging 80 acres of alfalfa at Rubidoux, Riverside County. This and *Hypera* spp. on alfalfa and burclover heavy at Live Oak, Sutter County, and medium at Brooks, Yolo County. *H. brunneipennis* and *H. postica* complex occurs in Sutter County. (Cal. Coop. Rpt.).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - MISSOURI - Adults in most alfalfa checked in southwest and central areas. Counts ranged 0.5-20 per 10 sweeps. (Munson).

PEA APHID (*Acyrtosiphon pisum*) - WASHINGTON - Extremely abundant on new growth alfalfa in Walla Walla County; stunting severe. Considerable acreage treated during past 2 weeks. (Johansen) - CALIFORNIA - Heavy on 15 acres of alfalfa at Live Oak, Sutter County. (Cal. Coop. Rpt.). NEVADA - Populations and damage continue heavy on alfalfa in Mason and Smith Valleys, Lyon County, especially in latter area. In many fields, infestations confined to limited areas, but spreading as infested plants dry up. Cool, damp, and windy weather has hampered controls. (Adams et al.). In Fallon and Stillwater areas, Churchill County, populations very light (1-5 per sweep) where present. No aphids were found in many fields. (Bechtel et al.). UTAH - Present in alfalfa at North Ogden, Weber County. (Knowlton). NEW MEXICO - Appears to be increasing slowly in most alfalfa in Dona Ana, Socorro, and Chaves Counties. (Elson, Heninger, Mathews). ARKANSAS - Populations decreased and now very light in alfalfa in Conway County. (Ark. Ins. Sur.). KANSAS - Low to moderate in central, south-central, and southwest districts. Ranged 250 per 10 sweeps in Dickinson County to 20 per 10 sweeps in Seward, Stevens, and Morton Counties. Generally lowest in southwest. Increasing predators and parasites reduced counts over the last month in these areas. (Simpson, Redding). NEBRASKA - Increasing slowly in Dawson County; ranged 0-15 per 50 sweeps, averaged 5.5. (Manglitz). Ranged 242-774 per 50 sweeps, averaged 450 in Saunders and Lancaster Counties. (Keith). MISSOURI - Counts in the southwestern area of the State ranged from 20 to 650 per 10 sweeps and up to 1,000 per 10 sweeps in the central area. (Munson). WISCONSIN - Ranged 1-40 per sweep in alfalfa (average 5) in central and southwestern counties. Parasitism in the fields surveyed was as high as 10 percent. (Wis. Ins. Sur.). ILLINOIS - Decreasing rapidly due to predators. (Ill. Ins. Rpt.). INDIANA - Declining in south with increasing parasitism (10-30 percent) and increased lady beetles and damsel bugs. *A. pisum*, averaged 26 per sweep (range 6-131 per sweep), in central district with no appreciable parasitism present. (Huber). MISSISSIPPI - Moderate to heavy on vetch in Oktibbeha County. (Dinkins). VIRGINIA - Averaged 15 per sweep on alfalfa in Roanoke County; alates present. (Isakson).

CLOVER APHID (*Nearctaphis bakeri*) - WASHINGTON - All stages moderate on red clover on 25-acre field April 25 at Prosser, Benton County. (Klostermeyer, May 1).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - VIRGINIA - Spittle masses present in most alfalfa at Roanoke; numbers light. (Isakson). INDIANA - Nymphs ranged 2-12 per sweep in south-central district alfalfa. (Huber). ILLINOIS - Present in clover in east-southeast district with 1-10 percent of stems infested. (Ill. Ins. Rpt.). WISCONSIN - Nymphs scarce except in extreme southern area and in few isolated, advanced areas. Counts varied 0-12 per 10 alfalfa stems. (Wis. Ins. Sur.).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ARIZONA - Small increase noted in alfalfa in Yuma, Graham, and Maricopa Counties; averaged 15 per 100 sweeps. (Ariz. Coop. Sur.). UTAH - Moderate on alfalfa at St. George-Santa Clara area of Washington County. (Knowlton).

TARNISHED PLANT BUG (*Lygus lineolaris*) - DELAWARE - First adults of season on alfalfa in Sussex County. (Burbutis). MISSOURI - Ranged 1-30 per 10 sweeps in most fields checked in southwest area. (Munson).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Adults increasing in Graham County alfalfa; averaged 50 per 100 sweeps. Nymphs increasing in Yuma County; averaged 20 per 100 sweeps. (Ariz. Coop. Sur.). NEW MEXICO - Adults per 25 sweeps of alfalfa averaged 1-2 in Socorro County and about 4 near Mesilla Park, Dona Ana County. (Heninger, Kloepfer, Elson). KANSAS - Continues low, 5-10 per 10 sweeps, but nymphs increasing. (Simpson).

VARIEGATED CUTWORM (Peridroma saucia) - MISSOURI - Ranged 0-5 small larvae per 10 sweeps of alfalfa in southwest area. (Munson).

THRIPS - NEW MEXICO - Populations, mostly Frankliniella spp., light in alfalfa in Chaves and Socorro Counties. (Mathews, Kloepper, Heninger). ARKANSAS - Unspecified species very light in alfalfa in Conway County. (Ark. Ins. Sur.).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Locally light in alfalfa in Fallon and Stillwater areas, Churchill County. (Bechtel et al.).

#### PEANUTS

A BURROWING STINK BUG (Pangaeus bilineatus) - ALABAMA - Numerous, as high as 25 per square foot, under old vines in Geneva County field April 20. Considerable damage last year in several southeast counties. (Todd).

THRIPS - GEORGIA - Light to medium in Early County. (French).

SPIDER MITES - GEORGIA - Caused light damage in Early County. (French).

#### COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Total of 15 weevils collected on 12 flight screens installed March 29 in Waco area. First weevil collected April 10. In 1966, 7 weevils collected during this period. Averaged 45 per acre. Weevils in 4 of 23 untreated fields; maximum 312 per acre. Absent in 6 systemically treated fields. (Cowan et al.). ALABAMA - Ranged 0-270 per acre on 2 to 6-leaf stage cotton at 5 central and southern counties. Very high numbers survived in suitable hibernation quarters. (McQueen).

BOLLWORMS (Heliothis spp.) - TEXAS - Eggs and/or larvae on numerous wild hosts in Waco area. Of larvae reared to fifth stage, 157 determined as H. zea, and 12 H. virescens. Two larvae collected from cotton. (Cowan et al.). ALABAMA - Eggs light on young cotton in 2 fields. (McQueen).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Light in Litchfield area, Maricopa County. (Ariz. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ALABAMA - Few small larvae feeding on leaves in Monroe and Covington Counties. Predators and parasites usually effective. (McQueen).

THRIPS - ARIZONA - Frankliniella occidentalis light to moderate on treated and untreated cotton in Yuma, Maricopa, and Pinal Counties. (Ariz. Coop. Sur.). TEXAS - Unspecified thrips heavy in 1, medium in 1, and light in 14 of 23 untreated fields in Waco area. Light in 1 of 6 systemically treated fields. (Cowan et al.). ARKANSAS - Averaged less than 1 per plant in Jefferson County. (Ark. Ins. Sur.). MISSISSIPPI - Averaged 2 per plant in 20 fields checked in Washington County. In 17 fields checked in Montgomery County, thrips ranged none to light in 11 fields and absent in 6 fields. (Young). ALABAMA - Frankliniella fusca light to heavy in all fields except where systemic insecticides applied prior to planting. (McQueen).

COTTON APHID (Aphis gossypii) - ARIZONA - Medium to heavy infestations prevalent on seedling cotton in many areas of Yuma and Maricopa Counties. Some controls applied. (Ariz. Coop. Sur.). ALABAMA - Present in most fields, but heaviest in Monroe County. (McQueen).

APHIDS - TEXAS - Light in 5 of 23 untreated fields and none found in 6 systemically treated fields in Waco area. (Cowan et al.).

COTTON FLEAHOPPER (*Psallus seriatus*) - TEXAS - Averaged 0.2 per 100 linear feet of row in 23 untreated fields in Waco area; ranged 0-2. None found in 6 systematically treated fields. (Cowan et al.).

TWO-SPOTTED SPIDER MITE (*Tetranychus urticae*) - ALABAMA - Lightly mottled 2-leaf cotton at field border in Henry County. Not evident in central and south area. (McQueen).

#### TOBACCO

FLEA BEETLES - SOUTH CAROLINA - Heavy in most areas; problem of reinfestations. (Nettles et al., May 3).

CUTWORMS - GEORGIA - Light to moderate on tobacco in Colquitt and Mitchell Counties. (Miles).

#### SUGARBEETS

PALE-STRIPED FLEA BEETLE (*Systema blanda*) - NEBRASKA - Destroyed 20 acres of new planting in Scotts Bluff County. (Andersen).

SUGAR-BEET ROOT MAGGOT (*Tetanops myopaeformis*) - COLORADO - Adults emerging near beet dump at Cloverly, Weld County. No adults observed in Ault, Eaton, Windsor, Fort Collins, Galeton, or Wellington areas of Weld and Larimer Counties. (Robertson, Alldredge).

SPIDER MITES (*Tetranychus* spp.) - ARIZONA - Moderate to heavy on some sugarbeets in areas of Maricopa County. (Ariz. Coop. Sur.).

#### POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) - NEW JERSEY - First of season feeding on tomato transplants near Auburn, Salem County. (Ins.-Dis. Newsltr.).  
OKLAHOMA - Larvae ranged 20-75 per plant on potatoes in Payne County home garden. Larvae and adults damaging nearby tomato plants. (Okla. Coop. Sur.).

POTATO FLEA BEETLE (*Epitrix cucumeris*) - DELAWARE - First adults of season on very young potatoes in eastern Kent and Sussex Counties. (Burbutis).

TOMATO FRUITWORM (*Heliothis zea*) - ALABAMA - Numerous eggs on new growth and blossoms of commercial tomatoes on 2 farms in Houston County. Since half of eggs turning dark brown, hatch expected on May 6-8. (White et al.).

POTATO TUBERWORM (*Phthorimaea operculella*) - ALABAMA - Large larvae extremely heavy, 3-10 per plant; leaving blotch mines on potato leaves to pupate in 25-acre field planted to potatoes again this year in south Baldwin County. Extreme drought for the last 45 days. First-generation moth emergence within 10 days to 2 weeks; larvae may infest tubers of late-planted potatoes. (McQueen).

GRANULATE CUTWORM (*Feltia subterranea*) - ALABAMA - Larvae near full growth; light on potatoes in Baldwin County. (McKenzie et al.).

A LEAF MINER FLY (*Liriomyza* sp.) - ALABAMA - Extremely heavy on early transplant tomatoes beginning to bloom on Chandler Mountain in St. Clair County. Controls necessary. (Jackson, Burton). Tomatoes occasionally damaged in Houston County. (White). Ranged 5-25 on most commercial potato foliage in Baldwin County. (Turner et al.).

A SPIDER MITE (*Tetranychus marianae*) - CALIFORNIA - Heavy on wild nightshade in Brea, Orange County. (Cal. Coop. Rpt.).

#### BEANS AND PEAS

COWPEA CURCULIO (Chalcodermus aeneus) - FLORIDA - Difficult to control on beans at Plant City, Hillsborough County, past 2 weeks. (Brogdon).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Isolated broods of first-generation larvae on snap beans in Baldwin County; light feeding by overwintered adults noted on beans in Houston County. (White et al.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - SOUTH CAROLINA - Heavy leaf damage at Clemson. (Nettles et al., May 3).

NOCTUID MOTHS (Heliothis spp.) - ALABAMA - Numerous large larvae destroyed sale value of snap beans on a 6-acre field in Baldwin County. (McKenzie et al.).

PEA APHID (Acyrtosiphon pisum) - MISSISSIPPI - Heavy on peas in Calhoun County garden. Controls necessary. (Cochran). DELAWARE - Averaging 2-7 per 10 sweeps in most pea fields. (Burbutis).

#### COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Very severe in several cabbage fields at Sanford, Seminole County. Several growers reported difficulty in control of larvae with any insecticide available. Unsprayed experimental plots at Sanford show population declining; many dead larvae found. (Greene). ALABAMA - Large larvae extremely heavy and damaging to a 6-acre cabbage field in Mobile County. (Vickery).

DIAMONDBACK MOTH (Plutella xylostella) - FLORIDA - Larvae severely damaged late setting of cabbage at Sanford, Seminole County. Populations higher than any time during past 7 months. (Greene).

CABBAGE MAGGOT (Hylemya brassicae) - WASHINGTON - Adults appeared April 24 in large numbers in old turnip field at Yakima, Yakima County. (Landis, May 1).

CABBAGE SEEDPOD WEEVIL (Ceutorhynchus assimilis) - WASHINGTON - Adults appearing on blossoms of wild mustards at North Avon, Skagit County. No damage noted on cabbage or turnip seed. (Eide, May 1).

#### CUCURBITS

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Damaging and requiring controls on cantaloups in Yuma County. (Ariz. Coop. Sur.).

SQUASH BUG (Anasa tristis) - OKLAHOMA - Single adult noted on squash in Payne County. (Okla. Coop. Sur.).

#### GENERAL VEGETABLES

BLACK CUTWORM (Agrotis ipsilon) - NEW JERSEY - First moths of season collected near New Brunswick on April 29. (Ins.-Dis. Newsltr.). DELAWARE - Adults abundant in blacklight trap collections in Sussex County. (Burbutis).

CUTWORMS - MASSACHUSETTS - Expected to be a problem again this year on vegetables due to large numbers that occurred last year and to favorable weather conditions. (Crop Pest Cont. Mess., May 1).

ASPARAGUS BEETLE (Crioceris asparagi) - NEW JERSEY - Slight injury to asparagus near Pedricktown on May 2. (Ins.-Dis. Newsltr.).

THRIPS - NEW MEXICO - Light on onions in Dona Ana County. (Elson).



**DECIDUOUS FRUITS AND NUTS**

**CODLING MOTH** (Carpocapsa pomonella) - OHIO - First moths of season emerged in Wayne County. (Forsythe). INDIANA - Total of 77 adults have emerged from overwintering cage. About 20 percent of overwintering generation emerged; 2 adults caught in bait pans during latter part of week. (Dolphin, May 1).

**ORIENTAL FRUIT MOTH** (Grapholitha molesta) - INDIANA - Adults in bait traps declined from 9 to 1. (Dolphin, May 1). NEW JERSEY - None in traps in 2 orchards in Gloucester County on May 1 and 4. (Ins.-Dis. Newsltr.).

**EYE-SPOTTED BUD MOTH** (Spilonota ocellana) - CONNECTICUT - Increased at Storrs. (Savos, May 3).

**RED-BANDED LEAF ROLLER** (Argyrotaenia velutinana) - INDIANA - Only 3 adults caught in bait pans; majority immature. (Dolphin, May 1). NEW YORK - Emerging April 29 in Monroe area, Orange County, and Orleans County. (N. Y. Wkly. Rpt., May 1).

**A NOCTUID MOTH** (Amathes badinodis) - OHIO - Damage first noted April 23. Sixth instar damage moderate in Guernsey County apple orchard; larvae ranged 40-200 per tree; foliage damaged up to 12 feet from ground surface. This is second consecutive year of economic importance in area. (Rings). MICHIGAN - Unspecified cutworm active on peaches in southwest area. (Wallner).

**EASTERN TENT CATERPILLAR** (Malacosoma americanum) - INDIANA - Larvae full-grown and pupating at Vincennes. (Dolphin, May 1).

**LESSER PEACH TREE BORER** (Synanthedon americanum) - INDIANA - Declined from 50 to 33 males caught in live female traps in orchard at Vincennes, probably due to cool weather. (Dolphin, May 1).

**APHIDS** - UTAH - Myzus persicae nymphs noted on peach leaves and in blossoms at North Ogden, Weber County, and at Perry, Box Elder County. (Knowlton, Apr. 28). IDAHO - M. persicae infesting 2 percent of leaves in 1 of 2 commercial peach orchards at Caldwell, Canyon County. (Bishop). NEW YORK - Rhopalosiphum fitchii on apple in Clinton County and Dysaphis plantaginea observed last period on apple in Ulster, Columbia, and Wayne Counties. (N. Y. Wkly. Rpt., May 1). CONNECTICUT - D. plantaginea and Aphis pomi increasing at Storrs. (Savos, May 3). NEW JERSEY - First A. pomi of season curling young leaves in Burlington and Gloucester County orchards. (Ins.-Dis. Newsltr.).

**PEAR PSYLLA** (Psylla pyricola) - CONNECTICUT - Eggs hatching at Storrs. (Savos, May 3). MASSACHUSETTS - Egg laying continues on pear buds in Amherst area; large numbers of eggs present but no hatch noted. (Crop Pest Cont. Mess.).

**SAN JOSE SCALE** (Aspidiotus perniciosus) - CALIFORNIA - Heavy on peach trees in Vista, San Diego County. (Cal. Coop. Rpt.).

**APPLE LEAFHOPPER** (Empoasca maligna) - INDIANA - First adults of season observed at Vincennes. (Dolphin, May 1).

**PLUM CURCULIO** (Conotrachelus nenuphar) - INDIANA - Feeding punctures noted on apples at Vincennes. (Dolphin, May 1). NEW JERSEY - None in 2 orchards checked in Gloucester County. (Ins.-Dis. Newsltr.).

**ROSE CHAFER** (Macrodactylus subspinosus) - ALABAMA - Unusual and heavy infestation on 3 pecan trees at Albertville, Marshall County; adults clinging to and feeding heavily on male catkins and to a lesser extent the leaves. Control necessary. A few adults on roses nearby. (Alverson).

**SHOT-HOLE BORER** (Scolytus rugulosus) - GEORGIA - First generation adults heavy on peach limbs that died this spring, Peach County. (Jacklin).

EUROPEAN RED MITE (Panonychus ulmi) - INDIANA - Averaged 0.72 mobile forms per leaf in commercial orchard at Vincennes. Cool, rainy period probably reduced numbers slightly from previous week. (Dolphin, May 1). NEW JERSEY - Overwintering eggs hatching late in Burlington, Camden, Atlantic, Gloucester, and Cumberland Counties. (Ins.-Dis. Newsltr.). NEW YORK - Hatched April 28 with 3-4 open leaves on apple buds in Ulster County. (N. Y. Wkly. Rpt.). CONNECTICUT - Overwintering eggs hatching in substantial numbers at Storrs. (Savos, May 3). MASSACHUSETTS - Overwintering eggs hatched April 30 in Amherst area. With continued warm weather, hatching should increase in "early" orchards. (Crop Pest Cont. Mess., May 1).

#### CITRUS

Citrus Insect Situation in Florida - End of April - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 74 percent of groves (norm 58 percent); 63 percent economic (norm 34 percent). Population advanced to new record high for April and will continue in high range. Highest districts west, south, central, and north. TEXAS CITRUS MITE (Eutetranychus banksi) infested 74 percent of groves (norm 43 percent); 51 percent economic (norm 19 percent). Populations also increased to record high for April and has entered high range. Further increase expected as mites build up on new leaves. Highest districts west, north, south, and central. CITRUS RED MITE (Panonychus citri) infested 63 percent of groves (norm 47 percent); 31 percent economic (norm 17 percent). Continues more abundant than average. Statewide population will remain moderate but with some heavy infestations in all districts. Highest districts north, west, and south. GLOVER SCALE (Lepidosaphes gloverii) infested 87 percent of groves; 27 percent economic. Statewide population above average and will increase further into high range. Highest districts east, central, and south. PURPLE SCALE (L. beckii) infested 81 percent of groves; 15 percent economic. Continues in normal abundance with very few heavy infestations. Highest district central. YELLOW SCALE (Aonidiella citrina) infested 74 percent of groves; 2 percent economic. Population will increase through June but infestations will be much lighter than in recent years. Highest district west. CHAFF SCALE (Parlatoria pergandii) infested 60 percent of groves; 6 percent economic. Gradual increase expected, but population will remain below normal and in low to moderate range. Highest district east. BLACK SCALE (Saissetia oleae) infested 21 percent of groves; 6 percent economic. Population below average of recent years and will remain low despite gradual increase expected late in May. AN ARMORED SCALE (Unaspis citri) is increasing in infested groves. WHITEFLY adults reached spring population peak in early April. Eggs now present in above normal numbers. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) and MEALYBUGS are scarce and of no concern at this time. (W. A. Simanton, (Citrus Expt. Sta., Lake Alfred)).

COTTONY-CUSHION SCALE (Icerya purchasi) - ARIZONA - Numerous light infestations on citrus in Yuma County. All populations small. Vedalia (Rodolia cardinalis) numerous and active. (Ariz. Coop. Sur.).

COWPEA APHID (Aphis craccivora) - ARIZONA - Infestations continue on young citrus terminals in Yuma County. (Ariz. Coop. Sur.).

EUROPEAN EARWIG (Forficula auricularia) - CALIFORNIA - Heavy on orange trees at Oroville, Butte County. Wet weather driving earwigs onto plants and trees. Adults occurring under tree wrappings; some bud and fruit damage resulting. (Cal. Coop. Rpt.).

#### SMALL FRUITS

CUTWORMS - MICHIGAN - Active on grapes in area. (Wallner).

GRAPE LEAF SKELETONIZER (Harrisina americana) - FLORIDA - Several colonies of first instars observed on leaves of Lake Emerald grape at Gainesville, Alachua County. (Mead).

A NOCTUID MOTH (Euxoa sp.) - CALIFORNIA - Larvae medium on 50 acres of grapevines at Kerman, Fresno County. (Cal. Coop. Rpt.).

RASPBERRY CROWN BORER (Bembecia marginata) - COLORADO - Average of 1 larva per plant causing severe damage to raspberry canes at Steamboat Springs, Routt County. Controls applied. (Hantsbarger).

STRAWBERRY WEEVIL (Anthonomus signatus) - NEW JERSEY - Still damaging in fields controlled improperly. (Ins.-Dis. Newsltr.). MARYLAND - Adults averaged 3 per 50 sweeps on strawberries at Glendale, Prince Georges County. (U. Md., Ent. Dept.).

A SAP BEETLE (Stelidota geminata) - MICHIGAN - Activity slow on strawberries. (Wooley).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - ALABAMA - Probably this species heavy; difficult to control in several strawberry fields in Cullman County. Drought in this area favorable for a buildup. (Pinkston, Ledbetter).

STRAWBERRY APHID (Chaetosiphon fragaefolii) - WASHINGTON - Averaged 5 per leaf on strawberries; 3-6 times heavier than normal for this date in Vancouver, Clark County. (Shanks).

#### ORNAMENTALS

CONIFER APHIDS (Cinara spp.) - CALIFORNIA - Nymphs and adults heavy on arborvitae at Fairfield. Weather favorable for heavy buildup. (Cal. Coop. Rpt.). OKLAHOMA - C. tujafilina moderate on arborvitae in Hennessey, Kingfisher County. (Okla. Coop. Rpt.).

APHIDS - CALIFORNIA - Amphorophora nervata, Myzus persicae and Macrosiphum euphorbiae medium on rose nursery stock at Fresno, Fresno County. (Cal. Coop. Rpt.).

ARMORED SCALES - CALIFORNIA - Aspidiotus nerii and A. camelliae heavy on pachysandra nursery stock at Napa, Napa County. (Cal. Coop. Rpt.).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - OKLAHOMA - Heavy and damaging redbud in Woodward County. (Okla. Coop. Sur.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - INDIANA - In south districts, full-grown larvae leaving wild cherry to pupate. Middle instars leaving defoliated wild cherry to infest cultivated shrubs and ornamentals. (Matthew, Huber). NEW JERSEY - Active on wild cherry in southern counties. (Ins.-Dis. Newsltr.).

JUNIPER WEBWORM (Dichomeris marginella) - MARYLAND - Heavy on juniper at Holland Point, Anne Arundle County. (U. Md., Ent. Dept.).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Larvae heavy, feeding on trees and shrubs where overwintered eggs remained in old bag cases. (McQueen).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - MARYLAND - Adults emerged May 4 from boxwood at College Park, Prince Georges County. (U. Md., Ent. Dept.).

NATIVE HOLLY LEAF MINER (Phytomyza illicicola) - MARYLAND - Adults emerged May 1 from American holly at College Park, Prince Georges County. (U. Md., Ent. Dept.).

## FOREST AND SHADE TREES

EASTERN TENT CATERPILLAR (Malacosoma americanum) - VIRGINIA - Tents conspicuous on wild cherry and other host plants; larval defoliation medium in southwest area. (Isakson). OHIO - Larval development about complete in south area; no pupae observed; larger larvae expected to leave trees within 7 days. (Rose). Reported on rose bushes in Franklin County (Spilker); also reported on peach (Soine).

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) - UTAH - Larvae defoliated 20-80 percent of cottonwood trees in the Shivwit Indian Reservation area of Washington County. Defoliation increased along Virgin River from Santa Clara to Springdale. (Dorst, Knowlton).

A GEOMETRID MOTH (Nepytia semiclusaria) - FLORIDA - Adults taken in blacklight traps in pine forest in northeast Alachua County. (Hetrick).

BAGWORM (Thyridopteryx ephemeraeformis) - ARKANSAS - Small larvae active on shade trees in White County. (Ark. Ins. Sur.).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - NEVADA - Larvae continue to infest elm and poplar in Las Vegas area, Clark County. (Nichols).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CALIFORNIA - Larvae medium on oak foliage at La Canada, Los Angeles County. (Cal. Coop. Rpt.).

DOUGLAS-FIR TWIG WEEVIL (Cylindrocopturus furnissi) - WASHINGTON - Overwintering adults of first generation and larvae and prepupae of partial second generations severely damaging Douglas-fir at Shelton, Mason County; apparently increasing for third or fourth year. Very damaging in certain areas of natural stand Christmas-tree farms. Most severe in drought areas. (Saunders, May 1).

DEODAR WEEVIL (Pissodes nemorensis) - MARYLAND - Larvae heavy in red pines at Norbeck, Montgomery County. (U. Md., Ent. Dept.).

WHITE-PINE CONE BEETLE (Conophthorus coniperda) - OHIO - Approximately 5 percent of second-year cones infested with 1-5 beetles in white pine seed-production area in Mohican State Forest, Ashland County. (Schilling).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - IOWA - Pupation nearly completed in south and central areas; small numbers of inactive adults in emergence traps. Pupation about 100 percent at Fairfield and Shenandoah on May 3. (Iowa Ins. Sur.).

COTTONWOOD LEAF BEETLES (Chrysomela scripta complex) - ALABAMA - Larvae extremely heavy on new growth, 50-100 per willow bush on several hundred bushes in Lee County. (McQueen).

MAY BEETLES (Phyllophaga spp.) - ARKANSAS - Very heavy feeding signs observed in timber in Pope and Drew Counties. (Ark. Ins. Sur.).

EASTERN SPRUCE GALL APHID (Adelges abietis) - OHIO - Immature females feeding at bases of buds of Norway and white spruce trees in mixed block of 1,000 trees in Lake County. (Campbell). MARYLAND - Damaged spruce in Washington County and Baltimore City. (U. Md., Ent. Dept.).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - MICHIGAN - As of April 29, 75 percent of eggs hatched on red and Scotch pines with southern exposure in Livingston County. No hatch noted May 1 in shaded areas of Ingham County. (Wallner).

MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 2 cases reported in the U. S. April 30-May 6 as follows: TEXAS - La Salle 1, Medina 1. Total of 30 cases reported in portion of Barrier Zone in Republic of Mexico April 23-29 as follows: Territorio sur de Baja California 1, Sonora 10, Chihuahua 2, Nuevo Leon 2, Tamaulipas 13. Nine cases reported in Mexico south of the Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released April 30-May 6: Texas 25,668,000, California 400,000, Mexico 96,328,000. (Anim. Health Div.).

FACE FLY (Musca autumnalis) - IDAHO - Hibernating adults collected at Clark Fork, Bonner County, May 3 (Davis, Ross), and in Clearwater area, Idaho County, May 4 (Gephart). UTAH - Annoying horses and cattle in North Ogden area of Weber County. (Knowlton). MICHIGAN - First adult activity April 28 around pastured cattle in Shiawassee and Livingston Counties. Up to 10 per animal on face and back (around exudate from grub openings). (Dowdy).

HOUSE FLY (Musca domestica) - GEORGIA - Causing concern in residential areas around caged layer operations. (Nolan).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Moderate on cattle in Choctaw County, light in Payne County. (Okla. Coop. Sur.).

COMMON CATTLE GRUB (Hypoderma lineatum) - ALABAMA - Adults running cattle. (Odom).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Average counts per animal on cattle by county as follows: Montgomery 225 on 250 head; Tate 45 on 150 head; Adams 75 on 200 head; and Pike 25 on 60 head. (Dinkins). OKLAHOMA - Moderate on cattle in Mayes, Cleveland, and Choctaw Counties; light in Payne County. (Okla. Coop. Sur.).

BLACK FLIES - MICHIGAN - Adults annoying pastured cattle in Shiawassee County. (Dowdy). CONNECTICUT - Continue annoying throughout most of State. (Savos).

MOSQUITOES - MINNESOTA - Total of 1,519 larval collections made week ending April 29. Aedes excrucians, A. fitchii, and A. stimulans dominant; 108 samples contained Culiseta inornata. (Minn. Ins. Rpt.). IOWA - Larvae of Culiseta inornata and Aedes vexans observed northwest of Ames, Story County. (Gunderson, Apr. 27). MICHIGAN - First general adult emergence (mostly males) April 30. Numerous undetermined Aedes spp. emerged in Shiawassee County. (Dowdy). LOUISIANA - Larval collections in Jefferson Parish contained Anopheles crucians, Culex pipiens quinquefasciatus, and C. salinarius. C. salinarius dominant mosquito in light traps. Aedes vexans and Psorophora confinnis increased in light traps. Due to recent heavy rains, P. confinnis expected to increase. Stokes).

TEXAS - Culex salinarius averaged over 100 per trap night for several nights in Port Arthur area during April. Culex spp. were moderate throughout Jefferson County; Aedes sollicitans moderate during latter part of April and occurred in small numbers in northern part of county. Aedes taeniorhynchus present in southern and central portions. Aedes vexans collected in south Beaumont; Psorophora ciliata appeared throughout southern part of Jefferson County; P. confinnis occurred in all areas and was very abundant in north Beaumont area. Anopheles crucians and A. quadrimaculatus occurred throughout county. Mansonia perturbans collected in midcounty and south Beaumont areas. Uranotaenia lowii taken in Port Arthur area; U. sapphirina in south Beaumont area. Culiseta inornata last collected April 17. (Thompson).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Continues moderate on hogs in Mayes County. (Okla. Coop. Sur.).

LONE STAR TICK (Amblyomma americanum) - MISSISSIPPI - This species and Dermacentor variabilis heavy on 150 head of cattle in Madison County. (Young). OKLAHOMA - Continues moderate to heavy on cattle in Mayes and Choctaw Counties. (Okla. Coop. Sur.).

AMERICAN DOG TICK (Dermacentor variabilis) - WISCONSIN - Active in several northern counties. (Wis. Ins. Sur.). MINNESOTA - Active in central counties. (Minn. Ins. Rpt.). RHODE ISLAND - Active in bayside sections of Washington County since early April. (Mathewson).

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) - WASHINGTON - Few ticks, probably this species, encountered by field crew in Daisy and Hunter areas of Stevens County April 17-21. (Nonini).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - ALABAMA - Numerous in a home following commercial control efforts at Sheffield, Colbert County. Second known report in State; reported in Morgan County several years ago. (Slay, Ledbetter).

#### HOUSEHOLDS AND STRUCTURES

ORIENTAL COCKROACH (Blatta orientalis) - OKLAHOMA - Heavier than normal in homes in several areas of State. (Okla. Coop. Sur.).

TERMITES - IOWA - Undetermined winged forms in Lee County. (Iowa Ins. Sur.).

#### BENEFICIAL INSECTS

LADY BEETLES - IDAHO - Abundant for this early in season. (Bechtolt). ARKANSAS - Hippodamia convergens very active in alfalfa in Conway County. Small numbers found in wheat in various areas. (Ark. Ins. Sur.).

A FLOWER BUG (Orius insidiosus) - DELAWARE - Adults common on alfalfa in most areas. (Burbutis). ARKANSAS - Adults increased in legumes and wheat in various areas. (Ark. Ins. Sur.).

LACEWINGS - IDAHO - Green lacewings abundant for this early in season. (Bechtolt). INDIANA - Young larvae of brown lacewings light in apple trees at Vincennes. (Dolphin, May 1).

PREDATORS - MISSOURI - Increased rapidly in fields where pea aphid populations high. Various lady beetles, syrphid flies, and lacewings now numerous. (Munson).

HONEY BEE (Apis mellifera) - KANSAS - Losses as high as 40 percent per colony from severe infection of Nosema apis in some apiaries in northeast area. (Iselin).

A SCELIONID WASP (Telenomus sp.) - MICHIGAN - Adults reared from gypsy moth eggs collected in Calhoun County. (Moore).

A BRACONID WASP (Bracon gelechiae) - INDIANA - This parasite of lesser peach tree borer reared from field-caged peach wood at Vincennes. (Dolphin, May 1).

#### FEDERAL & STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - INDIANA - Adults ranged 60-1,200 per 100 sweeps of wheat in New Carlisle area. Cold weather retarded egg deposition and incubation. (Shade). MICHIGAN - Eggs numerous in research fields of small grains in Berrien County; no hatch observed. Adult numbers high in Berrien and Cass Counties where greatest injury occurred in past years. (Haynes). Very few adults taken in samplings in 4 southeast counties. First egg hatch could occur during next 7 days if warm weather prevails. (Dowdy).

A CUBAN MAY BEETLE (*Phyllophaga bruneri*) - FLORIDA - Adults increasing in black-light traps in Miami area, but counts not yet completed. Apparently not as abundant as during late April and early May last year in some South Miami traps. (Habeck, Kerr).

EUROPEAN CHAFER (*Amphimallon majalis*) - NEW YORK - Third instars overwintered well; heavier in all areas. Some damage to wheat evident in Seneca and Wayne Counties. (N. Y. Wkly. Rpt., May 1).

GRASSHOPPERS - COLORADO - *Trachyrhachys kiowa* adults 2-3 per square yard on range grass near Burlington, Kit Carson County. Populations low, light damage apparent; no control applied. (Hantsbarger). NORTH DAKOTA - Egg development in Richland County ranged clear to segmented; most eggs coagulated. Most segmented eggs in lighter soil areas. Predators evident in light numbers throughout county. No desiccated eggs found. Moisture excessive in much of area. (Brandvik). MINNESOTA - Egg development unchanged; all in clear to early coagulation stage. (Minn. Ins. Rpt.). OKLAHOMA - Nymphal surveys in Delaware and Mayes Counties show very light hatch. First instars averaged 2 per sweep in crop margins and less than one in grassland. Hatch more general in Harmon and Washita Counties. Higher counts in grassland areas average 10 per square yard. *Ageneotettix deorum*, *Aulocara elliotti*, *Melanoplus bivittatus* and *Phlibostroma quadrimaculatum* hatching in western counties. Nymphs in first and second instars. (Okla. Coop. Sur.).

GYPSY MOTH (*Porthetria dispar*) - MICHIGAN - Very early hatch April 29 at Duck Lake, Calhoun County. High percentage of hatch May 2 on 50 acres northeast side of Duck Lake. This area sprayed May 3; general spray of 12,750 acres in Calhoun County May 6. (Turner).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - ALABAMA - Larvae destroying cotton in isolated spots of several fields in Covington and Washington Counties. (Estes, et al.).

#### INSECT DETECTION

##### New United States Record

A LACE BUG (*Dictyonota fuliginosa* Costa) - WASHINGTON - Adult swept from grass August 23, 1964, at Seattle. Det. by C. J. Drake. Collected from Scotch broom (*Cytisus* sp.) at McChord Air Force Base, Spanaway, Pierce County, July 25, 1965. Det. by R. D. Froeschner. This lace bug is known to occur on broom in British Columbia. (Nakahara). Known host is Scotch broom (*Cytisus scoparius*). In England, adults occur from June through September on broom bushes, especially older plants with many seed pods. (PPC).

##### New State Record

A GELECHIID MOTH (*Oegoconia quadripuncta*) - DELAWARE - Adult collected in black-light trap at Dover, Kent County, June 22, 1966, by J. Franklin. Det. by R. W. Hodges. (Burbutis).

##### New County and Island Records

ALFALFA WEEVIL (*Hypera postica*) - MISSOURI - Dallas, Howard, Laclede, McDonald, Morgan, and Webster Counties. KANSAS - Kiowa, Ford, Meade, Stanton, Grant, and Hodgeman Counties. (p. 381). MICHIGAN - Wayne and Wastenaw Counties. (p. 382).

BROWN RECLUSE SPIDER (*Loxosceles reclusa*) - ALABAMA - Colbert County. (p. 392).

A CONIFER APHID (*Cinara carolina*) - HAWAII - On Kauai. (p. ).

**LIGHT TRAP COLLECTIONS**

	Precip- itation inches	Temp- -ature F.	Trap		Crops
			BL blacklight	UV ultraviolet	
FLORIDA					
Gainsville 5/3	BL		3	13	1
Sanford 4/25-27	BL		4		37
ILLINOIS (County)					
Champaign 4/27-5/3	34-65	0.31			
IOWA					
Dubuque 4/16, 20			12		
MARYLAND					
Centreville 5/1-3			20		
MISSISSIPPI					
Staveville 4/29-5/5	43-82	1.97	2BL	5	1
Rolling Fork 4/29-5/5	48-85	3.90	BL	7	2
Tunica 4/29-5/5	43-82	1.5	BL	6	23
MISSOURI					
Portgeville 4/29-5/1			14		35
SOUTH CAROLINA					
Charleston 5/1-7	57-84	0.92	BL	3	1
TENNESSEE (Counties)					
Ames 4/25-5/1					4
Madison 4/25-5/1					4
Robertson 4/25-5/1			4		4
Cumberland 4/25-5/1			4		14
Greene 4/25-5/1			1		2
Knox 4/25-5/1			3		2
Johnson 4/25-5/1			9		21
TEXAS					
Brownsville 4/28-5/5	74-92	trace	2BL	35	12
Waco 4/28-5/5			19	34	1
			10	1	7
WISCONSIN					
Platteville 4/29-5/5			3		18

Weather continued from page 378.

TEMPERATURE: Cool weather continued west of the Rocky Mountains for the 6th consecutive week. It was the 3d cool week over the northern and central Great Plains. In contrast, temperatures over the lower Rio Grande Valley have averaged above normal for 10 weeks and over southern Florida for 7 weeks. Milwaukee, Wis., reported the warmest day of the week during the 6th consecutive week with a high of 86°. Cool weather clung to the northern Plains as the temperature at Devils Lake, North Dakota, dropped to 1° on Wednesday, a new low extreme for the State and besting the old record by 4°. Many stations in the central part of the Country registered near-record cold on Wednesday morning. Weekly temperatures averaged slightly above normal over southern Texas and the Florida Peninsula and below normal over the rest of the Nation--substantially the same pattern as a week earlier. Most of the northern and central Plains averaged 10°-20° below normal. (Summary supplied by Environmental Data Service, ESSA).



HAWAII INSECT REPORT

Turf - A BILLBUG (Sphenophorus venatus vestitus) moderate on Kaanapali Golf Course on Maui; damage to turf very light. Chemical control measures being utilized. (Miyahira).

Vegetables - CARMINE SPIDER MITE (Tetranychus telarius) medium to heavy on bean fields in Waianae and Waimanalo, Oahu. Population increase in these low elevation farm areas due to warmer weather. (Yamamoto, Sato).

Ornamentals - FOREST TREE TERMITE (Neotermes connexus) heavy on large clumps of azalea plants used as hedge in Hilo, Hawaii Island. (Yoshioka).

Forest and Shade Trees - ACACIA PSYLLID (Psylla uncatoides) nymphs and adults moderate on Acacia koa throughout Kawaiiloa Forest Reserve in northern Oahu; averaged 8 per sweep. Foliage injury light on many trees. (Funasaki, Jackson). Adults of a CONIFER APHID (Cinara carolina) found on slash pine (Pinus elliottii) at Kokee, Kauai. This is new island record. This aphid first reported in State on loblolly pine seedlings at Olinda, Maui, in June 1964. (Au, Chong). BLACKBURN BUTTERFLY (Vaga blackburni) larvae light to medium on blossoms of Formosa koa in Waimanalo, Oahu. This is endemic species commonly found on Acacia koa and Dodonaea sp. in native forests; occasionally breeds on various leguminous trees and several other plants in the lowlands. (Nakao).

Households and Structures - Large swarms of FORMOSAN SUBTERRANEAN TERMITE (Coptotermes formosanus) occurring in Lihue, Kauai; heaviest in past 3 years. Few earlier colonizing flights occurred. Several new infestations found in Wailuku area, Maui. On Oahu, light trap collections indicate heaviest flights occurring in Waipahu, Ewa, Kailua, and several areas in Honolulu. (Au, Miyahira, Nakahara).

Beneficial Insects - Larvae of an OLETHREUTID MOTH (Episimus sp.) heavy on Christmas-berry in Kunia, Oahu. Damage to foliage extensive on many trees. This insect purposely introduced from Brazil in 1954 to aid in control of Christmas-berry, a pasture weed. (Fujii, Park).

Miscellaneous Pests - Moderate infestations of GIANT AFRICAN SNAIL (Achatina fulica) discovered in Wahiawa Gulch, Kauai, about one mile west of Kalaheo. Surveys indicate infestation covers about 1.5 acres. Over 100 snails, mostly juveniles, collected. Surveys and eradication measures continue. Caused moderate damage to Phalaenopsis orchids in Hana, Maui. (Au, Miyahira).

CORRECTIONS

CEIR 17(18):368 - SOFT SCALES - Delete Carulaspis minima. Should have been carried under ARMORED SCALES in preceding paragraph.

CEIR 17(18):369 - MOSQUITOES - MINNESOTA - Lines 2 and 3 ... C. norsitans. Should read... C. morsitans.

CEIR 17(19):371 - HAWAII INSECT REPORT - Households and Structures - FORMOSAN SUBTERRANEAN TERMITE (Coptotermes formosanus) should read a SUBTERRANEAN TERMITE (Coptotermes sp., probably formosanus).

## THE PRESERVATION AND SHIPMENT OF DEAD INSECTS FOR DETERMINATION

### 1. Preserved in liquid

Specimens of the following groups should be preserved in alcohol:

Anoplura (sucking lice)	Isoptera (termites or white ants)
Coleoptera (beetles)	Mallophaga (bird lice or biting lice)
Diptera (only minute forms such as midges and fungus gnats - never mosquitoes) see item 2.	Siphonaptera (fleas)
Hemiptera (true bugs) (may be submitted in alcohol). If submitted dry, see instructions item 2, page 2.	*Thysanoptera (thrips)
Homoptera (leafhoppers, aphids, etc.) see also item 2.	Collembola (springtails)
Hymenoptera (ants, gall wasps and parasites only) see also item 2.	Psocoptera (Corrodentia) (psocids or booklice)
	Dermaptera (earwigs)
	Embioptera (embiids)
	Ephemeroptera (mayflies)
	Plecoptera (stone flies)
	Thysanura (silverfish)
	Zoraptera

including the immature stages of all orders; also, other arthropods such as centipedes, millipeds, mites, spiders, ticks, etc.

\*While thrips preserved in 75 percent grain or rubbing alcohol are usable, better study material results if thrips are preserved in a fluid consisting of 8 parts 95 percent alcohol, 5 parts distilled water, 1 part glycerine, and 1 part glacial acetic acid (AGA).

#### PLEASE FOLLOW THESE IMPORTANT INSTRUCTIONS:

- a. 70-75 percent grain alcohol is the best general liquid preservative and should always be used unless some other preservative is especially requested. The use of 95 percent alcohol is to be avoided because it tends to harden the specimens. NOTE. Rubbing alcohol is acceptable.
  - b. Larvae should be killed in very hot or boiling water and allowed to remain in the water from one to five minutes according to size, before being transferred to alcohol.
  - c. Whenever practicable, sort to species or obvious kinds, and send only one species or kind in a vial.
  - d. Delicate insects break up when they slosh around in a vial partly filled with preservative. Potential damage can be avoided if the specimens are confined to the bottom of the vial, but not squashed, by a plug of paper tissue that is tight enough so it doesn't move during transportation of the vial. Be sure the cork or screw cap is tight so preservative will not leak out. Scotch tape is not needed nor recommended for a properly closed vial.
  - e. Plant materials should be placed in separate vials and not combined in a vial containing insects, since the latter are easily damaged if the plant specimen disintegrates en route.
2. Preserved dry

Adult specimens of the following groups should be preserved dry; preferably mounted.

Diptera (flies and mosquitoes) (except certain minute forms such as midges, and fungus gnats). See also item 1	Hymenoptera (bees, and wasps and sawflies) see also item 1
Hemiptera (true bugs) (may be sub- mitted dry only if pinned or on points. Do not put in pill boxes). See also item 1, page 1	Lepidoptera (moths and butterflies)
Homoptera (scale insects on host material, and whiteflies)	Mecoptera (scorpionflies)
	Neuroptera (lacewings, dobsonflies, ant lions, etc.)
	Odonata (dragonflies and damselflies)
	Orthoptera (grasshoppers, cockroaches, etc.)
	Trichoptera (caddisflies)

PLEASE FOLLOW THESE IMPORTANT INSTRUCTIONS:

- a. Most insects that are to be preserved dry should be killed in cyanide jars. Some entomologists prefer other killing agents, particularly ethyl acetate.
- b. Material to be shipped dry and unmounted should be placed in pill boxes between layers of cellucotton or tissue tightly enough so that specimens will not move about, but not pressed down enough to rub, flatten, or distort the specimens. Cotton should never be used, as appendages catch in the fibers and are apt to be broken off.
- c. Specimens should be placed in pill boxes while they are still limber. If for any reason the insects become dry and brittle, they should be partially relaxed in a moist chamber before packing.
- d. Lepidoptera should be handled as infrequently as possible. Medium and small sized moths and butterflies should be packed one specimen to a layer of cellucotton.
- e. Do not put naphthalene or paradichlorobenzene in the pill boxes where it will come in contact with specimens.
- f. Bulky insects, or pieces of host plants bearing insects such as Coccidae or Aleyrodidae should be partially or fully dried out before being placed in a container, or packed in a container which will permit desiccation to continue after closure. Repeatedly taxonomists have received fleshy parts of plants, presumably infested with scale insects, which had molded badly or completely decayed by the time they were received, merely because they were too wet when they were packed.
- g. If any insects are reared, they should be held alive until their wings have expanded and hardened, and the full body and wing colors are attained.
- h. Pinning or pointing adult insects in the field is recognized as the most desirable method of obtaining perfect specimens. This should be done whenever time and facilities permit. One or two mounted specimens of a small insect can be satisfactorily pinned into the cork and placed inside of a shell vial.

3. Use of Form PPC 3-9 and Form PPC 3-9A, Specimens for Determination

These forms are preferred for recording the necessary data on collections and to distinguish between collections submitted by certain Federal Agencies and those submitted by other collectors. If these forms are not available the same information should be included in a transmittal letter or on a separate piece of paper.

With few exceptions (known to those people who are concerned) the white Form PPC 3-9 is used by Federal workers. The form printed on green paper, PPC 3-9A is used by all other cooperators.

These forms are available in pads of 20 sets each and they may be obtained from the Plant Pest Control Supervisor in Charge in any State, from the Regional PPC Offices in Gulfport, Mississippi, Minneapolis, Minnesota, Morrestown, New Jersey or Oakland, California, or direct from the Plant Pest Control Division, Federal Center Building, Hyattsville, Maryland, 20781.

All specimens submitted should be accompanied by accurate and complete information, preferably on Forms PPC 3-9 or 3-9A, Specimens for Determination. (See illustration at the end of this instruction sheet for guidance.) All items, such as Collection Number, State, County, etc., should be printed or legibly filled in. Use sufficient pressure when writing to insure legible carbon copies. Do not use the open box at the bottom of the form which is reserved for the taxonomist. Any notes or small maps should be on the back of the form.

Collection numbers are very important. A dependable system that avoids errors and can be easily traced, utilizes the collector's initials, consecutive collection numbers, and the year; namely, John J. Doe - JJD-1-64, JJD-2-64, etc. The individual collector must exercise caution and not duplicate the numbers. Never start over within the calendar year, but continue with the consecutive numbers though moving to another township, county, or State. A new start should be made only at the beginning of each calendar year.

Five forms or a complete manifold set should be prepared for each collection. After preparation, remove 4 green copies for transmittal with the specimens; remove the extra carbon on the back, but do not remove any interleaved carbons.

Do not tear the tab from the bottom of the set, as this will release the interleaved carbons. The yellow copy should remain in the book for collector's reference.

When specimens are known to represent various stages of a single species, this should be indicated on the data sheet.

Because many insects habitually rest on plant species other than those which serve as their food, the "HOST" section should indicate whether the insects were merely "resting," "found on," etc., or whether they were obviously using the plant for a food source. Many identifications are aided or confirmed by accurate host information, and some are not possible without it. The part of the plant on which the insect was found should always be indicated, especially for immature forms.

After the identification is finished, the Beltsville office will return a completed copy of the form to the collector. Separate procedures are followed when various Federal agencies submit specimens.

#### 4. Shipment of Insects in Vials

- a. Vials should be well packed in mailing tubes. Unless absolutely necessary, the PPC form, "Specimens for Determination" should not be wrapped or rolled around the vial and held by rubber bands. Such procedure results in considerable lost time on the part of preparators. The determination slips should be loosely rolled and placed in the mailing tube first, the vials then packed in the center.

- b. Of equal importance is the need to properly cross identify vials and collection slips. The safest procedure is to record the collection number and important collection data on a small slip of paper and place it in the vial. This procedure correctly links the PPC form with the proper vial in case they become separated at some point along the way. The slip in the vial containing the collection number should be as small as practicable to use in the field in order to avoid damage to fragile specimens. CAUTION: The ink in many ball point pens, and some other inks are soluble in preservatives and thus are useless to mark the slips that go into the vials. A good medium grade lead pencil is most satisfactory. If there is reason to direct a letter to the insect identification office at Beltsville, regarding a collection, please refer to the collection number so the two items can be brought together.

#### 5. Shipment of Mounted Insects

- a. Only boxes with the bottom securely lined with cork or some other appropriate material should be used. Pins should be set firmly in the cork. If the specimen is heavy, or if the pin carries some other heavy object such as a microvial, additional pins should be firmly set on each side, both to prevent the specimen from spinning on its pin, and to prevent the pin from coming out of the cork. Never put a vial of material in a box of pinned specimens. Heavy specimens or other objects that come loose in transit can break and ruin all the specimens in a box.
- b. The shipping carton for a box of specimens should provide adequate space, minimum of two inches, on every side for the inclusion of shock-absorbing material such as excelsior, or shredded or crumpled paper. The box containing specimens should never be wrapped and mailed without this protection.
- c. Specimens mounted on microscope slides should be shipped only after the slides are thoroughly dry. Slides are best shipped in standard slide containers with a layer of cotton or cellucotton on top to hold them in place. If slide containers are not available, each slide should be wrapped in soft paper so as to avoid crushing the specimen or dislodging the cover glass.

#### 6. Emergency Priority - Mailing

Occasionally, if circumstance warrants, submissions may be marked RUSH on the mailing label and at the top of the PPC 3-9 or 3-9A forms, and they will be given priority; also, wire replies, if requested, will be made under the same conditions.

Specimens should not be forwarded to Beltsville if adequate determinations can be made in the field. This policy reduces the workload on the limited number of Federal taxonomists.

Unless specific handling instructions prevail, all specimens should be addressed to:

Chief, Insect Identification & Parasite Introduction Research  
Branch  
Entomology Research Division  
Beltsville, Maryland

Survey and Detection Operations  
PPC - ARS - U.S.D.A.  
Revised May 1964

INSTRUCTIONS FOR USE OF PPC FORM 3-9A

1 2 3 4 5

FORM APPROVED  
BUDGET BUREAU NO. 40-R3121

U. S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE

PLANT PEST SURVEY & DETECTION  
FEDERAL STATE & PRIVATE AGENCIES  
COOPERATING

SPECIMENS FOR DETERMINATION

1. SUBMITTING AGENCY  
 FEDERAL  STATE  
 OTHER (Specify)

2A. COLLECTION NO. JJD-1-59 2B. COLLECTION DATE 6/11/59

2C. STATE Virginia 2D. COUNTY Fairfax

2E. CITY Centerville 2F. TYPE OF PROPERTY

2G. NAME & ADDRESS OF PROPERTY  
Smith Nursery  
Rt. 1 Centerville

3. DEGREE OF INFESTATION  
 LIGHT  MEDIUM  HEAVY  
 OTHER (Specify)

4. HOST(S)  
Hawthorne

5. LOCATION ON PREMISES

6. STAGE 7. CONDITION  
 EGG  LARVA  ADULT  LIVE  DEAD

8. COLLECTOR  
John J. Dingle

9. REFERRED BY (Name & address)  
R. J. Jones

P.O. Box 29, Richmond, Va.

10. FOR USE OF TAXONOMISTS  
(DETERMINATION & NOTES)

PPC FORM 3-9A  
FEB. 1960

Retain yellow copy

Remove only last carbon

INSTRUCTIONS

FOR USE OF PPC FORM 3-9A

- DO NOT SHIP LIVE SPECIMENS  
Special instructions for preserving, packing, and shipping specimens are available, if needed.
- Write legibly — use ball point pen or medium hard pencil.
- Furnish complete information for each entry.
- Remove the 4 green copies intact, including stub and carbons, for transmittal with specimens (Remove the extra carbon on back.) Retain yellow copy.

DO NOT WRITE IN ITEM 10.

- Items 2A — 2G  
These items relate to the location and type of property from which specimens are taken.
- Item 2A. Assign number for each collection.  
Example: for John J. Doe JJD-1-59  
JJD-2-59  
Start with new series of numbers each calendar year.  
Make certain that corresponding number is placed on slip of paper in vial with specimens. Use only lead pencil. Some inks dissolve in the preservatives.
- Item 2F.  
Indicate farm, feed mill, nursery, etc.



DO NOT REMOVE THIS TAB

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
17 (19) :396-400, 1967



UNITED STATES DEPARTMENT OF AGRICULTURE  
Hyattsville, Maryland 20782

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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

All correspondence pertaining to additions, deletions and changes of addresses for the mailing list for this report should be sent to:

Service Operations Division  
Office of Plant and Operations  
United States Department of Agriculture  
Washington, D. C. 20250

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMY CUTWORM damaging wheat in 3 Montana counties. CORN LEAF APHID heavy in many fields of grain in Arizona, moderate to heavy on corn and sorghum several areas of Texas, and continues to build up on young corn in Yazoo County, Mississippi. Light numbers of GREENBUG carried into Wisconsin and SIX-SPOTTED LEAFHOPPER entered Minnesota 2 weeks earlier than usual on strong southerly winds. (p. 403).

TOBACCO BUDWORM heavy on shade-grown tobacco at Quincy, Florida. EUROPEAN CORN BORER winter mortality less than normal in Minnesota. (p. 404). Very heavy hatch of GRASS BUGS reported in areas of Utah where serious outbreak occurred on wheat-grass last year. (p. 405).

ALFALFA WEEVIL widespread in Albuquerque area of New Mexico, building up rapidly in Colorado, and heavy in other areas. Larval collections in Cherokee County, Kansas, brings eastern and western infestations into a single State. (p. 406). MEADOW SPITTLEBUG medium to heavy on red clover in 2 Maryland counties and heavier than normal on clover and alfalfa in Prince Edward County, Virginia. (p. 407).

BOLL WEEVIL counts per acre higher than at same time last year in Waco area of Texas and high numbers survived the winter in central Alabama. (p. 408). THRIPS becoming problem on cotton throughout delta area of Mississippi. (p. 409).

COLORADO POTATO BEETLE more numerous than in 1966 and POTATO FLEA BEETLE heavier than for several years on Eastern Shore of Virginia. (p. 410). STRAWBERRY APHID heavier than normal on strawberries at Vancouver, Washington. (p. 414).

Predictions

EUROPEAN CORN BORER could be problem on Eastern Shore of Virginia this spring and summer and potential for damaging populations exists in several areas of Minnesota. CORN FLEA BEETLE numbers well above normal in New Paltz area of Hudson Valley, New York, and commercially significant outbreak of Stewarts bacterial wilt appears probable on unprotected early sweet corn. (p. 404).

Detection

New State records include SWEETPOTATO WEEVIL in North Carolina (p. 419) and CITRUS RED MITE in Arizona (p. 413).

For new county records see page 419.

Correction

European Pine Shoot Moth map in CEIR 17(14):272 and 17(16):320. Delete Spokane County, Washington, as infestation considered eradicated.

Special Reports

Bibliography on Imported Fire Ant. (pp. 422-430).

Insects Not Known to Occur in the United States

MELON WEEVIL (Baris granulipennis (Tournier)). (p. 431).

Reports in this issue are for week ending May 12 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING MAY 15

**HIGHLIGHTS:** Winter persisted in the Canadian border areas. Fourth cold week in most of north half. Another wet week in much of the South and East but continued dry in the Arizona-New Mexico area and in Florida.

**PRECIPITATION:** Late season storms dumped several inches of snow in the western mountains, portions of the northern Plains, and the Lakes region. Violent weather occurred over the middle sections of the Country where the hot, moist gulf air met the cold air from the north. Weekly totals exceeded 1 inch from eastern Oklahoma to southern New York, ranged from 2 inches to more than 4 inches from the Missouri-Arkansas border to central Kentucky. Kennett, Missouri, reported 6+ inches and Cairo, Illinois, 10+ inches. Hail fell in 10 States from

Weather continued on page 421.

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMYWORM (*Pseudaletia unipuncta*)** - DELAWARE - Adults averaged 2 per night in blacklight traps in Sussex County. (*Burbutis*). MARYLAND - Adults averaged 3 per night in blacklight trap at Snow Hill, Worcester County. (U. Md., Ent. Dept.). FLORIDA - Four larvae taken in 100 sweeps of oats, none from wheat at Gainesville, Alachua County. (Mead). MISSOURI - Some leaf feeding observed in southeast area on wheat and barley in areas of rank growth where plants are down. Larvae averaged 1-2 per square foot with high count of 8 per square foot. (Jones). ILLINOIS - First to third instars ranged from 1 per 3 feet of row to 3 per foot of row on wheat in southwest; averaged 10 per foot of row in southeast area field. (Ill. Ins. Rpt.).

**ARMY CUTWORM (*Chorizagrotis auxiliaris*)** - IDAHO - Larvae averaged 12-15 per linear foot of row in 120 acres of newly seeded alfalfa and 1 per square foot in 200-acre, one-year-old alfalfa field near Weiser, Washington County; 80 percent third instars May 8. Many larvae soft as though diseased and color variable to whitish. Infestation not general throughout county. (Hackler, Portman). MONTANA - Light in alfalfa and damaging winter wheat in Yellowstone, Carbon, and Cascade Counties. (Pratt). COLORADO - Present in many crops in Weld County. Wheat either sprayed or has outgrown damage. (Boyer).

**BEEF LEAFHOPPER (*Circulifer tenellus*)** - CALIFORNIA - Treatments applied to leafhopper concentrations in favorable overwintering foothill areas of western San Joaquin Valley; approximately 18,000 acres of rangeland treated. Controls continue in western Kern County where second generation developing in localized areas. (Cal. Coop. Rpt.).

**CORN EARWORM (*Heliothis zea*)** - MARYLAND - First adult of season taken May 4 in blacklight trap at Snow Hill, Worcester County. (U. Md., Ent. Dept.). GEORGIA - Larvae light to moderate in whorls of corn in southern area. (French).

**CORN LEAF APHID (*Rhopalosiphum maidis*)** - ARIZONA - Heavy populations, 500-700 per 100 sweeps, continue to cause 20-25 percent damage in many grain fields in Pinal and Maricopa Counties. Some controls also necessary in sorghum. (Ariz. Coop. Sur.). NEW MEXICO - Light, spotted infestations noted in barley in Deming area, Luna County. (Elson). TEXAS - Moderate to heavy on terminals of corn and grain sorghum; widespread in Waller, Ft. Bend, Brazoria, and Lee Counties. Very common on young plants. (Sparks et al., May 5). OKLAHOMA - Moderate in whorls of young Johnson grass in Cotton County pecan orchard. (Okla. Coop. Sur.). MISSISSIPPI - Buildup continues on young corn in Yazoo County; most of increase result of migration from mosaic infected Johnson grass. (Dinkins).

**GREENBUG (*Schizaphis graminum*)** - MINNESOTA - Light numbers blown into State April 14. Ranged 0-2 per 100 sweeps on small grain in southeast, east-central, and central districts. Absent from most spring grains. Very light on rye and roadside grasses. (Minn. Ins. Rpt.). SOUTH DAKOTA - Nymphs 4, alates 1 per 40 feet of row on 3-inch oats near Beresford, Clay County, May 4. (Kieckhefer).

**POTATO PSYLLID (*Paratrioza cockerelli*)** - COLORADO - Matrimony-vine starting to leaf in San Luis Valley area, and is further advanced in other areas of State. Periodic checks of these plants should be made. (Jenkins).

**SIX-SPOTTED LEAFHOPPER (*Macrosteles fascifrons*)** - MINNESOTA - Carried by strong southerly winds April 14 into State about 2 weeks earlier than in 1963. Numbers low due to cool weather. Ranged 0-20 per 100 sweeps on alfalfa, small grains, and roadside grasses in southeast, south-central, and central districts. (Minn. Ins. Rpt.). FLORIDA - One of most numerous insects in 100 sweeps of oats at Gainesville, Alachua County; 20 adults from oats, 2 from wheat. (Mead).

**SPOTTED ALFALFA APHID (*Therioaphis maculata*)** - NEW MEXICO - Remains mostly very light in Chaves County alfalfa. May be due to exceptionally cold weather past 3 weeks. Temperature now rising. (Mathews). KANSAS - None found in any alfalfa

checked in Cherokee or Crawford Counties. (Simpson). NEBRASKA - Survey negative in Dawson and Buffalo Counties. (Keith). WISCONSIN - Trace numbers observed in Janesville area, Rock County. (Wis. Ins. Sur.).

TOBACCO BUDWORM (Heliothis virescens) - FLORIDA - Heavy on shade-grown tobacco since plants put in field at Quincy. (Tappan).

TOBACCO HORNWORM (Manduca sexta) - FLORIDA - Only 1 adult female taken in black-light trap this season and no larvae noted at Quincy. (Tappan).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEW JERSEY - Spring survey of corn for overwintering borers indicates winter mortality averaged 63.6 percent. This figure approximately 11 percent higher than at same time in 1966, indicating less of a problem than in 1966. (Ins.-Dis. Newsltr.). VIRGINIA - Could be problem this spring and summer on Eastern Shore. Single moth taken in light trap by May 11, 1966. On nights of May 1 and 2, 1967, 24 and 43 moths collected, respectively. (Hofmaster). ILLINOIS - Pupation 100 percent in southern area; emergence underway. Pupation 8 percent in south-central area, 4 percent in central area. (Ill. Ins. Rpt.). MISSOURI - Abundance survey in New Madrid County May 9-10 showed 114 forms per acre on corn after planting; pupation 100 percent, moth emergence 33 percent. (Keaster). MINNESOTA - Overwintering mortality less than normal. Average percent mortality by district: Southwest 10, south-central 7, west-central 6, southeast 25, central 19. Weather in June will be important in determining degree of infestation. Most economic problems probably will be in northwest district. Potential for damaging numbers exists in southwest, south-central, and west-central districts if weather ideal. (Minn. Ins. Rpt.). SOUTH DAKOTA - Winter mortality appears higher in east-central district. Over 90 percent of cropland plowed or disked. Average percent mortality ranged 10-35; average lowest (7.5) in Yankton County, highest (48) in Moody County. (Jones, Jessen). NORTH DAKOTA - Larvae collected from sweet corn in Burke and Divide Counties. Both new county records. Now recorded from all counties in State. (Brandvik).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - MISSOURI - Twenty percent of 10 forms found on 25 southeast area farms were pupae. (Keaster).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - FLORIDA - Caused 25-percent reduction in 10-acre field of corn at Macclenny, Baker County. (Strayer).

CUTWORMS - TEXAS - Lacinipolia renigera caused heavy and widespread damage on corn throughout Hidalgo and Starr Counties. (Schuster, May 5). ILLINOIS - Agrotis ipsilon larvae damaged corn in southwest area. (Ill. Ins. Rpt.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - NEW YORK - Few observed on clumps of green rye at New Paltz in Hudson Valley. Total of 1,300 sweeps of rye and grass April 30 and May 1 at 13 sites resulted in 100 flea beetles of 5 species being taken; 33 were C. pulicaria. This is well above normal for area and a commercially significant outbreak of Stewarts bacterial wilt on unprotected early sweet corn appears probable. (N. Y. Wkly. Rpt., May 8). DELAWARE - First adults of season on young corn in Sussex County. (Burbutis). MARYLAND - Adults appearing on young, early planted corn in Wicomico and Worcester Counties. (U. Md., Ent. Dept.). VIRGINIA - This vector Stewarts disease abundant in some sweet corn on Eastern Shore. Controls recommended. (Hofmaster). MISSOURI - Ranged 1-5 per seedling corn plant in southern and central areas. (Munson).

CORN ROOTWORMS (Diabrotica spp.) - GEORGIA - D. undecimpunctata howardi heavy in Brooks County corn. (Carr). MINNESOTA - D. virgifera expected to be increased problem in south-central district this season. (Minn. Ins. Rpt.).

CHINCH BUG (Blissus leucopterus) - TEXAS - Continues heavy beneath lower leaf sheaths of corn and grain sorghum in Waller, Lee, and Liberty Counties; some severe stunting. Moderate, 4-5 per 5 plants, on 15-inch corn near Fairfield, Freestone County, and 1 per 5 plants on 6-inch grain sorghum near Waco, McLennan County. (Richardson et al., May 5).

SEED-CORN MAGGOT (Hylemya platura) - OHIO - Destroyed approximately 5 percent of corn seedlings in Wayne County field. (Barry). NEW JERSEY - Total of 383 collected on 5 sticky boards at Cedarville May 9. (Ins.-Dis. Newsltr.).

#### SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - FLORIDA - Declining on oats and wheat at Gainesville, Alachua County. (Mead). ARKANSAS - Low in wheat, 100-150 in 100 sweeps, in White and Jackson Counties. (Ark. Ins. Sur.). ARIZONA - Light in milo in Bowie area, Cochise County; averaged 20 per 100 sweeps. Damage estimated at 2 percent, but increasing. (Ariz. Coop. Sur.). SOUTH DAKOTA - Nymphs 8 per 40 feet of row in 3-inch oats near Beresford, Clay County, May 4. (Kieckhefer). MINNESOTA - Moved into State early; ranged 0-20 per 100 sweeps of rye in southeast, east-central, and central districts. Occasional rye field in southeast district shows feeding spots by small colonies. Aphids moved into crowns due to cool weather. (Minn. Ins. Rpt.).

GRAIN APHIDS - OREGON - Moderate to heavy in some fields of winter wheat in Umatilla County. (Every). VIRGINIA - Building up on barley in Spotsylvania County. (Kash, May 5).

PALE WESTERN CUTWORM (Agrotis orthogonia) - NEBRASKA - Caused scattered damage on wheat in southern Kimball County. (Andersen). COLORADO - Present in many crops in Weld County. Wheat either sprayed or has outgrown damage. (Boyes).

WHEAT HEAD ARMYWORM (Faronta diffusa) - KANSAS - Very light, 1-3 per 10 sweeps, in a few southeast area wheat fields. (Simpson).

HESSIAN FLY (Mayetiola destructor) - ILLINOIS - Larvae stunting wheat in Johnson County. Puparia prevalent. (Ill. Ins. Rpt.).

WHEAT STEM MAGGOT (Meromyza americana) - TEXAS - Light with some damage of wheat in Denton County. (Turney, May 5).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Averaged 3 per leaf in several fields of small grain in Lovelock, Pershing County; averaged fewer in other fields in the area. (Martinelli). COLORADO - Abundant in few fields of wheat in Montrose County; ranged 2-6 per plant. Controls applied in one field. (Bulla).

#### TURF, PASTURES, RANGELAND

GRASS BUGS - UTAH - Very heavy hatch of Labops spp. and Irbisia spp. reported on range grasses over large areas in Garfield and Kane Counties and southern portions of State. (Knowlton). Single nymph taken on wheatgrass in Pines area west of Bryce Canyon National Park April 27. (Thornley, Knowlton). Labops hesperius second and third instar nymphs numerous on crested wheatgrass near Rubys Inn, Garfield County; damage light. Infestation general in same areas of county where damage occurred in 1966. Damage conspicuous to severe on 3 to 5-inch high crested wheatgrass south of Alton, Kane County, where Irbisia spp. and L. hesperius were damaging last year. Farmers and ranchers concerned about current situation. (Knowlton, Lindsay).

AN ARMORED SCALE (Hemiberlesia lataniae) - CALIFORNIA - Medium on stems and leaves of dichondra at Vista, San Diego County. This an unusual infestation as this scale usually associated with ornamentals, avocado, and loquat. (Cal. Coop. Rpt.).

BLUEGRASS WEBWORM (*Crambus teterrellus*) - MISSOURI - Full-grown larvae observed in bluegrass lawns in central area. (Munson).

THRIPS (*Chirothrips* spp.) - ARIZONA - Increasing populations caused light damage to Bermuda grass seed heads in commercial seed fields of Yuma County. (Ariz. Coop. Sur.).

WHITE GRUBS (*Phyllophaga* spp.) - NEBRASKA - Damaging bluegrass pastures in 2 central counties. (Keith). KANSAS - Additional severe damage to bromegrass reported in Elk and Butler Counties. (Simpson).

#### FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - NEW MEXICO - Appears widespread in Albuquerque area, Bernalillo County; larvae 5-6 per 25 sweeps in alfalfa checked. (Heninger). UTAH - Activity limited past 2 weeks. (Knowlton, May 8). COLORADO - Building up rapidly on established alfalfa, as well as new seedings. Adults range 2-6 per 10 sweeps in Lucerne and Eaton areas, Weld County. Eggs hatching; larvae ranged 0-2 per 10 sweeps. Many adults still mating as early larvae appear. Alfalfa should be watched during next 10 days to determine necessary action. (Rothman). KANSAS - Larvae collected in Ellis County and collected in Cherokee County. These are new county records. None found in Crawford County. (Simpson et al.). NEBRASKA - Survey negative in western Buffalo County. (Keith). MISSOURI - Collected for first time in Benton County. (Munson). ILLINOIS - Larvae per sweep by district: Southeast 25-52, southwest 0-11, west-southwest 15-47, east-southeast 2-22; ranged 1-5 in east and central districts. (Ill. Ins. Rpt.). WISCONSIN - Adult collected in southwestern Kenosha County near Twin Lakes May 1. (Wis. Ins. Sur.). INDIANA - Continued moderate to heavy in southern half of State. Eggs hatching as far north as U.S. Highway 24. New county records: De Kalb, Noble, Lagrange, Elkhart, St. Joseph, La Porte, Porter, Starke, and Jasper. (Huber). OHIO - Low temperatures and rain slowed larval development and alfalfa growth. Spraying warranted in southwest, southeast, central, and east-central counties. Fields in Coshocton and Jefferson Counties 10-30 percent destroyed with leaves 50-100 percent damaged. (Rose). Leaf or terminal damage 0-75 percent in numerous fields in Wayne, Ashland, Medina, and Holmes Counties; treatment in progress in Holmes County. Damage heavier on new seedings than older stands. Alfalfa 7-14 inches high. (Glass). Larval populations increased in west-central area; 8 per sweep in Mercer County field May 4. (DeBrosse). CONNECTICUT - None found on alfalfa May 4 and 8. (Savos). NEW YORK - Small numbers of adults and few larvae found in Ulster County alfalfa; eggs easily found at bases of plants. Adults and larvae found south of Wellsville Allegany County; no eggs found. Allegany County is new county record. (N.Y. Wkly. Rpt., May 8). NEW JERSEY - Larval damage continues to increase in southern counties. Controls applied by most growers in Cumberland, Salem, and Gloucester Counties by May 10. Fresh top growth appearing in fields sprayed 2-3 weeks ago, but very little new growth in fields sprayed 1 week ago due to cool weather. Damage varies from field to field. Larvae per 25 tips ranged 10-175 in 3 fields in Gloucester, Salem, and Cumberland Counties; 80-96 percent of tips showed damage. (Ins.-Dis. Newsltr.). MARYLAND - Larvae heavy, over 100 per sweep, on untreated alfalfa in Wicomico County. Egg laying continues in central areas; cocoons appearing in Howard and Wicomico Counties. First-generation adults appeared at Beltsville, Prince Georges County, May 11; these are first of season. (U. Md., Ent. Dept.). SOUTH CAROLINA - Young larvae present on new alfalfa; controls will be necessary if cool weather continues. (Nettles et al., May 9). ALABAMA - Damaged Regal white clover in Jefferson County. (Griffin).

EGYPTIAN ALFALFA WEEVIL (*Hypera brunneipennis*) - ARIZONA - Control efforts still necessary to retard heavy infestations in alfalfa in Picacho area, Pinal County. Remained economic problem much later than normal. (Ariz. Coop. Sur.).



CLOVER LEAF WEEVIL (Hypera punctata) - IDAHO - Larval damage heavy on 70 acres of white clover near Mohler, Lewis County. (Dailey). MONTANA - On alfalfa in Carbon and Yellowstone Counties. Damage minor. (Pratt). KANSAS - Adults light, 1-3 per 10 sweeps, in Cherokee and Crawford Counties. No larvae found. (Simpson et al.). INDIANA - Caused heavy damage in fall seeded alfalfa and clover mixtures in areas of White, Carroll, Delaware, and Wells Counties. Larvae 12-20 per square foot in these fields. (Huber). VIRGINIA - Last instars infesting red clover in Westmoreland County. Damage extensive in several fields. (Isakson, Ptucha).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - MARYLAND - Larvae infesting 20 percent of stems of red clover near Centreville, Queen Annes County. (U. Md., Ent. Dept.).

CLOVER HEAD WEEVIL (Hypera meles) - TEXAS - Larvae in nearly all crimson clover producing counties in northeast section. Few heavy infestations, 1-2 larvae per 1-2 heads, scattered in area, mostly in Nacogdoches, Panola, Cherokee, and Rusk Counties. (Parker, May 5).

A WEEVIL (Hypera sp.) - CALIFORNIA - Medium on burclover in Chico area, Butte County. (Cal. Coop. Rpt.).

PEA APHID (Acyrtosiphon pisum) - WASHINGTON - Extremely abundant on new alfalfa growth in Walla Walla County; stunting severe. Probably due to mild winter and warm February. Large acreages treated with organophosphorus insecticides past 2 weeks. (Johansen, May 8). NEVADA - Very light on alfalfa in Dixie Valley, Pershing County. (Martinelli) - UTAH - Mostly nymphs in Salt Lake City area alfalfa. (Knowlton, May 8). ARKANSAS - Continues to decline in alfalfa and vetch in all areas. (Ark. Ins. Sur.). KANSAS - Decreased from high of 5,000 per 10 sweeps in Labette County to 25-50 per 10 sweeps. Parasites and predators, mainly lady beetles, increased to high levels. (Simpson). NEBRASKA - Low in all fields surveyed in central area. (Keith). IOWA - Average per sweep on alfalfa by County: Lucas 2, Monroe 3, Wapello 2, Jefferson 2, Henry 2, Des Moines 18, Lee 82, Van Buren 81, Davis 48, Clarke 5. (Mast). MINNESOTA - Due to cool weather, numbers extremely low in most alfalfa in southeast, east-central, and central districts. (Minn. Ins. Rpt.). WISCONSIN - Populations decreased significantly. Counts vary 0-4 per 10 sweeps in Sauk, Dane, Rock, Grant, and Lafayette Counties. (Wis. Ins. Sur.). ILLINOIS - Counts highest, 90-250 per sweep in southwest. Ranged 5-10 per sweep in alfalfa and clover in east district. (Ill. Ins. Rpt.).

CLOVER APHID (Nearctaphis bakeri) - MARYLAND - Nymphs damaging red clover near Centreville, Queen Annes County. (U. Md., Ent. Dept.).

TARNISHED PLANT BUG (Lygus lineolaris) - MISSOURI - Found in all alfalfa checked; adults and nymphs 10-80 per 10 sweeps. (Munson). IOWA - Adults averaged less than 5 per 10 sweeps of alfalfa and red clover in southeast. (Mast). WISCONSIN - Adults common throughout southern area; vary from less than 1 to 6 per 10 sweeps. (Wis. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Nymphs and adults remain light in Cochise and Graham Counties, but increasing in alfalfa in Yuma and Maricopa Counties. (Ariz. Coop. Sur.). NEW MEXICO - Counts per 25 sweeps by county as follows: Chaves 10-12 adults, 8-12 nymphs; Bernalillo 2-5 adults; Quay 1-3 adults. (Mathews, Henger, Kloefer). KANSAS - Increased during past month. Adults ranged 15-30 per 10 sweeps on alfalfa in southeast. (Simpson et al.).

RAPID PLANT BUG (Adelphocoris rapidus) - WISCONSIN - First-instar nymphs found in western Dane County. (Wis. Ins. Sur.).

MEADOW SPITTLEBUG (Phlaenus spumarius) - MARYLAND - Nymphs medium to very heavy on red clover in Howard and Queen Annes Counties. Controls needed in some fields (U. Md., Ent. Dept.). VIRGINIA - Nymphs heavier than usual on clover and alfalfa in Prince Edward County (Peery); prevalent in red clover in Westmoreland County (Ptucha).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Unusually light for time of year in alfalfa throughout southern area. (Ariz. Coop. Sur.).

CLOVER HEAD CATERPILLAR (Grapholitha interstinctana) - MISSOURI - Adults per 10 sweeps in red clover averaged 10 in north-central and 2 in west-central areas. (Munson).

GREEN CLOVERWORM (Plathypena scabra) - KANSAS - Averaged 3-8 per 10 sweeps on alfalfa in Cherokee and Crawford Counties. (Simpson et al.).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - NEVADA - Nymphs and adults heavy in alfalfa in Moapa Valley, Clark County; caused bud damage and leaf distortion. (Zoller).

#### PEANUTS

A CERAMBYCID BEETLE (Derobrachus brevicollis) - GEORGIA - Light on seedlings in Baker County. (Morgan).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - FLORIDA - Heavy in 30-acre field near McIntosh, Marion County. (Strayer).

THRIPS - FLORIDA - Damage heavy on leaves in 30-acre field in McIntosh, Marion County. (Strayer).

#### COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Found in 16 of 35 cotton fields inspected in McLennan and Falls Counties; averaged 59 per acre, maximum 500 per acre. This compares with average of 5 per acre during corresponding week of 1966. One weevil collected on flight screens. (Cowan et al.). LOUISIANA - Single weevil found in young cotton plants pulled for thrips examination in Madison Parish. (Cleveland et al.). ALABAMA - Development of cotton in northern counties not sufficiently advanced for making counts. High numbers survived winter in Dallas County, central area. (McQueen).

BOLLWORMS (Heliothis spp.) - TEXAS - Of 13 eggs or larvae collected from various wild hosts in Falls and McLennan Counties and reared to fifth instar, 12 determined as H. zea and 1 H. virescens. Total of 18 H. zea larvae collected from 10 fields of cotton. (Cowan et al.). ARKANSAS - Development later than normal. No eggs or larvae found on clovers during early April although spring season earlier than normal. First moths taken in light trap at Hope, Hempstead County, April 7, and at Kelso, Desha County, April 20. Larvae heavier than normal in crimson clover first week in May. Delay in emergence probably due to drier than normal conditions during late March and much of April. (Ark. Ins. Sur.). ALABAMA - Few larvae observed in terminal buds on 6-leaf stage cotton on Dallas County farm. One larva observed on cotton in Cherokee County. (McQueen).

GRANULATE CUTWORM (Feltia subterranea) - ARIZONA - Scattered populations causing "skips" in cotton plantings in areas of Yuma, Pinal, and Maricopa Counties. (Ariz. Coop. Sur.).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Averaged 0.3 per 100 linear feet in 25 untreated fields in Falls and McLennan Counties. None found in 10 systematically treated fields. Also present on several wild hosts in area; averaged 35 per 100 plants in field of horsemint. (Cowan et al.).

APHIDS - TEXAS - Medium in one and light in 12 of 21 untreated fields and light in, 4 of 10 systemically treated fields in Falls and McLennan Counties. (Cowan et al.). ARIZONA - Aphis gossypii very light in cotton in Kansas settlement area of Cochise County. Scattered but heavy populations continue to cause light to moderate damage in Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

THRIPS - ARIZONA - Frankliniella occidentalis light on cotton in Cochise and Graham Counties; moderate to heavy generally in areas of Pinal, Yuma, and Maricopa Counties. (Ariz. Coop. Sur.). TEXAS - Thrips medium in one and light in 17 of 21 untreated fields in Falls and McLennan Counties. Light in 2 of 10 systemically treated fields. (Cowan et al.). LOUISIANA - Averaged 6.35 per plant in untreated field of young cotton and ranged 0.11-0.50 per plant in 4 treated fields in Madison Parish May 1-5. Counts per plant ranged 0-2.59 in one untreated field and 0-0.77 in 4 treated fields May 8-12 in same area. (Cleveland et al.). MISSISSIPPI - Becoming problem throughout delta area, especially on cotton planted without seed treatment. Range light to heavy throughout area. (Dinkins, Young). ALABAMA - F. fusca heavy, 1-5 per plant, on Dallas County farm. (McQueen).

#### TOBACCO

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Moderate on shade-grown tobacco at Quincy. (Tappan).

BUDWORMS - GEORGIA - Moderate to extremely heavy across tobacco belt. (French).

FLEA BEETLES - FLORIDA - Controlled on commercial shade-grown tobacco at Quincy. Heavy on unsprayed tobacco; about 25 percent of leaves show some damage. (Tappan).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Few adults noted on tobacco in beds in Anne Arundel County. (U. Md., Ent. Dept.).

A WEEVIL - SOUTH CAROLINA - Seriously damaging 4 acres of tobacco in Jasper County. Controls recommended. (Nettles et al., May 9).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Controlled with insecticides in commercial shade-grown plantings in Quincy area, Gadsden County. Unsprayed tobacco indicates potential remains high. (Tappan).

GARDEN SPRINGTAIL (Bourletiella hortensis) - MARYLAND - Light on border plants in beds in Anne Arundel County. (U. Md., Ent. Dept.).

#### SUGARBEETS

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Nymphs light on sugarbeets in lower Yakima Valley, Yakima County. (Wallis, May 8).

PALE WESTERN CUTWORM (Agrotis orthogonia) - COLORADO - Damaging in few sugarbeet fields in Delta County area. Some controls applied. (Bulla).

#### MISCELLANEOUS FIELD CROPS

LYGUS BUGS (Lygus spp.) - ARIZONA - Increasing populations, averaging 40 nymphs per 100 sweeps, causing light damage to safflower approaching bloom stage in Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

WEEVILS (Brachyrhinus spp.) - OREGON - Full-grown larvae a problem in some hop fields in Multnomah and Marion Counties. (Every).

CUTWORMS - OREGON - Probably Euxoa spp. damaged hops in Hermiston area, Umatilla County. Infestations very light and spotty in the Willamette Valley. (Every).

#### POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MARYLAND - First adults of season found May 9 on newly set tomatoes in Wicomico County. Mating adults seen on garden potatoes in Anne Arundel County. (U. Md., Ent. Dept.). VIRGINIA - Adults active and appear more numerous than in 1966 on Eastern Shore. First egg masses noted at Painter, Accomack County, April 24; common at present time. (Hofmaster). MISSOURI - High numbers of adults, eggs, and very small larvae observed on potatoes in west-central area. Counts averaged 2 adults per plant with 2.5 egg masses per plant. Some egg masses recently hatched and some hatching. (Munson).

FLEA BEETLES (Epitrix spp.) - MARYLAND - Adults 1-2 per tomato plant in Wicomico County and 1-3 per potato plant in Anne Arundel County. (U. Md., Ent. Dept.). VIRGINIA - E. cucumeris more numerous than for several years on Eastern Shore. Dry weather apparently favorable. (Hofmaster).

BEE T ARMYWORM (Spodoptera exigua) - NEVADA - Light on tomato seedlings in Moapa Valley, Clark County. (Zoller). ALABAMA - Few first-generation larvae observed on potatoes in Baldwin County. (McKenzie et al.).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Light and widespread feeding on tomatoes in Jasper County. Larvae as high as 15-20 per plant. (Gaskamp, May 5).

#### BEANS AND PEAS

ALFALFA WEEVIL (Hypera postica) - MISSISSIPPI - Infested snap beans in Tunica County. Adults feeding on stems at ground level. Approximately 10-20 percent of plants killed. Large number of weevils in field, but exact count not made. Weevils could be found congregated under dirt clods around stems. (Dinkins, May 8).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ALABAMA - Adults infesting snap beans in Mobile County. (Bolton et al.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Light on beans in Mobile County. (Bolton et al.).

PEA APHID (Acyrtosiphon pisum) - DELAWARE - Averaged 4 per 10 sweeps in most areas on peas. (Burbutis).

#### COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Light and widespread feeding on cabbage in Jasper County. Larvae as high as 15-20 per plant. (Gaskamp, May 5).

IMPORTED CABBAGEWORM (Pieris rapae) - MARYLAND - Adults laying eggs on young cabbage plants near Mt. Zion, Anne Arundel County. (U. Md., Ent. Dept.). NEW YORK - Adults observed May 1 in Ithaca, (N. Y. Wkly. Rpt., May 8).

YELLOW-MARGINED LEAF BEETLE (Microtheca ochroloma) - ALABAMA - Adults and larvae light on turnips in home garden near Grand Bay, Mobile County. Seldom reported except in Mobile and Baldwin Counties. (Diller, Seibels).

FLEA BEETLES - NEW YORK - Heavy in cabbage seed beds in areas of Monroe County. First activity in Erie County noted May 1. (N. Y. Wkly. Rpt., May 8). OHIO - First occurrence of season on radishes in a garden in Union County. (Gibson).

CABBAGE MAGGOT (Hylemya brassicae) - MASSACHUSETTS - Adults laying eggs on cole crops. First egg laying noted in Waltham area May 14. Egg laying will be slow if cool weather continues. (Crop Pest Cont. Mess.).

#### CUCURBITS

BRISTLY CUTWORM (Lacinipolia renigera) - TEXAS - Damage heavy and widespread on cantaloup throughout Hidalgo and Starr Counties. (Schuster, May 5).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - TEXAS - Adults light and feeding on watermelon foliage near Giddings, Lee County. (Spivey, May 5). MISSISSIPPI - This beetle and Acalymma vittatum caused heavy foliage damage on several acres of cucumbers in Madison County. Control being applied. (Dinkins, Young).

#### GENERAL VEGETABLES

RHUBARB CURCULIO (Lixus concavus) - OHIO - Caused some damage to rhubarb in Clinton County. (Fladt, Miller).

WIREWORMS - ALABAMA - Heavy, with average of 3 or more per plant, under potatoes, corn, okra, beans, and peas in several areas of Chilton County. Much damage observed. (Futral).

A CUTWORM (Euxoa sp.) - CALIFORNIA - Medium on asparagus in Fresno, Fresno County. (Cal. Coop. Rpt.).

ONION THRIPS (Thrips tabaci) - IDAHO - Infestations observed on onion seed fields, fall and spring planted bulbs, and seed to seed in Caldwell and Nampa areas, Canyon County. Some treated fields contain only nymphs. (Bechtolt).

SPINACH LEAF MINER (Pegomya hyoscyami) - WASHINGTON - Eggs light in many spinach fields. (Wallis, May 8).

ONION MAGGOT (Hylemya antiqua) - NEW JERSEY - Total of 67 collected on 5 sticky boards at Cedarville, May 9. (Ins.-Dis. Newsltr.).

BULB MITE (Rhizoglyphus echinopus) - CALIFORNIA - Medium on onion plantings in Seeley, Imperial County. (Cal. Coop. Rpt.).

## DECIDUOUS FRUITS AND NUTS

**CODLING MOTH** (Carpocapsa pomonella) - OREGON - First adults of season in bait traps May 3 in Milton-Freewater area apple orchards, Umatilla County. (Burkhart).  
**COLORADO** - Continues to appear in attractant traps; erratic counts of 0-50 moths in single traps. Cool temperatures retarding main first-brood flight. (Bulla).  
**MISSOURI** - Few entries on apples in southeast area. (Wkly. Rpt. Fr. Grs).  
**INDIANA** - Adult emergence about 33 percent in overwintering band cage at Vincennes. Of 38 males caught in 2 virgin female traps, 25 caught night of May 4 when flight conditions favorable. (Dolphin).  
**MARYLAND** - No adult emergence at Hancock, Washington County, as of May 9. (U. Md., Ent. Dept.).  
**NEW YORK** - First pupae of season under tree bands May 1. Moths not expected before May 15; continued cool temperatures could delay appearance several days. (N. Y. Wkly. Rpt., May 8).

**EYE-SPOTTED BUD MOTH** (Spilonota ocellana) - CONNECTICUT - Larvae very abundant at Storrs, but few at New Haven. (Savos, May 10).

**ORIENTAL FRUIT MOTH** (Grapholitha molesta) - MISSOURI - First-brood moths in southeast area; little egg laying due to adverse weather. (Wkly. Rpt. Fr. Grs.).

**RED-BANDED LEAF ROLLER** (Argyrotaenia velutinana) - INDIANA - Several small adults of first summer brood in bait pans at Vincennes. (Dolphin, May 8).  
**MARYLAND** - Few last instars in unsprayed apple orchard at Hancock, Washington County. (U. Md., Ent. Dept.).

**EASTERN TENT CATERPILLAR** (Malacosoma americanum) - MARYLAND - Few tents on unsprayed peaches at Hancock, Washington County. (U. Md., Ent. Dept.).  
**CONNECTICUT** - Numbers low throughout State, but may be overlooked because of small size. (Savos, May 10).

**LESSER PEACH TREE BORER** (Synanthedon pictipes) - INDIANA - Of 120 males caught in virgin female traps in Vincennes area orchard, 108 caught May 4-5 when temperatures were in 70's. (Dolphin).

**WHITE-MARKED TUSSOCK MOTH** (Hemerocampa leucostigma) - TEXAS - Larvae light to moderate; some defoliation of fruit trees throughout Wharton County causes concern. (Smith, May 5).

**PECAN NUT CASEBEARER** (Acrobasis caryae) - NEW MEXICO - Adults emerging in Carlsbad area, Eddy County. Total of 21 moths collected night of May 9 in 2 blacklight traps and one argon light trap. (Mathews, Nielsen).  
**TEXAS** - Heavy on pecans near Seguin, Guadalupe County; 533 pupae under 100 bands. Half to full-grown larvae light to moderate in Wise County. (New, Turney, May 5).

**PECAN LEAF CASEBEARER** (Acrobasis juglandis) - TEXAS - Moderate on pecans in Bandera County. (Lindig, May 5).

**FALL WEBWORM** (Hyphantria cunea) - TEXAS - First-generation larvae light on pecan foliage near Hempstead, Waller County; some control necessary. (Richardson, May 5).  
**ALABAMA** - Larvae increased in size and numbers; problem in unsprayed pecan orchards near St. Elmo, Mobile County. (Bolton et al.).

**ROSY APPLE APHID** (Dysaphis plantaginea) - COLORADO - Few colonies in Mesa County orchards where no early season controls applied. (Bulla).  
**INDIANA** - Colony growth and dispersion localized in Vincennes area. (Dolphin, May 8).  
**MARYLAND** - Heavy in unsprayed apple orchards at Hancock, Washington County; stem mothers numerous. (U. Md., Ent. Dept.).  
**CONNECTICUT** - Less abundant but still found in many orchards. (Savos, May 10).

**APHIDS** - VIRGINIA - Eriosoma lanigerum infesting roots and stems of apple trees in Hanover County. (Jennings).  
**CONNECTICUT** - Aphis pond less abundant but still found in many orchards. (Savos, May 10).  
**MASSACHUSETTS** - Rhopalosiphum fitchii

stem mothers depositing nymphs on apple foliage at Amherst. (Crop Pest Cont. Mess.). OREGON - Myzus cerasi infesting 5 percent of cherry trees in Jackson County. Increasing populations rolling leaves. (Berry).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Only 10-20 percent of eggs hatched at Storrs and New Haven. (Savos, May 10). MASSACHUSETTS - Earliest eggs hatched in Amherst May 10. Egg laying heavy on expanding leaf buds inspite of cool weather. (Crop Pest Cont. Mess.). NEW YORK - Eggs 25 percent hatched May 4 in Ulster County. (N. Y. Wkly. Rpt.).

ARMORED SCALES - CALIFORNIA - Aspidiotus juglansregiae medium on peach nursery stock at El Cajon, San Diego County. (Cal. Coop. Rpt.). OREGON - Aspidiotus perniciosus eggs on all unsprayed and improperly cared for Jackson County orchards. (Berry).

GRAPE MEALYBUG (Pseudococcus maritimus) - OREGON - New infestation in Jackson County pear orchard; previously confined to pear orchard in another part of county. Very light on less than 1 percent of trees in one orchard. (Berry).

PECAN PHYLLOXERA (Phylloxera devastatrix) - TEXAS - Galls light to moderate on pecans at Hempstead, Waller County, and throughout Wise County. (Richardson, Turney, May 5).

ROSE CHAFER (Macrodactylus subspinosus) - SOUTH CAROLINA - Seriously damaged apple fruits at Mountain Rest, Oconee County. (Nettles et al., May 9).

CHERRY FRUIT FLY (Rhagoletis cingulata) - FLORIDA - Adult in McPhail trap at Plant City, Hillsborough County. (Vaughan, May 5).

EUROPEAN RED MITE (Panonychus ulmi) - IDAHO - Nymphs abundant on apple tree in Twin Falls, Twin Falls County. (Youtz). Eggs found in 3 apple and plum orchards near Payette, Payette County. (Matsen, Portman). MISSOURI - Light in few fruit orchards in southwest area. (Wkly. Rpt. Fr. Grs.). INDIANA - Mobile forms ranged 0-6 per 100 leaves in commercial orchards in east-central counties. (Matthew). Cool, wet weather reduced numbers at Vincennes. Counts of 0.43 mite per leaf in single check orchard, but populations varied from orchard to orchard. (Dolphin, May 8). MARYLAND - Adults and eggs evident on unsprayed apples at Hancock, Washington County. (U. Md., Ent. Dept.). CONNECTICUT - Overwintering eggs hatching at New Haven. Hatch about 80 percent in Storrs. (Savos, May 10). NEW YORK - Continues to appear on unsprayed trees in Ulster County. Hatched May 4 in southern part of fruit belt in Lake Ontario region; May 6 in Monroe area. (N. Y. Wkly. Rpt.).

SPIDER MITES - CALIFORNIA - Bryobia rubrioculus medium on prune trees in Colusa, Colusa County. (Cal. Coop. Rpt.). UTAH - B. rubrioculus eggs hatched on cherry trees at Brigham City, Box Elder County. (Knowlton). MISSOURI - Tetranychus spp. light on fruit trees in southwest area. (Wkly. Rpt. Fr. Grs.)

PEAR RUST MITE (Epitrimerus pyri) - OREGON - All stages present in unsprayed and poorly sprayed pear orchards of Jackson County; no damage apparent in commercial orchards. (Berry).

#### CITRUS

CITRUS RED MITE (Panonychus citri) - ARIZONA - On lemons in 8 citrus sections on the Yuma Mesa in Yuma County. First detected on May 3. Det. May 4 by D. M. Tuttle. This is a new State record. (Ariz. Coop. Sur.).

SOFT SCALES - FLORIDA - Saissetia oleae adults on stems of about 80 percent of 25 grapefruit plants at Plant City. (Vaughan, Apr. 28). ARIZONA - Recent survey revealed very light infestations of Coccus hesperidum in 8 to 12-year-old groves on the Yuma Mesa in Yuma County. (Ariz. Coop. Sur.).

#### SMALL FRUITS

GRAPE FLEA BEETLE (Altica chalybea) - GEORGIA - Larvae light on grapes in Sumter County. (Garner).

WEEVILS (Brachyrhinus spp.) - OREGON - Full-grown larvae a problem in some strawberry fields in Multnomah and Marion Counties. (Every).

STRAWBERRY APHID (Chaetosiphon fragaefolii) - WASHINGTON - Averaged 5 per leaf, 3-6 times heavier than normal, on strawberries at Vancouver, Clark County. (Shanks, May 8).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - NEVADA - First larvae of season observed at Las Vegas, Clark County. (Zoiler).

#### ORNAMENTALS

APHIDS - CALIFORNIA - Aphis spiraeicola heavy on spirea nursery stock and A. fabae heavy on maytenus nursery stock at Saratoga, Santa Clara County. A. spiraeicola increasing rapidly in many locations. (Cal. Coop. Rpt.).

ARMORED SCALES - CALIFORNIA - Abgrallaspis cyanophylli heavy on Mammillaria sp. nursery stock in Fontana, San Bernardino County. (Cal. Coop. Rpt.). NEVADA - Lepidosaphes ulmi heavy on lilac in Reno and Sparks, Washoe County. (Gustafson, Lauderdale). UTAH - Diaspis carueli damaging low growing junipers at Salt Lake City, Salt Lake County, and on university campus at Logan, Cache County. (Knowlton).

SOFT SCALES - FLORIDA - Saissetia coffeae nymphs and adults general on 20 percent of 500 plants of Duff's swordfern in nursery at Windermere, Orange County; controls necessary. (Ware, May 4). All stages of Pulvinaria psidii moderate to severe on 75 fiddleleaf figs at nursery in West Melbourne, Brevard County. (Levan, May 5).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Eggs hatched in northern area. Small larvae feeding on cedar, willow, and other plants. (Patterson et al.). MISSOURI - Eggs hatching in central area. (Munson).

MIMOSA WEBWORM (Homadaula albizziae) - ALABAMA - First-generation larvae very light on honeylocust in Dallas County and mimosa in Lee County. (McQueen).

KATYDIDS - ALABAMA - Amblycorypha sp. and probably Microcentrum retinerve ragging new leaves of camellia plants in Mobile County. (Bolton et al.).

BULB MITE (Rhizoglyphus echinopus) - MISSISSIPPI - Damaged 10-20 percent of bulbs in gladiolus field in Lamar County. (Dinkins, Cochran).



## FOREST AND SHADE TREES

SPITTLEBUGS (Aphrophora spp.) - OHIO - A. parallela nymphs appearing on pines in east-central and southeast areas. Young nymphs on pines in Harrison and Noble Counties; light on about 1-5 percent of terminal branches. (Rose). ALABAMA - A. parallela nymphs heavy and widespread on pines in Fayette, Bibb, Jefferson, Morgan, and other northern counties; as many as 25 spittle masses per tree common. (Pitts et al.). MINNESOTA - A. saratogensis killed and extensively flagged pines in central area. (Minn. Ins. Rpt.).

APHIDS - OHIO - Large populations of Cinara strobi on last year's growth of some white and Scotch pines in Union County. (Gibson). MINNESOTA - C. strobi actively feeding and causing some damage to windbreak white pine in southeast area. (Minn. Ins. Rpt.). COLORADO - Periphyllus negundinis nymphs and adults damaging boxelder trees at Rifle, Garfield County; populations high with hundreds per terminal. (Hantsberger).

CHERMIDS - INDIANA - Adelges cooleyi common on Christmas-tree plantations in St. Joseph and Elkhart Counties. (Clark). OHIO - Pineus strobi infesting mixed 20-acre planting of red and white pines in Scioto Trail State Forest in Ross County. About 20 percent of white pine stems completely covered by white cottony secretions. (Hay, Apr. 26). Newly hatched nymphs of Phylloxera caryaecaulis on hickory buds in Ashtabula County in northeast area. (Still).

WESTERN TENT CATERPILLAR (Malacosoma pluviale) - OREGON - Tents appearing on apple trees and roadside brush in western area. Populations about 50 percent less than last year. (Larson).

SILVER-SPOTTED TIGER MOTH (Halisidota argentata) - OREGON - Infestations light, 1 percent, on Scotch, Austrian, and ponderosa pines in Willamette Valley. (Larson).

WHITE-MARKED TUSsock MOTH (Hemerocampa leucostigma) - TEXAS - Larvae light to moderate; some defoliation of shade trees throughout Wharton County causing concern. (Smith, May 5).

FALL CANKERWORM (Alsophila pometaria) - WISCONSIN - Numerous first instars and few second instars feeding on half-grown elm leaves in Mazomanie area. (Wis. Ins. Sur.).

SPRUCE NEEDLE MINER (Taniva albolineana) - INDIANA - Common in Christmas-tree plantations in St. Joseph and Elkhart Counties. (Clark).

CONIFER SAWFLIES (Neodiprion spp.) - OHIO - N. sertifer infestations continue on Scotch, red, white, and other pines over much of State. Conditions relatively unchanged due to cold, wet weather of past week. Some Scotch pines averaged about 3 colonies per tree in Union County; larvae 0.75 inch long. (Gibson). Second to fourth instars of N. pratti pratti infesting some 20-year-old shortleaf pines in 60-acre plantation in Athens County. (Hanson, May 5).

A SAWFLY (Messa populi) - CALIFORNIA - Medium on Fremont cottonwood trees at Riverside, Riverside County. (Cal. Coop. Rpt.).

A ROUNDHEADED WOOD BORER (Enaphalodes rufulus) - OHIO - Heavy on 2 stands of red oak of about 30 acres each in Scioto Trail State Forest, Ross County; larvae about full grown. Smaller trees damaged. (Hay, Apr. 26).

MAY BEETLES (Phyllophaga spp.) - OKLAHOMA - Moderate; damaging elms and other shade trees in Payne and Cleveland Counties. (Okla. Coop. Sur.).

CECIDOMYIID MIDGES (Retinodiplosis spp.) - OREGON - Larvae infesting 10 percent of lodgepole pines in Willamette Valley; yellow needles on branch tips. (Every).

SPIDER MITES (Oligonychus spp.) - CALIFORNIA - O. subnudus heavy on pines in Oxnard, Ventura County. (Cal. Coop. Rpt.). CONNECTICUT - Overwintering eggs of O. ununguis hatched in Storrs. (Savos, May 13).

#### MAN AND ANIMALS

MOSQUITOES - UTAH - All larval stages and some adult emergence in Rich County areas. (Roberts). LOUISIANA - Larval collections in Jefferson Parish contained Anopheles quadrimaculatus, Aedes vexans, Culex pipiens quinquefasciatus, C. restuans, and C. salinarius. Mansonia perturbans decreasing in light traps; Aedes vexans and Psorophora confinnis increasing. (Stokes). MINNESOTA - Aedes excrucians and A. fitchii dominant in 992 larval samples. Culiseta inornata present in 173 samples. Many single-brooded Aedes pupated as of May 9. (Minn. Ins. Rpt.). WISCONSIN - Adults of Aedes sticticus, A. stimulans and Aedes spp. emerging in northern Iowa County. Adults emerging in few areas, but not a nuisance. (Wis. Ins. Sur.).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Counts per head by county as follows: Issaquena, 200 on 500 cattle; Bolivar, 50 on 300 head; Pike, 60 on 100 head; Hinds, 57 on 475 head; Chicaw, 500 on 75 head. (Dinkins, Young). OKLAHOMA - Continues light in Payne County. Moderate in Mayes, Cleveland, and Choctaw Counties. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - IDAHO - Hibernating flies in homes at Craigmont, Lewis County, and Stites, Idaho County. Idaho County is new county record. (Dailey, Gephart). MONTANA - Active in Bitterroot Valley homes. (Pratt).

SCREW-WORM (Cochliomyia hominivorax) - Total of 5 cases reported in U. S. May 7-13 as follows: TEXAS - Hidalgo 1, Presidio 1, Starr 1, Val Verde 1; ARIZONA - Maricopa 1. Total of 39 cases reported in portion of Barrier Zone in Republic of Mexico April 30-May 6 as follows: Sonora 23, Chihuahua 2, Coahuila 2, Nuevo Leon 3, Tamaulipas 9. Total of 52 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operations are underway to prevent establishment of self-sustaining populations in U. S. Sterile screw-worm flies released May 7-13: Texas 18,424,000, Arizona 1,940,000, Mexico 108,436,000. (Anim. Health Div.).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Moderate on cattle at Ephraim, Sanpete County; adult occasionally noted. (Knowlton).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Moderate on hogs in Comanche County. (Okla. Coop. Sur.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Ranged up to 1,000 per head on cows in Cherokee County; heavy on cattle in Choctaw County; moderate in Mayes County. (Okla. Coop. Sur.). MISSISSIPPI - This and Dermacentor variabilis in mixed populations averaged 8 per head on 475 cattle in Hinds County. (Dinkins, Young).

AMERICAN DOG TICK (Dermacentor variabilis) - WISCONSIN - Increasing in north-western counties. (Wis. Ins. Sur.). NEW JERSEY - Active in Middlesex County. (Ins.-Dis. Newsltr.).

CHICKEN MITE (Dermanyssus gallinae) - MISSISSIPPI - Very abundant in chicken houses in Oktibbeha County. Some flocks showing effects. Over 500 on roosting pole 8 feet long. (Combs).

AN EARTHWORM MITE (Fuscuropoda agitans) - ALABAMA - Heavy in fish bait worm bed in Franklin County. (Ponder).

## HOUSEHOLDS AND STRUCTURES

A TERMITE (Reticulitermes tibialis) - MONTANA - Damaging records in courthouse at Ryegate and in warehouse at Billings. (Pratt).

## STORED PRODUCTS

CARPET BEETLE (Anthrenus scrophulariae) - MISSISSIPPI - Completely destroyed 20 cases of paint brushed in Lauderdale County. (Cochran, Dinkins).

COWPEA WEEVIL (Callosobruchus maculatus) - ALABAMA - Heavy, emergence holes in practically every seed of 5 bushels of cowpea seed stored in barn in Talladega County. (Tanner et al.).

## MISCELLANEOUS WILD PLANTS

CLOVER MITE (Bryobia praetiosa) - CALIFORNIA - Heavy on malva plants in Vista, San Diego County. (Cal. Coop. Rpt.).

A SCARAB (Aphodius sp.) - CALIFORNIA - Larvae, probably A. vittatus, in soil and annual flowers in Oroville, Butte County. (Cal. Coop. Rpt.).

## BENEFICIAL INSECTS

LADY BEETLES - IDAHO - Up to 5 egg masses and many adults per tree observed in apple and plum orchards near Payette, Payette County. (Matsen, Portman). NEW MEXICO - Averaged 1-3 adults per 25 sweeps in alfalfa in Bernalillo County. (Heninger). MISSOURI - Hippodamia convergens and Coleomegilla maculata adults and larvae ranged 20-50 per 10 sweeps in alfalfa and red clover in west central area. (Munson). IOWA - H. convergens and C. maculata adults active on alfalfa and red clover in southeast. Some egg laying observed. (Mast).

LACEWINGS (Chrysopa spp.) - UTAH - Adults active at Salt Lake City. Moderate in Washington County alfalfa and orchards May 3. (Knowlton).

DAMSEL BUGS (Nabis spp.) - IOWA - Adults very active on alfalfa and red clover in southeast. (Mast).

FLOWER BUGS (Orius spp.) - NEW MEXICO - Adults averaged 6-8 per 25 sweeps in Chaves County alfalfa. (Mathews).

ICHNEUMON WASPS - ILLINOIS - Bathyplectes curculionis reared from alfalfa weevil larvae collected April 13 in Johnson County and May 4 in Williamson County. These are new county records. Centeterus sp. reared from alfalfa weevil cocoon collected April 12 in Williamson County and from cocoon collected April 13 in Johnson County. Det. by W. E. LaBerge. (White). MISSOURI - Adults of B. curculionis collected in alfalfa field in Texas County. (Puttler). This is a new county record. (Munson). CALIFORNIA - B. curculionis adults heavy in burclover stands in Lake Cachuma, Santa Barbara County. (Cal. Coop. Rpt.).

A PHYTOSEIID MITE (Typhlodromus occidentalis) - OREGON - Overwintering forms of this species and Zetsellia spp. very abundant during early spring in Milton-Freewater, Umatilla County, apple and prune orchards. (Every).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - NORTH CAROLINA - Weevils found in storage house at Tabor City, Columbus County, March 20, 1967. This is a new State record. Infested sweetpotatoes found in storage at Saint Pauls, Robeson County, March 27, 1967. This is a new county record. Determinations made by R. E. Warner. Inspections of storage and growing sites negative in Duplin, Pender, Lincoln, Lenoir, Scotland, Bladen, Brunswick, Wayne, Onslow, New Hanover, Sampson, and Cumberland Counties. (N. C. Dept. Agr.). SOUTH CAROLINA - Surveys made in areas where sweetpotatoes were received from infested storage house mentioned above. Plantings in Horry and Marion Counties found infested. Infested sweetpotatoes also found in retail stores in Charleston and Columbia. Surveys negative in Barnwell, Calhoun, Dillon, and Orangeburg Counties. (PPC South. Reg., Mar. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - GEORGIA - Reducing corn stands in Colquitt County. Brown, Bayne).

GRASSHOPPERS - OKLAHOMA - Hatch general in Beckham, Caddo, Custer, Roger Mills, Washita, Comanche, Greer, Jackson, Kiowa, Tillman, and Grady Counties. Nymphs 4-15 per square yard; 90 percent first and second instars. Ageneotettix deorum, Melanoplus bivittatus, Aulocara eliotti, Phlibostroma quadrimaculatum, and Amphitornus coloradus dominant; several banded-wing species also present. Light hatch noted in 9 eastern counties; averaged less than 1 nymph per square yard. M. bivittatus, M. occidentalis, and Boopedon nubilum observed. (Okla. Coop. Sur.). WISCONSIN - Overwintering nymphs, probably Arphia conspersa, common on some alfalfa in Walworth County. (Wis. Ins. Sur.). MINNESOTA - Most eggs in clear to early coagulation stages. Few M. bivittatus eggs in protected, sunny sites show early eye spot development. Economic infestations this season should be widely scattered and localized; noneconomic to light in most areas. (Minn. Ins. Rpt.). SOUTH DAKOTA - High percentage of eggs segmented in Wasta area, Pennington County. Hatch expected with few warm days, particularly in sandy soil region of southern Tripp County. (Burge, Zimmerman).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Continues to increase on dooryard fruits in southern half of State; much higher this year than last year at same time. (Fla. Coop. Sur.).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Total of 110 city blocks treated in Sacramento. Of these, 31 repeat treatments initiated second application in south part of area. (Cal. Coop. Rpt.).

GYPSY MOTH (Porthetria dispar) - CONNECTICUT - Eggs hatching at South Windsor. Winter egg counts indicate larvae should not be problem in most areas. (Savos, May 10).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Single male moth taken in sex lure trap at Blythe, Riverside County, May 4. This is first field collection for 1967. Cotton late due to adverse weather; many fields will be replanted when ground dries. (Cal. Coop. Rpt.).

## INSECT DETECTION

### New State Records

CITRUS RED MITE (Panonychus citri) - ARIZONA - Detected May 3, 1967, in Yuma County. Det. by D. M. Tuttle. (p. 413).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - NORTH CAROLINA - In storage house in Columbus County March 20, 1967. Det. by R. E. Warner. (p. 419).

### New County Records

EUROPEAN CORN BORER (Ostrinia nubilalis) - NORTH DAKOTA - Larvae in Burke and Divide Counties. (p. 404).

ALFALFA WEEVIL (Hypera postica) - KANSAS - Ellis and Cherokee Counties. MISSOURI - Benton County. INDIANA - De Kalb, Noble, Lagrange, Elkhart, St. Joseph, La Porte, Porter, Starke, and Jasper Counties. NEW YORK - Allegany County. (p. 406).

FACE FLY (Musca autumnalis) - IDAHO - Idaho County. (p. 416).

AN ICHNEUMON WASP (Bathyplectes curculionis) - ILLINOIS - From alfalfa weevil larvae collected April 13, 1967, Johnson County and May 4, 1967, Williamson County. (p. 419).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - NORTH CAROLINA - Robeson County. (p. 419).

## CORRECTIONS

CEIR 17(19):387 - LESSER PEACH TREE BORER (Synanthedon americanum) should read (Synanthedon pictipes).

CEIR 17(16):320 - European Pine Shoot Moth map. Delete Spokane County, Washington, as infestation considered eradicated. Make same deletion on map in 17(14):272.



HAWAII INSECT REPORT

Corn, Sugarcane - NEW GUINEA SUGARCANE WEEVIL (*Rhabdoscelus obscurus*) adults heavy in some cane fields in Lihue, Kauai. Adults averaged 40 per trap during 2-week period. Strong preference for certain varieties of cane noted. (Au).

Turf - Larvae and adults of a BILLBUG (*Sphenophorus venatus vestitus*) light to medium in zoysia lawns throughout Kalaheo, Kauai. Damage moderate to heavy on one lawn with average of 3 larvae and 2 adults per square foot. (Au).

Vegetables - MELON FLY (*Dacus cucurbitae*) larvae causing heavy damage to immature squash (tongan) in Waianae, Oahu; approximately 75 percent of fruits infested. Brown oviposition injury visible on fruits. Adults light. (Shinbara). All stages of SWEETPOTATO WEEVIL (*Cylas formicarius elegantulus*) light to medium in 1.5-acre sweetpotato field in Waikane, Oahu. (Sato). BEE T ARMYWORM (*Spodoptera exigua*) larvae light on green onion at Waianae, Oahu; one or more larvae on 2-3 tubular leaves of every plant. An armyworm, probably this species, damaging whorls of young corn plants in 16-acre field at Kahuku, Oahu. Larvae 1-4 per plant on 50 percent of 1-foot high plants. (Funasaki).

Fruits - OBSCURE MEALYBUG (*Pseudococcus obscurus*) moderate to heavy in few spots of 200-acre passion-fruit farm in Kahului, Maui. Light numbers of a lady beetle, *Cryptolaemus montrouzieri*, seen amid mealybugs. (Miyahira).

General Pests - CHINESE ROSE BEETLE (*Adoretus sinicus*) adults very active from lowland areas of Kahului up through Makawao on Maui. Numerous adults attracted to night lights. Heavy foliar damage noted on corn, soybean, rose, apple, and peanut. (Miyahira).

Man and Animals - A CATTLE GRUB (*Hypoderma* sp.) infestation noted on young calves in Kohala and Waimea, Hawaii Island. (Garcia). MOSQUITOES - Total of 2,292 *Aedes vexans nocturnus* and 9,023 *Culex pipiens quinquefasciatus* taken in 47 light traps operated on Oahu by Mosquito Control Branch, Department of Health, during April. *Aedes* spp. counts highest at Waiahole, Kaneohe, and Ewa; *Culex* spp. counts highest at Waiahole, Kailua, Kaneohe, Waianae, and Nanakuli. (Haw. Ins. Rpt.).

Beneficial Insects - MELASTOMA BORER (*Selca brunella*) infesting approximately 6,000 acres of *Melastoma malabathricum* during recent survey in Kilohana Crater area of Kauai. This is roughly one-third of 17,500 acres covered by *Melastoma* and *Rhodomyrtus*. (Au).

Weather continued from page 402.

Texas to the Carolinas. In some storms in Nebraska, Missouri, Arkansas, and Tennessee, hail ranged from 2.5 to 3 inches in diameter and was sometimes accompanied by winds of gale or hurricane force. Tornadoes occurred but heavy damage was not reported. Rainless areas included the deserts of California and eastward to the High Plains of Texas, and the Deep South from southern Louisiana to the southern Atlantic coast. Southern Florida remained extremely dry.

TEMPERATURE: Winter held fast over the northern and central Great Plains for the 4th consecutive week. It was the 7th cool week west of the Rockies. Above-normal temperatures prevailed from New Mexico to southern Georgia and Florida. It was the 8th warm week in southern Florida and the 11th warm week in the lower Rio Grande Valley. As subfreezing to near-freezing temperatures occurred nightly over the northern and central States, portions of the South sweltered under record-breaking heat. On Wednesday, Wichita, Kansas, registered 100°, tying the record for May. Abilene, Texas, beat their previous May record maximum when their temperature climbed to 107° on Wednesday. On Saturday, Tallahassee and Jacksonville, Florida, established new May record maximums with 96° and 100° respectively. Week temperatures averaged 10° or more below normal from Nevada to New York and 10° above normal over central Texas. (Summary supplied by Environmental Data Service, ESSA).

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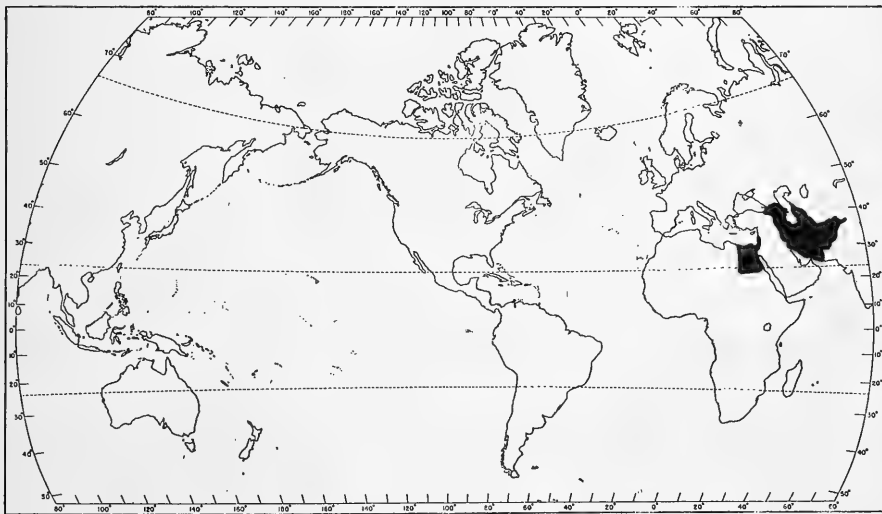
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

MELON WEEVIL (Baris granulipennis (Tournier))

Economic Importance: The species, first described from Egypt, is a serious pest of watermelons, melons and cucumbers in Israel. Occasionally, heavy populations occur in Egypt. A 10-percent infestation of watermelons has been reported from Afghanistan. Ovipositing females cause economic damage by girdling the stem ends of fruit. As a result, fruit development is stunted. Larval feeding within melons may cause malformation or shriveling. At times attacked fruit dries on the vine.

Distribution: Egypt, Iran, Israel, U.S.S.R. and Afghanistan (specimens determined as probably B. granulipennis).

Hosts: Watermelons, melons and cucumbers.



General distribution of Baris granulipennis (Tournier)

Life History and Habits: In Israel, overwintering adults appear near the end of May or early June when the first fruits develop. The female gnaws small cavities in the peel and places one egg in each, but may deposit many in one fruit. Incubation requires 3 to 6 days. Upon hatching, the larva goes deeper into the fruit where it feeds on the pulp and soft seeds. When summer temperatures reach above 30°C, the larva may complete its development in 12 to 14 days. However, the larval stage may vary if conditions are unfavorable. Larvae usually attack young soft fruit from the size of a walnut to that of a grapefruit. Pupation takes place within a cocoon in the pulp of the fruit. The adult emerges in about 12 days. There are 2-3 generations a year in Israel.

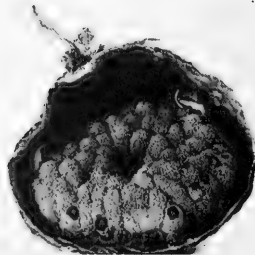
Description: ADULT - Length 4.5 - 5 mm; width 2 mm. Reddish brown to black, densely punctured. Rostrum 1.2 times longer than prothorax, slender strongly curved, uniformly tapering, dorsally with dense coarse punctures; laterally the punctures still coarser, slightly fused into striations. Each puncture with silvery seta. Antennae red-brown. Prothorax transverse, sides rounded, strongly constricted at apex, posterior angles rounded. Elytra wide, anteriorly nearly parallel and straight, narrowing posteriorly. Legs colored as body, densely punctured, each puncture with seta, tibiae long, third segment wide, deeply cleft, with dense brushlike tarsal pads. Abdomen convex, laterally with coarse punctures, becoming finer medially. EGG - white, translucent, elliptical; 0.5 mm. long. LARVA - Length 9 mm., width 3 mm.; white with pink median line along dorsum. Larva widest at posterior third, tapers slightly towards the head. Head red; labrum and mandibles brownish-red. PUPAL CELL - Length 6-8 mm; width 4-5 mm. Various shades of brown, elliptical. PUPA - Length 5 mm; width 3 mm. White, rostrum reaching about one-third of body.



Oviposition punctures on young watermelons. Courtesy Commonw. Inst. Ent.



Watermelon infested with larvae. Courtesy Commonw. Inst. Ent.



Cocoons in dried watermelon peel. Courtesy Commonw. Inst. Ent.

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AGRICULTURAL RESEARCH SERVICE  
UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

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Plant Pest Control Division  
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United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMYWORM infesting wheat in areas of Mississippi, Missouri, and Illinois; moths common in blacklight traps in Maryland and Michigan. CORN EARWORM unusually heavy in corn and sorghum in central and southeast Texas; moth activity much heavier than at same time last year in these areas. Major migration of GREENBUG into South Dakota indicated by trap catches. (p. 435).

EUROPEAN CORN BORER moths appearing in light traps in Corn Belt; egg deposition later than usual. SUGARCANE BEETLE damaging corn in Georgia and Alabama. (p. 436). ENGLISH GRAIN APHID building up rapidly on wheat and barley in Michigan. PALE WESTERN CUTWORM damaging wheat in Colorado and Nebraska areas. (p. 437).

ALFALFA WEEVIL continues problem on alfalfa; damage economic in some areas, populations increasing in others; reported for first time in 16 counties in 4 States. (pp. 438-439). MEADOW SPITTLEBUG more abundant than in recent years in central Indiana; increasing in southern Ohio and economic in many fields in Virginia. (p. 440).

BOLLWORM and TOBACCO BUDWORM moth activity much higher in southeast Texas than at this time last year. (p. 441).

MOSQUITOES annoying in Utah and Michigan. HORN FLY moderate to heavy in Oklahoma; locally troublesome in Texas and South Carolina. TICKS heavy on cattle in Oklahoma, annoying in northern Wisconsin; populations increased in Rhode Island. (p. 448).

GRASSHOPPER egg development and hatching delayed by cool weather in several areas. PINK BOLLWORM male moths appearing in sex lure traps in Palo Verde Valley, California. (p. 449). WHITE-FRINGED BEETLES damaging peanuts in Georgia and seedling corn in Alabama. (p. 450).

Predictions

BOLLWORMS may develop into major problem on cotton this season in Waco and College Station areas of Texas if populations continue to increase. (p. 441). MOSQUITOES may become problem in Wisconsin with advent of warm weather. TICKS may be problem in Rhode Island. (p. 448).

Detection

A GOAT SUCKING LOUSE reported for first time in Idaho. (p. 448).

For new county records see page 448.

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WEATHER OF THE WEEK ENDING MAY 22

**HIGHLIGHTS:** Dry areas in Southeast getting rain; continued wet Texas to New England; warm in Far West after 7 cool weeks.

**PRECIPITATION:** Moderate to heavy rains fell May 15 over a 300-mile wide band from Louisiana to Lower Michigan and eastward to the Atlantic Ocean. Much needed heavy showers fell in southern Florida on Wednesday. Weekend showers fell from eastern Texas to Maryland leaving totals exceeding 1 inch in most of that area. These weekend showers continued into Monday, May 22, with 2 to 5-inch showers in Alabama, Georgia, the Carolinas, and northern Florida; some areas around Lakeland, Florida, received 2 to 4 inches. Little or no rain fell west of the Rocky Mountains; also, on the eastern slope in New Mexico and the High Plains and Trans-Pecos in Texas. Only light scattered showers fell in the northern Great Plains; it was the driest week in the last five over portions of the Lake region. Soaking rains fell early in the week in New York and New England and almost daily in West Virginia.

**STORMS:** A rapidly moving cold front set off a score of tornadoes in southern Wisconsin, eastern Iowa, and northern Illinois Thursday. High winds uprooted  
Weather continued on page 443.



## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMYWORM (*Pseudaletia unipuncta*)** - MISSISSIPPI - Approximately 6 larvae per square foot in 5 Washington County wheat fields. (Dinkins). MISSOURI - Up to 12 and more larvae per square foot damaged wheat and barley in southeast area. Heavy rains drove larvae to plant tops during day. Chemical controls being applied. (Munson). ILLINOIS - Ranged 0-9 per linear foot of wheat in south half of State. Averaged 4-9 per linear foot in few fields with up to 15-20 per linear foot in lodged spots. (Ill. Ins. Rpt.). MICHIGAN - Adults common in blacklight traps in Berrien, Lenawee, and Ogemaw Counties. (Newman). MARYLAND - Moths averaged 24 per night in blacklight trap at Snow Hill, Worcester County. (U. Md., Ent. Dept.).

**CORN EARWORM (*Heliothis zea*)** - TEXAS - Unusually heavy throughout central and southeastern portions of State in corn and grain sorghum. Heaviest, all stalks infested in several large fields, from Brazos County to coastal area; infestation 75 percent in several Washington County fields. Light, 2 larvae per 10 sweeps, on vetch in Delta County; heavy, 1-3 larvae in most ears of sweet corn near Bay City, Matagorda County. (Stufflebeme et al.). ALABAMA - Some increase in larval feeding in corn whorls at St. Elmo, Mobile County. (Seibels).

**ARMY CUTWORM (*Chorizagrotis auxiliaris*)** - IDAHO - Third to fifth instars ranged up to 16 per alfalfa plant near Salmon, Lemhi County. Controls applied. (Hillman).

**CORN LEAF APHID (*Rhopalosiphum maidis*)** - ARIZONA - Moderate in areas of Pinal County and in milo fields in Bowie area, Cochise County. (Ariz. Coop. Sur.). TEXAS - Moderate to heavy in corn and grain sorghum throughout central and southeastern areas. Light to sporadically heavy in Denton County; light to heavy throughout Wharton County. (Smith, Turney). MISSISSIPPI - Apterous adults increasing rapidly on mosaic infected Johnson grass around corn fields in Yazoo County. (Dinkins).

**GREENBUG (*Schizaphis graminum*)** - NEBRASKA - Less than 1 per sweep in Saunders County wheat. (Keith). SOUTH DAKOTA - Averaged 11 per 40 feet of row on 3-inch oats at experiment station near Centerville, Clay County, May 9. Total of 16 adults trapped during 24-hour period May 10-11 in Brookings County indicates major migration into State. (Kieckhefer). MINNESOTA - None found in most fields; highest average 2 per 100 sweeps. (Minn. Ins. Rpt.). WISCONSIN - Comprises approximately 25 of aphid populations on small grains in southern and central counties. Lady beetles average 1 per sweep in many Dane and Columbia County fields. (Wis. Ins. Sur.).

**SPOTTED ALFALFA APHID (*Therioaphis maculata*)** - NEW MEXICO - Mostly light on alfalfa in Dona Ana, Chaves, and Eddy Counties. (N. M. Coop. Rpt.). KANSAS - Absent in Finney, Lane, and Ness Counties. (DePew). Light, 5 per 10 sweeps, in 2 alfalfa fields in Sherman County. (Simpson). NEBRASKA - Undetected in Dawson, Frontier, Phelps, and Buffalo Counties. (Manglitz). Trace numbers in Saunders and Cass Counties. (Keith). ARKANSAS - Survey negative in northwest area. (Ark. Ins. Sur.). WISCONSIN - Remains low, ranged 1-3 per 10 sweeps in some fields in western Dane County. (Wis. Ins. Sur.).

**SIX-SPOTTED LEAFHOPPER (*Macrostelus fascifrons*)** - NORTH DAKOTA - Migratory adults 5 per 100 sweeps of rye in Richland County. (Brandvik). MINNESOTA - Very little change in numbers. Averaged 20 per 100 sweeps in rye and oats, and 13 per 100 sweeps of alfalfa in central district. (Minn. Ins. Rpt.). WISCONSIN - Ranged from 1 per 100 sweeps in Waushara County grain fields to 24 per 100 sweeps in few Columbia County fields. (Wis. Ins. Sur.).

**POTATO LEAFHOPPER (*Empoasca fabae*)** - VIRGINIA - First adults of season on alfalfa in Montgomery County May 18. (Pienkowski). COLORADO - Ranged 0.3-0.6 per square foot on Mesa and Delta County sugarbeet seedlings. (Bulla).

**CORN, SORGHUM, SUGARCANE**

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NEBRASKA - Pupation approximately 18 percent May 18 in Cuming County. (Hill). MISSOURI - Pupation approximately 68.5 percent in standing cornstalks in central and north-central areas. (Munson). ILLINOIS - Percent pupation by district: East zero, central and west-southwest 12, and southeast 100. Moth emergence 33 percent in southeast. (Ill. Ins. Rpt.). WISCONSIN - Overwintering survival 88 percent in southwest counties. (Ill. Ins. Sur.). INDIANA - Adults observed in Montgomery County May 16. (Huber). OHIO - First adult of season noted May 17; pupa collected in Noble County May 10. (Rose). VIRGINIA - Very little activity on Eastern Shore during week of May 7. Egg deposition later than usual; hatching just started May 16. (Hofmaster). DELAWARE - Adults in blacklight traps in Sussex County. (Burbutis).

ALFALFA WEBWORM (*Loxostege commixtalis*) - TEXAS - Moderate on terminals of 4 to 6-inch corn near Pennington, Trinity County; 10-15 percent of field damaged. (Texas Coop. Rpt.).

BLACK CUTWORM (*Agrotis ipsilon*) - MARYLAND - Above normal numbers in blacklight trap in Worcester County. (U. Md., Ent. Dept.). ILLINOIS - Early instars in corn fields in west-southwest district. (Moore, Kuhlman).

FALL ARMYWORM (*Spodoptera frugiperda*) - FLORIDA - Larvae light to moderate in buds of 5 percent of 3 acres of sweet corn at Daytona Beach, Volusia County. (Pott, May 8). ALABAMA - Few larvae observed in whorls of corn in isolated areas of Lowndes County. (Spears et al.):

MAIZE BILLBUG (*Sphenophorus maidis*) - FLORIDA - Larvae severely damaged roots and stems in 1 percent of 80 acres of sweet corn at Zellwood, Orange County. (Van Pelt, Musgrove, May 10). ALABAMA - Adults medium, damaged corn in 2-acre planting in Clarke County. Heavily damaged 10-acre field in Pike County; replanting necessary. (Helms, Pike).

BILLBUGS - GEORGIA - Heavily damaged Decatur County corn. (Wheeler).

SUGARCANE BEETLE (*Euetheola rugiceps*) - ALABAMA - Adults destroyed 80-acre corn stand following grass sod in Lowndes County; replanting and controls planned. Smaller numbers damaged young corn on another 300 acres at same location where corn followed corn. Adults destroyed corn stand in Monroe County. Numerous adults attracted to lights in central and western areas. (Spears et al.). Destroyed 5-acre corn field at Uriah, Monroe County; replanted to soybeans. (Lemons). GEORGIA - Heavy damage to corn in 30-acre field in Spalding County. (Tippins, Beckham).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - MISSOURI - On seedling corn in scattered areas; ranged 2-7 beetles per plant in east-central and southeast areas. (Munson). MARYLAND - Adults heavy, averaged 5 per sweet corn seedling in Prince Georges County; also on field corn in Montgomery and Kent Counties. (U. Md., Ent. Dept.). NEW JERSEY - On sweet corn in Burlington County. Most growers applying controls. (Ins.-Dis. Newsltr.).

FLEA BEETLES - KANSAS - Damaging sweet corn in Riley County. (Brooks).

WIREWORMS - GEORGIA - Heavy on Ware County corn. (Morgan).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - FLORIDA - Larvae severe in 80 percent of field corn in 3 fields totaling 140 acres south of High Springs, Alachua County; damage so severe, fertilizer program will not be followed. (Farrell). GEORGIA - Extensive damage to Clinch County corn. (Harrison).

CHINCH BUG (*Blissus leucopterus*) - TEXAS - Light, widespread but no heavy damage in most grain sorghum throughout Delta County. (Turney). KANSAS - On sorghum in Cowley County. (Gates).

SEED-CORN MAGGOT (Hylemya platura) - VIRGINIA - Damaged Botetourt County corn field; cool weather retarded germination. (Isakson, Huffman).

A SPIDER MITE (Oligonychus stickneyi) - TEXAS - Moderate to heavy; feeding on corn and grain sorghum leaves in Rio Grande Valley. (Deer).

#### SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - WASHINGTON - Various stages moderate to spotty at Othello, Adams County, and at Kennewick, Benton County. (Retan). NEVADA - Appearing on small grain in Churchill County. (Martinelli). NEBRASKA - Very light on Saunders County wheat. (Keith). SOUTH DAKOTA - Averaged 4 per 40 linear feet of 3-inch oats at experiment station near Centerville, Clay County, May 9. (Kieckhefer). NORTH DAKOTA - Overwintering forms 1 per 100 sweeps of rye in Richland County. (Brandvik). MINNESOTA - Trace numbers in occasional oat field. Primarily on rye in central district; 5-60 per 100 sweeps; damage very light. (Minn. Ins. Rpt.). WISCONSIN - Averaged 2 per sweep in small grains in most southern and central counties. Lady beetles numerous in most Dane and Columbia County fields. (Wis. Ins. Sur.). MICHIGAN - Building up rapidly, especially on overwintering wheat and barley. Adults and large nymphs averaged over 100 per 25 sweeps of wheat in Washtenaw and Lenawee Counties; averaged 50-85 in Livingston, Hillsdale, and Jackson Counties; 125 large nymphs in Jackson County. Predators and parasites low. (Dowdy). OHIO - Common in 2 wheat fields in Van Wert and Mercer Counties; averaged 76 and 50 per sweep, respectively. Averaged 1-4 per sweep in fields in Darke and Putnam Counties. (Rose). ARKANSAS - Very low; less than 100 per 100 sweeps of wheat in northwest area. (Ark. Ins. Sur.).

APHIDS - WASHINGTON - All stages of Rhopalosiphum fitchii moderate near base of wheat at Walla Walla, Walla Walla County. All stages of Aphis craccivora spotty near base of wheat at Pasco, Franklin County. (Retan).

PALE WESTERN CUTWORM (Agrotis orthogonia) - NEBRASKA - Severely damaged wheat in south Kimball County field. (Roselle). KANSAS - Declined in Finney County; 2 per square foot in untreated wheat. (DePew). COLORADO - Larvae 10-12 per square foot of wheat near Flagler, Kit Carson County; estimated damage, 95 percent on 100 acres; no control applied. (McBlair, Wells).

WHEAT HEAD ARMYWORM (Faronta diffusa) - KANSAS - Very light, 2 per 10 sweeps, in some wheat fields in Thomas and Sheridan Counties. (Simpson).

TARNISHED PLANT BUG (Lygus lineolaris) - ARKANSAS - Continues numerous, 75-100 per 100 sweeps of wheat in northwest area. (Ark. Ins. Sur.).

CHINCH BUG (Blissus leucopterus) - NEBRASKA - Numerous on wheat in Gage County. (Roselle).

CONCHUELA (Chlorochroa ligata) - NEW MEXICO - Stink bug adults, mostly this species, averaged 0-4 per 25 sweeps of barley near Roswell, Chaves County. (Mathews).

WHEAT STEM MAGGOT (Meromyza americana) - KANSAS - Infested up to 8 percent of wheat in Cowley County. (Gates).

HESSIAN FLY (Mayetiola destructor) - MISSOURI - Damage heavy in 2 fields of small grain in St. Charles County. (Munson).

WIREWORMS - NORTH DAKOTA - One per square foot damaging newly emerged small grains near La Moure, La Moure County. (McBride).

GRASS THRIPS (Anaphothrips obscurus) - NEVADA - This species and Frankliniella occidentalis light on barley cover crop in Fallon, Churchill County. (Martinelli).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Heavy and discoloring wheat leaves in Mason Valley, Lyon County. Light on barley in several fields at Fallon, Churchill County. (Martinelli). UTAH - Threatening some dryland wheat in Monticello area, San Juan County. (Knowlton, Jones). KANSAS - Light, 75-100 per 10 sweeps, in some Gove County wheat. (Simpson).

#### TURF, PASTURES, RANGELAND

GRASS BUGS - UTAH - Reseeded grass ranges and planted crested wheatgrass fields around Alton, Kane County, largely white in appearance; grass 3 inches high. Several hundred nymphs of Irbisia spp. and Labops spp. around each grass clump. Labops spp. hatched in East Fork area and other seeded range areas in Garfield County. Black species hatching in heavy numbers at higher elevations in large areas of Garfield and Kane Counties. (Knowlton, Thornley).

THRIPS - ARIZONA - Chirothrips spp. necessitated controls on Bermuda grass in commercial seed fields of Yuma County. (Ariz. Coop. Sur.). NEVADA - Anaphothrips obscurus heavy on timothy in Smith Valley, Lyon County. Damage severe in some fields; will require controls. (Martinelli).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - No hatching on range area checked in Colfax County. (Finnie).

BANKS GRASS MITE (Oligonychus pratensis) - NEVADA - Heavy on timothy in Smith Valley, Lyon County; damage severe in some fields; will require control. (Martinelli).

WINTER GRAIN MITE (Penthaleus major) - CALIFORNIA - Heavy on orchard grass plantings in Susanville, Lassen County. (Cal. Coop. Rpt.).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - IDAHO - Adults ranged up to 3 per 5 sweeps (average less than 1 per sweep) in 6 to 8-inch alfalfa in 6 fields in Twin Falls County; eggs present. (Youtz, Portman). Adults ranged up to 5 per 5 sweeps (average less than one per sweep) in 2 fields at Burley, Cassia County. (Rinebold, Portman). NEVADA - Mostly third instars ranged 0-5 per sweep in Churchill, Lyon, and Pershing Counties. Adults still abundant and mating in some areas. All stages of egg development present in female weevils and in alfalfa stems. In spite of warm weather this past week larval populations will peak later than normal and probably be somewhat staggered. Larval damage negligible. (Arnett et al.). UTAH - Larvae and adults on alfalfa at Helper, Carbon County, and Spanish Fork, Utah County. (Knowlton). COLORADO - Eggs, larvae, and adults increasing on alfalfa. Larvae 100 per 100 sweeps and adults 95 per 100 sweeps in Larimer County. Larvae 0-10 per 100 sweeps in 4 areas of Weld County; eggs easily found. Larvae 40-100 per 100 sweeps in Mesa, Delta, and Montrose Counties. (McLaughlin et al.). NEBRASKA - Remains low in Dawson County; larvae 0-2 per 50 sweeps. Not found in Phelps County. Frontier County is new county record with 10 larvae and 2 adults taken in 100 sweeps near Eustis. (Manglitz). KANSAS - The following are all new county records; larvae 3-14 per 10 sweeps in Lane County and 1-5 per 10 sweeps in Ness County (DePew); larvae light, 1-8 per 10 sweeps in Sherman, Thomas, Sheridan, Graham, Wallace, Logan, Gove, Trego, Greeley, and Wichita Counties. (Simpson).

MISSOURI - Ranged 29-51 adults per 10 sweeps of alfalfa at Steele; averaged 2.5 per 10 sweeps. Scott and Cape Girardeau Counties averaged 29 larvae and 3 adults per 10 sweeps. One field in St. Francois County as high as 221 larvae per 10 sweeps. (Munson). ILLINOIS - Counts in 2 southern districts 10-51 larvae (mostly first and second instars) and 3-20 adults per sweep. (Moore, Kuhlman). WISCONSIN - Survey negative in Walworth and Rock Counties. (Wis. Ins.

Sur). INDIANA - Pulaski County is new county record. (Matthew). Economically damaging alfalfa seeded last year from Indianapolis north to Indiana State Road 28. Mostly early instars, 8-22 per sweep, infested 50-75 percent of plants with feeding light to moderate. In older established stands, infestations noneconomic (10-30 percent infested), and feeding light. (Huber). MICHIGAN - Oakland and Macomb Counties are new county records. Collected May 9 and 10 by J. Behnke. (Newman). OHIO - Continues noneconomic in north half of State due to cold. Development earlier than normal because of early warm spell. Low temperatures slowed feeding activity which allowed alfalfa growth to advance. Egg masses still common. (Niemczyk et al.). Larval damage greatest in Holmes County; some spraying in progress. Cold weather continued to suppress larval damage in Wayne, Medina, and Ashland Counties; damage continues more apparent on new seedings and small plants. Crop height 9-16 inches. (Glass). Larvae low, 1 per sweep, in Auglaize and Mercer Counties but a Preble County field yielded 11 per sweep. Approximately 32 larvae per sweep damaged 40 percent of leaves in Franklin County. (Rose).

PENNSYLVANIA - Very abundant generally in State; developing faster than alfalfa in spite of cold. Some fields sprayed twice, but much damage probable. (Udine, May 8). Spring eggs heavy, some first instars on alfalfa at Susquehanna. (Gesell, May 10). NEW YORK - Eggs in 5-15 percent of stems, small larvae very light, and adults difficult to find in Ulster County. Temperatures low, alfalfa 6 to 12 inches high. (N. Y. Wkly. Rpt., May 15). RHODE ISLAND - Egg masses in 6 to 8-inch alfalfa in 2 Kingston County fields averaged 3 per 27 stalks and 8 per 43 stalks. (Mathewson, May 10). CONNECTICUT - No adults observed; no eggs in 25 alfalfa stems examined. (Savos, May 17). NEW JERSEY - Larvae damaged alfalfa in southern and central counties. Injury obvious in Mercer, Hunterdon, and southern Warren Counties. Many larvae pupating in southern counties; first adults of season emerging. Many growers in Mercer and Hunterdon, Counties applying controls. Larvae ranged 70-100 per sweep with nearly 50 percent tip injury in several southern Warren County fields; injury less severe in northern part of county. Larvae ranged 8-60 per 25 tips in 3 fields in Gloucester, Salem, and Cumberland Counties; 70-96 percent of tips showing injury. All fields treated before counts made. (Ins.-Dis. Newsltr.). VIRGINIA - Larvae, 34 per sweep damaged 15-20 percent of Roanoke County field; alfalfa 10 inches high. (Isakson). MISSISSIPPI - Second-generation weevils very light on alfalfa; averaged 0-2 per square foot throughout Pontotoc County. (Dinkins).

WEEVILS - IOWA - Spotty infestations of Hypera punctata in Fremont, Page, Taylor, Ringgold, Mills, Montgomery, Adams, and Union Counties; all larval stages ranged 4-12 per square foot in clover and alfalfa. (Iowa Ins. Sur.). TEXAS - H. meles heavy near Hemphill, Sabine County; larvae averaged 2-3 for every fourth seed head. (Texas Coop. Rpt.). CALIFORNIA - Hypera sp. medium on alfalfa at Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.). UTAH - H. punctata light on alfalfa at Smithfield, Cache County. (Knowlton). Unspecified weevil seriously damaged alfalfa at Toquerville, Washington County. (Thornley, May 15). Sitona cylindricollis damaged sweetclover leaves at Spanish Fork, Utah County. (Knowlton). NEBRASKA - Total of 23 S. scissifrons adults in 100 sweeps of alfalfa near Eustis, Frontier County. (Manglitz).

VETCH BRUCHID (Bruchus brachialis) - OREGON - Adults numerous in Willamette Valley fields. (Larson). TEXAS - Few found throughout Delta County. Increase expected with formation of pods. (Turney).

PEA APHID (Acyrtosiphon pisum) - NEVADA - Heavy infestations in Lyon County controlled by insecticides, parasites, and predators. Under 10 per sweep in fields checked in Churchill, Douglas, Lyon, and Pershing Counties. (Arnett, Martinelli). UTAH - Very light on alfalfa in Cache and Sevier Counties (Davis, Knowlton), but increasing at Spanish Fork, Utah County (Knowlton) COLORADO - Increasing. Ranged 200-300 per 100 sweeps of 8 to 10-inch alfalfa in Mesa, Delta, and Montrose Counties; trace numbers in Gilcrest and La Salle areas of Weld County; averaged 100 per 100 sweeps in Larimer County. (Bulla et al.).

NEW MEXICO - No serious buildup in San Juan and Chaves Counties. (Heninger, Mathews). TEXAS - Light but widespread in Delta County vetch; averaged 40 per sweep. (Turney). ARKANSAS - Low, 100 per 100 sweeps, on alfalfa in northwest area. (Ark. Ins. Sur.). OKLAHOMA - Ranged 15-75 per 10 sweeps of alfalfa in Adair and Ottawa Counties. (Okla. Coop. Sur.). KANSAS - Generally light, 15-50 per 10 sweeps, throughout northern half of State; few fields with 75-100 per 10 sweeps in Graham and Rooks Counties. Parasitism and predator populations high in most areas; alfalfa being cut in most areas. (Simpson). NEBRASKA - Ranged 2-44 (averaged 20) per 50 sweeps in Dawson County alfalfa (Manglitz); ranged 1,250-1,800 per 100 sweeps in Saunders and Cass County alfalfa. Predators increasing. (Keith). SOUTH DAKOTA - Averaged 125+ per 100 sweeps in 6 to 8-inch alfalfa in northern Yankton County. (Jones). IOWA - Average per sweep of alfalfa and red clover by county: Jasper 31, Poweshiek 16, Iowa 10, Johnson 27, Muscatine 25, Louisa 25. Ranged 12-75 per 10 sweeps in 8 southwest counties. (Iowa Ins. Sur.). MINNESOTA - Much lower than normal, averaging 6 per 100 sweeps of alfalfa in central district. (Minn. Ins. Rpt.). WISCONSIN - Averaged 1 per sweep in alfalfa in Dane, Dodge, Columbia, and Marquette Counties. Wing pads present on 50 percent of aphids. Disease symptoms common. (Wis. Ins. Sur.). ILLINOIS - Declining in southern half of State; ranged 20-30 per sweep. (Moore, Kuhlman). OHIO - Averaged 8-127 per sweep in Auglaize, Mercer, Preble, and Franklin County alfalfa. Highest in Auglaize County field. (Rose, May 16-17). VIRGINIA - Averaged 10 per sweep in Roanoke County alfalfa. (Isakson). CONNECTICUT - Few on alfalfa. (Savos, May 17).

PLANT BUGS - ARKANSAS - Lygus lineolaris - ranged 75-100 per 100 sweeps of alfalfa in northwest area. (Ark. Ins. Sur.). IOWA - L. lineolaris adults averaged less than 5 per 10 sweeps of alfalfa and red clover in southwest area. (Iowa Ins. Sur.). MINNESOTA - L. lineolaris active on alfalfa; averaged 24 per 100 sweeps in central district. (Minn. Ins. Rpt.). WISCONSIN - L. lineolaris adults 0-4 per 10 sweeps in central counties; Adelphocoris rapidus adults less common. No nymphs of either species in area. (Wis. Ins. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - INDIANA - Nymphs more abundant than in recent years in central district alfalfa and clover; spittle masses range 6-22 per square foot. (Huber). OHIO - Nymphs increasing on forage in southern half of State. Highest average of 14 nymphs per sweep in Preble County alfalfa. (Rose). VIRGINIA - Spittle masses common on alfalfa sprayed for alfalfa weevil. Numbers economic in many fields. (Woodside). Ranged 2-7 per 10 alfalfa stems in Roanoke County. (Isakson).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - First adult flight of season in alfalfa areas of the Yuma Valley, Yuma County. (Ariz. Coop. Sur.). COLORADO - Adults active in Larimer County alfalfa. (Hantsbarger). IOWA - Adults observed over several alfalfa and clover fields in 8 southwestern counties; no larvae found. (Iowa Ins. Sur.).

CUTWORMS - OREGON - Larvae, probably Euxoa spp. averaged 6 per square foot of alfalfa in Malheur County. (Gray). UTAH - Damaged alfalfa at Loa, Wayne County. (Knowlton). MISSOURI - Peridroma saucia larvae ranged 0-8 (average 3.5) per square foot in Perry County alfalfa. (Munson).

CLOVER HEAD CATERPILLAR (Grapholitha interstinctana) - IOWA - Adults light in red clover in southwest area. (Iowa Ins. Sur.).

THRIPS - CALIFORNIA - Adults heavy on vetch in Mill Valley, Marin County. (Cal. Coop. Rpt.). UTAH - Discoloring heavy on alfalfa in Dixie area of Washington County. (Thornley).

LEAF MINER FLIES - CALIFORNIA - Adults of Liriomyza bryoniae and Cerodontha sp. heavy on vetch in Mill Valley, Marin County. (Cal. Coop. Rpt.).

## PEANUTS

THRIPS - GEORGIA - Light to moderate in southern area. (French). TEXAS - Light infestations widespread but increasing in Waller County peanut fields. (Richardson).

## COTTON

BOLL WEEVIL (Anthonomus grandis) - GEORGIA - Adults emerging in southern area. (Womack). ALABAMA - Overwintered weevils increasing throughout central and southern areas. Counts per acre in Lee, Henry, Covington, Monroe, and Dallas Counties probably highest in 10-20 years. Weevils feeding on buds of presquare cotton at edges of fields near woods and fence lines at rate of 2,000 per acre; ranged 175-250 per acre in centers of large fields. Weevils expected to increase next 6-7 weeks. Small fruiting squares destroyed in Monroe County field. Averaged 1 weevil per yard in cotton buds near borders in one field at Loachapoka, Lee County. (McQueen, Teague). LOUISIANA - Total of 16 collected from 150 cotton trap plants at 10 locations in Madison Parish. None found in designated count area in 9 fields checked; however, 1 found outside count area 1, found in cotton collected for thrips examination. (Cleveland et al.). TEXAS - Weevils in 15 of 28 untreated fields and in 2 of 7 treated fields in Waco area. Averaged 91 per acre (maximum 952) in untreated fields, 32 (maximum 175) in treated fields. This compares with 4 per acre in all fields corresponding week in 1966. Single weevil collected on flight screen. (Cowan et al.). Damaging several lower Rio Grande Valley fields. (Texas Coop. Rpt.).

BOLLWORMS - GEORGIA - Infesting terminal buds and squares in Turner County. (Womack). LOUISIANA - Moth flight light in Madison Parish; 18 H. zea and 1 H. virescens collected in light trap. (Cleveland et al.). TEXAS - Of 71 eggs or larvae collected from wild hosts in McLennan and Falls Counties and reared to fifth instar, 11 determined H. virescens, 60 H. zea. (Cowan et al.). Light trap collections at College Station and Waco indicate H. zea moth activity much higher than at this time last year; may develop into major problem of cotton this season if populations continue to increase. H. virescens activity unseasonably high on cotton along gulf coast area. Larvae feeding on terminals and developing young squares. (Texas Coop. Rpt.).

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae average 4 per 100 sweeps in Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

APHIDS - TEXAS - Heavy in 1 and light in 7 of 26 untreated fields and light in 1 of 5 treated fields in McLennan and Falls Counties. (Cowan et al.). ALABAMA - Aphis gossypii heavy, 50-100 per 5-leaf cotton plant, in 20-acre field at Haleburg, Henry County; damage heavy. Controls applied. (Penuel).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Averaged 0.1 per 100 linear feet in 27 treated fields and 0.2 in 6 treated fields in McLennan and Falls Counties. (Cowan et al.).

THRIPS - ALABAMA - Frankliniella fusca heavy and damaging all young cotton plants in 35-acre field following pasture sod at White Hall, Lowndes County. Controls applied. (Woodrell). MISSISSIPPI - Frankliniella spp. counts per hill by county as follows: Washington, 0-30 in 15 fields; Issaquana, 0-26 in 20 fields; Quitman, 4 in 10 fields; Coahoma, 0-4 in 10 fields; heavy in 30 Sharkey County fields and 10 Holmes County fields. (Dinkins). LOUISIANA - Thrips averaged 0.27 (range 0-1.64) per plant in 20 fields planted with treated seed. Averaged 0.25 per plant in 4 untreated fields. None found in field planted with treated seed and sprayed. Averaged 0.01 per plant in field sprayed only. (Cleveland et al.). TEXAS - Thrips heavy in 2, medium in 2, and light in 21 of 26 untreated fields in McLennan and Falls Counties; light in 3 of 5 treated fields. (Cowan et al.). Heavy and damaging young cotton throughout Delta County and near Giddings of Lee County. (Texas Coop. Rpt.). ARIZONA - F. occidentalis decreasing in areas of

Pinal and Pima Counties. Light in Graham and Cochise Counties. (Ariz. Coop. Sur.).

SPIDER MITES (*Tetranychus* spp.) - ALABAMA - Heavy in 2 fields in Loachapoka, Lee County; migrated from maturing vetch along fence lines. Controls unsatisfactory. (Collier).

#### SUGARBEETS

FLEA BEETLES - COLORADO - Larvae continuous problem in Berthoud, Weld County. (Marsh). NEBRASKA - *Systema blanda* larvae damaged replanted sugarbeets south of Mitchell, Scotts Bluff County. (Hagen).

GREEN PEACH APHID (*Myzus persicae*) - WASHINGTON - Apteræ and alatae very heavy for this time of year at Walla Walla, Walla Walla County. (Wallis).

SUGAR-BEET ROOT MAGGOT (*Tetanops myopaeformis*) - COLORADO - Adults emerging from 1966 beet fields in infested areas of Boulder, Larimer, and Weld Counties. Egg deposition expected within 7-10 days. (Robertson et al.).

#### MISCELLANEOUS FIELD CROPS

ROOT WEEVILS (*Brachyrhinus* spp.) - OREGON - *B. ovatus* and *B. sulcatus* pupating in Benton County. This is first time pests have been found damaging hops in State. (Morrison).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Increasing in safflower in bloom stage in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

#### POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) - WASHINGTON - Adults on potatoes at Brownstown, Yakima County. (Landis). COLORADO - Trace numbers of adults on weeds of potato family in Weld County and on potatoes in Gilcrest and La Salle area. No control warranted. (Urano, Jenkins). VIRGINIA - Development held back by cool weather on the Eastern Shore. (Hofmaster). MARYLAND - Eggs on potatoes near Aquasco, Prince Georges County. (U. Md., Ent. Dept.). DELAWARE - Adults causing heavy feeding injury in large commercial tomato field in Kent County. (MacCreary).

NOCTUID MOTHS - ALABAMA - Larvae of *Feltia subterranea* and *Peridroma saucia* medium and widespread in 80-acre potato planting at St. Elmo, Mobile County; damaged 10 percent of tubers. (Dillier, Seibels). Larvae and eggs of *Heliothis zea* moderate in 2 commercial tomato plantings in Baldwin and Butler Counties. (Bagby et al.). WISCONSIN - Some *Agrotis ipsilon* larval leaf injury in large commercial planting of potatoes near Spring Green. (Wis. Ins. Sur.).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - DELAWARE - Adults in pepper seed beds in Sussex County. (Burbutis).

APHIDS - DELAWARE - *Macrosiphum euphorbiae* common, averaging 2 per leaf, in some New Castle and Kent County tomato fields; on potatoes in New Castle County. Alates of *Myzus persicae* common on potatoes and tomatoes in many areas. (Burbutis).

#### BEANS AND PEAS

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - ALABAMA - Larvae heavy, 1-2 per stalk of lima beans and field peas in field in southern Mobile County. (Deakle).



MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Adults medium, 1-3 per plant, and widespread on volunteer peas and beans in Dawes, Coden, and Grand Bay areas of Mobile County; counts lower in Monroe County gardens. (Deakle et al.).

PEA APHID (Acyrtosiphon pisum) - DELAWARE - Ranged 2-9 per 10 sweeps in most pea-growing areas. (Burbutis).

THRIPS - UTAH - Discoloring peas in Dixie area of Washington County (Thornley).

#### COLE CROPS

A FLEA BEETLE (Phyllotreta cruciferae) - OREGON - Overwintered adults plentiful and active on radishes and wild mustard in experimental plantings at Corvallis, Benton County. (Crowell).

A WEEVIL (Ceutorhynchus sp.) - CALIFORNIA - Adults, probably C. assimilis, medium on mustard and radish at Point Reyes, Marin County; heavy on radish in Goleta, Santa Barbara County, and Ventura, Ventura County; medium on radish in Edna, San Luis Obispo County. More prevalent this season and occurring farther south than previously known in State. (Cal. Coop. Rpt.).

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Few larvae feeding on cabbage in abandoned commercial planting in Baldwin County. Pupation and adult emergence extremely heavy. (Bagby et al.).

#### CUCURBITS

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - MISSISSIPPI - Damage light to medium Statewide on cucumbers. Treatment required in some areas. (Dinkins).

SQUASH VINE BORER (Melittia cucurbitae) - GEORGIA - Damage moderate on squash in Mitchell County. (Lee).

#### GENERAL VEGETABLES

A LEAF BEETLE (Trirhabda geminata) - CALIFORNIA - Adults in 75 acres of carrots in Nipomo, San Luis Obispo County. (Cal. Coop. Rpt.).

WIREWORMS - NEW YORK - More active than usual in some muck land onion fields of Orange County. (N. Y. Wkly. Rpt., May 15).

GREEN PEACH APHID (Myzus pericae) - WASHINGTON - Infesting spinach at Walla Walla; apterae and alatae more abundant on mustard and other weeds in Walla Walla County than for many years. (Landis).

trees and downed power lines but caused little other damage. Hail accumulated to 7 inches northeast of Denver Thursday evening. On Friday afternoon hail stones up to 4 inches in diameter pounded Louise, West Virginia, heavily damaging automobiles. One person near Oakland, Maryland, was killed by a tornado. Other tornadoes without heavy damage occurred in northeastern Texas on Saturday.

TEMPERATURE: After 5 cool weeks, temperatures reached the 80's on several days from eastern Washington to Nevada and 90° or higher southward to Mexico. Southerly winds over the Great Plains pushed afternoon maximums progressively higher, into the 80's in Montana and North Dakota on Wednesday and 90's from Texas into Wisconsin on Thursday; cooler weather followed. Temperatures rose slowly in the East reaching the 80's by Friday in southern New England before a change to cooler weather began. Southern Florida has been warmer than normal for 9 weeks. (Summary supplied by Environmental Data Service, ESSA).

## DECIDUOUS FRUITS AND NUTS

**CODLING MOTH** (*Carpocapsa pomonella*) - MARYLAND - No emergence as of May 17 from cages at Hancock, Washington County. (U. Md., Ent. Dept.). INDIANA - Adult emergence about 66 percent in cage of tree bands at Vincennes; 5 adults collected in light trap, 2 in virgin-female traps. This is reduction of 14 compared with previous week. (Dolphin, May 15). MISSOURI - Adults active in southeast area, but no entries found. (Wkly. Rpt. Fr. Grs.). COLORADO - First-brood moth flight well underway with 5-15 moths daily per attractant trap in some Mesa and Delta County fruit orchards. First cover spray in Mesa County, May 20. (Bulla). OREGON - Adults emerged in Hood River apple and pear orchards May 15. Three males and one female taken in bait trap. (Zwick). WASHINGTON - First trapped May 1, 4, and 5 in the Yakima Valley, Yakima County. First adult in 1966 observed April 18. (Hudson).

**EYE-SPOTTED BUD MOTH** (*Spilonota ocellana*) - CONNECTICUT - Larval damage noticeable in Storrs and New Haven. (Savos, May 17).

**ORIENTAL FRUIT MOTH** (*Grapholitha molesta*) - INDIANA - Single adult caught in bait trap at Vincennes. (Dolphin, May 15). MISSOURI - No entries observed in southeast area. (Wkly. Rpt. Fr. Grs.).

**RED-BANDED LEAF ROLLER** (*Argyrotaenia velutinana*) - MARYLAND - Larvae remain on apples at Hancock, Washington County. (U. Md., Ent. Dept.). INDIANA - Adults scarce in Vincennes area. (Dolphin, May 15).

**FRUIT-TREE LEAF ROLLER** (*Archips argyrospilus*) - MASSACHUSETTS - Prevalent in many orchards in Amherst area. Controls recommended. (Crop Pest Cont. Mess.). NEW YORK - Active in poorly managed fruit orchards in Orange County. (N. Y. Wkly. Rpt., May 15).

**A TENT CATERPILLAR** (*Malacosoma* sp.) - CALIFORNIA - Larvae medium on cherry tree nursery stock in Watsonville, Santa Cruz County; infestation earlier than normal. (Cal. Coop. Rpt.).

**GREEN FRUITWORM** (*Lithophane antennata*) - MARYLAND - Larvae feeding on small apples and foliage in deserted orchard near Hancock, Washington County. (U. Md., Ent. Dept.). MASSACHUSETTS - Prevalent in many orchards in Amherst area. Controls recommended. (Crop Pest Cont. Mess.).

**CUTWORMS** - MICHIGAN - Larvae on peaches in Berrien and Kent Counties May 10-11 (Wooley, Rings) and at Greenville, Montcalm County; feeding on tart cherries at Hart, Oceana County, (Wooley).

**LESSER PEACH TREE BORER** (*Synanthedon pictipes*) - NEW JERSEY - Many full-grown larvae in peaches in Cumberland County. Especially abundant and severe in blocks where canker present. (Ins.-Dis. Newsltr.). INDIANA - Total of 64 males caught in virgin-female trap in Vincennes area orchard. (Dolphin, May 15).

**PECAN NUT CASEBEARER** (*Acrobasis caryae*) - ALABAMA - First and second instars entering few small nuts on pecan trees in 3 Henry County orchards. Very light on unsprayed trees in Butler County. (Leeper et al.). OKLAHOMA - First larvae of season noted on pecans in southern half of State; light in Bryan County. (Okla. Coop. Sur.). TEXAS - Adults appeared May 8 in Denton and Wise Counties. Delay due to cold weather. (Turney).

**WALNUT CATERPILLAR** (*Datana integerrima*) - TEXAS - Larvae moderate and feeding on pecan foliage throughout Jackson County. (Wilson).

**PLUM CURCULIO** (*Conotrachelus nenuphar*) - INDIANA - Egg laying common in unsprayed apple trees in Vincennes area. (Dolphin, May 15). OHIO - Adults feeding and ovipositing on cherry and plum fruit in Wayne County. (Forsythe).

PLUM GOUGER (Anthonomus scutellaris) - OKLAHOMA - Heavy on native plums in Major County. (Okla. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - NEVADA - Increasing on peach in southern Washoe County. Leaf curl noticeable on many trees; honeydew increasing. (Coop. Rpt.). UTAH - Severely curled peach foliage in Washington County. (Thornley, May 15). NEW MEXICO - Light to heavy on peach foliage in untreated orchards in Farmington area, San Juan County. (Heninger). NEW JERSEY - Curling leaves in Cumberland County orchard. (Ins.-Dis. Newsltr.).

ROSY APPLE APHID (Dysaphis plantaginea) - OHIO - Scattered populations causing some leaf curling in Clermont County apple orchard. (Rose). NEW YORK - Readily found in Columbia County fruit orchards. (N. Y. Wkly. Rpt., May 15). NEW JERSEY This species and Aphis pomi curling leaves in poorly sprayed blocks in southern counties. Controls recommended. (Ins.-Dis. Newsltr.).

PECAN APHIDS (Monellia spp.) - ALABAMA - Heavy on pecan in Baldwin County orchard where controls applied twice. Few noted in orchards in Barbour and Mobile Counties. (Bagby et al.). TEXAS - Moderate infestations building up on pecan at Ft. Worth, Tarrant County. (Graves). ARIZONA - Light infestations of M. costalis appearing in pecan trees in Safford Valley, Garham County. (Ariz. Coop. Sur.).

PECAN PHYLLOXERA (Phylloxera devastatrix) - TEXAS - Unusually heavy with some severe damage on pecans throughout Delta County. Damage and infestations heavier than for past 10 years. (Turney).

PECAN LEAF PHYLLOXERA (Phylloxera notabilis) - ALABAMA - Eggs heavy and widespread on pecan leaves in western, central, and southern areas of Mobile County. (Deakle).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - About 50 percent of eggs hatched in Storrs and New Haven. (Savos, May 17). MICHIGAN - First instars noted May 9 in southeast area. No hatch from Kent County north to Traverse City. (Wooley).

EUROPEAN RED MITE (Panonychus ulmi) - NEW YORK - Hatching in Columbia County. (N. Y. Wkly. Rpt., May 15). NEW JERSEY - Larvae easily found in scattered orchards in Burlington, Camden, Atlantic, Gloucester, and Cumberland Counties; no adults or eggs seen. Most growers have applied petal fall sprays. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Eggs on apples and peaches in southern Adams, Franklin, and York Counties week of May 8. (Menusan). MARYLAND - Heavy in 2 apple orchards near Smithsburg, Washington County. (U. Md., Ent. Dept.). INDIANA - Populations low in Vincennes area orchards due to cool, wet conditions; mobile farms ranged 0-0.38 per leaf. (Dolphin, May 15). MICHIGAN - Hatched May 9 in southeast area. No hatched noted from Kent County north to Traverse City. (Wooley).

SPIDER MITES - PENNSYLVANIA - Tetranychus spp. eggs noted on apples and peaches in Adams, Franklin and York Counties week of May 8. (Menusan). COLORADO - T. urticae light in apple orchards, 0-3 per leaf, in Mesa, Montrose, and Delta Counties. (Bulla). UTAH - Bryobia rubrioculus eggs hatched in Utah County orchards. (Knowlton).

APPLE RUST MITE (Aculus schlechtendali) - NEW JERSEY - Abundant in unsprayed blocks in Gloucester County. (Ins.-Dis. Newsltr.).

#### CITRUS

Citrus Insect Situation in Florida - Mid-May - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 67 percent of groves (norm 49 percent); 57 percent economic (norm 28 percent). Population at record high level for May; will continue high on statewide basis, but with localized increases and decreases. All districts high. TEXAS CITRUS MITE (Eutetranychus banksi) infested 67 percent of groves

(norm 49 percent); 47 percent economic (norm 24 percent). Highest districts are north, west, central, and south. All districts will have numerous heavy infestations through June. CITRUS RED MITE (Panonychus citri) infested 57 percent of groves (norm 51 percent); 28 percent economic (norm 31 percent). Population near average of recent years. Slight decrease is expected in May and will be followed by increase into high range in June. Scattered heavy infestations may be expected in all districts. Highest districts north, south, and west. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) infested 16 percent of groves; 2 percent economic. This mite is below average abundance. It will increase slightly then decrease by mid-June. MEALYBUGS infested 17 percent of groves; 2 percent economic. Spotty, heavy infestations occurring in scattered groves. Sharp increase in May expected to put population in high range by June. WHITEFLY larvae will increase until mid-June when population will be slightly above average. GLOVER SCALE (Lepidosaphes gloverii) infested 87 percent of groves; 31 percent economic. Population is above average and in high range. Little change expected. Highest districts are east, south, and central. PURPPE SCALE (L. beckii) infested 83 percent of groves; 16 percent economic. Population near normal and near high range. Very few infestations will be important. No change is expected. Highest districts are central and north. YELLOW SCALE (Aonidiella citrina) infested 72 percent of groves; 2 percent economic. Population will be below average and of little concern. Highest district is central. CHAFF SCALE (Parlatoria pergandii) infested 66 percent of groves; 7 percent economic. Population below normal and little change expected. Highest district is central. BLACK SCALE (Saissetia oleae) infested 23 percent of groves; 9 percent economic. Increase has started and will continue through June. The summer peak expected to be below average. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CITRUS RED MITE (Panonychus citri) - ARIZONA - New infestations found in Yuma County citrus. Heaviest infestations averaged 40-50 mites per leaf. (Ariz. Coop. Sur.).

FULLER ROSE BEETLE (Pantomorus cervinus) - CALIFORNIA - Adults caused heavy damage to citrus trees in Oroville, Butte County; damaging low hanging branches. Due to frost burn earlier in season many curled, dried leaves remain on trees providing daytime resting places for weevils which do not return to ground. Wet weather probably forced beetles into trees. Damage occurring in groves where clean cultural practices maintained. (Cal. Coop. Rpt.).

#### SMALL FRUITS

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - OREGON - Adults light over strawberry fields in northern Washington County. (Goeden).

A BLUEBERRY TIP BORER (Hendecaneura shawiana) - OHIO - Pupae in stems of cultivated blueberry in Ashtabula and Wayne Counties. (Still).

IO MOTH (Automeris io) - TEXAS - Larvae moderate and defoliating raspberries near Angelton, Brazoria County. (Vaughan).

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - OREGON - Pupation 30 percent in Washington County strawberry field. (Gray).

MEADOW SPITTLEBUG (Philaenus spumarius) - MARYLAND - Light on strawberries in Allegany and Montgomery Counties. (U. Md., Ent. Dept.).

SPIDER MITES (Tetranychus spp.) - MARYLAND - Building up to injurious levels on strawberries in Allegany and Prince Georges Counties. (U. Md., Ent. Dept.).

## ORNAMENTALS

FALL WEBWORM (Hyphantria cunea) - TEXAS - Second-generation larvae defoliating Chinese elm, ash, and pecan through Hidalgo and Cameron Counties. Infestations spread to ornamental shrubs. (Stephens, Deer).

GREEN FRUITWORM (Lithophane antennata) - MARYLAND - Larval injury to azalea foliage conspicuous at Adelphi, Prince Georges County. (U. Md., Ent. Dept.).

## FOREST AND SHADE TREES

ELM LEAF BEETLE (Pyrrhalta luteola) - MARYLAND - Adults appearing on American elms at New Carrollton, Prince Georges County. (U. Md., Ent. Dept.). KANSAS - Adults, eggs, and larvae present in Reno, Harper, Kingham, Pratt, and Edwards Counties. (Martinez). OKLAHOMA - First-generation larvae present in Major, Alfalfa, Garfield, Ottawa, and Tulsa Counties; light to moderate in several other counties. (Okla. Coop. Sur.). TEXAS - Light numbers defoliating trees near Big Lake, Reagan County. (Nevills).

SPRUCE NEEDLE MINER (Taniva albolineana) - MINNESOTA - Larvae active in Minneapolis and St. Paul area and further south. (Minn. Ins. Rpt.).

A GELECHIID MOTH (Exoteleia sp.) - OHIO - Larvae moved from needles and entered new candles of Scotch pine on 500-acre Christmas tree planting of about 10,000 trees in Lake County; larvae in 5-100 candles per tree. (Anderson).

SPRUCE GALL APHIDS (Adeleges spp.) - PENNSYLVANIA - A. abietis eggs hatched May 10 in Columbus and Susquehanna Counties (Gesell); eggs abundant May 10 in Centre and May 9 in Indiana Counties. Gravid females abundant in Indiana County. (Udine). COLORADO - First instars and adults of A. cooleyi observed on blue spruce at Fort Collins, Larimer County; eggs heavy on 5 percent of terminal twigs on lower quarter of large trees. No damage seen. (Thatcher).

A PINE APHID (Schizolachnus pineti) - CALIFORNIA - Collected from medium infestation on Pinus mugo nursery stock April 13, 1967, in Santa Clara County by E. Winkler. Det. by R. C. Dickson. This is a new county record. (Cal. Coop. Rpt.).

APHIDS - RHODE ISLAND - Prociphilus imbricator problem on beech grafts in commercial nursery in Middletown, Newport County. (Howard, Mathewson, May 12). OHIO - First instars through winged adults of Eulachnus agilis on Scotch pines in Christmas tree planting in Lake County. First instars most prevalent. (Campbell). WASHINGTON - Cinara curvipes nymphs and apterous and alate adults heavy on ornamental spruce at Toppenish, Yakima County. (Foiles).

BIRCH LEAF MINER (Fenusa pusilla) - MASSACHUSETTS - Larvae mining birch leaves in Amherst area. (Crop Pest Cont. Mess.). NEW JERSEY - Active in southern and central counties. (Ins.-Dis. Newsltr.). DELAWARE - New larvae mining leaves in New Castle County on May 17. (MacCreary). OHIO - Overwintering generation emerging and laying eggs in Franklin and Portage Counties; some leaf discoloration. (Gilbertson).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - OHIO - Larvae damaged Scotch pines in scattered areas throughout State. (Rose, Spilker). PENNSYLVANIA - Controls applied on Scotch pine plantation in Columbia County. (Gesell, May 11).

## CORRECTIONS

CEIR 17(9):133 - ARMORED SCALES - CALIFORNIA - Hemiberlesia lantaniae should read Hemiberlesia lataniae.

CEIR 17(11):177 - A PINE TUSSOCK MOTH (Halisidota ingens) should read (Halisidota ingens).

## MAN AND ANIMALS

MOSQUITOES - UTAH - Two thousand acres sprayed in Price and Helper areas, Carbon County. Mosquitoes troublesome from this area to Wellington and at Castle Dale, Emery County. Largely pupae and emerging adults in Rich County areas. Biting in Logan and Benson areas of Cache County. (Knowlton, Argyle, Roberts). MINNESOTA - Aedes excrucians, A. fitchii, and Culiseta inornata predominated in 1,054 larval samples taken. Low water delaying emergence of early spring Aedes spp. (Minn Ins. Rpt.). WISCONSIN - Some mosquito emergence reported. Abundant pools and flooded lowlands in certain areas indicate possible problem with advent of warm weather. (Wis. Ins. Sur.). MICHIGAN - Aedes spp. adults abundant around woodland ponds in many areas. (Dowdy). LOUISIANA - Larval collections in Jefferson Parish contained Anopheles quadrimaculatus, Aedes vexans, Culex pipiens quinquefasciatus, and C. restuans, A. vexans and Culex salinarius dominant in light traps throughout parish. (Stokes).

HORN FLY (Haematobia irritans) - SOUTH CAROLINA - Increasing on livestock in Oconee County. (Nettles et al., May 16). OKLAHOMA - Ranged 600-900 per head in McIntosh County, 200-300 per head in Major County, and 70-100 per head in Mayes County; moderate to heavy in Choctaw County. (Okla. Coop. Rpt.). TEXAS - Heavy and annoying cattle throughout Jackson County. (Wilson).

TABANID FLIES - OKLAHOMA - Heavy numbers of Chrysops spp. annoying livestock and humans in Mayes County. (Okla. Coop. Rpt.). TEXAS - Hybometria lasiophthalmus heavy and annoying cattle throughout Wharton County. (Smith).

FACE FLY (Musca autumnalis) - SOUTH CAROLINA - Increasing on livestock in Oconee County. (Nettles et al., May 16).

CATTLE GRUBS (Hypoderma spp.) - WISCONSIN - Ranged 0-40 per heifer in 11 counties surveyed. (Wis. Ins. Sur.).

SCREW-WORM (Cochliomyia hominivorax) - Total of 5 cases reported in U.S. May 14-20 as follows: TEXAS - Brewster 1, Medina 1, Bandera 1, Uvalde 2. Total of 85 cases reported in portion of Barrier Zone in Republic of Mexico May 7-13 as follows: Baja California 1, Sonora 15, Chihuahua 18, Coahuila 4, Tamaulipas 35, Nuevo Leon 12. Total of 18 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operations are underway to prevent establishment of self-sustaining populations in U.S. Sterile screw-worm flies released May 14-20: Texas 14,648,000, Arizona 1,720,000, Mexico 144,692,000. (Anim. Health Div.).

A GOAT SUCKING LOUSE (Linognathus africanus) - IDAHO - Two flocks of sheep totaling 3,000 head found infested during January 1967 at New Dale, Fremont County. Det. by K. C. Emerson. This is a new State record. (Manis).

A MACROVELIID BUG (Macrovelia hornii) - CALIFORNIA - Thousands of adults of this uncommon species along American River in Sacramento. (Gantenbein).

TICKS - WISCONSIN - Annoying over northern two-thirds of State; reported as far south as Crawford and Columbia Counties. (Wis. Ins. Sur.). OKLAHOMA - Amblyomma americanum heavy on cattle in Choctaw County; moderate in Mayes and McIntosh Counties. (Okla. Coop. Sur.). RHODE ISLAND - Dermacentor variabilis increased greatly; apparently will be problem this year. (Mathewson, Hyland, May 12).

## BENEFICIAL INSECTS

LADY BEETLES - NEVADA - Mostly larvae, up to 5 per sweep in pea aphid infested alfalfa fields in Smith and Mason Valleys, Lyon County. (Arnett, Martinelli). COLORADO - Hippodamia convergens adults 2 per 100 sweeps in Larimer County alfalfa. (Sower). INDIANA - Larvae and adults of Microweisea spp., and Stethorus spp. present in rosy apple aphid colonies in Vincennes area. (Dolphin, May 15).

A MELYRID BEETLE (Collops vittatus) - COLORADO - Adults 2 per 100 sweeps of alfalfa at Fort Collins, Larimer County. (Sower).

DAMSEL BUGS (Nabis spp.) - COLORADO - Adults low in Larimer County alfalfa. (Sower).

AN ICHNEUMON WASP (Bathyplectes curculionis) - COLORADO - Adults continue to emerge in Fort Collins area alfalfa. (McLaughlin). MISSOURI - Collected for first time in Phelps County. (Puttler, Thewke).

A BRACONID WASP (Aphidius sp.) - NEVADA - Up to 100 per sweep in alfalfa infested with pea aphid in Smith and Mason Valleys, Lyon County. (Arnett, Martinelli).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Larvae taken on Eugenia brasiliensis in nursery at Loxahatchee, Broward County, May 10. (O'Brien, Clinton). This is new host record. (Fla. Coop. Sur.). Total of 17 adults collected in blacklight trap at South Miami. (Habeck, May 10). During last 2 weeks adults collected from Key West northward to Eau Gallie, Brevard County. (Fla. Coop. Sur.).

CEREAL LEAF BEETLE (Oulema melanopus) - ILLINOIS - Preventive spray program completed May 13 in Vermillion, Kankakee, and Will Counties. (Ill. Ins. Rpt.). INDIANA - First hatch on May 13 in New Carlisle area. (Shade). MICHIGAN - Adults extremely light on 10-inch wheat in Washtenaw, Lenawee, Hillsdale, and Jackson Counties. One area of Calhoun County with approximately 20 adults per 25 sweeps. (Haynes, Moore).

GRASSHOPPERS - UTAH - Hatching at some locations in Sevier and Sanpete Counties. (Knowlton). COLORADO - Nymphs in trace numbers in most fields south of Greeley, Weld County. (Urano). OKLAHOMA - Hatch general in Ellis, Harper, Woodward, Custer, Roger Mills, and Washita Counties; 80 percent first instars. Ranged 2-20 per square yard in grassland; 5-25 along roadside and crop margins. Ageneotettix deorum, Melanoplus bivittatus, Phliobostroma quadrimaculatum, Aulocara ellioti, and M. packardii dominant. Hatch spotty in Comanche, Cotton, Kiowa, Grady, and Jefferson Counties; mostly first to third instars. Ranged 1-10 per square yard in grassland; 4-12 in crop margins. M. bivittatus, Ageneotettix deorum, Aulocara ellioti, Boopedon nubilum, and Hesperotettix sp. dominant. Counts continue light in northeast and east-central counties. (Okla. Coop. Sur.). NEBRASKA - Hatching delayed by cool weather in panhandle area. (Hagen). SOUTH DAKOTA - Light hatch underway in southern area. Few Melanoplus bivittatus nymphs observed May 10 in southern Tripp County. Cold weather May 11-15 reduced activity. (Burge). Egg development late in most northern counties; however, eggs plentiful and well advanced along Cheyenne River in Meade County. (Zimmerman). NORTH DAKOTA - Eggs 80 percent coagulated, 15 percent eyespot, and 5 percent segmented in Dickey County. None hatched. (Brandvik). MINNESOTA - Egg development slow; most in coagulation stage. M. bivittatus eggs mostly in early eye-spot stage in sandy soil areas of central district. Egg predation in Sherburne County field well above 50 percent, due mainly to ground beetle larvae. (Minn. Ins. Rpt.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ALABAMA - Heavy localized population at Brewton, Escambia County, reported to have damaged 5-acre stand of young corn to extent replanting was necessary. Destroyed 20 acres of 60-acre field at Excel, Monroe County. (Lemons, Daniel).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Male moths appearing in sex lure traps in Palo Verde Valley, Riverside County; 17 taken in single trap. Cotton has not progressed far enough to sustain next generation. (Cal. Coop. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - GEORGIA - Larvae damaging peanuts in Dooley County field (Fulford); moderate to heavy on peanuts in Miller County (Henning). Larval damage heavy on corn roots in Crisp County. (Nix). ALABAMA - Larvae caused severe damage to seedling corn in isolated fields in Escambia, Conecuh, Monroe, and Washington Counties. (Lemons et al.).

#### HAWAII INSECT REPORT

Vegetables - CARMINE SPIDER MITE (Tetranychus telarius) medium to heavy on tomato, watermelon and snap beans in Waianea, Oahu. (Yamamoto). GREEN PEACH APHID (Myzus persicae) medium in 4 acres of bell pepper in Kihei, Maui. (Miyahira). SPOTTED GARDEN SLUG (Limax maximus) caused heavy damage to green onions throughout Makawao, Maui. (Miyahira). LEAF MINER FLIES (Liriomyza spp.) and GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) medium to heavy in backyard plantings of snap beans in Wailuku and tomato fields in Kihei, Maui; medium to heavy in tomato and watermelon plantings in Waianae, Oahu. Leaf miner flies caused 90-100 percent damage to watermelon seedlings in large field in Kahuku, Oahu. (Yamamoto, Thistle).

Fruits - BROWN CITRUS APHID (Toxoptera citricida) heavy on terminals of orange trees in Lawai, Kauai. (Au).

Ornamentals - THREE-LINED POTATO BEETLE (Lema trilineata) adults medium and causing extensive damage to terminal leaves of cup-of-gold (Solantra hartwegii) in Koloa, Kauai. (Au).

General Pests - SOUTHERN GREEN STINK BUG (Nezara viridula) nymphs and adults light in farming areas throughout State. Light scattered populations, confined mostly to weed hosts, reported from Oahu, Maui, Kauai, and Hawaii Islands. In many areas, over 50 percent of stink bug adults with eggs of a tachina fly (Trichopoda pennipes var. pilipes). (Funasaki).

Beneficial Insects - Larvae and adults of STEEL-BLUE LADY BEETLE (Orcus chalybeus) and another lady beetle (Azya luteipes) abundant on fiddlewood trees heavily infested with barnacle scale (Ceroplastes cirripediformis) in Keapuka, Subdivision, Kaneohe, Oahu. Larvae of both species feeding on scale nymphs. (Funasaki).

Miscellaneous Insects - HAWAIIAN BEET WEBWORM (Hymenia recurvalis) adults heavy on spiny amaranth in pasturelands at 1,200 feet in Makawao, Maui. (Takishita) Adults of an OEDEMERID BEETLE (Ananca bicolor) heavy on porch ceilings at Waipahu Intermediate and High Schools on Oahu. (Au).

#### INSECT DETECTION

##### New State Record

A GOAT SUCKING LOUSE (Linognathus africanus) - IDAHO - Infested sheep at New Dale, Fremont County. Det. by K. C. Emerson. (p. 448).

##### New County Records

ALFALFA WEEVIL (Hypera postica) - NEBRASKA - Frontier County. KANSAS - Lane, Ness, Sherman, Thomas, Sheridan, Graham, Wallace, Logan, Gove, Trego, Greeley, and Wichita Counties. MICHIGAN - Oakland and Macomb Counties. INDIANA - Pulaski County. (p. 438).

A PINE APHID (Schizolachnus pineti) - CALIFORNIA - Collected by E. Winkler April 13, 1967, in Santa Clara County. Det. by R. C. Dickson. (p. 447).

AN ICHNEUMON WASP (Bathyplectes curculionis) - MISSOURI - Phelps County. (p. 449).





### Preparation of Notes for Cooperative Economic Insect Report

Requests have been received relative to the type of information desired for the Cooperative Economic Insect Report and suggestions made for revision in the format.

The report will be reorganized on a principal crop basis. This will simplify present format and make the material more accessible and useful. It is hoped this approach will also stimulate greater participation by pointing out lack of reporting on individual crop problems. Efforts will be made to evaluate and present the information in ways to make it more useful in insect control.

Forecasting statements will be developed wherever field reports support such action. Reporters are encouraged to include this vitally important information in their notes. Emphasis of the Cooperative Economic Insect Report will be on the important insect problems of a regional nature, notes on routine insect occurrence will be kept to a minimum. Routine notes submitted on common insects will be added to the National insect files as warranted, however.

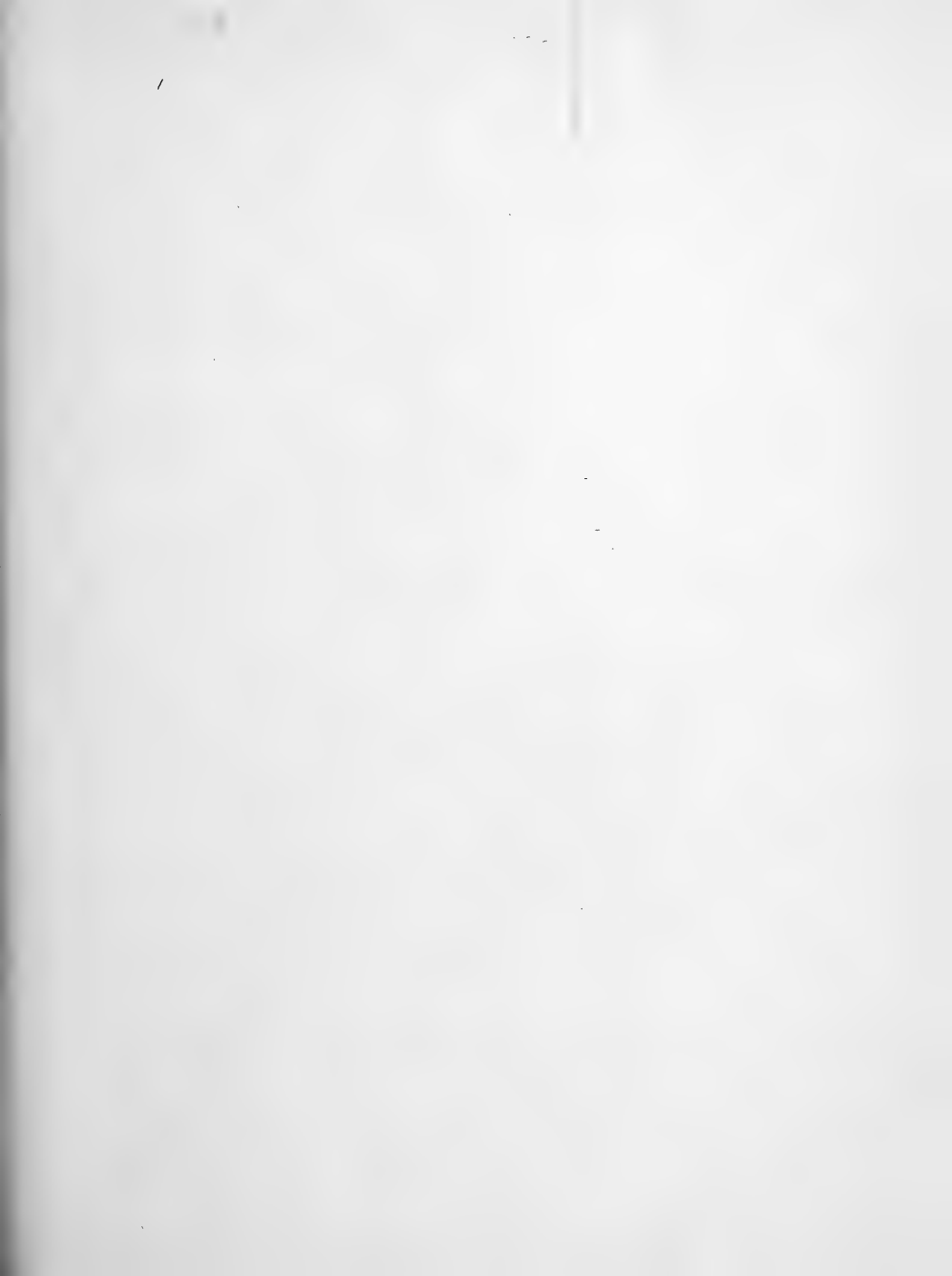
The following guidelines are suggested for preparation of notes. It is realized that all of the information outlined will not be available in each situation, but give the following information when possible.

1. Common (if available) and scientific name of species involved. Stages of insect involved. (If a taxonomic problem exists, it should be noted).
2. Location (definite, recognized area within state, such as region, county or town), date, name of observer or reporter. If note is for period other than current reporting period, give date of observation.
3. Host involved, scope and extent of infestation in number of counties, acres, trees, animals, etc. Also stage of host.
4. Quantitative evaluation of infestation according to recognized survey methods. Where such methods are not available, give numerical data such as number per linear foot, per plant, per sweep or per animal. These data should be based on a representative sampling. An adjectival rating should be accompanied by a numerical rating.
5. Estimation of extent of injury or damage.
6. Comparisons with previous infestations, outlook or predictions for future infestations, unusual influences.
7. Status of natural or applied control.
8. When reporting new State, United States, or North America records, include the above information insofar as applicable, as well as name of taxonomist making determination.

Examples of notes including these data are as follows:

EUROPEAN RED MITE (*Panonychus ulmi*) - Egg populations have reached point where protective sprays are warranted in 10 percent of apple orchards in Knox County. Counts on June 30 showed 0 to 4.8 live mites per leaf and 0 to 37.6 eggs per leaf. Further increase and spread expected with continued favorable weather. (Jackson, July 2).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - Oviposition and hatch practically complete in central counties. Fifty egg masses per 100 stalks in northwest area. In southern counties, all corn 35 inches or taller, 70 to 100 percent infested with 2 to 22 larvae per stalk. Larvae from first to third instar. (Smith).



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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

BEEF LEAFHOPPER populations in Idaho declined from those present in 1966; may be locally troublesome in western part of State and may require controls in Mountain Home and Indian Cove areas; movement may be moderate into Eden and Hazelton areas later in season. Heavy ARMY CUTWORM adult flight expected in Lincoln County, Nebraska; larvae damaging corn in Colorado. ARMYWORM larvae heavily parasitized in southeast Missouri; moth counts high in Michigan light traps for second consecutive week. CORN EARWORM damaging several hundred acres of corn in Alabama and serious at Sanford, Florida. (p. 455). SIX-SPOTTED LEAFHOPPER increased on small grains and alfalfa in Minnesota; aster yellows could become problem if populations increase on flax; also increased on small grains in southeast North Dakota. (p. 456).

EUROPEAN CORN BORER heavy in several hundred acres of corn in Alabama; overwintering mortality high in Cuming and Hall Counties, Nebraska. (p. 456). CORN FLEA BEETLE above normal in Maryland; lower than expected on sweet corn in Hudson Valley, New York. (p. 457).

ALFALFA WEEVIL damage increasing in several areas with advent of warmer weather; first activity of season reported in New Hampshire. (pp. 458-459). PEA APHID abundant on alfalfa in Kansas, Nebraska, and Colorado, and on several forage crops in Oregon. (p. 460).

BOLL WEEVIL heaviest ever observed on cotton at East Tallassee, Alabama; infestation in Waco area, Texas, lower than in 1966. (p. 461). SUGAR-BEET ROOT MAGGOT adults heavy in sugarbeet areas of Weld and Larimer Counties, Colorado. (p. 463).

EUROPEAN PINE SHOOT MOTH larvae heavy on red pines in Mohican State Forest, Ohio. (p. 467). A PINE SAWFLY infesting 100 acres of shortleaf pines in Brush Creek State Forest, Ohio. (p. 468). GRASSHOPPERS threatening on range grasses in areas of Oklahoma. (p. 470). GYPSY MOTH egg hatch reported in several States. (p. 471).

Detection

New State records include a Hover Fly in Florida (p. 472), a WEEVIL in Oregon (p. 472), a CIMICID BUG in Alabama (p. 469), and WESTERN CHICKEN FLEA in Idaho, (p. 469).

For new county records see page

Special Report

Beet Leafhopper Survey in Idaho. (p. 455).

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Reports in this issue are for week ending May 26 unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK

MID-MAY TO MID-JUNE 1967

The Weather Bureau's 30-day outlook for mid-May to mid-June is for temperatures to average below seasonal normals over the Middle Atlantic States and the Northeast. Near normal averages are expected over the northern and central Pacific coast, the northern border States, and in a band from the upper Great Lakes to the south Atlantic Coastal States. Elsewhere above normal temperatures are anticipated. Precipitation is expected to be subnormal over most of the South, the northern and central Plains, the Great Basin, and most of the west coast States. Above normal totals are indicated for the southern Plateau. Elsewhere near normal precipitation is in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

For Weather of the Week Ending May 29 see page 464.



**SPECIAL INSECTS OF REGIONAL SIGNIFICANCE**

Beet Leafhopper Survey in Idaho

The 1967 spring survey to determine the number of overwintered adults of beet leafhopper (*Circulifer tenellus*) was conducted during March and April. Populations in the combined range breeding areas averaged 22 per 100 square feet compared with 90 in 1966, 18 in 1965, 22 in 1964, 16 in 1963, 72 in 1962, 44 in 1961, and 19 in 1960. Host plants adjacent to cultivated crops in Twin Falls area are below average of past few years, and about average in Glenns Ferry, Gooding, and Jerome areas. Host plants are above average of past 2 years in range area adjacent to Eden and Hazelton areas. Leafhopper population is light on host plants, but movement into Eden and Hazelton areas may be moderate later in the season. Host plants very numerous in cultivated crop areas in western part of State, and may be locally troublesome. Beet leafhoppers averaged 100 per 100 square feet on 9,000 acres of range near Mountain Home and Indian Cove and may require controls. Nymphal surveys planned during May to determine extent of treatment. (PPC West. Reg., Apr. Rpt.).

ARMY CUTWORM (*Chorizagrotis auxiliaris*) - NEBRASKA - Adults increasing rapidly at blacklight trap in North Platte, Lincoln County. Heavy flight expected. (Pruess). Larvae pupating in wheat west of Potter, Cheyenne County. (Andersen). COLORADO - Migrating from alfalfa field that had been plowed up, into corn; causing much damage. (Titensor). IDAHO - Additional infestations reported in Canyon and Jefferson Counties. (Homan, Gooch).

ARMYWORM (*Pseudaletia unipuncta*) - MISSOURI - Larvae collected in extreme southeast area 75 percent parasitized. Controls no longer being applied due to high numbers of parasitized larvae. (Jones). Larvae ranged 0-12 per square foot in north-central and northeast areas. High count of 12 found in severely lodged, dense stand of wheat in Carroll County. Small larvae ranged 0.5-1.5 per square foot in most wheat and grass checked. (Munson). INDIANA - Larvae averaged 1-2 per 5 square feet of grasses bordering wheat in southwest district. (Huber). ILLINOIS - Small larvae 0-2 per linear foot of row. Averaged 30 per foot of row in barley in southwest district field. (Ill. Ins. Rpt.). MICHIGAN - High numbers of moths taken in light traps for second week. (Janes, Newman). MARYLAND - Adults averaged 10 per night in blacklight trap at Snow Hill, Worcester County; larval surveys negative in 20 small grain fields on Eastern Shore. (U. Md., Ent. Dept.).

CORN EARWORM (*Heliothis zea*) - FLORIDA - Serious in corn at Sanford, Seminole County. (Greenē). GEORGIA - Light in Dougherty County. (Hays, Harris). ALABAMA - Larvae in whorls of every third to fifth stalk and causing much damage to several hundred acres of corn in Chilton County. Some larvae have left whorls to pupate. Few moths in flight; few eggs observed on early silks. This heavy population occurring in combination with heavy first-generation infestations of European corn borer (*Ostrinia nubilalis*). (Futral et al.). H. zea larvae noticeable in several fields in Greene County. (McDonald). ARIZONA - Larvae light, averaged 1-2 per 100 heads, in 2 safflower fields in Coolidge area, Pinal County. Very heavy in sweet corn fields and backyard plantings in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

CORN LEAF APHID (*Rhopalosiphum maidis*) - ARIZONA - Moderate in milo in Cochise and Pinal Counties. Damage appears very light. (Ariz. Coop. Sur.). OKLAHOMA - Averaged 50 per plant on forage sorghum in Jefferson County. (Okla. Coop. Sur.). ALABAMA - Heavy populations built up on tassels of most corn before tassels emerged from whorls in all corn examined in Chilton County. (Futral et al.).

GREENBUG (*Schizaphis graminum*) - MINNESOTA - Populations in central, south-central, and southwest districts very low. Spring grains generally free of infestations. Trace numbers on roadside grasses and winter grains. (Minn. Ins. Rpt.). IOWA - Occasional aphid to very light numbers on oats in central and east-central areas. (Mast). ARKANSAS - Very low in northwest area. Small grain maturing; period for economic infestation about over. (Ark. Ins. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - INDIANA - Adults averaged 1-2 per sweep of alfalfa in southern half of State. (Huber).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Adults on matrimony-vine. Ranged 100-400 per 100 sweeps in Arkansas Valley area. Averaged 20 per 100 sweeps in Platteville and Fort Lupton areas, Weld County; eggs being deposited. (Schweissing, Jenkins).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - COLORADO - Trace numbers on matrimony-vine near Platteville, Weld County. (Jenkins). None found on lettuce in Otero County. (Schweissing). NORTH DAKOTA - Populations increased in southeast area. Ranged 15-100 (average 48) per 100 sweeps on rye in Dickey County. Counts of 30 per 100 sweeps evident on winter wheat in McKenzie County. (Brandvik). MINNESOTA - Populations low, but increase noted in central, south-central, and southwest districts. Counts 0-80 per 100 sweeps in small grain and alfalfa. Light (15 per 100 sweeps) in few emerged flax fields in southwest district. Aster yellows could become problem if leafhopper numbers increase. (Minn. Ins. Rpt.). WISCONSIN - Observations in southern area showed some decline in rye but an increase in oats. No significant increase noted generally. Scarce in west-central counties; 1 per 50 sweeps maximum count. (Wis. Ins. Sur.). IOWA - Occasional specimens collected from alfalfa in central and east-central areas. (Mast). INDIANA - Ranged 1-2 per 5 sweeps in southwest and south-central district alfalfa; ranged from 1 per 10 sweeps to 7 per 5 sweeps in wheat. (Huber). FLORIDA - Two adults in 100 sweeps of mature wheat at Gainesville, Alachua County. (Mead, May 17).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Heavy in alfalfa field at Santa Rosa, Guadalupe County; about one-quarter cup per 25 sweeps. Lighter in other fields checked. (Kloepfer). COLORADO - Ranged 1-30 per 100 sweeps in some Otero and Prowers County alfalfa. (Schweissing). KANSAS - None found in north-central and northeast district alfalfa. (Simpson). ARKANSAS - Survey negative in Washington County. (Ark. Ins. Sur.).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - ALABAMA - First-generation larvae heavy in several hundred acres of corn in Chilton County; ranged 2-15 per stalk. (Futral et al.). MARYLAND - Adults active on Eastern Shore but few in blacklight traps due to cool nights. (U. Md., Ent. Dept.). ILLINOIS - Percent pupation and emergence by district as follows: Southwest, pupation 100, emergence 50; central, pupation 88; west-northwest, pupation 80, emergence 8; northwest, pupation 4-12. (Ill. Ins. Rpt.). MISSOURI - Pupation 85 percent in 2 Carroll County fields, north-central area; 106 adults taken in light trap May 19-25. In northeast area, percent pupation 77 in Monroe County, 73 in Clark County; 5 adults taken in sweep net in several Clark County alfalfa fields. (Munson). KANSAS - Mostly larvae, few pupae, no adults in emergence cages in Brown and Jefferson Counties. (Simpson). NEBRASKA - Winter mortality estimated at 95 percent in Cuming County; borers average 888 per acre; pupation 12.5 percent May 20. Winter mortality 96 percent in Hall County; borers average 1,625 per acre; pupation 32 percent May 23. (Hill, Keith).

PALE WESTERN CUTWORM (Agrotis orthogonia) - COLORADO - Damaged corn stands southwest of Greeley, Weld County; loss severe enough to warrant replanting. (Uran). Migrating from alfalfa field that had been plowed up, into corn; causing much damage. (Titensor).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - GEORGIA - Heavy on seedling corn in Wayne County. (Hutcherson).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MISSOURI - Ranged 1-11 per plant on seedling corn in north-central and northeast areas; averaged 2-4 per plant in most fields. (Munson). ILLINOIS - Ranged 5-15 per plant in several fields of

young corn in central district. (Ill. Ins. Rpt.). INDIANA - Ranged 1-3 per 4 to 6-inch corn plant in southern districts, but only 1 beetle per 5 plants on corn below 4 inches high. (Huber). MARYLAND - Above normal in all sections; adults averaged 3 per plant on young field corn in Queen Annes County. (U. Md., Ent. Dept.). NEW YORK - Numbers lower than expected on sweet corn in Hudson Valley; 2 per 100 plants on several hundred plants examined. Movement from grass to corn inhibited by cool weather. (N. Y. Wkly. Rpt., May 22).

FLEA BEETLES - KANSAS - Up to 6 adults per plant damaged corn in Lyon, Jefferson, and Leavenworth Counties. (Simpson).

SEED-CORN BEETLE (Agonoderus lecontei) - COLORADO - Damaged corn stands northeast of Greeley and Hardin in Weld County. (Urano). MISSOURI - High numbers taken in light trap at Carrollton May 19-25. An estimated 8,000 beetles taken May 19. (Munson).

SUGARCANE BEETLE (Euethoea rugiceps) - ALABAMA - Adults destroyed 7-acre stand of young corn following sod pasture in Chilton County. (McQueen). FLORIDA - Adults infested 20-25 percent of 4 to 5-acre corn field at Pensacola, Escambia County. Fed just above junction of roots and stem, causing center roll of leaves to wither and die. Some lesser cornstalk borer and wireworm injury also noted. (Walker, May 10).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - IOWA - First adults of season collected in Story County May 21. (Gunderson).

WIREWORMS - IOWA - Damaged corn in Decatur County. (Gunderson).

CHINCH BUG (Blissus leucopterus) - KANSAS - Damaged Lyon County corn. (Brooks). ALABAMA - Adults light on stalks of silking corn in edges of several Chilton County fields. (McQueen).

SEED-CORN MAGGOT (Hylemya platura) - MARYLAND - Adults numerous in grain fields and other situations in all areas. (U. Md., Ent. Dept.).

SLUGS - VIRGINIA - Damaged 60-70 percent of corn seedlings in 17-acre sod-planted corn field in Pulaski County. (Isakson).

#### SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - ARKANSAS - Very low in northwest area. Small grain maturing; period for economic infestation about over. (Ark. Ins. Sur.). IOWA - Occasional aphid to very light numbers on oats in Tama, Benton, Linn, and Cedar Counties. (Mast). MINNESOTA - Populations in central, south-central, and southwest districts very low. Spring grains generally free of infestations. Trace numbers on roadside grasses and winter grains. (Minn. Ins. Rpt.). NORTH DAKOTA - Slight increase noted in southeast area. Ranged up to 5 (average 3) per 100 sweeps on rye in Dickey County. (N. D. Ins. Sur.). OREGON - This species, Acyrtosiphon dirhodum, and Rhopalosiphum padi very abundant on winter cereals and several grass crops in Benton, Linn, Polk, and Marion Counties. (Dickason).

GRAIN APHIDS - WISCONSIN - Survey in west-central and northwestern counties showed population lower than in southern and central areas. Maximum count 24 per 50 sweeps in areas near La Crosse, New Richmond, and Eau Claire; average 10 per 50 sweeps. About 20 percent Schizaphis graminum (greenbug), remainder Macrosiphum avenae (English grain aphid). No red leaf observed in oats. (Wis. Ins. Sur.). MARYLAND - Disease and predators reduced aphids to very low numbers on Eastern Shore. (U. Md., Ent. Dept.).

WIREWORMS - NORTH DAKOTA - Damage to wheat and barley evident in La Moure and Dickey Counties. In La Moure County, populations of 5 per square foot caused estimated 70-percent reduction of stand in single Durum field. (Colberg,

McBride). Ranged 0-1 per square foot and reduced stands by 50 percent in other fields. Damage less evident in Dickey County with up to 1 larva per 2 square feet. Damage estimated at up to 10 percent in some fields. Some of more heavily infested fields reseeded with treated seed. Damage difficult to determine due to retarded germination caused by cool spring and too deeply seeded grain. (Brandvik). IDAHO - Larvae of *Ctenicera glauca* ranged 1-5 per plant on 40-50 acres of dryland wheat growing on heavy soil in Camas Reservoir area, Elmore County. (Edwards).

TARNISHED PLANT BUG (*Lygus lineolaris*) - ARKANSAS - Numbers declined in small grain in northwest area. (Ark. Ins. Sur.).

CUTWORMS - COLORADO - Averaged 2 per linear foot of row in Dolores County winter wheat; caused slight damage. (Earley). NEBRASKA - *Agrotis orthogonia* infested wheat west of Potter, Cheyenne County. (Andersen). KANSAS - Occasional larva of *Faronta diffusa* found in wheat in Riley, Pottawatomie, Marshall, Washington, and Republic Counties. (Simpson).

HESSIAN FLY (*Mayetiola destructor*) - VIRGINIA - Caused heavy loss to wheat planted in mid-November 1966; damaged 70-80 percent of 6-acre field in Pittsylvania County. (Isakson).

WHEAT STEM MAGGOT (*Meromyza americana*) - MARYLAND - Suspected of causing barley heads to turn white in Wicomico County. (U. Md., Ent. Dept.).

WHEAT CURL MITE (*Aceria tulipae*) - OHIO - This vector of wheat streak-mosaic virus fed in rolled wheat leaves in Wayne County field; virus symptoms present. (Nault). Numerous on green foxtail grass, a wild host, in Wayne County, May 16. (Briones).

BROWN WHEAT MITE (*Petrobia latens*) - COLORADO - Nymphal and adult leaf damage high on malting barley in Delta and Montrose areas; controls applied. (Cornforth).

#### TURF, PASTURES, RANGELAND

SOD WEBWORMS (*Crambus* spp.) - IDAHO - Moths general in lawns at Bonners Ferry, Boundary County, May 22. (Studer). Mating in Moscow, Latah County, May 24. (Portman).

#### FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - NEW HAMPSHIRE - First activity of season noted May 18 at Kensington. Larvae or feeding observed on one percent of terminals although few damaged leaves unfolded. Tip injury currently less than 1 to 5 percent in fields in Hollis area; larvae 4-50 per 100 sweeps. (Sutherland). VERMONT - Active despite cool weather. Tip damage ranged 10-15 percent in West Haven. (Newton). MASSACHUSETTS - Late first and early second-stage larvae and overwintered adults ranged 1-4 per 100 sweeps in Hampshire County May 13-14. Small numbers found in 5 fields May 20-27. Damage evident on apical nodes of plants in one field indicated buildup of small larvae. In Berkshire County, larvae ranged 1-17 and adults 0-8 per 100 sweeps in 6 fields. Temperatures in middle 60's and alfalfa 7-15 inches high in both counties. (Miller). CONNECTICUT - Adults, eggs, and larvae found in Sherman and Woodstock areas; damage evident. Adults averaged 12 per 100 sweeps at Storrs May 22; development at least 10 days later than at same time last year. (Savos). NEW YORK - No larvae yet found in Oswego, Cayuga, Tompkins, Seneca, or Wayne Counties; eggs and adults present in these areas. Averaged 1 adult per 2-3 sweeps in Tompkins County May 19. Adults 2-4 per 10 sweeps at 3 locations in Allegany County May 18; occasional larva found, single stem with eggs found after extensive search. Larvae 20 per 100 sweeps May 19 in Steuben County; only adults and eggs present May 22. (N. Y. Wkly. Rpt.). NEW JERSEY - First cutting of alfalfa in southern counties. Fields sprayed 2-4 weeks ago greener and taller than unsprayed fields or missed strips

in sprayed fields. Larvae 5-10 per sweep in treated fields; slight feeding injury on new growth. Larvae 30-50 per sweep in swath-skip areas; all tips destroyed. Larvae 22-80 per 25 tips in 3 sprayed fields in Gloucester, Salem, and Cumberland Counties May 23; tip injury 65-96 percent. (Ins.-Dis. Newsltr.). OHIO - Warm weather contributed to rapid increase in larval damage to alfalfa in infested counties in northern half of State. In more southern counties, many larvae pupating. Some adults emerged in southern area. Large potential larval populations may be present in fields where damage thus far limited by low temperatures. Results of controls variable. (Flessel et al.). INDIANA - Larvae averaged 1-2 per sweep on 2 to 4-inch second growth and 34-193 per sweep on uncut, early treated alfalfa in southern third of State; highest in U. S. Highway 50 area of south-central district; adults ranged 4-27 per sweep in uncut, first-growth alfalfa in southern districts. (Huber). MICHIGAN - Total of 9 adults taken in 1,000 sweeps in Jackson County May 18 and 2 adults in 1,000 sweeps May 17 in Ingham County. These are new county records. (Newman). WISCONSIN - There is some speculation and concern as to impact to be expected on alfalfa production in State after this pest becomes firmly established. (Wis. Ins. Sur.). MISSOURI - Very low numbers found in Audrain, Marion, Pettis, Ralls, and Saline Counties. These are all new county records. (Munson). KANSAS - Three larvae collected in Russell County field. This a new county record. (Harvey). SOUTH DAKOTA - Very low, 3 adults and 1 second instar per 100 sweeps, in fields sampled near Spearfish, Lawrence County, and Rapid City, Pennington County. (Jones). NORTH DAKOTA - Overwintering adults active in irrigated alfalfa in western McKenzie County; 0-115 (average 26) per 100 sweeps. Adult feeding not evident, but weevils mating. Alfalfa 3-8 inches high. (Brandvik).

COLORADO - Larvae active in most areas with considerable variation in numbers. Larvae up to 1,200 per 100 sweeps in Bent, Crowley, Otero, and Pueblo Counties; damage not serious. In Weld County, 80-280 larvae per 100 sweeps and 0-80 adults per 100 sweeps in Gilcrest and Platteville areas. Fewer larvae and adults on new seedlings and on green-chopped fields. (Schweissing et al.). NEW MEXICO - Counts per 25 sweeps of alfalfa: Larvae 10-30 at Albuquerque and 3-6 at Isleta, Bernalillo County; larvae 22-72 and adults 2 at Corrales, Sandoval County. (Heninger). NEVADA - Larvae varied 10-75+ per sweep in Panaca, Lincoln County, alfalfa hay and seed fields; averaged 15-30 per sweep in most fields. Counts 75+ per sweep and damage moderate to heavy in some fields. Larvae first stage to full grown. Mating observed; females still gravid. Larvae varied 1-10 per sweep in Pahrnanagat Valley, Lincoln County; counts heavier in north end of valley. Populations probably higher as sampling done under rainy, windy conditions. (Bechtel, Zoller). UTAH - Increased with advent of warm weather; however, much alfalfa may be cut before control necessary. Few larvae found in most northern and central area fields. (Knowlton). IDAHO - Adults varied from less than 1 up to 2 per 5 sweeps in newer farming area of Minidoka County; averaged 4 (ranged up to 8) per 5 sweeps in older farming area in southern part of county. Eggs averaged 15 per oviposition site. Single first instar found. Alfalfa averaged 6 inches high. (Smith, Portman, May 17). Adults averaged 4 (ranged up to 9) per 5 sweeps in Jerome County; no larvae found. Alfalfa 8 inches high. (Priest, Portman, May 18). Larval damage warranted controls in alfalfa seed field at New Plymouth, Payette County. (Weight, May 19).

CLOVER LEAF WEEVIL (Hypera punctata) - NEW YORK - Serious in field of red clover and alfalfa in Chemung County. Damage severe; field may be plowed. (N. Y. Wkly. Rpt., May 22). IOWA - Larvae, some diseased, present in alfalfa and red clover in central and east-central areas; averaged less than 2 per square foot. (Mast).

WEEVILS - CALIFORNIA - Hypera sp. larvae, not H. punctata, heavy on alfalfa in Orland, Glenn County; medium generally on alfalfa in Paso Robles and San Miguel areas, San Luis Obispo County; medium on burclover in Watsonville and Santa Cruz areas, Santa Cruz County; medium on alfalfa in Los Banos, Merced County; and heavy on burclover in Castroville, Monterey County. (Cal. Coop. Rpt.). NORTH DAKOTA - Sitona scissifrons averaged 12 per 100 sweeps on alfalfa in Dickey County. (Brandvik).

CLOVER ROOT CURCULIO (Sitona hispidula) - NEW YORK - Small number of adults present in alfalfa in Tompkins County. (N. Y. Wkly. Rpt., May 22).

CLOVER SEED WEEVIL (Miccotrogus picirostris) - MARYLAND - Adults heavy in developing heads of red clover at Fairland, Montgomery County. (U. Md., Ent. Dept.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSOURI - Ranged 3-11 per 10 sweeps in northeast area alfalfa. (Munson).

ALFALFA CATERPILLAR (Colias eurytheme) - NEW MEXICO - Averaged one young larva per 25 sweeps of alfalfa in Bernalillo County. (Heninger). ARKANSAS - Very light on alfalfa in northwest area. (Ark. Ins. Sur.).

A LEAF ROLLER MOTH (Ptycholoma peritana) - CALIFORNIA - Adults of this species and Platynota stultana heavy on alfalfa in Wasco area, Kern County. (Cal. Coop. Rpt.).

PEA APHID (Acyrtosiphon pisum) - OREGON - Extremely abundant on hairy vetch, purple vetch, Austrian winter peas, and alfalfa in central Willamette Valley counties; 1,700 per 25 sweeps, approximately 6 times higher than last year. Aphidius pulcher (a braconid wasp) averaged 126 per 25 sweeps compared with 11 last year. (DicKey). NEVADA - Varied 1-10 per sweep in alfalfa in Moapa Valley, Clark County, and in Panaca and Pahrangat Valley, Lincoln County. Predators heavy. (Bechtel, Zoller). ARIZONA - Light to moderate in alfalfa in Yuma and Pinal Counties. Light, but increasing in Cochise County. Parasitism heavy in many Pinal County fields. (Ariz. Coop. Sur.). COLORADO - Ranged 100-10,000 per 100 sweeps of alfalfa throughout Bent, Crowley, Otero, Prowers, and Pueblo Counties; highest in Prowers County. Lady beetles and damsel bugs very high in most fields. (Schweissing). KANSAS - Ranged 300-700 per 10 sweeps of alfalfa at experiment station in Ellis County. Lady beetle larvae abundant. (Harvey). NEBRASKA - Ranged 45-83 per sweep in alfalfa near Mead, Saunders County. (Kindler). Numbers low in panhandle area. (Andersen). NORTH DAKOTA - Low on alfalfa. Ranged 8-20 (average 14) per 100 sweeps in Dickey County; 50-150 (average 117) per 100 sweeps in irrigated alfalfa in McKenzie County. (Brandvik). MINNESOTA - Increased sharply in alfalfa during recent warm weather. Counts per 100 sweeps by district averaged as follows: Southwest 61, south-central 76, central 85. Predators very low or absent in most fields. Winged aphids appearing in many fields. (Minn. Ins. Rpt.). WISCONSIN - Remains low in alfalfa, but winged individuals present in southern counties. (Wis. Ins. Sur.). IOWA - Ranged 5-45 per 10 sweeps in alfalfa and red clover in central and east-central areas. (Mast). MICHIGAN - Adults and nymphs averaged 125 per 25 sweeps in alfalfa May 22 in Jackson County. (Dowdy). ARKANSAS - Continues medium, 500-600 in 100 sweeps, on alfalfa in northwest area. (Ark. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - NEVADA - Up to 40 nymphs and adults per sweep on blooming alfalfa in Moapa Valley, Clark County. Averaged 4-12 per sweep in nonblooming areas. Varied 4-8 per sweep in nonblooming alfalfa in Panaca and Pahrangat Valley, Lincoln County. (Bechtel, Zoller). ARIZONA - Large increases observed in Cochise County alfalfa; averaged 300 per 100 sweeps. Infestations in Graham, Maricopa, Pinal, and Yuma Counties show no noticeable increase. (Ariz. Coop. Sur.). NEW MEXICO - Averaged 0-3 nymphs per 25 alfalfa sweeps in Bernalillo County. (Heninger). Average adult counts per 25 sweeps by county as follows: Eddy, 3-5 in Artesia area; Chaves, 4-6 in Roswell area, (Mathews); Quay, 2-3 in Tucumcari area, (Kloepfer). KANSAS - Nymphs ranged 100-200 per 10 sweeps of alfalfa at experiment station in Ellis County. (Harvey).

TARNISHED PLANT BUG (Lygus lineolaris) - MASSACHUSETTS - Small numbers present in alfalfa in Hampshire and Berkshire Counties. (Miller). NEW YORK - Averaged 1 adult per 20 sweeps in Tompkins County alfalfa May 19. (N. Y. Wkly. Rpt.). ARKANSAS - Declined in alfalfa in northwest area. (Ark. Ins. Sur.). IOWA - Ranged 2-15 per 10 sweeps in most alfalfa and clover checked in central and east-central areas. (Mast). WISCONSIN - Adults numerous in some southern alfalfa fields; as many as 2 per sweep. (Wis. Ins. Sur.). NORTH DAKOTA - Adults up to 24 per 100 sweeps on alfalfa in Dickey County. (Brandvik).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - KANSAS - Adults 5-15 per 10 sweeps of alfalfa in north-central district. (Simpson).

MEADOW SPITTLEBUG (Philaenus spumarius) - NEW YORK - First nymphs of season found in Tompkins County alfalfa May 19. Spittle masses conspicuous. (N. Y. Wkly. Rpt.). VIRGINIA - Nymphs moderate on 10-acre red clover field in Pittsylvania County. (Dominick). Nymphs found on weeds, clover, and barley; mostly on weeds at edge of grain fields; 5-16 spittle masses per square yard. (Tate, Poyner). MICHIGAN - Young nymphs averaged 1+ per plant in few Jackson County alfalfa and clover fields May 22. (Dowdy). INDIANA - Adults emerging in southern areas; ranged 1-27 (average 4) per sweep in alfalfa. (Huber). WISCONSIN - Many nymphs in third instar in southern fields and in advanced areas in west-central area. Spittle masses noticeable in most fields, although insects scarce in many La Crosse area fields. (Wis. Ins. Sur.). IOWA - Spittle masses observed in most red clover and alfalfa in east-central area. Spittle masses estimated at less than 1 per 10 stems. (Mast).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Continues light in alfalfa in Graham, Cochise, and Pinal Counties; averaged 5-10 per 100 sweeps. Heavier infestations found in Maricopa and Yuma Counties; averaged 20 per 100 sweeps. (Ariz. Coop. Sur.).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - ARIZONA - Increasing rapidly in alfalfa in San Simon area, Cochise County; some damage evident. (Ariz. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Heavy on alfalfa in sandy areas of several fields in Panaca, Lincoln County. Plants drying up due to lack of water and mite damage. (Bechtel, Zoller).

#### SOYBEANS

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSISSIPPI - Light, scattered on young soybeans in Issaquena County. (Dinkins).

#### PEANUTS

TOBACCO THRIPS (Frankliniella fusca) - ALABAMA - Heavy and damaging isolated fields in Henry and other southeast counties. (Hartzog et al.).

#### COTTON

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Adults feeding in squares in Macon County; one adult observed on corn plant in Chilton County. Weevils more numerous on several hundred acres of 6 to 10-leaf cotton than ever observed at East Tallassee, Tallapoosa County. (Leeper et al.). Weevils very heavy on 6 to 8-leaf cotton in Covington County. (Pike). MISSISSIPPI - Weevils present in young cotton in delta counties. Two weevils found in plants pulled for thrips examination at Stoneville. (Pfrimmer et al.). LOUISIANA - None found in 10 fields examined in Madison Parish. Five recovered from 150 trap cotton plants in fields near hibernation sites. (Cleveland et al.). TEXAS - Weevils found in 10 of 23 untreated fields and in 3 of 15 treated fields in McLennan and Falls Counties. Averaged 54 (maximum 450) per acre in untreated fields and 6 (maximum 62) per acre in treated fields. Overall average 36 compared with 50 per acre same week last year. One weevil collected on flight screens. (Cowan et al.).

BOLLWORMS (Heliothis spp.) - LOUISIANA - Very few moths collected from light trap in Madison Parish; 2 H. zea and no H. virescens taken. (Cleveland et al.). TEXAS - Two larvae collected on spiderwort in McLennan and Falls County area and reared to fifth instar determined H. virescens; 20 eggs or larvae collected on various wild hosts and reared to fifth instar determined H. zea; 8 larvae previously

collected on cotton determined H. zea. (Cowan et al.). ARIZONA - Scattered light to moderate infestations of H. zea found in few fields in Pinal and Maricopa Counties. Light terminal damage observed. (Ariz. Coop. Sur.).

BLACK CUTWORM (Agrotis ipsilon) - MISSISSIPPI - Medium to heavy in 12 fields in Tallahatchie County; several fields treated. (Dinkins).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Averaged less than 1 per linear foot in 36 cotton fields inspected in McLennan and Falls Counties. Counts per sweep averaged 15.7 in 2 fields of croton, 8.5 in field of horsemint, and 2.3 in field of wild verbena. (Cowan et al.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Abnormally light in most cotton areas for this time of year. Damage remains very light. (Ariz. Coop. Sur.).

APHIDS - ALABAMA - Aphis gossypii light to medium on young cotton in Colbert County. (Somerville). TEXAS - Aphids light in 8 of 36 fields in McLennan and Falls Counties. (Cowan et al.). NEW MEXICO - Probably Aphis craccivora, light with spotted feeding on seedlings near Roswell, Chaves County. (Mathews). ARIZONA - A. gossypii decreased in Maricopa County; remains light in Yuma, Pinal, and Cochise Counties. (Ariz. Coop. Sur.).

THRIPS - MISSISSIPPI - Average 10-30 per hill in 8 Quitman County fields; 15-20 per hill in 10 Coahoma County fields. (Dinkins). Continue heavy in delta counties. Populations do not appear sufficiently heavy in some locations to account for injury evident on plants. Some damage apparently due to wind and cold. (Pfrimmer et al.). LOUISIANA - Ranged 0-0.73 (average 0.27) per plant in 15 fields planted with treated seed in Madison Parish. Ranged 0.19-1.02 (average 0.52) in 16 untreated fields. Averaged 0.08 and 0.20 in 2 fields planted with treated seed and sprayed. Averaged 0.28 per plant in field sprayed only. (Cleveland et al.). TEXAS - Medium in 6 and light in 15 of 22 untreated fields and light in 14 treated fields in McLennan and Falls Counties. (Cowan et al.). ARIZONA - Frankliniella occidentalis populations apparently decreasing in most cotton areas. Light populations general in all counties. (Ariz. Coop. Sur.).

#### TOBACCO

GREEN PEACH APHID (Myzus persicae) - VIRGINIA - Medium on several plant beds in Pittsylvania County. (Dominick).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - VIRGINIA - Light to heavy on newly set tobacco; beetles more numerous than in 1966. (Dominick).

#### SUGARBEETS

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - COLORADO - Adults very heavy in Weld and Larimer Counties. Peak reached in Fort Collins area with trend of 1 per trap May 22, 19 per trap May 24, and 6 per trap May 26. Same trend in other areas; heavier in some areas with 50-200 per trap per day. (Nelson et al.).

BEEB WEBWORM (Loxostege sticticalis) - COLORADO - Moths in light traps at Two Buttes, Baca County, and at Rocky Ford, Otero County; few larvae observed. (Campbell, Schweissing).

FLEA BEETLES - COLORADO - Numerous south of Rocky Ford and Swink, Otero County, and around Granada, Prowers County. (Schweissing).



## POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MARYLAND - Adults above normal on potatoes and tomatoes in south areas. (U. Md., Ent. Dept.). NEW JERSEY - Light on many potato and tomato fields in southern and central counties. (Ins.-Dis. Newsltr.). MISSOURI - Eggs hatched in Portageville area. (Wkly. Rpt. Fr. Grs.).

POTATO APHID (Macrosiphum euphorbiae) - NEW JERSEY - Light on many potato and tomato fields in southern and central counties. (Ins.-Dis. Newsltr.).

POTATO TUBERWORM (Phthorimaea operculella) - ALABAMA - Large numbers of adults dead on ground in field examined in Baldwin County May 18 following 2 insecticide applications. Major second-generation moth flight has apparently occurred in area. (Leeper et al.).

SEED-CORN MAGGOT (Hylemya platura) - MICHIGAN - Larvae in roots of tomato plants in fields with high organic content indicate special problem in many areas. (Tatter et al.).

## BEANS AND PEAS

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Migrating into peas in Spring Green area; only trace numbers present. (Wis. Ins. Sur.). MARYLAND - Much below normal on commercial peas on Eastern Shore. (U. Md., Ent. Dept.).

COWPEA APHID (Aphis craccivora) - ALABAMA - Heavy, with several hundred per plant, on peas in several Geneva County fields. (Leeper). CALIFORNIA - This species and Rhopalosiphum padi medium on bean plantings in Firebaugh, Fresno County. (Cal. Coop. Rpt.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - First adults of season May 22 on young snap beans in Prince Georges County. (U. Md., Ent. Dept.).

## COLE CROPS

CABBAGE MAGGOT (Hylemya brassicae) - NEW YORK - Large numbers of eggs found at bases of cabbage plants in Orleans, Niagara, and Genesee Counties. Eggs observed on cauliflower in Erie County May 18. (N. Y. Wkly. Rpt.).

FLEA BEETLES - Active May 18 on newly emerged, directly seeded, crucifers in Newburgh area, Orange County. Damaged cabbage seedbeds in Ontario County. (N. Y. Wkly. Rpt., May 22).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Severe on cabbage at Sanford. (Greene et al.). COLORADO - None found on lettuce in Otero County. (Schweissing).

## CUCURBITS

SERPENTINE LEAF MINER (Liriomyza brassicae) - GEORGIA - Moderate on watermelon leaves in Wheeler County. (Harris).

MELON APHID (Aphis gossypii) - ARIZONA - Continues light in cantaloup fields of Yuma County. Some controls necessary. (Ariz. Coop. Sur.).

## GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Larvae and pupae on 100 of 240 stalks of 10 crates of celery at Lake Jem, Lake County. (Simpson, May 16).

CUTWORMS - VERMONT - Damaged asparagus. (MacCollom). CONNECTICUT - May be problem again this year. Vegetable growers urged to apply controls to susceptible crops. (Savos, May 24).

SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata) - WASHINGTON - Adults noted on volunteer asparagus along roadside at Prosser, Benton County. (Landis, May 19).

ONION THRIPS (Thrips tabaci) - COLORADO - Averaged 10 per transplanted onion plant; seeded onions too small to support population. (Schweissing).

ONION MAGGOT (Hylemya antiqua) - NEW YORK - Adults observed May 12 in Suffolk County. (N. Y. Wkly. Rpt.). NEW JERSEY - Very light on scallions in Cumberland County; 5 on 5 sticky boards at Cedarville May 23. (Ins.-Dis. Newsltr.). COLORADO - Adults decreased in Vineland area of Pueblo County. (Schweissing).

SEED-CORN MAGGOT (Hylemya platura) - NEW JERSEY - Total of 500 on 5 sticky boards at Cedarville May 23. (Ins.-Dis. Newsltr.).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Moderate on green onions at Washington, Washington County. (Knowlton).

## WEATHER OF THE WEEK ENDING MAY 29

**HIGHLIGHTS:** Severe storm hits New England as long cold spell continues. Dry Southeast gets heavy showers, warm and showery in Corn Belt.

**PRECIPITATION:** Early week thundershowers dumped drought-relieving rains over much of Florida and nearby portions of other States. Gainesville, Florida, received more than 3.5 inches and Charleston, South Carolina, more than 7 inches. General rains late in the week brought beneficial amounts from Utah across the Corn Belt to Ohio and heavy rains with some snow to New England. Precipitation was generally light or widely scattered west of the Continental Divide. Wide areas from Texas to western Tennessee received no rain; it was the driest week since mid-April in Pennsylvania.

**SEVERE STORMS:** One of the most intense late May storms in history doused New England on the 25th and 26th with 2 to more than 7 inches of cold rain over the southern portions. Sleet and snow fell over some western parts of New England and snow accumulated to 9 inches in southwestern New Hampshire. Hurricane-force winds caused extreme high tides and heavy damage in some coastal areas. Violent weather also occurred in the central Plains as heavy rain, hail, and wind gusts to 70 m.p.h. lashed north-central Kansas and south-central Nebraska on the 26th. Some Kansas localities reported hail drifts 2 or 3 feet in depth with heavy crop losses.

Weather continued on page 473.

## DECIDUOUS FRUITS AND NUTS

**CODLING MOTH** (*Carpocapsa pomonella*) - WASHINGTON - Adults ranged 1-5 per sex lure trap at Parker, west Wapato, Parker Heights, and Nob Hill in Yakima County, May 5; 181 taken at another location on Parker Heights. (Hudson). MISSOURI - Few entries in unsprayed orchard in central area only. (Wkly. Rpt. Fr. Grs.). INDIANA - Renewed flight activity as temperatures rose; 30 males taken in 2 virgin female traps; this is 33-percent increase over previous week. (Dolphin, May 22). OHIO - Moths emerging in increasing numbers in Wayne County. (Forsythe). Apple development slow in north-central area. (Rings). NEW YORK - Trap and tree-band records indicate no moth flight as of May 18 in eastern part of State. (N. Y. Wkly. Rpt.).

**ORIENTAL FRUIT MOTH** (*Grapholitha molesta*) - MISSOURI - Moths active in southeast area; few entries on unsprayed peaches. (Wkly. Rpt. Fr. Grs.). INDIANA - Only 4 adults in bait pans; all larval sizes in peach fruit in an abandoned orchard. (Dolphin, May 22).

**EYE-SPOTTED BUD MOTH** (*Spilonota ocellana*) - VERMONT - Larvae active in various areas of State. (MacCollom).

**RED-BANDED LEAF ROLLER** (*Argyrotaenia velutinana*) - MISSOURI - Adults emerged from larvae collected in central area. (Wkly. Rpt. Fr. Grs.). INDIANA - Adult activity again low. (Dolphin, May 22).

**FRUIT-TREE LEAF ROLLER** (*Archips argyrospilus*) - MARYLAND - Small larvae on apple foliage in orchard at Hancock, Washington County. (U. Md., Ent. Dept.). CONNECTICUT - Egg masses hatched in most of State. (Savos, May 24).

**PECAN NUT CASEBEARER** (*Acrobasis caryae*) - OKLAHOMA - Hatch light in Choctaw County; no eggs in Tulsa County; overwintering larvae heavy in Mayes County. (Okla. Coop. Sur.). GEORGIA - Light in Dougherty County pecans. (Osburn et al.).

**A CHERRY LEAF MINER** (*Nepticula slingerlandella*) - MICHIGAN - Adult emergence, 10 days earlier than last year, started at Lawrence May 14, Oshtemo May 17; two eggs collected in 100-leaf sample. Distribution confined to few Berrien and Oceana County orchards. (Hillmann, Wooley).

**AN AEGERIID MOTH** (*Sanninoidea* sp.) - NEW MEXICO - Averaged 0-3 larvae per tree but serious in peach and plum orchards at Los Lunas, Valencia County. (Heninger).

**LESSER PEACH TREE BORER** (*Synanthedon pictipes*) - INDIANA - Males captured in virgin female traps dropped to 46, continuing downward trend in a Vincennes orchard. (Dolphin, May 22).

**FALL WEBWORM** (*Hyphantria cunea*) - INDIANA - Increasing in light trap in orchard at Vincennes. (Dolphin, May 22).

**ROSY APPLE APHID** (*Dysaphis plantaginea*) - MISSOURI - More numerous early in season than first believed; many rosettes noted on unsprayed trees. (Wkly. Rpt. Fr. Grs.). MARYLAND - Heavy numbers persist in deserted Hancock orchards. (U. Md., Ent. Dept.). CONNECTICUT - Very low in most commercial orchards; rapid increase expected since stem mothers present. (Savos, May 24).

**WOOLLY APPLE APHID** (*Eriosoma lanigerum*) - IDAHO - Moderate in orchard near Caldwell, Canyon County. (Homan). ALABAMA - Medium to heavy, with root damage on apple trees in Coosa County. (Leeper).

**APHIDS** - NEW MEXICO - *Myzus persicae* curling leaves in peach orchards at Los Lunas, Valencia County. (Heninger). MAINE - *Rhopalosiphum fitchii* stem mothers and nymphs on young apple trees in Monmouth area May 16. (Boulanger). CONNECTICUT - *Aphis pomi* very low in most commercial orchards; rapid increase expected since stem mothers present. (Savos, May 24).

PEAR PSYLLA (Psylla pyricola) - IDAHO - Nymphs in pear orchard May 12 at Caldwell, Canyon County. (Homan). CONNECTICUT - All spring-laid eggs hatched in New Haven and Storrs. (Savos, May 24).

PECAN PHYLLOXERA (Phylloxera devastatrix) - OKLAHOMA - Moderate on pecans in Cleveland and Washington Counties. (Okla. Coop. Sur.).

SPITTLEBUGS - GEORGIA - Adults light to moderate on pecan in Dougherty County (Hays, Harris); eggs on leaf petioles (Tedders, Osburn).

APPLE CURCULIO (Tachypterellus quadrigibbus) - ALABAMA - Numerous adults, in over 50 percent of fruit on some trees, emerged from wild cherry in Lee, Jefferson, and other areas of State. (Griffin et al.).

PLUM CURCULIO (Conotrachelus nenuphar) - INDIANA - Eggs hatched on peaches. (Dolphin, May 22).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - CONNECTICUT - Large numbers of adults active in Storrs area. (Savos, May 24).

A SAWFLY (Pristiphora californica) - OREGON - Up to 4 full-grown larvae per leaf infested unsprayed pear trees in Marion County. (Goeden).

TARNISHED PLANT BUG (Lygus lineolaris) - VERMONT - Activity increased in several areas with warm weather. (MacCollom). MAINE - Active on fruit buds in Monmouth May 16. (Boulanger).

EUROPEAN RED MITE (Panonychus ulmi) - INDIANA - Mobile forms low; ranged 0.08-0.54 per leaf in 1 Vincennes orchard. (Dolphin, May 22). NEW YORK - Present on apples in Columbia County, especially where no oil spray applied; more than 50 percent hatched in Niagara area. (N. Y. Wkly. Rpt., May 22). CONNECTICUT - Adults not laying; low in most of State but moderate in New Haven. (Savos, May 24).

ORCHARD MITES - MARYLAND - Good control in sprayed apple orchards at Hancock, Washington County. (U. Md., Ent. Dept.). IDAHO - Tetranychus mcdanieli in 11 of 13 orchards in Canyon, Gem, and Payette Counties, May 12; severe in 3; averaged 50 mites per leaf on inner half of trees. (Portman).

#### SMALL FRUITS

SAP BEETLES - FLORIDA - Adults of Haptoncus luteolus, Lobiopa insularis, and Carpophilus hemipterus, and larvae of Carpophilus sp. infested strawberry fruit at farm near West Palm Beach, Palm Beach County. (Dowling, May 19).

STRAWBERRY CROWN BORER (Tyloclerum fragariae) - GEORGIA - Heavy on strawberry plants in Jones County. (Wilcox).

CUTWORMS - MASSACHUSETTS - Defoliated several cranberry bogs not winter flooded in Plymouth County; prospective crop seriously affected. (Tomlinson, May 20).

SPITTLEBUGS - MINNESOTA - Problem in some strawberry fields in St. Paul area. (Minn. Ins. Rpt.).

#### ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - OKLAHOMA - Moderate to heavy, damaging juniper in several areas of Oklahoma County. (Okla. Coop. Sur.). NEBRASKA - Eggs hatching in Lincoln, Lancaster County. (Roselle).

A WALSHIID MOTH (Periploca nigra) - CALIFORNIA - Larvae medium on prostrate junipers in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

BEEET ARMYWORM (Spodoptera exigua) - FLORIDA - Larvae, mostly this species, heavily damaged 10 percent of 40 plants of gladiolus and severely infested 10 percent of 1 acre of carnations, at Cortez, Manatee County. (Bickner, McFarlin, May 16).

HOLLYHOCK WEEVIL (Apion longirostre) - OREGON - Collected from hollyhock flower buds at Milton-Freewater, Umatilla County, by K. Goeden in June 1966. Det by R. E. Warner. This is a new county record. First collected in State by J. Schuch during July 1964 in Jackson County. (Larson).

APHIDS - CALIFORNIA - Toxoptera aurantii medium on camellia at Fresno, Fresno County. Macrosiphum euphorbiae, Acyrtosiphon solani, and Aphis gossypii heavy on rhododendron nursery stock at Sacramento, Sacramento County. (Cal. Coop. Rpt.).

#### FOREST AND SHADE TREES

EASTERN TENT CATERPILLAR (Malacosoma americanum) - OHIO - Pupating in southern area. (Mowbray). Defoliation of wild cherry complete and extensive in most southern counties, but trees not killed. Webbing and larval activity noted further north than last year. Occurred on roadside crab apple trees through Hardin County and in southern Hancock County. Numbers greater than 1966 occurred in Mohican State Forest in Ashland County; larvae defoliated 25-50 percent of many wild cherries. (Rose). PENNSYLVANIA - Heavy on cherry and other host trees in southeast Berks and western Montgomery Counties. (Eshelman). DELAWARE - Larvae migrating in many areas of State; wild cherry injured in isolated areas of New Castle and Kent Counties. (Burbutis).

FOREST TENT CATERPILLAR (Malacosoma disstria) - COLORADO - Eggs hatched in Fort Collins, Larimer County. (Kincaid, May 19). MINNESOTA - Eggs hatched May 22-23 in heavily infested area at International Falls. (Minn. Ins. Rpt.).

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) - UTAH - Very serious around Toquerville, less damage in St. George and Santa Clara areas, Washington County. (Thornley, May 15).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - OHIO - Larvae pupating in terminals of red pine in most areas. Some heavy larval populations observed in the Mohican State Forest, Ashland County. (Campbell).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - First generation pupated in Chilton County; damage severe on 60 percent of growing tips of 3 to 6-foot loblolly pines planted as ornamentals on many lawns. Light locally on pines at Decatur, Morgan County. Larvae killed 2-3 inches of pine tips. Larvae ranged 2-3 on many tips. Pupation later than further south in Chilton County. (Futral et al.). ARKANSAS - Damage light during first brood activity. Pupae in pine tips; adult emergence underway. (Warren).

ELM LEAF BEETLE (Pyrhalta luteola) - NEVADA - Adults and eggs present in Panaca, and adults, eggs, and first instars present in Caliente, Lincoln County. Adult damage and egg numbers above 1966 levels; damage will be above that of previous years. (Bechtel, Zoller). OHIO - Adults active and ovipositing on elm leaves in Scioto County. (Mowbray). Larval damage to ornamental elms expected soon in southern and central counties. (Rose). MARYLAND - Adults very active on and destructive to Chinese elms in Caroline and Montgomery Counties. (U. Md., Ent. Dept.). ALABAMA - First-generation larvae general and widespread in Lee, Chilton, and other central counties. Damage very light. (Futral et al.).

NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) - NORTH DAKOTA - Adults collected in window traps at Forman and Oakes. These are first records for Dickey and Sargent Counties. (Brandvik).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - WISCONSIN - No pupation observed in Dane County as of May 24. (Wis. Ins. Sur.).

CALIFORNIA FIVE-SPINED IPS (Ips confusus) - OREGON - Killed small group of native ponderosa pine near Crawfordsville in Linn County, at elevation of 300-400 feet. First report this far north and at this low elevation of State. Records to date indicate occurrence around 2,000 feet as far north as Medford area. Emerged near Jacksonville, Jackson County, from ponderosa pine on May 1. (Kline).

WILLOW FLEA BEETLE (Rhynchaenus rufipes) - NEW HAMPSHIRE - Adults reported feeding on partially expanded leaves of Salix pentandra (laurel willow) trunk suckers at Durham May 19. (Sutherland).

COOLEY SPRUCE GALL APHID (Adelges cooleyi) - OREGON - Eggs hatched week of May 21 in Multnomah County on ornamental fir and spruce. (Larson).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - MINNESOTA - Development appears late. (Minn. Ins. Rpt.). OHIO - Infested 3 acres of hemlock with about 5 percent foliage loss in Columbiana County. Serious on every hemlock in planting. Eggs hatched and large numbers of nymphs present on foliage. (Custer, Kelly).

PINE SPITTLEBUG (Aphrophora parallela) - MARYLAND - Spittle masses very heavy on Virginia pines near Greenbelt, Prince Georges County; infesting loblolly pines in Somerset and Worcester Counties. (U. Md., Ent. Dept.).

PINE SAWFLIES (Neodiprion spp.) - OHIO - N. sertifer larvae continue to damage pines in scattered locations over most of State. Red pines appear most severely damaged and infestations involving up to 75-100 percent destruction of old needles reported. (Hanson et al.). Few males of N. lecontei emerged in Wayne County; cocoons observed in Lake County pine plantings. (Campbell). N. pratti larvae reported on shortleaf pines in Shawnee and Brush Creek State Forests in Scioto County; approximately 100 acres involved in Brush Creek State Forest. (Hanson).

BIRCH LEAF MINER (Fenusa pusilla) - NEW HAMPSHIRE - First adults noted on birches at Dover and Durham. (Mason, Morse, May 22). VERMONT - Mining leaves of birch in Burlington area May 29. (MacCollom). CONNECTICUT - Large numbers of adults very active; past egg laying heavy. Eggs hatched earlier in warm sections of State. (Savos, May 27).

#### MAN AND ANIMALS

MOSQUITOES - UTAH - Annoying in Benson and Trenton areas, Cache County, and at Mendon. (Knowlton). COLORADO - Culiseta inornata adults low at Estes Park, Larimer County. (Wellso, Thatcher). Aedes sp. larvae light in ponds at Fort Collins, Larimer County. (Ronald). MINNESOTA - Aedes fitchii, A. excrucians, and Culiseta inornata dominated 1,026 larval samples taken week ending May 20. Only 149 adults for 112 trap nights caught; C. inornata totaled 119. (Minn. Ins. Rpt.). WISCONSIN - Adults emerging in localized areas in few central and northern counties, particularly flooded areas near streams. Emergence minimal and no significant problems noted. (Wis. Ins. Sur.). OHIO - First adults of season in incandescent light trap at Toledo; A. stimulans dominant of 5 species collected. (Brockway). Aedes spp. annoying in wooded areas from central to northeastern area. (Rings). FLORIDA - Generally light in State due to drouth. During early May, Aedes taeniorhynchus heaviest based on light trap samples in Collier and Lee Counties; salt-marsh species almost tripled and fresh water species declined about one-fifth in light traps in a grove west of Vero Beach, Indian River County, May 15-19. (Kendrick et al.).

HORN FLY (Haematobia irritans) - IDAHO - Ranged 15-50 per animal in 8 beef herds in Latah, Benewah, Nez Perce, and Clearwater Counties. (O'Keeffe et al.). OKLAHOMA - Averaged 1,500 per head on yearlings and 3,000 per head on bulls in Payne County; ranged 400-500 per head on cows in Major and Woodward Counties; heavy in Marshall County; moderate in Cleveland and Mayes Counties. (Okla. Coop. Sur.). MISSISSIPPI - Average counts per animal by county: Pike 50, Hinds 40, Madison 350, Holmes 350, Attala 300, Tallahatchie 30. (Dinkins). WISCONSIN - First adults of season in Calumet County; annoyance to cattle light. (Wis. Ins. Sur.). IOWA - Light on cattle in central and east-central areas. (Iowa Ins. Sur.).

FACE FLY (Musca autumnalis) - IDAHO - Ranged 2-35 per animal in 5 herds of cows and calves in Latah, Benewah, and Clearwater Counties; cool, windy weather affected activity. Clearwater new county record. (O'Keeffe et al.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Averaged 8 per head on dairy cattle in Payne County. (Okla. Coop. Sur.).

SCREW-WORM (Cochliomyia hominivorax) - Total of 4 cases reported in U. S. May 21-27 as follows: TEXAS - Bandera 1, Terrell 1, Atascosa 1, Willacy 1. Total of 83 cases reported in portion of Barrier Zone in Republic of Mexico May 14-20 as follows: Baja California 2, Territorio sur de Baja California 36, Sonora 6, Chihuahua 3, Coahuila 1, Nuevo Leon 6, Tamaulipas 29. Ten cases reported in Mexico south of Barrier Zone. Barrier zone is area where eradication operation underway to prevent establishment of self-sustaining population in U. S. Sterile flies released May 21-27: Texas 21,908,000; Arizona 1,508,000; Mexico 128,288,000. (Anim. Health Div.).

HORSE FLIES (Tabanus spp.) - OKLAHOMA - Probably T. lineola complex moderate, annoying livestock in Choctaw County. (Okla. Coop. Sur.). MISSISSIPPI - Five hundred cattle checked in Washington County averaged 2 Tabanus spp. per animal; some, as high as 30 flies. (Dinkins).

CATTLE GRUBS (Hypoderma spp.) - NORTH DAKOTA - Larvae 1-2 per head in few animals at Dickinson, Stark County. (Brandvik).

A CIMICID BUG (Ornithocoris pallidus) - ALABAMA - Collected in martin house in early September 1966 at Troy, Pike County, by O. Schomberg for new State record. Det. by J. L. Herring. (Schomberg). Described from Brazil; previously known only from Florida and Georgia. (PPC).

WESTERN CHICKEN FLEA (Ceratophyllus niger) - IDAHO - Adults collected in home at Rexburg, Madison County, April 6, 1967, by F. Jacobs for new State record. Det. by C. F. W. Muesebeck. (O'Keeffe). May be found in large numbers during spring and summer in many western chicken houses. Uncontrolled infestation results in drop in egg production. Bites man freely. (PPC).

TICKS - WISCONSIN - Continue nuisance over northern two-thirds of State; reported as far south as Sauk County. (Wis. Ins. Sur.). MASSACHUSETTS - Dermacentor variabilis active in Plymouth and Barnstable Counties since late April. (Tomlinson, May 20). CONNECTICUT - D. variabilis unusually heavy in parts of State. (Savos, May 27). OKLAHOMA - Amblyomma americanum moderate on livestock and man in Mayes County; light on dogs and cattle in Marshall County. (Okla. Coop. Sur.). COLORADO - D. andersoni low, occasionally collected in foothills of Larimer County. (Wellso, Hantsbarger).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - NEW JERSEY - Moderate on chickens in caged layer house near Moorestown. (Ins.-Dis. Newsltr.).

## BENEFICIAL INSECTS

LADY BEETLES - NEVADA - Mostly Hippodamia convergens heavy in all alfalfa checked in Moapa Valley, Clark County, and Panaca and Pahrnagat Valley, Lincoln County. (Bechtel, Zoller). UTAH - H. convergens active but light at Price, Carbon County, and at several locations in Cache County. (Knowlton). IOWA - H. convergens and Coleomegilla maculata adults very abundant on alfalfa and red clover in central and east-central areas. (Mast).

DAMSEL BUGS - NEVADA - Heavy on all alfalfa checked in Moapa Valley, Clark County, and at Panaca and the Pahrnagat Valley, Lincoln County. (Bechtel, Zoller). IOWA - Adults very abundant on alfalfa and red clover in central and east-central areas. (Mast). MASSACHUSETTS - Nabis ferus light on alfalfa in Hampshire and Berkshire Counties. (Miller).

ANTHOCORID BUGS - NEVADA - Minute pirate bugs heavy in all alfalfa checked in Moapa Valley, Clark County, and Panaca and the Pahrnagat Valley, Lincoln County. (Bechtel, Zoller). ARKANSAS - Orius insidiosus adults 25-30 in 100 sweeps of alfalfa in northwest area; no reproduction evident. (Ark. Ins. Sur.).

BIG-EYED BUGS - NEVADA - Heavy in all alfalfa checked in Moapa Valley, Clark County, and at Panaca and the Pahrnagat Valley, Lincoln County. (Bechtel, Zoller).

LACEWINGS - IOWA - Adults and larvae numerous in pea aphid infested alfalfa and clover. (Mast).

PREDACIOUS MITES - IDAHO - Up to 3-4 Typhlodromus occidentalis per leaf in 6 of 11 orchards infested with Tetranychus mcdanieli in Canyon, Gem, and Payette Counties. Zetsellia sp. feeding on Panonychus ulmi in abandoned orchard near Fruitland. (Portman).

## FEDERAL & STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - WISCONSIN - Few small nymphs of Melanoplus spp. detected in sandy areas near Spring Green. (Wis. Ins. Sur.). MINNESOTA - Melanoplus bivittatus eggs segmented and fully formed in southwest district; hatch expected in about 7 days if warm weather continues. M. femurrubrum eggs in coagulation stage; hatch not expected until June. Grasshopper infestations in southwest district should be very localized, with economic numbers appearing in scattered fields and roadsides. (Minn. Ins. Rpt.). NORTH DAKOTA - Light hatch underway in western area. Few first-instar nymphs of M. bivittatus observed in Morton and McKenzie Counties. (Brandvik). SOUTH DAKOTA - Hatch light in favorable locations in western area. M. bivittatus hatching in sandy areas along the Cheyenne River in Meade County near Howes May 15; light hatches followed along Cheyenne River in eastern Fall River, Custer, and Pennington Counties and at Scenic in southeastern Pennington County. Light hatches of M. confusus, Ageneotettix deorum and Aulocara elliotti noted in western Custer and Fall River Counties on rangeland. (Burge, Zimmerman). NEBRASKA - Hatch about complete in panhandle area. (Hagen, Andersen). OKLAHOMA - Ranged 4-35 per square yard in northwest and west-central counties. Threatening populations (10-35 per square yard) found in short range grass in northeast Woodward, eastern Harper, northwest Major, and southwest Woods Counties. Most in first and second instars. Grassland counts in Blaine, Dewey, and Ellis Counties ranged 4-15 per square yard; population higher on short range grass. Occasional second or third instars of Brachystola magna noted in Ellis County. Crop margin and roadside populations in this area ranged 5-20 per square yard. Counts remain light in east-central counties; 1-3 per square yard. (Okla. Coop. Sur.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Total of 14,283 adults taken in wet traps but none in Steiner traps in Dade County, week of May 6-12. (Fla. Coop. Sur.).



CEREAL LEAF BEETLE (*Oulema melanopus*) - MICHIGAN - No egg hatch observed in any county May 24. (Haynes, Gomulinski).

CUBAN MAY BEETLE (*Phyllophaga bruneri*) - FLORIDA - Adults taken on Florida trema May 9 extended northern boundary by 1.25 miles in Miami. (Swanson, Hickman). Blacklight trap counts and less defoliation of ornamentals indicate populations lower than in 1966. (Habeck, Swanson).

FORMOSAN SUBTERRANEAN TERMITE (*Coptotermes formosanus*) - TEXAS - New infestation found in timbers in pipe storage yard at Houston. LOUISIANA - Two new infestations found in Orleans Parish. (PPC South. Reg., Apr. Rpt.).

GYPSY MOTH (*Porthetria dispar*) - NEW HAMPSHIRE - First eggs hatched May 19 at Rochester. (Ely). VERMONT - First egg hatch observed at Bridport on May 19. (Rambo). Hatched at Milton May 17. (Belding). RHODE ISLAND - Hatched in Johnston, Providence County, May 8. (D'Andrea, Hartley). NEW YORK - Larvae appeared May 17 at Nissequogue and May 15 at San Remo. High degree of parasitism reported in Mt. Sinai area by *Apanteles* sp. (a broconid wasp) and *Ooencyrtus kuvanae* (an enyrtid wasp). Controls planned on 670 acres in 2 areas of Suffolk County. (N. Y. Wkly. Rpt., May 22). NEW JERSEY - First hatch of season reported April 21 in vicinity of Heislerville, Cumberland County. (PPC East. Reg.).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - ALABAMA - Survey conducted in 16 counties; found for first time in Cherokee, Marshall, and Winston Counties. MISSISSIPPI - Found for first time in Yalobusha County. (PPC South. Reg., Apr. Rpt.). ARKANSAS - Several mounds found on banks of Lake Georgia Pacific, Ashley County, week of May 8; 5 or more miles north of scheduled 120,000-acre treatment area. Positive finds, also outside treatment area, found at Crossett, Ashley County, and in Union County, week of May 15. (Frazier).

JAPANESE BEETLE (*Popillia japonica*) - NORTH CAROLINA - First adult of season trapped at New Hanover County airport at Wilmington May 18. (Mercer).

MEXICAN FRUIT FLY (*Anastrepha ludens*) - TEXAS - Several properties in Hidalgo County inspected; 6 larvae found in one grapefruit. (PPC South. Reg., Apr. Rpt.).

ORIENTAL WOOD BORER (*Heterobostrychus aequalis*) - FLORIDA - Larvae, probably this species, found in mahogany lumber at West Palm Beach (Dowling et al.); adult in blacklight trap at South Miami (Swanson, May 17).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - ALABAMA - Extension of infested area found in Baldwin County; larval damage to crops noted in Covington, Geneva, Houston, and Monroe Counties. (PPC South. Reg., Apr. Rpt.).

## INSECT DETECTION

### New State Records

A HOVER FLY (Platycheirus quadratus) - FLORIDA - Adult swept from oats in Calhoun County, 8 miles north of Blountstown. Det. by H. V. Weems. (Whitehead, Apr. 18).

A WEEVIL (Polydrusus impressifrons) - OREGON - Collected in blacklight trap at Beaverton, Washington County, during May 1965. Det. by R. E. Warner. (Goeden).

A CIMICID BUG (Ornithocoris pallidus) - ALABAMA - Collected in martin house in early September 1966 in Pike County, by O. Schomberg. Det. by J. L. Herring. (p. 469).

WESTERN CHICKEN FLEA (Ceratophyllus niger) - IDAHO - Adults collected in home in Madison County, April 6, 1967, by F. Jacobs. Det. by C. F. W. Muesebeck. (p. 469).

### New County Records

ALFALFA WEEVIL (Hypera postica) - MICHIGAN - Jackson and Ingham Counties. MISSOURI - Audrain, Marion, Pettis, Ralls, and Saline Counties. KANSAS - Russell County. (p. 459).

HOLLYHOCK WEEVIL (Apion longirostre) - OREGON - Umatilla County. (p. 467).

CALIFORNIA FIVE-SPINED IPS (Ips confusus) - OREGON - Killed ponderosa pine in Linn County. (p. 468).

NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) - NORTH DAKOTA - Adults in window traps in Dickey and Sargent Counties. (p. 468).

FACE FLY (Musca autumnalis) - IDAHO - Clearwater County. (p. 469).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ALABAMA - Cherokee, Marshall, and Winston Counties. MISSISSIPPI - Yalobusha County. (p. 471).

## CORRECTIONS

CEIR 17(19):386 - CUCURBITS - GREEN PEACH APHID (Myzus persicae) - should read: MELON APHID (Aphis gossypii) - ARIZONA - Damaging and requiring controls on cantaloups in Yuma County. (Ariz. Coop. Sur.).

CEIR 17(21):447 - SPRUCE GALL APHIDS (Adeleges spp.) should read Adelges spp.

CEIR 17(21):448 - MOSQUITOES - MINNESOTA - Culiseta inorata should read Culiseta inornata.

CEIR 17(21):448 - MOSQUITOES - LOUISIANA - Culex pipiens quinquefasciatus should read Culex pipiens quinquefasciatus.

CEIR 17(21):448 - TABANID FLIES - Hybometria lasiophthalmus should read Hybometra lasiophthalma.

HAWAII INSECT REPORT

Sugarcane - NEW GUINEA SUGARCANE WEEVIL (*Rhabdoscelus obscurus*) increasing in some cane fields at Lihue, Kauai. Catch per trap during past week averaged 102 adults, more than double catch of earlier 2-week period in May. (Au).

Vegetables - PEPPER WEEVIL (*Anthonomus eugenii*) adults light, larvae medium in bell pepper planting in Hauula, Oahu. Larvae damaged flowers. (Sato). All stages of SOUTHERN GARDEN LEAFHOPPER (*Empoasca solana*) heavy, average 56 per sweep, on cowpeas in home gardens at Kaunakani, Kauai. (Au).

Fruits and Nuts - Larval damage of an OLETHREUTID MOTH (*Cryptophlebia* sp.) light to moderate on husks of macadamia nuts at Honokaa, Hawaii Island. (Yoshioka).

Ornamentals - Windblown from heavily infested fiddlewood trees, BARNACLE SCALE (*Ceroplastes cirripediformis*) nymphs building up on various ornamentals in residential Kaneohe, Oahu. (Funasaki).

General Pests - SOUTHERN GREEN STINK BUG (*Nezara viridula*) nymphs heavy on avocado trees in residential Waialae-Kahala at Honolulu, and medium to heavy in mustard-cabbage planting at Waianae, Oahu. Adult damage moderate to small lima bean plantings at Kahului, Maui. Nymphs and adults medium on hibiscus in Kona area on Hawaii. (Mitchell et al.). CHINESE ROSE BEETLE (*Adoretus sinicus*) heavily damaged backyard roses and plums at Kohala, Hawaii Island, and corn and roses at Makawao, Maui. (Iwane, Miyahira). GIANT AFRICAN SNAIL (*Achatina fulica*) continues heavy in wilds and residential areas of Hana and Kahului, Maui. Surveillance and eradication measures continue at Kailua-Kona, Hawaii, and Wahiawa Gulch, Kauai, where localized infestations were discovered in April. (Akaka, Nakaio).

Beneficial Insects - Adults of a TACHINA FLY (*Trichopoda pennipes* var. *pilipes*) very active and numerous at Kahului, Maui. Of 273 southern green stink bug adults, 93 percent bore Trichopoda eggs. (Miyahira).

Weather continued from page 464.

TEMPERATURE: Temperatures averaged above normal from the interior valleys of California to Indiana and from Canada to Oklahoma and below normal from the Great Lakes to the Atlantic in the North and from Texas to the Atlantic in the South. It was the second cool week in the Great Basin, the eighth cool week in New England and the 1st mild week since mid-April over the Corn Belt. Rapid warming occurred over the Southwest early in the week. Temperatures at Roswell, New Mexico, ranged from 47° Tuesday to 98° on the same day. Summer heat at midweek pushed afternoon temperatures in the western portion of the Corn Belt above the century mark. Omaha, Nebraska, registered 100° on two days and Tyndall, South Dakota, reported 105°. Cooler air arrived in the Plains late in the week. Sioux City, Iowa, registered 102° on Thursday but no higher than 56° on Sunday. Warm followed by cold came later in the week in the Northeast. Cleveland, Ohio, registered maximums of 90° and 66° on Saturday and Sunday, respectively. Maximums in the 90's were common in the Southeast on Sunday - example, 97° at Charleston, South Carolina. (Summary Supplied by Environmental Data Service, ESSA.)









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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

Survey and Detection Operations  
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Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMY CUTWORM damaging alfalfa in Nevada and Utah; reported for first time in Missouri. (pp. 477, 478). EUROPEAN CORN BORER moths appearing in several areas. LESSER CORNSTALK BORER unusually heavy in corn in Georgia. SEED-CORN BEETLE reduced corn stands in Iowa and Illinois. (p. 478). BROWN WHEAT MITE damaging wheat in several areas of Utah and Nevada. (p. 479).

ALFALFA WEEVIL most damaging insect in Ohio; larvae increasing in Colorado, high in other areas; controls increased in northern New Jersey. (pp. 480, 481). PEA APHID continues above normal on alfalfa for this time of year in Arkansas; building up in Colorado and New Mexico. (pp. 481, 482).

BOLL WEEVIL increased in Waco area of Texas; ranged light to medium in northern Alabama; emergence very light in Florence area of South Carolina. THRIPS light to heavy in untreated cotton in southern Tennessee; continue heavy in delta counties of Mississippi. (pp. 483, 484).

POTATO TUBERWORM larvae heavy on potatoes in Baldwin County, Alabama; up to 40 percent damage in some samples at packing sheds. (p. 484). Major emergence of RED-BANDED LEAF ROLLER summer-brood adults occurred at Vincennes, Indiana. LESSER PEACH TREE BORER male captures increased at some locations; damaged peaches in several areas of New Mexico. (p. 486). CITRUS THRIPS continues to damage citrus fruit in Yuma and Maricopa Counties, Arizona; extending southern range in California. (p. 488).

MOSQUITOES annoying field workers in Alabama and Maryland; annoyance increasing in Utah. HORN FLY counts high on cattle in Mississippi; lighter than usual in Arkansas. (p. 491).

GRASSHOPPERS threatening in several areas of Oklahoma. (p. 494).

Detection

New State records include ARMY CUTWORM (p. 477) and MEADOW SPITTLEBUG (p. 482) in Missouri.

For new county and island records see page 494.

Prediction

EUROPEAN APPLE SAWFLY injury may be greater this year in Massachusetts than in 1966. (p. 487).

Special Reports

Identification of the Coffee Bean Weevil (pictorial key). (p. 496).

Distribution of Asiatic Oak Weevil. (map) (p. 497).

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WEATHER BUREAU'S 30-DAY OUTLOOK

JUNE 1967

The Weather Bureau's 30-day outlook for June calls for temperatures to average below seasonal normals over most of the Atlantic Coast States, the southern Plains, and the western third of the Nation except for near normal in the Pacific Northwest. Above normal temperatures are expected in the upper Mississippi Valley and the Great Lakes region as well as most of the gulf coast and Florida. In unspecified areas near normal temperatures are in prospect. Precipitation is expected to exceed normal over most of the western half of the Nation and also along the middle and north Atlantic coast. Subnormal totals are indicated for the north Pacific coast, the Great Lakes region, and Florida. Elsewhere near normal precipitation is in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

For Weather of the Week see page 498.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMYWORM** (*Pseudaletia unipuncta*) - MARYLAND - Adults 2-3 per night in blacklight traps on Eastern Shore. Small larvae light in corn and small grains in Somerset County. (U. Md., Ent. Dept.). VIRGINIA - Severe in several sod-planted corn fields in Washington County where corn planted in small grain sod. (Derting, Isakson). ILLINOIS - Larvae migrating from wheat to corn in west-southwest district. (Moore, Kuhlman). MISSOURI - Small larvae light, less than 1 per square foot, on north-east area wheat. (Munson).

**ARMY CUTWORM** (*Chorizagrotis auxiliaris*) - MISSOURI - Two adults collected in light trap at Carrollton, Carroll County, May 19-25 for new State record. Adults collected at lights at Columbia, Boone County, May 26-27, for new county record. Collected and determined by W. S. Craig. (Munson). UTAH - Comprises about 50 percent of cutworms retarding growth of alfalfa on 300 acres at Loa, Lyman, and Fremont in Wayne County; more than 1,000 acres bare in spots; little control applied. (Knowlton, Chapman). NEVADA - Larvae averaged 6-10 per alfalfa crown in areas of field at Orovada, Humboldt County; damage heavy. (Lundahl).

**BEEF LEAFHOPPER** (*Circulifer tenellus*) - UTAH - Total of 5 taken in 25 net sweeps at Green River, Emery County. (Knowlton).

**CORN EARWORM** (*Heliothis zea*) - SOUTH CAROLINA - Appearing on early planted corn. (Thomas). GEORGIA - Light to heavy in whorls of corn across southern area. (French). ALABAMA - Larvae medium and feeding in whorls of young corn in Fayette County field. Light in whorls of corn in Mobile County. (Pitts et al.). ARKANSAS - Second and third instars ranged 15-20 per 100 sweeps in alfalfa in Benton County. (Boyer). OKLAHOMA - Averaged 25 per 100 sweeps in Jackson County alfalfa. (Okla. Coop. Sur.). ARIZONA - Infested 50 percent of terminals in corn fields in the Yuma Valley, Yuma County. (Ariz. Coop. Sur.).

**CORN LEAF APHID** (*Rhopalosiphum maidis*) - NEW MEXICO - This species and *Macrosiphum avenae* heavy in barley south of Belen, Valencia County. Damage very pronounced in 2 fields. (Romo).

**GREENBUG** (*Schizaphis graminum*) - MINNESOTA - Low in small grains. Ranged 0-4 per 100 sweeps in oats in southeast and central districts. (Minn. Ins. Rpt.). WISCONSIN - Comprises about 20 percent of grain aphids, which are relatively low on oats (maximum 32 per 50 sweeps, mostly 10 per 50 sweeps); numbers higher on rye. (Wis. Ins. Sur.).

**SIX-SPOTTED LEAFHOPPER** (*Macrosteles fascifrons*) - MINNESOTA - Populations mostly unchanged. Counts in alfalfa appeared lower than in small grains. Few nymphs found in roadside ditches in southeast district. (Minn. Ins. Rpt.). WISCONSIN - Numerous in some southern grain fields. Adults 20-30 per 100 sweeps in several Iowa and Grant County fields; averaged about 3 per 100 sweeps in most Columbia and Marquette County fields. (Wis. Ins. Sur.). IOWA - Ranged 4-12 per 10 sweeps in central and west-central area alfalfa and red clover. (Iowa. Ins. Sur.).

**SPOTTED ALFALFA APHID** (*Therioaphis maculata*) - NEBRASKA - None found in Dawson, Phelps, or Buffalo Counties. (Manglitz, May 24).

**TOBACCO BUDWORM** (*Heliothis virescens*) - SOUTH CAROLINA - Has caused much damage to tobacco since May 10. (Benton, Nettles).

## CORN, SORGHUM, SUGARCANE

**EUROPEAN CORN BORER** (*Ostrinia nubilalis*) - KANSAS - First moths of season collected in blacklight traps in Brown County. (Simpson). IOWA - Pupation 70 percent in Boone County. (Brindley). MINNESOTA - First pupation of season (1 percent) observed in Sherburne County. (Minn. Ins. Rpt.). WISCONSIN - Pupating in sandy soil of western Dane County. Since tallest corn in area little over 4 inches

tall, there is some doubt early emerging moths will lay eggs on corn; may show preference for thick-stemmed weeds. (Wis. Ins. Sur.). ILLINOIS - Pupation and emergence percentages by district: Southwest emergence 100; east, pupation 52, no emergence; central, pupation 11; northwest, pupation 28. (Moore, Kuhlman). OHIO - Pupation approximately 30 percent in Wayne County. (Barry). Adult emergence begun in central area; several adults collected by blacklight trap in Franklin County. (Rose). MARYLAND - Adults continue below normal in blacklight traps on Eastern Shore due to cool night temperatures. (U. Md., Ent. Dept.). DELAWARE - Adults increased in blacklight trap collections in Sussex County; averaged 4 per night. (Burbutis). ALABAMA - Larvae heavy, 5-7 per cornstalk, in Fayette County garden; stalks falling over. (Pitts).

FALL ARMYWORM (Spodoptera frugiperda) - ALABAMA - Larvae medium in whorls of corn in 5 fields at St. Elmo and Grand Bay, Mobile County. Heliothis zea also present. (Diller, Seibels). GEORGIA - Light to heavy in whorls of corn across southern area. (French).

BLACK CUTWORM (Agrotis ipsilon) - WISCONSIN - Damaged corn in Green Lake and Adams Counties, particularly fields in diverted acres last year. (Wis. Ins. Sur.).

CUTWORMS - COLORADO - Damaging corn in many areas of Weld County. Controls applied. (Urano). MINNESOTA - Light on corn in few scattered fields in southeast and central districts. Some feeding noted below ground, due to dry conditions. Few climbing species in some fields. (Minn. Ins. Rpt.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - GEORGIA - Unusually heavy in corn in several counties. (Jordan, French, Womack).

A SOD WEBWORM (Crambus mutabilis) - IOWA - Caused some damage to corn in central area. (Gunderson).

CORN FLEA BEETLE (Chaetocnema pulicaria) - NEW JERSEY - Adults averaged 2 per 100 plants near Lumberton, Burlington County, May 29. (Ins.-Dis. Newsltr.). NEW YORK - South of Claverack, Columbia County, 50 of 200 plants showed marks; beetles easily collected. At Kinderhook, beetles scarcer and leaf marking about one percent; single beetle taken in 150 sweeps of rye. No signs found north of Valatie. Northern limit of survival in State is Columbia County. (N. Y. Wkly. Rpt., May 29).

FLEA BEETLES - KANSAS - Damaged seedling corn in Brown and Doniphan Counties. (West). ARIZONA - Chaetocnema ectypa adults caused light damage to corn and sorghum leaves in areas of Yuma, Pinal, and Maricopa Counties. (Ariz. Coop. Sur.).

MAIZE BILLBUG (Sphenophorus maidis) - ALABAMA - Heavy, 3-4 per cornstalk, in Crenshaw County field; about 40 acres replanted. (Knox).

SEED-CORN BEETLE (Agonoderus lecontei) - IOWA - Reducing corn stands up to 50 percent in some central and east-central area fields. (Peters). ILLINOIS - Adults fed on newly planted corn with 1-10 percent stand reduction in Lee County. (Ill. Ins. Rpt.).

WIREWORMS - WISCONSIN - Damaging corn, particularly in Outagamie, Fond du Lac, and Marquette Counties, and elsewhere; damage severe in some instances. (Wis. Ins. Sur.).

SEED-CORN MAGGOT (Hylemya platura) - NEW JERSEY - Total of 1,083 taken on 5 sticky boards at Cedarville, June 1. (Ins.-Dis. Newsltr.).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - IDAHO - All stages present on hybrid sweet corn near Melba, Canyon County. (Bechtolt).

## SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - WISCONSIN - Comprises about 80 percent of grain aphids which are relatively low on oats (maximum of 32 per 50 sweeps, mostly 10 per 50 sweeps); counts higher on rye. (Wis. Ins. Sur.). MINNESOTA - Counts in rye as high as 170 per 100 sweeps, but averaged 10 in most fields. (Minn. Ins. Rpt.). NORTH DAKOTA - Slight increase in southeast; adults and nymphs 15 per 100 sweeps of rye in Sargent County. (Brandvik). CALIFORNIA - Heavy on barley in Parkfield, Monterey County. (Cal. Coop. Rpt.).

GRAIN APHIDS - CALIFORNIA - Rhopalosiphum padi and Macrosiphum avenae medium on barley in Kerman, M. avenae and Acyrtosiphon dirhodum medium on oats in Clovis, and A. dirhodum and Macrosiphum euphorbiae medium on oats in Kingsburg, Fresno County. (Cal. Coop. Rpt.).

STALK BORER (Papaipema nebris) - MISSOURI - Light in marginal rows of small grains in central and southwest areas. (Munson).

WIREWORMS - WISCONSIN - Damaged small grains in Green Lake and Wood Counties. (Wis. Ins. Sur.).

CHINCH BUG (Blissus leucopterus) - KANSAS - Moderate in Cowley County wheat. (Brooks).

HESSIAN FLY (Mayetiola destructor) - OKLAHOMA - Puparia present in northeast area wheat fields. Damage 25 percent in scattered fields in Rogers County; moderate in Mayes County. (Okla. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Light to moderate damage to several hundred acres of fall dryfarm wheat in Monticello and Blanding area, San Juan County; 300 acres of wheat in Blanding area sprayed May 12; about 25 adults per leaf and wheat discolored where sprayed. Light on planted range grasses nearby. (Knowlton, May 23). Damaged 2,000 acres of dryland fall wheat on sandy soils in Salt Lake County south of Magna; 200 acres sprayed. (Knowlton, Parrish). NEVADA - Light to heavy on wheat in Lovelock, Pershing County. (Martinelli).

## TURF, PASTURES, RANGELAND

GRASS BUGS - UTAH - Practically all black species winged adults. Winged Labops hesperius and Irbisia spp. badly yellowed and discolored 5 acres of intermediate wheatgrass 5 miles northwest of Alton, Kane County, May 25. Few hundred acres south and southeast of Alton conspicuously discolored; 80 percent L. hesperius and 20 percent Irbisia spp. Mating and active although showering and cool. In some grass clumps more than 200 bugs present in 0.25 square foot, but distribution not uniform. Control excellent in 2 large fields of crested and intermediate wheatgrass about 5 miles south of Alton. Five percent of Labops and about 8 percent of Irbisia females apparently swollen with eggs. Labops discoloration appearing in some planted grass areas around Bryce Canyon National Park in Garfield County; grass bugs very numerous. Infested large areas in the park, especially Blubber Creek; 75-100 per square foot in some areas. Medium numbers of Labops spp. and Irbisia spp. moderately marking grasses on mesas above Glendale, Kane County. (Knowlton). L. hesperius very heavy on Sheep Creek area below Cannonville, Garfield County; grass discolored in East Fork area. Small green species discolored wheat foliage near Nephi, Juab County. (Knowlton, Esplin). Irbisia spp. adults and nymphs of green species marked crested and planted grasses northeast of Monticello; some in wheat south of and on planted grasses 2-8 miles west of town in Blue Mountains, San Juan County. (Knowlton, May 23). Green grass bug nymphs spotting grass foliage in orchard at Moab, Grand County, May 23; discoloring wheat leaves 8 miles south of Levan, Juab County. Discoloring rye and some planted wheatgrass at Holden, Fillmore, and Kanosh areas, Millard County. Irbisia sp. only 5-18 percent of grass bugs on rye and wheat. (Knowlton).

A BILLBUG (*Sphenophorus venatus confluens*) - OREGON - Damaging orchard grass in Corvallis area, Benton County; numbers higher than previous years. Adults emerged in early May; adult damage to grass becoming more economic. (Shoemaker).

WHITE GRUBS - UTAH - Damaged numerous lawns in Salt Lake City and Midvale areas of Salt Lake County. (Parrish, Knowlton). WISCONSIN - Adult emergence continues heavy. Grub damage noticeable in grassy areas at Wyalusing State Park, Grant County, May 24. (Wis. Ins. Sur.).

STALK BORER (*Papaipema nebris*) - MISSOURI - Light in marginal rows of grasses in central and southwest areas. (Munson).

A SOD WEBWORM (*Crambus mutabilis*) - IOWA - Damaged lawns in Ames, Story County. (Gunderson).

THRIPS (*Chirothrips* spp.) - ARIZONA - Increasing rapidly in commercial Bermuda grass seed fields in Yuma County. Controls may be required. (Ariz. Coop. Sur.).

#### FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - MASSACHUSETTS - Surveys in Hampshire County May 29 showed 0-2 adults and 1-18 larvae per 100 sweeps; in Berkshire County, adults 1-17 and larvae 0-8 per 100 sweeps. Feeding damage slight, but noticeable. Larvae ranged 5-256 per 100 sweeps in Hampshire County June 5; damage apparent. Populations much lower in Berkshire County. (Miller). CONNECTICUT - Thirty percent of stems contained egg masses in North Branford and Northford area. (Kemmerer). Hatched in New London County, but little activity due to low temperatures. (Hibbard, May 31). NEW YORK - Readily found in most alfalfa, but very scarce in northern area. Larvae 20-30 per sweep in Columbia County, 1 or 2 in central area. Adults less than one per sweep during day. Continued cool weather retarded weevil activity in Ulster County, but 2-3 larvae per sweep readily found. Feeding damage 35-50 percent. Egg laying increased slightly; egg masses in stems easily found; small larvae 2 in 150 plants. Development appears later than last year. Averaged 1 adult in 10 sweeps and 2 larvae in 200 sweeps in 3 locations in southeastern Livingston County; eggs present. (N. Y. Wkly. Rpt., May 29). NEW JERSEY - Controls in northern counties increased, although many growers plan to cut early and apply spray to stubble. Large acreages in southern and central counties treated as soon as first cutting removed. (Ins.-Dis. Newsltr.). MARYLAND - Larvae seriously injured second-growth alfalfa near Mitchellville, Prince Georges County. (U. Md., Ent. Dept.). VIRGINIA - Larvae ranged 50-70 per sweep in Roanoke County; 80-90 percent of tips show injury. Few pupae and adults found. (Isakson). OHIO - Most economically damaging insect in State. Very high numbers, 70-100 larvae per sweep, destroyed 20-70 percent of unsprayed Clark, Fayette, and Franklin County alfalfa; 90 percent of leaves show feeding damage. Mostly third and fourth instars on 15 to 30-inch plants in central area; cocoons common. (Rose). Nearly 10 percent of alfalfa hay cut. (Ohio Crop & Weather Bull.). General increase in damage of 10-100 percent (mostly 40-60 percent) in Medina, Wayne, and Ashland Counties. Sprays applied. Hay cutting starting. (Glass).

ILLINOIS - Larvae per sweep by district: West 0-1.4; central 1-5.2, west-southwest 0.5-3.1. (Ill. Ins. Rpt.). MISSOURI - Larvae collected for first time in following counties: Clark, Knox, Lewis, Monroe, and Shelby. All counties along eastern border of State now known to be infested. All infestations in these 5 counties very light. (Munson). ARKANSAS - Survey in Benton County negative; one of few counties in which species has not been found. (Boyer). NEBRASKA - Larvae ranged 0-11 (average 1.5) per 50 sweeps in Dawson County. Larvae per 200 sweeps: 2 near Miller, Buffalo County, and 1 in Phelps County. Buffalo and Phelps are new county records. (Manglitz, May 24). SOUTH DAKOTA - Adults increased slightly near Spearfish, Lawrence County. Up to 7 adults per 100 sweeps May 26 compared with 3 per 100 sweeps 3 days earlier. (Jones). WYOMING - Adults 0-88 and larvae 0-26 per 100 sweeps in Fremont County; approximately 8 percent of stems contained egg masses. (Fronk, May 26). COLORADO - Larvae increased in alfalfa; 50-200 per



100 sweeps in Delta, Garfield, Mesa, and Montrose Counties. Controls and early cutting of first crop being used in 4 county area. (Bulla). In Weld County, larval increase apparently slowed due to recent rains and cool weather. Weevil damage evident in most fields checked. (Urano). UTAH - Counts per 10 sweeps, larvae 3-8 and adults scarce at Bluff, 15 larvae and 1 adult at Blanding, San Juan County; fewer at Monticello May 23. Remains low in most Salt Lake County alfalfa. Long, cold spring retarded weevil development. Damage most conspicuous at Moab, Grand County. (Knowlton). Numbers high with varying injury on Milford Flats, Beaver County; 3,000 acres to be sprayed. Injury by small larvae light at Beaver and Minersville, Beaver County. (Knowlton). NEVADA - Eggs, all larval stages, pupae, and old and newly emerged adults present in Fallon, Churchill County, and Mason Valley, Lyon County. Females still gravid; eggs being laid. Larval counts low in some fields with very little damage; however, damage increasing in many fields; larvae 50-125 per sweep in Fallon area. In Mason Valley, larvae 65-125 (average 85) per sweep; over 200 per sweep in one field. Approximately 4,000 acres treated in Mason Valley, unknown acreage treated in Fallon area. Adults of *Bathyplectes curculionis* (an ichneumon wasp) averaged 8-10 per sweep in one area at Fallon. (Arnett et al.). Larvae 1-4 per sweep in all fields checked in Lovelock, Pershing County, week of May 25; averaged 25 per sweep in one field. Females still gravid. (Martinelli). IDAHO - Larvae up to 50 per sweep in untreated check area of Canyon County. (Amen).

EGYPTIAN ALFALFA WEEVIL (*Hypera brunneipennis*) - ARIZONA - Small number of larvae still found in some alfalfa of Yuma, Maricopa, and Pinal Counties. Larvae this late in season unusual. (Ariz. Coop. Sur.).

CLOVER LEAF WEEVIL (*Hypera punctata*) - NEBRASKA - Total of 19 taken in 200 sweeps in Phelps County field; trace numbers in Dawson and Buffalo Counties. (Manglitz, May 24). IOWA - Larvae, some diseased, present on alfalfa and red clover in central and west-central areas; averaged less than 1 per square foot. (Iowa Ins. Sur.). MINNESOTA - Larvae light in field of alfalfa and red clover in Dakota County. Damage evident, but not serious. (Minn. Ins. Rpt.). NEW YORK - Larvae common in sweepings. (N. Y. Wkly. Rpt., May 29).

CLOVER ROOT CURCULIO (*Sitona hispidula*) - ARKANSAS - Adults ranged 60-70 per 100 sweeps in Benton County. Det. by E. P. Rouse. (Boyer). OKLAHOMA - Adults in damaging numbers on alfalfa checked in Perkins area, Payne County. (Okla. Coop. Sur.). UTAH - Adults active recently at Green River, Emery County. (Knowlton).

SWEETCLOVER WEEVIL (*Sitona cylindricollis*) - UTAH - Conspicuously notched sweet-clover at Ferron, Green River, and Emery in Emery County, and at Price, Carbon County. (Knowlton). MINNESOTA - Numerous feeding notches noted on roadside sweet-clover. (Minn. Ins. Rpt.).

PEA APHID (*Acyrtosiphon pisum*) - NEVADA - Highest counts in alfalfa 5 per sweep in Lovelock, Pershing County. (Martinelli). Occasional specimens noted in Mason Valley, Lyon County, and Fallon, Churchill County, (Arnett); and Orovada, Humboldt County, (Lundahl). UTAH - Ranged 50-250 per sweep in alfalfa at Bluff, San Juan County. Growers will cut to control. Predators moderate, but not numerous enough to check high aphid population. *A. pisum* light at Monticello, San Juan County, and at Moab in Grand County. Predators present with 2 percent wasp parasitism at Moab; pea aphid 3-500 per 10 sweeps. (Knowlton). NEW MEXICO - Building up in Dona Ana County alfalfa. Ranged one-eighth to one-half cup per 25 sweeps in most fields checked. (Nielsen). COLORADO - Buildup continues in alfalfa; 2,000-5,000 per 100 sweeps in many fields in Delta, Garfield, Mesa, and Montrose Counties. (Bulla). Trace numbers in Weld County fields. Continued cool, wet conditions will promote rapid increase. (Urano). OKLAHOMA - Ranged 15-50 per 10 sweeps in alfalfa in Cotton, Greer, and Stephens Counties. (Okla. Coop. Sur.). ARKANSAS - Continues at higher level than usual for time of year; probably due to favorable cool, damp weather. Present in alfalfa in northwest area at rate of several hundred per 100 sweeps, but noneconomic and no treatments applied. (Boyer). KANSAS - Very light (5-10 per 10 sweeps) in central district alfalfa. (Simpson). NEBRASKA - Ranged 8-176 (average 57) per 50 sweeps in Dawson County alfalfa. (Manglitz, May 24). NORTH DAKOTA - Increased in southeast; 35 adults and nymphs

per 100 sweeps of alfalfa in Ransom County. (Brandvik). MINNESOTA - Continued to increase in alfalfa; averaged 204 per 100 sweeps. Predators, including lady beetles and damsel bugs, increased with warm weather. (Minn. Ins. Rpt.). WISCONSIN - Slight increase in southern and southwestern counties. Highest count 3 per sweep, in Dane and Lafayette County alfalfa. (Wis. Ins. Sur.). MARYLAND - Light on alfalfa near Mitchellville, Prince Georges County. (U. Md., Ent. Dept.). VIRGINIA - Less than 10 per sweep in alfalfa checked in Roanoke County. (Isakson).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - VIRGINIA - Adults averaged 7 per sweep in Roanoke County alfalfa. (Isakson). NEW YORK - Readily found in all forage fields. (N. Y. Wkly. Rpt., May 29). OHIO - Nymphs common on alfalfa and clover; mostly late instars 7-14 per sweep on Clark, Fayette, and Franklin County alfalfa. Adults common in southern area. (Miller et al.). WISCONSIN - Spittle masses evident in most southern county alfalfa; averaged about 5 per 10 stems, some plants with 20 or more per 10 stems. (Wis. Ins. Sur.). MINNESOTA - Light in Dakota County alfalfa; too low to cause economic damage. Usually ceases to be problem after first cutting. (Minn. Ins. Rpt.). MISSOURI - Adults very light on alfalfa in Lewis County. This is a new State record. Det. by W. S. Craig. (Munson).

LYGUS BUGS (*Lygus* spp.) - KANSAS - Ranged 10-25 per 100 sweeps in alfalfa in north-central and central districts. (Simpson). UTAH - Largely *L. elisus* nymphs on alfalfa averaged 9 per 10 sweeps at Spanish Fork, Utah County, 7 per 10 sweeps at Moab, Grand County, May 23. (Knowlton). NEVADA - Light, less than 6 adults per sweep, in alfalfa in Churchill, Humboldt, Lyon, and Pershing Counties. (Coop. Rpt.).

TARNISHED PLANT BUG (*Lygus lineolaris*) - ARKANSAS - Continues numerous, but non-economic in northwest area alfalfa. Ranged 60-80 in 100 sweeps in Benton County; 10 percent immatures. (Boyer). IOWA - Averaged 3-12 per 10 sweeps in most alfalfa and clover in central and west-central areas. (Iowa Ins. Sur.). WISCONSIN - Adults common, 2 per 10 sweeps, in southern third of State; some small nymphs present. (Wis. Ins. Sur.). NORTH DAKOTA - Adults 15 per 100 sweeps in McIntosh County alfalfa. (Brandvik).

PLANT BUGS (*Adelphocoris* spp.) - OHIO - First *A. rapidus* and *A. lineolatus* adults and nymphs of season light on alfalfa in Fayette County field. (Rose). WISCONSIN - *A. rapidus* nymphs almost full grown in Mazomanie area, Dane County. (Wis. Ins. Sur.).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - NEBRASKA - General, but light, in alfalfa in Dawson, Phelps, and Buffalo Counties; high count 2 per 100 sweeps. (Manglitz, May 24).

#### SOYBEANS

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - SOUTH CAROLINA - Damaging young soybeans in scattered areas over State. Damage worst in Orangeburg and Clarendon Counties. Beetles 1-2 per plant in most instances. Plants 3-5 inches high. (Thomas).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - MISSISSIPPI - Light on young soybeans in Yazoo County; adults averaged 3-5 per 100 linear feet in several fields. Leaf damage negligible. (Dinkins).

TARNISHED PLANT BUG (*Lygus lineolaris*) - MISSISSIPPI - Ranged 3-5 per 100 linear feet of row in young soybeans in Yazoo County. (Dinkins).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - MISSISSIPPI - Infestations appearing in young 3 to 9-inch soybeans in Yazoo County. Light, 1-2 per 100 linear feet, in several fields. (Dinkins).

## PEANUTS

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Numerous larvae feeding at and below ground line on peanut plants in 5-acre field in Covington County. This and other pests reduced stand. (Pike). GEORGIA - Moderate on peanuts in Calhoun County. (Rogers).

RED-NECKED PEANUTWORM (Stegasta bosqueella) - ALABAMA - Few larvae feeding on buds of peanut plants in 5-acre field in Covington County. (Pike).

THRIPS - GEORGIA - Light to heavy across peanut belt. (French).

## COTTON

BOLL WEEVIL (Anthonomus grandis) - SOUTH CAROLINA - Emergence very light in Florence area. Total of 102 taken on 9 groups of 10 potted plants. (Taft et al., May 31). TENNESSEE - Few overwintered weevils feeding in terminal buds in southern tier of counties. Peak emergence will occur as weather favorable for cotton growth occurs. (Locke). ALABAMA - Adults emerging from hibernation in northern counties. Numbers per acre range light to medium in Madison, Limestone, Colbert, and Lauderdale Counties. (McQueen). GEORGIA - Emergence of overwintered weevils heavy in Lanier County field. (Womack). LOUISIANA - No overwintered weevils found in 6 of 7 fields checked in Madison Parish, but infestation averaged 52 weevils per acre in one field. Total of 35 weevils recovered from 150 trap cotton plants in fields of cotton near hibernation sites. (Cleveland et al.). TEXAS - Found in 2 of 4 untreated fields and in one of 5 treated fields in McLennan and Falls Counties. Averaged 275 (maximum 700) per acre in untreated fields, 20 (maximum 150) in treated fields. Overall average 208 per acre compared with 50 corresponding week last year. One weevil collected on flight screens. (Cowan et al.).

FLEA BEETLES - TENNESSEE - Present in most fields in southern tier of counties, but damage light. (Locke).

BOLLWORMS (Heliothis spp.) - SOUTH CAROLINA - Single H. zea moth taken in light trap at Florence, compared with 29 corresponding week last year. No H. virescens taken. (Taft et al., May 31). LOUISIANA - Total of 17 H. zea collected in black-light trap in Madison Parish; no H. virescens taken. (Cleveland et al.). TEXAS - One larva collected on wild potato in Waco area and reared to fifth instar determined H. virescens; 39 eggs or larvae from various wild hosts and reared to fifth instar determined H. zea; 3 larvae previously collected on cotton determined H. zea. Bollworms found in one field inspected. (Cowan et al.). ARIZONA - H. zea light (1-2 per 100 plants) in 10 percent of fields in Pinal and Maricopa Counties; damage to terminal growth light. (Ariz. Coop. Sur.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Very light in cotton in area near Stanfield, Pinal County. (Ariz. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Scattered, light infestations in areas of Pinal and Maricopa Counties. Increasing populations much below normal for time of year. (Ariz. Coop. Sur.).

APHIDS - SOUTH CAROLINA - Light on cotton in Florence area. (Taft et al., May 31). TENNESSEE - Light to medium on older cotton in southern tier of counties. (Locke). TEXAS - Light in 5 of 6 fields inspected in Waco area. (Cowan et al.).

THRIPS - SOUTH CAROLINA - Light on cotton in Florence area. (Taft et al., May 31). TENNESSEE - Range light to heavy in untreated fields in southern tier of counties. Controls justified in many instances. (Locke). GEORGIA - Light across southern area (Womack, French); moderate on seedling cotton in Spalding County (Beckham). ALABAMA - Frankliniella fusca medium on cotton throughout Fayette County. (Pitts). MISSISSIPPI - Continue heavy in delta counties, particularly on heavier soils. Averaged 3.12 per plant in 4 check plots in 4 test areas; ranged 1.9-5.56.

(Pfrimmer et al.). Frankliniella spp. average counts per hill by county as follows: Washington, 15-20 in 10 fields; Tallahatchie, 3 in 50 fields; Panola, 5 in 40 fields. (Dinkins). LOUISIANA - Thrips ranged 0-0.34 (average 0.15) per plant in 6 fields planted with treated seed in Madison Parish; ranged 0-0.01 per plant in 2 fields planted with treated seed and sprayed. None found in one field sprayed only. Ranged 0.02-1.75 (average 0.65) per plant in 10 untreated fields. (Cleveland et al.). TEXAS - Thrips medium in one and light in one of 2 untreated fields in Waco area; light in 3 of 4 treated fields. (Cowan et al.).

#### TOBACCO

FLEA BEETLES - SOUTH CAROLINA - Most serious damage of season occurring. (Benton, Nettles).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - SOUTH CAROLINA - Infesting tobacco in Jasper County. (McAlister).

#### SUGARBEETS

VARIEGATED CUTWORM (Peridroma saucia) - NEBRASKA - Damaged sugarbeets in panhandle area. (Hagen).

CUTWORMS - UTAH - Damaged some young sugarbeets at Wellington and Miller Creek, Carbon County. (Knowlton).

FLEA BEETLES - MICHIGAN - Adults feeding on sugarbeet seedlings in Saginaw County. (Guyer).

SPINACH LEAF MINER (Pegomya hyoscyami) - IDAHO - Eggs less abundant than usual on sugarbeets in Caldwell area, Canyon County. (Landis, May 21).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - IDAHO - Adults emerging in sugar-beet fields over wide area in Rupert and Paul, Minidoka County. (Peay).

#### MISCELLANEOUS FIELD CROPS

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Medium on 40 acres of safflower in Mendota, Fresno County. (Cal. Coop. Rpt.).

#### POTATOES, TOMATOES, PEPPERS

POTATO TUBERWORM (Phthorimaea operculella) - ALABAMA - Larvae heavy and widespread on potatoes in Baldwin County. Damage as high as 40 percent in some samples at packing sheds. (Kimbrough et al.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW YORK - Few adults in Suffolk County. (N. Y. Wkly. Rpt.). DELAWARE - Adults on tomatoes and potatoes in Kent County. (Burbutis). PENNSYLVANIA - Adults noted on nightshade at State College, Centre County. (Gesell).

FLEA BEETLES (Epitrix spp.) - MARYLAND - Adults damaged unprotected potatoes and newly set tomatoes on the Eastern Shore. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - NEW MEXICO - Apteræ and alatae heavy on chili pepper plants in home gardens at Las Cruces, Dona Ana County; control very difficult. Appears resistant or tolerant to many organic phosphate insecticides. Apparently building up in several commercial chili fields. (Nielsen).

POTATO APHID (Macrosiphum euphorbiae) - DELAWARE - Increased on tomatoes in Kent County; present on potatoes in most areas. (Burbutis). NEW JERSEY - Light on tomato transplants near Sicklerville May 26. (Ins.-Dis. Newsltr.).

SEED-CORN MAGGOT (Hylemya platura) - WASHINGTON - Larvae more abundant than usual in potato seed pieces at Othello, Adams County. (Landis, May 26).

#### BEANS AND PEAS

PEA APHID (Acyrtosiphon pisum) - DELAWARE - Average 2-5 per 10 sweeps on peas in Sussex and Kent Counties. (Burbutis). WISCONSIN - Only trace numbers in pea fields in Dane, Iowa, and Columbia Counties. (Wis. Ins. Sur.).

BEAN APHID (Aphis fabae) - NEW JERSEY - Alates on snap beans near Lumberton, Burlington County. (Ins.-Dis. Newsltr.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Adults caused light to medium foliage injury to commercial snap beans near Salisbury, Wicomico County. (U. Md., Ent. Dept.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Adults and larvae light on beans in home gardens throughout Fayette County. First noticeable infestations of year. (Pitts).

#### COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) - GEORGIA - This species and unspecified loopers heavy on untreated cabbage in Spalding County. (Dupree).

CABBAGE MAGGOT (Hylemya brassicae) - NEW YORK - Adults very active in Geneva area; cabbage plants set 3 days had 12 eggs per plant. Hatching in Erie and Niagara areas. (N. Y. Wkly. Rpt., May 29).

A FLEA BEETLE (Phyllotreta cruciferae) - DELAWARE - Adults abundant on broccoli and cabbage in New Castle County gardens. (Burbutis).

TURNIP APHID (Hyadaphis pseudobrassicae) - WASHINGTON - Abnormally abundant on wild crucifers in Yakima Valley, Yakima County. (Landis, May 26).

#### GENERAL VEGETABLES

ASPARAGUS BEETLES (Crioceris spp.) - WISCONSIN - Numerous adults on small planting of asparagus in Dane County; eggs laid May 25. (Wis. Ins. Sur.). MICHIGAN - C. asparagi laying eggs in many southern areas. (Newman). MASSACHUSETTS - Crioceris spp. numerous on asparagus. (Crop Pest Cont. Mess.). PENNSYLVANIA - C. duodecimpunctata present on asparagus at State College, Centre County. (Gesell). DELAWARE - C. asparagi and C. duodecimpunctata adults heavy on young asparagus ferns in area of Kent County. (Burbutis). MARYLAND - C. asparagi adults and eggs heavy on garden asparagus and brush near Salisbury, Wicomico County. (U. Md., Ent. Dept.).

FLEA BEETLES - WISCONSIN - Severely damaged radishes in Dane County. (Wis. Ins. Sur.). MARYLAND - Chaetocnema confinis adults averaged 2 per plant on newly set sweetpotatoes near Salisbury, Wicomico County. (U. Md., Ent. Dept.).

AN APHID (Cavariella aegopodii) - WASHINGTON - Alatae of this carrot pest in flight for at least one week in Yakima, Yakima County. (Landis, May 26).

WHEAT CURL MITE (Aceria tulipae) - CALIFORNIA - Medium on onions in production grounds in El Centro, Imperial County. (Cal. Coop. Rpt.).

## DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Carpocapsa pomonella) - WASHINGTON - General flights indicated by sex traps in upper Yakima Valley. (Hudson, May 26). OREGON - Adults in Jackson County pear orchards May 18; eggs present May 19; delayed hatch expected due to cool weather. (Cordy). UTAH - Flights in northern area since May 22. Six moths at Logan in black light trap, three at Salt Lake City in bait traps May 23; also taken in Cache, Salt Lake, and Box Elder Counties. (Davis, Knowlton). COLORADO - In attractant traps in Delta, Garfield, Mesa, and Montrose Counties. (Bulla, May 26). MISSOURI - Entries increased, but activity very light in unsprayed central orchards. (Wkly. Rpt. Fr. Grs.). WISCONSIN - First adult of season in Madison blacklight trap May 26. (Wis. Ins. Sur.). INDIANA - Fresh larval entries on unsprayed apples at Vincennes. Total adults (53) twice that of previous week in light trap; males (8) declined more than one-third in 2 virgin female traps. (Dolphin). MARYLAND - Adults emerged May 24 in cages at Hancock, Washington County. (U. Md., Ent. Dept.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - Some "flagging" of new peach growth at Vincennes. (Dolphin).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - MASSACHUSETTS - Fairly prevalent this season; some orchards will require sprays. (Crop Pest Cont. Mess.). CONNECTICUT - Easily found where present. (Savos, May 31). IDAHO - Third instars common on home apple trees at 95 percent petal fall in Moscow, Latah County, May 30. (Portman).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - INDIANA - Major emergence of first summer-brood adults May 26-29 in Vincennes area. Total of 273 males in 20 virgin female traps; minor apple foliage and fruit damage at this orchard. (Dolphin).

OBLIQUE-BANDED LEAF ROLLER (Choristoneura rosaceana) - INDIANA - Few adults in light trap at Vincennes. (Dolphin).

LESSER PEACH TREE BORER (Synanthedon pictipes) - INDIANA - Male captures increased in Vincennes area orchard, probably due to warm weather; 78 in virgin female traps compared with 46 previous week. (Dolphin). NEW MEXICO - Damage widespread on peaches in Valencia, Bernalillo and Sandoval Counties; damage less than peach tree borer. (Heninger).

PEACH TREE BORER (Sanninoidea existiosa) - NEW MEXICO - Light to very abundant in peach and plum trees; 42 larvae on 1 peach tree. This pest and freezing temperatures killed numerous peach trees. (Heninger).

GREEN FRUITWORMS - MASSACHUSETTS - Very prevalent in unsprayed orchards, at least two species involved. (Crop Pest Cont. Mess.). MARYLAND - Lithophane antennata larvae damaged some fruit in sprayed orchards in Hancock area, Washington County. (U. Md., Ent. Dept.).

BAGWORM (Thyridopteryx ephemeraeformis) - INDIANA - Early instars fed on apple fruit in unsprayed Vincennes orchard. (Dolphin).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Infestations averaged 15 percent near Waurika, Jefferson County. Eggs hatching at Sparks, Lincoln County. Light in Marshall County. Ranged very light to zero on pecans in Pontotoc, Garvin, and Murray Counties. (Okla. Coop. Sur.).

ROSY APPLE APHID (Dysaphis plantaginea) - WASHINGTON - On unsprayed apple trees at Prosser, Benton County. (Retan, May 26). UTAH - Spotty in apple orchards at Moab, Grand County. (Knowlton, May 23). COLORADO - Abundant in Garfield County apple orchards, especially where no early season controls applied; colonies 20-30 per tree in many orchards; controls recommended. (Bulla, May 26). CONNECTICUT - Curled leaves on unsprayed trees; stem mothers producing nymphs. (Savos, May 31).

APPLE APHID (Aphis pomi) - WASHINGTON - On unsprayed apple trees at Prosser, Benton County. (Retan, May 26). UTAH - Spotty in apple orchards at Moab, Grand County. (Knowlton, May 23). CONNECTICUT - Not as numerous as rosy apple aphid. (Savos, May 31).

WOOLLY APPLE APHID (Eriosoma lanigerum) - UTAH - Spotty in Moab apple orchards, Grand County. (Knowlton, May 23). INDIANA - Stem mothers and nymphs light on apple foliage at Vincennes. (Dolphin).

GREEN PEACH APHID (Myzus persicae) - NEVADA - Continues heavy with severe leaf curl on peach and plum in southern Washoe County. Winged forms present. (Coop. Rpt.). UTAH - Moderately curled peach foliage at Green River, Ferron, and Castle Dale, Emery County, and at Nephi, Juab County; still in many curled peach leaves at Moab, Grand County, and Blanding, San Juan County. Very numerous at Moab (Knowlton); lower in Salt Lake County apple orchards (Burningham, Knowlton).

BLACK CHERRY APHID (Myzus cerasi) - OREGON - Light in Marion, Polk, and Yamhill County orchards; foliage curled and terminal growth reduced. (Stephenson). WASHINGTON - Moderate to abundant on unsprayed or abandoned cherry orchards at Prosser, Benton County. (Retan, May 26).

PEAR PSYLLA (Psylla pyricola) - NEW YORK - Numerous and active in Niagara area. (N. Y. Wkly. Rpt.). MICHIGAN - All stages present May 26 near Lawrence, Van Buren County. (Carpenter). OREGON - First generation laid eggs on pear leaves in Jackson County. (Cordy).

SPITTLEBUGS - GEORGIA - Second-brood nymphs on pecans in Dougherty and Emanuel Counties. (Harris).

PLUM CURCULIO (Conotrachelus nenuphar) - WISCONSIN - Activity heavy; total of 57 weevils in blacklight trap at Madison May 25-26. (Wis. Ins. Sur.). MICHIGAN - Feeding injury in plums and tart cherries May 26 (Carpenter); egg laying and feeding scar on nectarines in Berrien County (Belter). NEW YORK - Neither emergence in Orange County nor egg laying up to May 29 on unprotected sweet cherries in Ulster County. (N. Y. Wkly. Rpt.). CONNECTICUT - Adults became active May 29 at Storrs. (Savos). MARYLAND - Egg-laying scars in unsprayed apple orchards at Hancock, Washington County. (U. Md., Ent. Dept.).

SHOT-HOLE BORER (Scolytus rugulosus) - NEW MEXICO - This pest and drought conditions killed some cherry and peach trees south of Albuquerque, Bernalillo County; damaged peach, cherry, and plum trees throughout Bernalillo and Sandoval Counties. (Heninger).

A FALSE POWDER-POST BEETLE (Melalgus confertus) - CALIFORNIA - Adults medium in prune twigs at Gilroy, Santa Clara County. (Cal. Coop. Rpt.).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - MASSACHUSETTS - Larvae injured many small apples; injury may be greater than in 1966 due to early egg hatch compared to late fruit development. Early calyx sprays advisable. (Crop Pest Cont. Mess.). CONNECTICUT - Adults active in Storrs. (Savos, May 31).

PEAR SAWFLY (Hoplocampa brevis) - RHODE ISLAND - Two adult females on pear blossoms in Johnston, Providence County. (Mathewson, May 22).

A CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) - WASHINGTON - First adults at Buena May 17; adults trapped at Cherry Hill (Granger), but none in upper Yakima Valley, Yakima County, (Hudson, May 26). OREGON - Adults emerged from cages in cherry orchards east of Salem, Marion County, May 29. (Rasmussen).

PLANT BUGS - MASSACHUSETTS - Still threaten developing fruit; apples, pears, and peaches require protective sprays. (Crop Pest Cont. Mess.). INDIANA - Lygidea mendax adults low in Vincennes area. (Dolphin).

EUROPEAN RED MITE (Panonychus ulmi) - MICHIGAN - Eggs on leaves near Lawrence May 26. (Carpenter). INDIANA - Light but increasing in Vincennes area; mobile forms ranged 0.34-2.3 per leaf in check orchard. (Dolphin, May 29). MASSACHUSETTS - Overwintering eggs hatched; nymphs prevalent in unoled orchards or orchards not sprayed with a miticide. (Crop Pest Cont. Mess.). CONNECTICUT - Eggs laid previous week hatched in Bantam and Storrs. (Savos, May 31).

A FRUIT-TREE MITE (Bryobia rubrioculus) - WASHINGTON - On cherries at Prosser and Kennewick, Benton County. (Retan, May 26). UTAH - Less numerous than usual in Salt Lake County apple, peach and cherry orchards. (Burningham, Knowlton).

SPIDER MITES - WASHINGTON - Tetranychus medanieli particularly abundant on fruits in Green Fluff area of Spokane, Spokane County. (Retan, May 26). MISSOURI - Unspecified species building up in southeast area orchard; low in most parts of State. Cold, wet weather will continue to hold mites down. (Wkly. Rpt. Fr. Grs.). INDIANA - Tetranychus spp. low but increasing in Vincennes area orchards; up to 0.45 mobile form per leaf in check orchard. (Dolphin, May 29).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - UTAH - Moderately severe on apple in Blanding orchard, San Juan County. (Knowlton, May 23).

#### CITRUS

CITRUS THRIPS (Scirtothrips citri) - CALIFORNIA - Heavy on tangerine trees at Heber, Imperial County. This species extending its southern range. (Cal. Coop. Rpt.). ARIZONA - Heavy, continues to damage fruit in many Yuma and Maricopa County groves despite repeated control efforts. (Ariz. Coop. Sur.).

CITRUS RED MITE (Panonychus citri) - ARIZONA - Adults still in untreated groves, but greatly reduced in treated groves in Yuma County. (Ariz. Coop. Sur.).

#### SMALL FRUITS

SHALLOT APHID (Myzus ascalonicus) - OREGON - Probably this species, severely damaged 30-acre strawberry field in Polk County. (Brown).

PLUM CURCULIO (Conotrachelus nenuphar) - NEW JERSEY - First egg punctures in blueberries at Hammon on May 28, almost 2 weeks later than usual. (Ins.-Dis. News ltr.).

OMNIVOROUS LEAF TIER (Cnephasia longana) - OREGON - Usual numbers of larvae in Willamette Valley strawberry fields. (Stephenson).

CURRENT BORER (Ramosia tipuliformis) - UTAH - In many red currant canes at Huntington, Emery County. (Knowlton).

A BLUEBERRY TIP BORER (Hendecaneura shawiana) - OHIO - Adults emerging in Wayne County June 1. (Still).



STRAWBERRY SPIDER MITE (Tetranychus atlanticus) - MARYLAND - Spotty damage on strawberry foliage and berry caps near Glenn Dale, Prince Georges County. (U. Md., Ent. Dept.).

#### ORNAMENTALS

HOLLYHOCK WEEVIL (Apion longirostre) - UTAH - Active at Logan, Cache County, and Salt Lake City, Salt Lake County. (Knowlton).

BAGWORM (Thyridopteryx ephemeriformis) - OKLAHOMA - Heavy and damaging evergreens in Payne County. (Okla. Coop. Sur.).

TOBACCO BUDWORM (Heliothis virescens) - CALIFORNIA - This species and Platyptilia pica medium on geranium nursery stock in growing ground in Encinitas, San Diego County. (Cal. Coop. Rpt.).

CALICO SCALE (Lecanium cerasorum) - CALIFORNIA - Heavy on dogwood nursery stock in Concord, Contra Costa County, and medium in Napa, Napa County. More abundant than usual. (Cal. Coop. Rpt.).

APHIDS - CALIFORNIA - Neophyllaphis podocarpi medium on podocarpus nursery stock in San Carlos, San Mateo County, and heavy at Fresno, Fresno County. Phyllaphis fagi medium on European beech nursery stock at Fremont, Alameda County. (Cal. Coop. Rpt.). NEVADA - Liosomaphis berberidis increasing on barberry in southern Washoe County. (Coop. Rpt.). UTAH - Myzocallis ulmifolii made foliage sticky at Kanab, Kane County. (Knowlton). COLORADO - Eriosoma lanigerum colonies numerous on ornamental crab apple trees in Larimer County. (Jenkins).

AZALEA LACE BUG (Stephanitis pyrioides) - FLORIDA - Nymphs and adults moderate on 60 percent of 2,000 azalea plants at Dover, Hillsborough County, during middle and late May. (Simmons). Controls applied. (Fla. Coop. Sur.).

#### FOREST AND SHADE TREES

TENT CATERPILLARS (Malacosoma spp.) - UTAH - Population and damage of M. fragile very light at Moab, Grand County, and Bluff, San Juan County, May 23. Only 10 percent as numerous and as destructive to cottonwood foliage as last year at Caineville, Wayne County; trees refoliating and only few 80 percent defoliated. (Knowlton). COLORADO - M. disstria larvae moderate; defoliating oak, ash, and hackberry in Denver area. Controls being applied. (Swingle). OHIO - M. americanum pupating in southern area; pupae numerous on wild cherry in Fairfield County; most larvae pupating in central and southern counties, but some late instars still feeding. (Rose).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - MICHIGAN - About 95 percent in final instar May 29 in Livingston County and excavating pupal sites; approximately 45 percent dead from natural causes. (Newman).

SPRUCE NEEDLE MINER (Taniva albolineana) - RHODE ISLAND - Common on spruce in nursery in Wakefield, Washington County. (Mathewson, May 25).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - COLORADO - Larvae moderate; defoliating ornamental trees, shrubs, and fruit trees in Denver area. Controls applied. (Swingle).

JACK-PINE BUDWORM (Choristoneura pinus) - WISCONSIN - Development continues slow in northwest as of May 26. (Wis. Ins. Sur.).

GEOMETRID MOTHS - MARYLAND - Paleacrita vernata larvae conspicuous on oaks near Denton, Caroline County. (U. Md., Ent. Dept.). SOUTH DAKOTA - Some P. vernata, but mostly Alsophila pometaria, on most elm trees at Fargo, Cass County. (McBride).

PINE TUSSOCK MOTH (Dasychira plagiata) - WISCONSIN - Development continues slow in northwest. (Wis. Ins. Sur.).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEVADA - Adults but no eggs at Winnemucca, Humboldt County (Lundahl); adults and eggs but no larvae in southern Washoe County (Bechtel). UTAH - Numerous; laid many eggs at Kanab, Kane County. (Knowlton). NEW MEXICO - Majority of egg masses on Siberian elm trees hatched May 22-27; adults abundant and feeding on foliage. (Kloepfer, Heninger). MISSISSIPPI - Larvae severely defoliated several elm trees in Oktibbeha County. (Dinkins). PENNSYLVANIA - Heavy flight in Bedford County May 26. (Udine).

PINE COLASPIS (Colaspis pini) - GEORGIA - Feeding on needles of young slash pine in Wayne County stand. (Hutcheson).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - NEVADA - Adults emerged and fed on crotches and buds of elm trees in Reno, Washoe County; damage severe in one area near tree surgeon's "wood piles". (Bechtel). WISCONSIN - Log in western Dane County with few empty pupal cases. Emergence continues in Dubuque area where general emergence began May 23. Temporarily delayed May 28 due to cool weather. (Wis. Ins. Sur.).

DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae) - OREGON - Light, with 1-6 attacks on standing scorched trees and 10 or more on wind-thrown trees in Ox Bow burn area of Lane County. Initial attacks noted May 12; egg galleries averaged 4 inches long May 29. (Kline).

NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) - NORTH DAKOTA - Adults collected in window trap in park at Hillsboro, Traill County. This is new county record. (Brandvik).

PINE SPITTLEBUG (Aphrophora parallela) - VIRGINIA - Nymphs active on some pitch pines in Spotsylvania County. (Isakson).

PINE TORTOISE SCALE (Toumeyella numismaticum) - WISCONSIN - Immature females active and secreting honeydew in Scotch pine planting in Langlade County May 19 and in open grown jack pine plantings May 23 in Florence County. (Wis. Ins. Sur.).

ARMORED SCALES - MINNESOTA - Chionaspis furfura heavy on elms at Cottage Grove near St. Paul. Hatch about complete; crawlers moving out from under parent scales. (Minn. Ins. Rpt.). WISCONSIN - All P. pinifoliae hatched and active on white pine needles in western Dane County May 31; 50 percent hatched and 1 percent crawling on spruce needles in Madison. (Wis. Ins. Sur.). MICHIGAN - P. pinifoliae crawlers active; 50-75 percent eggs hatched in Ionia County. (Dowdy). FLORIDA - Aspidiotus liquidambaris taken on sweetgum at Eastpoint, Franklin County, May 21. (Boatwright). This is a new county record. (Fla. Coop. Sur.).

BIRCH LEAF MINER (Fenusa pusilla) - RHODE ISLAND - Numerous at South Kingstown, North Kingstown, and Exeter, Washington County, and at Cranston Providence County on May 23. (Mathewson). NEW YORK - Appearing in Bayside and Little Neck in Nassau County; small mines with larvae abundant on gray birch at Highland. (N. Y. Wkly. Rpt., May 29). OHIO - Hatching in Wayne County. (Treece).

BALSAM GALL MIDGE (Dasineura balsamicola) - WISCONSIN - Eggs laid on balsam fir in Langlade County May 18. (Wis. Ins. Sur.).

SPRUCE SPIDER MITE (Oligonychus ununguis) - MARYLAND - Heavy on spruce planting near Hancock, Washington County. (U. Md., Ent. Dept.).

MAN AND ANIMALS

MOSQUITOES - UTAH - Total of 12,000 acres sprayed in Moab area, Grand County, May 23. Numerous and very annoying at Caineville and Torrey, Wayne County; annoyance increasing at Bluff, San Juan County; annoying in farm areas at Green River, Emery County, and Wellington, Carbon County. (Knowlton). MINNESOTA - Of 491 larval collections during week ending May 27, Aedes fitchii present in 218 and Culiseta inornata in 229. Total of 180 females taken in light traps same period: Culiseta inornata 80, Aedes aberratus 21, Culex restuans 13, and Culex tarsalis 11. (Minn. Ins. Rpt.). WISCONSIN - Most significant increase in central third of State. On May 26, adults, larvae, and pupae common in water along U. S. Highway 8 across entire State. Aedes sticticus numerous and bothersome in Wyalusing State Park in Grant County on May 25. (Wis. Ins. Sur.). MICHIGAN - Adults widespread over State. Larvae and pupae very low in mid-State areas sampled recently. (Dowdy). MARYLAND - Aedes sollicitans adults annoying strawberry pickers near Mardela, Wicomico County. (U. Md., Ent. Dept.). ALABAMA - Very heavy in Morgan and Cullman Counties May 25. Annoyance so heavy some workers abandoned fields. One farmer requested treatment for cattle that had been severely bitten. (Goodlett).

SCREW-WORM (Cochliomyia hominivorax) - Total of 3 cases reported in U. S. May 28-June 3 as follows: TEXAS - Terrell 1, Crockett 1, Real 1. Total of 75 cases reported in portion of Barrier Zone in Republic of Mexico May 21-27 as follows: Baja California 1, Territorio sur de Baja California 10, Sonora 24, Chihuahua 13, Coahuila 1, Nuevo Leon 8, Tamaulipas 18. Eighty-one cases reported in Mexico south of Barrier Zone. Barrier zone is area where eradication operation underway to prevent establishment of self-sustaining population in U. S. Sterile flies released May 28-June 3: Texas 20,752,000, Mexico 123,260,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - UTAH - On cattle at Moab, Grand County, and Green River, Emery County. (Knowlton). IOWA - Very light on cattle in central and west-central areas. (Iowa Ins. Sur.). OKLAHOMA - Counts per head by county as follows: Major 600 on yearlings, Woodward 1,000 on cows, Payne 550 on cows; heavy in Noble and Mayes Counties, moderate in Marshall, Bryan, and Cleveland Counties. (Okla. Coop. Sur.). ARKANSAS - Slow in building up and lighter than usual; probably due to below normal temperatures. (Simco). MISSISSIPPI - Very high in Chickasaw and Washington Counties, averaged 400-500 per head on 600 cattle; Hinds 25-50 on 712 cattle; Montgomery 100 on 95 head of cattle. (Dinkins).

SHEEP KED (Melophagus ovinus) - UTAH - Moderate to numerous in untreated flocks at Sappish Fork, Utah County, and Ephraim, Sanpete County; some lambs heavily infested. (Knowlton).

TICKS - RHODE ISLAND - Volume of complaints on Dermacentor variabilis indicate especially heavy populations. (King, Mathewson, May 26). PENNSYLVANIA - D. variabilis active in 9 southeast counties and in Erie County. Rhipicephalus sanguineus active in 6 southeastern counties. (Snetsinger et al.). ALABAMA - R. sanguineus numerous in wooded areas of Shelby County. (Knox). ARKANSAS - Amblyomma americanum heavy in wooded upland areas of State. (Simco). OKLAHOMA - A. americanum ranged up to 2,000 per head on cattle in Atoka and McCurtain Counties: 95 percent adults, 20 percent replete; heavy in Mayes County, moderate in Marshall County. (Okla. Coop. Sur.). UTAH - Otobius megnini light in most Beaver and Wayne County beef herds. (Knowlton).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - ARKANSAS - Heavy in Benton and Washington Counties. (Simco).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - OKLAHOMA - Numerous in several areas opened for vacation purposes. (Okla. Coop. Sur.).

## STORED PRODUCTS

TERMITES - SOUTH CAROLINA - Damaged cotton bales in warehouse at Bishopville, Lee County. Supporting wood timbers also damaged. This is most serious damage reported since 1937 when 500 bales of cotton were damaged in Barnwell County. (Nettles et al., May 30).

## BENEFICIAL INSECTS

LADY BEETLES - NEVADA - Adults 1-4 per sweep in alfalfa in Fallon, Churchill County, and Orovada, Humboldt County. (Arnett, Lundahl). NEW MEXICO - Adults, mostly Hippodamia convergens, averaged 6-35 per 25 sweeps in Dona Ana County alfalfa and barley infested with aphids. (Nielsen). Averaged 2-5 per 25 sweeps in alfalfa in Valencia County. (Heninger). KANSAS - Adults ranged 35-50 per 10 sweeps in most wheat fields checked in central district. (Simpson). IOWA - Remain very abundant in central area alfalfa and red clover. (Iowa Ins. Sur.). INDIANA - H. convergens present in rosy apple aphid colonies in Vincennes area; predation low. (Dolphin, May 29). ARKANSAS - Few H. convergens adults in alfalfa in Benton County. (Ark. Ins. Sur.). MISSISSIPPI - H. convergens adults light on cotton and soybeans in Yazoo County; no larvae observed. Coccinella novemnotata adults light in soybeans in same county; no larvae observed. (Dinkins).

DAMSEL BUGS - IOWA - Remain very abundant in central area alfalfa and red clover. (Iowa Ins. Sur.). ARKANSAS - Nabis spp. most numerous beneficial insects in Benton County area. Ranged 75-100 in 100 sweeps; 20-30 percent nymphs. (Ark. Ins. Sur.).

A FLOWER BUG (Orius insidiosus) - ARKANSAS - Adults ranged 25-30 in 100 sweeps in alfalfa in Benton County. (Ark. Ins. Sur.).

LACEWINGS - IOWA - Remain very abundant in central area alfalfa and red clover. (Iowa Ins. Sur.).

A EULOPHID WASP (Tetrastichus incertus) - VIRGINIA - One larva and one adult found in Hanover County alfalfa field. (Innes, May 31). ILLINOIS - Released in Vermilion, Mason, Fulton, Pike, and Scott Counties. (Ill. Ins. Rpt.).

HYMENOPTEROUS PARASITES - ARKANSAS - Numbers very low in Benton County area; probably due to cool weather. (Ark. Ins. Sur.).

AN ICHNEUMON WASP (Bathyplectes curculionis) - NEVADA - Adults 8-10 per sweep in alfalfa in one area of Fallon, Churchill County. (Arnett).

HONEY BEE (Apis mellifera) - RHODE ISLAND - First swarms of season in Providence. (D'Andrea, Mathewson, May 22).

ALKALI BEE (Nomia melanderi) - WASHINGTON - First early male at Gardena May 23; of overwintering prepupal samples dug from soil, only 12 percent pupated in late nesting site. Pupation of Heterostylum robustum (a parasitic bee fly) 50 percent in Wall Walla County. (Johansen, May 26).

## FEDERAL & STATE PLANT PROTECTION PROGRAMS

BROWN-TAIL MOTH (Nygmia phaeorrhoea) - Winter web survey completed April 28 in Maine, New Hampshire, and on Cape Cod, Massachusetts; if weather favorable, several islands in Casco Bay, Maine, to be surveyed in early May. New infestation on Cape Cod limited to 3 webs in 2 locations: one in town of Truro, south of generally infested area, and one in town of Wellfleet at Great Island. Infestations in that area currently limited to small acreages of 100 each at Dennis and Sandy Neck and approximately 9,000 acres in Provincetown and Truro.

New infestation at Wellfleet totals approximately 365 acres. Scouting of coastal towns in Maine north of York County revealed light infestations of approximately 50 webs at Falmouth Foreside and 10 webs at Yarmouth in Cumberland County. (PPC East. Reg.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Adult female collected in McPhail trap at St. Leo, Pasco County, May 26. This is a new county record. (Williams, Kennedy). Larvae severe on dooryard grapefruit at Stuart, Martin County, May 19 (Holder); 4 larvae taken from peach at Terra Ceia, Manatee County, May 18 (Chancey).

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - First hatch of season in research fields in Berrien County May 24. In 8 fields in Kalamazoo and St. Joseph Counties, plants outgrew increased adult damage, egg numbers low but increasing, larvae few, sprays not needed in most fields. (Dowdy).

GRASSHOPPERS - NEVADA - Hatch incomplete on rangeland east of Orovada, Humboldt County; first instars light. (Burnett, Dann, May 16). UTAH - Up to third instars, common but not numerous in alfalfa of Grand, San Juan, Emery, Carbon, Kane, and Sevier Counties. Cold spring weather apparently retarded hatching or reduced populations. Numerous winged grasshoppers at Monticello. (Knowlton).

NEW MEXICO - Nymphs abundant in 2 of 10 alfalfa fields checked in southern Dona Ana County; averaged 2-18 per 25 sweeps. (Nielsen). Nymphs averaged 3-10 per 25 sweeps in alfalfa in Los Lunas area, Valencia County. (Heninger).

OKLAHOMA - Threatening in Ellis, Harper, Major, Woods, Woodward, and Custer Counties, but infestations spotty with no major uniform economic populations at present. Higher counts of 10-25 per square yard in short grass range; ranged 2-8 per square yard in other grassland habitats. Nymphs approaching threatening levels in spots in Roger Mills, Dewey, Beaver, and Greer Counties but no general area of economic infestations found; ranged 3-15 per square yard with hatch incomplete. Ageneotettix deorum, Melanoplus bivittatus, Phlibostroma quadrimaculatum, Boopedon nubilum, Amphitornus coloradus, Aulocara ellioti, and Cordillacris occipitalis dominant in west-central and northwest counties. Counts ranged 0-15 per square yard in Harmon, Tillman and Cotton Counties. (Okla. Coop. Sur.). ARKANSAS - Survey made in 2 small areas in Benton County with history of heavy infestations. Only few small nymphs found. Much lower than normal. Unusually cool, damp weather may have retarded hatch. (Boyer).

SOUTH DAKOTA - Hatch continues. First instars averaged 10 per square yard in alfalfa east of Woonsocket, Sanborn County; mostly M. bivittatus with some M. sanguinipes. Hatch light in Meade, Haakon, Jackson, Washabaugh, Bennett, Shannon, Fall River, Custer, and Pennington Counties. Generally less than one per square yard in cropland; M. bivittatus, M. confusus, and M. differentialis present. Up to 8 first and second-instar nymphs per square yard in alfalfa margins along Cheyenne River in Fall River County. Hatch light on rangeland in western Haakon and western Fall River and Custer Counties. Mostly A. deorum first and second instars. (Burge, Zimmerman). NORTH DAKOTA - Light hatch continues in most areas; less than 1 per square yard in field margins in Burleigh and Morton Counties. (Brandvik). MINNESOTA - M. femurrubrum and M. packardii eggs well coagulated. Few noneconomic adult grasshoppers present in Sherburne County; overwinter as nymphs and appear in early spring. (Minn. Ins. Rpt.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Moth emergence decreased in nearly all locations. (Ariz. Coop. Sur.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ALABAMA - Medium and localized larval population damaged peas and beans in garden at Luverne, Crenshaw County. (Knox).

INSECT DETECTION

New State Records

ARMY CUTWORM (Chorizagrotis auxiliaris) - MISSOURI - Two adults collected in light trap at Carrollton, Carroll County, May 19-25. (p. 477).

MEADOW SPITTLEBUG (Philaenus spumarius) - MISSOURI - Adults on alfalfa in Lewis County. Det. by W. S. Craig. (p. 482).

New County and Island Records

ARMY CUTWORM (Chorizagrotis auxiliaris) - MISSOURI - At Columbia, Boone County, May 26-27; collected and det. by W. S. Craig. (p. 477).

ALFALFA WEEVIL (Hypera postica) - MISSOURI - Clark, Knox, Lewis, Monroe, and Shelby Counties. NEBRASKA - Buffalo and Phelps Counties. (p. 480).

NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) - NORTH DAKOTA - Traill County. (p. 490).

AN ARMORED SCALE (Aspidiotus liquidambaris) - FLORIDA - Eastpoint, Franklin County, May 21. (p. 490).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - St. Leo, Pasco County, May 26. (p. 494).

BEAN POD BORER (Maruca testulalis) - HAWAII - Lanai. (p. 494).

HAWAII INSECT REPORT

Vegetables - All stages of TARO LEAFHOPPER (Tarophagus proserpina) light in 4 acres of taro in Kahaluu and medium in small plantings in Waiahole, Oahu. Averaged 0.5 adult per leaf stem in Kahaluu, 4 in Waiahole. Light in 5 acres at Waihee, Maui. Nymphs and adults of a predacious capsid bug (Cyrtorhinus fulvus) very light in all areas. (Suzukawa, Shinbara, Miyahira). LEAF MINER FLIES (Liromyza spp.) - All stages heavy and causing heavy foliar damage in 5 acres of watermelon and 1 acre of tomatoes in Mana and Wailua, Kauai. Plants nearly defoliated in some sections. (Fujimoto). BEAN POD BORER (Maruca testulalis) larvae light on lima bean plantings at Lanai City, Lanai. This is new record for Lanai Island. (Miyahira). CARMINE SPIDER MITE (Tetranychus telarius) remains problem in snap bean fields at Waianae, Oahu. (Yamamoto).

Fruits - RED-BANDED THRIPS (Selenothrips rubrocinctus) nymphs and adults heavy on guava foliage and fruits in Waiamanalo, Oahu. Over 50 per cent of immature fruits totally discolored. (Au, Kuboto).

Forest and Shade Trees - ACACIA PSYLLID (Psylla uncatoides) remains moderate on foliage of Acacia koa in the Kawaihoa Forest Reserve, Oahu. Nymphs or adults averaged 11 per sweep compared with 8 on May 1. Populations increasing on A. koa along the Pali Highway in Honolulu and on Formosa koa (Acacia confusa) at golf course in Kaneohe. Adults per sweep averaged 2 along highway and 4 in golf course compared with 1 per 5 sweeps at both places in late March. (Jackson, Funasaki, Kajiwaru).

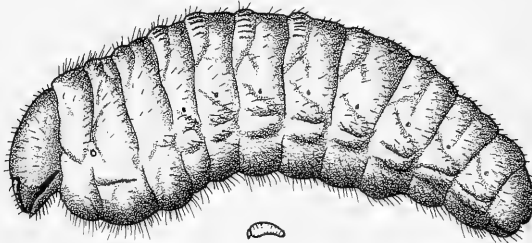
Beneficial Insects - CANE LEAFHOPPER EGG SUCKER (Tytthus mundulus) nymphs and adults heavy on sugarcane in Huleia, Kauai. Feeding on eggs of sugarcane leaf-hopper, Perkinsiella saccharicida. (Au).



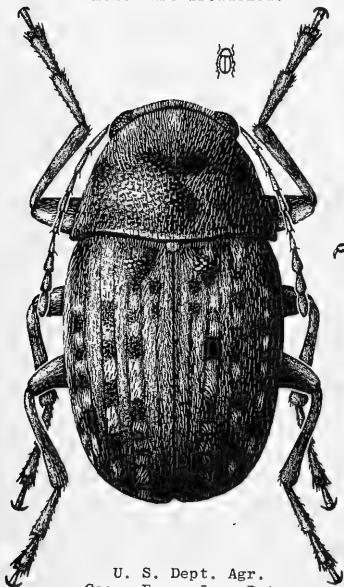
IDENTIFICATION OF THE COFFEE BEAN WEEVIL, Araecerus fasciculatus (DeGeer)

This nearly cosmopolitan species is a pest of a wide variety of dry stored vegetable materials. It is often taken in warehouses and intercepted in plant products shipped into the country, and is likely to be found in beans or seeds, in dried fruits, or in dry stalks or twigs. The small figure accompanying each drawing equals actual size.

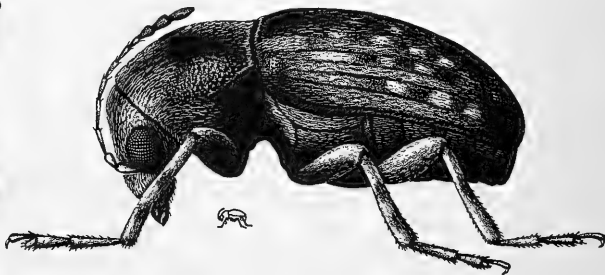
LARVA - The larva is creamy-white, legless, elongate-cylindrical, and curved; some dorsal folds of the body bear fine, longitudinal wrinkles. Larvae of other members of the genus Araecerus are quite similar.



ADULT - This dull brownish beetle bears rather dense, non-bristly pubescence. The color is not entirely consistent; some specimens are noticeably darker and others lighter than the majority. The head is not or just partially visible from the dorsal view and is developed into a snout; the last 3 antennal segments are broadened.



U. S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
17(23):496, 1967

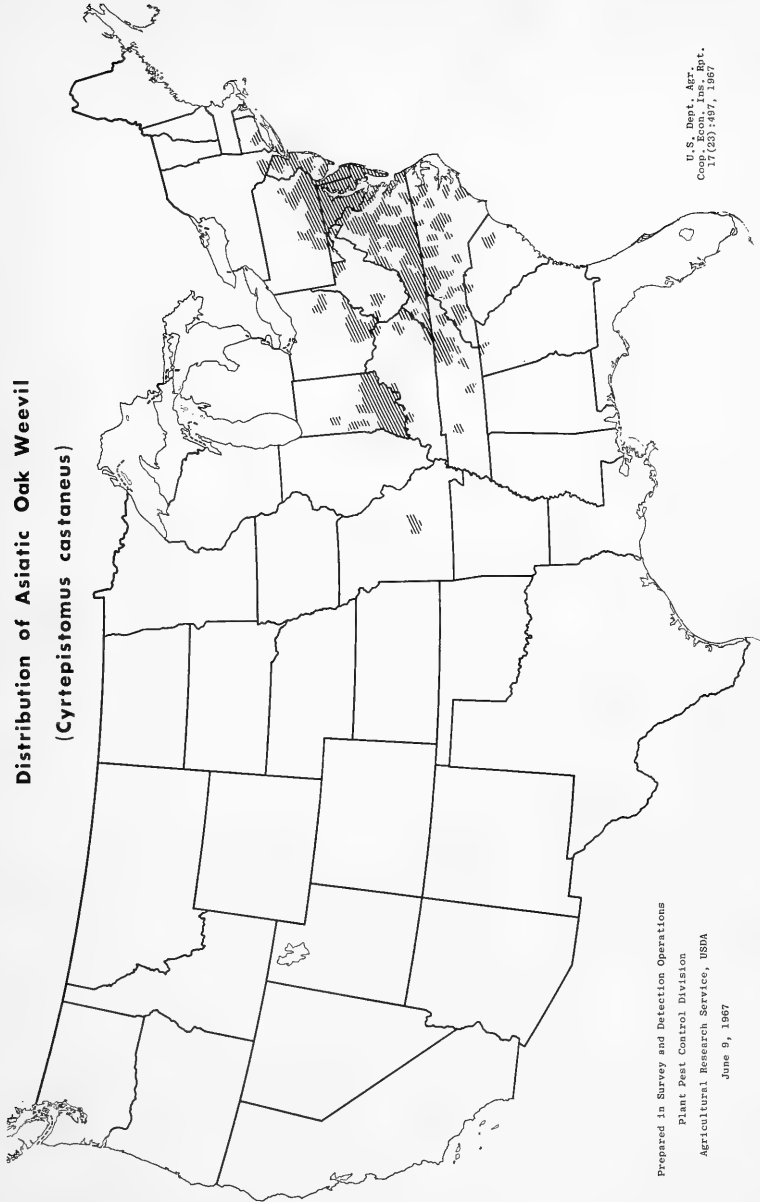


Note the mottled pattern of the pronotum  
and the dark and light spots on alternate  
elytral intervals.

Richard E. White  
Entomology Research Division  
ARS, USDA  
Washington, D. C.



**Distribution of Asiatic Oak Weevil  
(*Cyrtopistomus castaneus*)**



Prepared in Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service, USDA  
June 9, 1967

U. S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
17 (23):497, 1967

WEATHER OF THE WEEK ENDING JUNE 5

HIGHLIGHTS: Cool weather generally as beneficial rains relieved the drought in portions of Colorado, Texas, and Florida. Flash floods occurred in Kansas, North Carolina, and Georgia. Summer heat arrived in New England after 9 cool weeks.

PRECIPITATION: Several previously dry areas received beneficial rains during the past week. Totals of 1 to 3 inches in Colorado's eastern plains broke the drought and caused some fear of flooding. Kansas received substantial rains, with many 1 to 2-inch totals. Many parts of Florida received drought-relieving showers. Late in the week, local downpour came to Kansas, North Carolina, and Georgia. Dry areas during the week included the Far Southwest and the northern Great Plains and Lake regions; the forest fire danger increased in northeastern Minnesota. It was a dry week in northern New York and New England.

SEVERE STORMS: Hail as large as baseballs fell near Electra, Texas, on Tuesday. Numerous tornadoes occurred at midweek from Colorado to Florida; no fatalities reported. On Thursday, violent weather dotted the South from Texas to Florida. Hail the size of golf balls fell at Lubbock, Texas, where 4.75 inches of rain fell in 2 hours. The winds at Lubbock reached 92 m.p.h. Hail accompanied by winds gusting to 84 m.p.h. occurred near Tampa, Florida. On Friday, two tornadoes were reported in Idaho where tornadoes seldom strike.

TEMPERATURE: Cool weather prevailed most of the week from the Pacific to the Atlantic; in much of the Northeast this was the 6th to 9th cool week. Temperatures averaged 5 degrees to 9 degrees below normal from the Black Hills to the middle Atlantic coast but were near or above normal from North Dakota to Lake Huron. Warm weather continued along the gulf coast with temperatures averaging near or slightly above normal. After one of the coolest Mays on record, temperatures in the Northeast rose sharply after June 1, reaching 90 degrees at a number of places in northern New England over the weekend. (Weather summary supplied by Environmental Data Service, ESSA.).



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*Cooperative*  
ECONOMIC INSECT  
REPORT

*Issued by*

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMYWORM damaging small grains in several areas. CORN EARWORM larvae heavy on corn in areas of Alabama and Arizona; moths in light traps in Colorado. (p. 501). POTATO PSYLLID buildup high on wild host plants in southeast Colorado. TOBACCO BUDWORM remains serious on flue-cured tobacco in northern Florida. (p. 502).

EUROPEAN CORN BORER egg masses reported in northwest Missouri. (p. 502). CORN FLEA BEETLE heaviest since 1954 on sweet corn in lower Hudson Valley, New York; injuring field corn in Delaware. (p. 503).

ALFALFA WEEVIL continues damaging in many areas. (p. 506). PEA APHID populations high on alfalfa in Arkansas, Missouri, and Nevada; increasing in Minnesota. (pp. 507, 508). THREE-CORNERED ALFALFA HOPPER increasing on soybeans in Mississippi. (p. 508, 509). TOBACCO THRIPS damaging peanuts in several areas of Alabama. (p. 509). Overwintered BOLL WEEVILS present in large numbers in western Tennessee; emergence also heavy in Alabama and southern Georgia; punctured squares reported in several areas. THRIPS damaging cotton in western Tennessee and southeast Missouri. (pp. 509, 510).

POTATO TUBERWORM present in large numbers on Virginia Eastern Shore. (p. 512). ONION THRIPS increasing and damaging onion transplants in Arkansas Valley area of Colorado. (p. 513).

EUROPEAN PINE SAWFLY defoliating some pines in areas of Ohio. (p. 519). HORN FLY increasing in New Jersey; heavy in Oklahoma and Mississippi.

PINK BOLLWORM adults trapped in several areas of California; moth catches increased in Arizona. (p. 522).

Detection

New State records include a FULGORID PLANTHOPPER, a MELANDRYID BARK BEETLE, a SCARAB, and TWIG GIRDLER in Delaware. (p. 524). For new county and island records see page 524.

ALFALFA WEEVIL and CEREAL LEAF BEETLE reported in eastern Canada. (p. 524).

Prediction

CHINCH BUG expected to be of minor importance in Indiana during 1967. (p. 504).

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Reports in this issue are for week ending June 9 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING JUNE 12, 1967

HIGHLIGHTS: Hot and humid with frequent showers and outbreaks of violent weather over mid-America. Cool, dry, much of West and Southeast.

PRECIPITATION: A stationary front persisted for the entire week in an area from Colorado to the upper Great Lakes. The front marked the clash between hot moisture laden gulf air and cooler air from the North. As the front refused to move, violent weather became widespread and frequent. Tornadoes, severe thunderstorms, hail, high winds, and many heavy showers occurred from Idaho to Illinois and southward to Texas. Florida also received some generous rains from another system. Hail as large as baseballs fell near Akron, Colorado. Showers dumped 6 to 7 inches of rain at Verdigrée, Nebraska, and 8 inches at Muscatine, Iowa. The violent weather increased as the weekend approached. More than 100 twisters were seen - mostly in eight States from Colorado and Oklahoma to Wisconsin and Illinois. The storms caused injuries, but relatively few deaths. Many trees were uprooted, power lines downed, and buildings destroyed. The heavy showers flooded highways, washed out bridges, and flooded low-lying farm lands. Soil moisture was improved in the Dakotas, Montana, and Minnesota. Not all areas received rain. A wide belt from the lower Rio Grande and extending northeastward to the Atlantic coast from New England to North Carolina received little or no rain. Rainfall was also lacking or light over southern California and Arizona.

Weather continued on page 519.



### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMYWORM (Pseudaletia unipuncta)** - KANSAS - Damaged brome and wheat in Johnson County. (Gates). MISSOURI - Heavy in wheat in Carroll County. Third and fourth instars ranged 3-35 per square foot. Ranged 2-15 per square foot in central area. Light in east-central and northeast areas. Larvae moving from wheat to other crops in north-central areas. Controls underway in central and north-central areas. (Munson). ILLINOIS - Larvae damaged south-central and central area wheat; aerial treatment extensive. (Moore, Kuhlman). MICHIGAN - In blacklight traps in greater than normal numbers. (Newman). VIRGINIA - Larvae feeding on barley in 4 fields in Culpeper County; up to 6 second and third instars per square foot. (Isakson, Heltzel). MARYLAND - Several infestations in small grains in Somerset and Worcester Counties. (U. Md., Ent. Dept.). DELAWARE - Young larvae in barley in Sussex County (MacCreary); adults averaged 2 per night in blacklight trap collections in county (Burbutis). MASSACHUSETTS - First 3 moths of season in blacklight trap at East Wareham, Plymouth County, June 2. (Tomlinson).

**BEEF LEAFHOPPER (Circulifer tenellus)** - COLORADO - Averaged 0.2 per square foot on sugarbeets in 8 to 12-leaf stage in Loma, Mack, and Fruita areas of Mesa County, June 1. Light in all fields checked. (Bulla).

**CORN EARWORM (Heliothis zea)** - ALABAMA - Larvae heavy in silking corn in central and southern areas. Egg laying underway; 1-5 eggs per ear common. (McQueen). TEXAS - Light to occasionally heavy and feeding in ears of corn and on tomatoes throughout Jasper County. Larvae as high as 3-4 per ear of corn and per tomato. In some instances, as many as 3 of 6-10 tomatoes per plant infested. (Gaskamp). COLORADO - Moths taken in light trap at Fruita, Mesa County, in late May and early June; 12 in one 7-day period. (Bender, Bulla). ARIZONA - Heavy (140 per 100 plants) in corn near Coolidge, Pinal County. Repeated controls necessary. (Ariz. Coop. Sur.).

**CORN LEAF APHID (Rhopalosiphum maidis)** - ALABAMA - Widespread in all corn in State. Maize dwarf mosaic reported widespread in early corn in Shelby County; 95-100 percent of stalks affected in some fields. (Clark). MISSISSIPPI - Averaged one alate per whorl in 19 percent of corn plants 6-8 inches tall in Oktibbeha County field. In Yazoo County, smaller percentage of young plants infested, but infestations per plant much heavier. (Dinkins). TEXAS - Heavy on Sudan grass near Giddings of Lee County. (Spivey). NEW MEXICO - Light to moderate on oats and barley in Roswell, Chaves County. (Mathews). OKLAHOMA - Moderate to heavy in Sudan grass near Marshall, Logan County. Lady beetles numerous. (Okla. Coop. Sur.). KANSAS - Light, 1-15 per plant, on corn and sorghum in Cowley, Butler, Chase, Lyon, Shawnee, Jefferson, and Atchison Counties. Most adults winged; some young nymphs. (Simpson). UTAH - This and a second species very numerous on dryland wheat over large areas at Monticello, San Juan County. (Knowlton).

**GREENBUG (Schizaphis graminum)** - KENTUCKY - Caused much damage to wheat in Fulton County. Ranged 5,000-10,000 per square foot on 6,000-7,000 acres. As many as 1,000 aphids on some plants; averaged 200 on many leaves. In some instances, numbers so heavy, wheat plants had fallen to ground. (PPC Cent. Reg., Apr. Rpt.). WISCONSIN - Increasing slowly in Iowa, Grant, and Columbia Counties; averaged 4 per 50 sweeps. (Wis. Ins. Sur.). MINNESOTA - Low in south-central, southwest, and central districts; none found in west-central and northwest districts. (Minn. Ins. Rpt.). NORTH DAKOTA - Light in Sargent County; 5 per 100 sweeps on spring wheat. (Brandvik).

**POTATO LEAFHOPPER (Empoasca fabae)** - COLORADO - Ranged 5-25 per 100 sweeps of potatoes at Gilcrest, Weld County. (Urano). INDIANA - First nymphs of season on alfalfa in southwest and south-central districts. Ranged 2 per 5 sweeps to 2 per sweep. (Huber). MARYLAND - First adults of season swept from alfalfa near Upper Marlboro, Prince Georges County, June 5. (U. Md., Ent. Dept.). DELAWARE - Adults present on potatoes in eastern Kent County. (Burbutis, June 2).

POTATO PSYLLID (*Paratrioza cockerelli*) - UTAH - Single specimen taken in 25 sweeps on matrimony-vine at Sandy, Salt Lake County, and 2 at Gunnison, Sanpete County. (Knowlton, May 27). COLORADO - Continues low on matrimony-vine in Weld County; 10-20 per 100 sweeps. Very light on potatoes in Weld County; 0-4 per 100 sweeps. In Otero and Bent Counties, averaged less than 1 per 100 sweeps; however, buildup on wild host plants high; 700-1,600 per 100 sweeps. (Urano et al.). None found on tomatoes in Arkansas Valley. (Schweissing).

SIX-SPOTTED LEAFHOPPER (*Macrosteles fascifrons*) - IOWA - Ranged 1-10 per 10 sweeps in Decatur County alfalfa. (Iowa Ins. Sur.). MINNESOTA - Very low in northern half of State. Ranged 20-130 per 100 sweeps on small grains in south-central and southwest districts; averaged 40-50 per 100 sweeps in most fields. (Minn. Ins. Rpt.). WISCONSIN - Dispersal in grain apparently decreased; averaged 8 per 50 sweeps in Iowa, Columbia, and Grant Counties, compared with 12 per 50 sweeps last period. (Wis. Ins. Sur.). MICHIGAN - Numbers declined. (Guyer, June 5).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - NEW MEXICO - Generally light on alfalfa with isolated fields showing increased buildups. (N. M. Coop. Rpt.). COLORADO - Still found in few fields in Pueblo, Crowley, Otero, Bent, and Prowers Counties. Populations average less than 10 per 100 sweeps. Very light trace reported in area south of Johnstown, Weld County. Considering prevailing weather, it is unusual this aphid is found in northern area. (Schweissing, Carter). KANSAS - None in alfalfa checked in Sumner, Sedgwick, Crowley, Butler, Chase, Morris, Lyon, Wabaunsee, Riley, Pottawatomie, Jackson, Jefferson, Atchison, Brown, and Nemaha Counties. (Simpson). OKLAHOMA - Averaged 50 per 10 sweeps in alfalfa in Jackson County. Probably this species, heavy in Pontotoc County alfalfa. (Okla. Coop. Sur.). ARKANSAS - Survey negative in Crawford County. (Ark. Ins. Sur.).

TOBACCO BUDWORM (*Heliothis virescens*) - FLORIDA - Remains serious on flue-cured tobacco in northern area. (Kuitert).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NEW YORK - First moth in emergence cage at Highland June 5. (N. Y. Wkly. Rpt.). DELAWARE - Adults increased in blacklight trap collections in Sussex County; averaged 9 per night. Adults observed throughout State in weeds, pepper seed beds, and potato fields. (Burbutis). MARYLAND - Adults averaged 5 per night in blacklight traps on Eastern Shore. (U. Md., Ent. Dept.). OHIO - Blacklight trap collections indicate moths much more common in central area. (Rose). First adult June 5 in Wayne County. (Barry). MICHIGAN - First males from traps in early June in Lenawee, Macomb, and Livingston Counties. (Newman). ILLINOIS - Adult emergence percentages by district: Southern 100, south-central 28, central 32, and north-central 24; north district pupation 84 percent. (Moore, Kuhlman). IOWA - Adults light in south-central, central, and southeastern areas. (Brindley et al.). MINNESOTA - Pupation low in southwest, west-central, and central districts. (Minn. Ins. Rpt.). KANSAS - Adults numerous in weeds and grasses bordering corn in Shawnee, Jefferson, Atchison, Brown, and Nemaha Counties. Blacklight trap catches increased in Brown County. (Simpson). MISSOURI - Larvae moderate to heavy on early corn in southwest area. Leaf feeding on 90 percent of plants 56 inches tall with leaves extended. In Dade County, leaf feeding on 68 percent of 48-inch corn and 40 percent on 38-inch corn. First and second instars ranged 2.5-11 per infested plant. In northwest area, fresh egg masses averaged 3 per plant on 24 to 30-inch corn. Leaf feeding damage as high as 16 percent of plants on 34-inch corn in east-central area; no larvae found in this field. (Munson).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - GEORGIA - Heavy in Decatur County corn. (Wheeler).

BLACK CUTWORM (Agrotis ipsilon) - INDIANA - Early instars averaged 2 per 100 feet of row on corn in Jay and Clinton Counties. (Gould). ILLINOIS - Damaged corn in north-central, central, and south-central area fields. (Moore, Kuhlman). MISSOURI - Larvae fed on corn in central area. Stands reduced 1 percent in some fields in Boone and Audrain Counties. (Munson). WISCONSIN - Damage noticeable on corn in Waushara, Marquette, Portage, southern Trempealeau, and some portions of Columbia Counties. In Columbia County, damaged corn previously in sod. In Waushara County, damage extensive enough to warrant some replanting. (Wis. Ins. Sur.). SOUTH DAKOTA - Heavy, 1-4 larvae per hill (average 2), in 50-acre corn field northeast of Madison, Lake County. Most plants clipped off; in many large areas not a single plant standing. (Berndt).

PALE WESTERN CUTWORM (Agrotis orthogonia) - KANSAS - Larvae still present and damaging row crops in southwest. (Gates). OKLAHOMA - Probably this species has materially reduced stand of 4-inch corn in Texas County. Field will be replanted. (Okla. Coop. Sur.).

DINGY CUTWORM (Feltia subgothica) - NEBRASKA - Damaged corn on soil bank land in Scotts Bluff County. (Hagen).

CORN FLEA BEETLE (Chaetocnema pulicaria) - NEW YORK - Moderately active in commercial sweet corn areas of Ulster County. Three sprays by May 31 gave good control on 4-leaf corn, but high temperatures June 1-2 increased activity; untreated 2-leaf corn in Dutchess County had 10-20 beetles per 100 plants by June 1, heaviest since 1954. Inspections made to determine northern limits of winter survival in Hudson Valley: Beetle signs at south edge of Rensselaer Village, none at Castleton bridges, and present at Middlebury, Schoharie County. (N. Y. Wkly. Rpt., June 5). DELAWARE - Adults numerous; causing noticeable injury to field corn in areas of Kent and Sussex Counties. (Burbutis). MARYLAND - Adults averaged 1 per plant on sweet corn near Centreville, Queen Annes County. (U. Md., Ent. Dept.). OHIO - First flea beetle occurrence of season, probably this species, reported on corn in Darke County. (Jones).

FLEA BEETLES - KANSAS - Damage to corn continues in northeast. (Kan. Ins. Newsltr.). VIRGINIA - Adults light on corn at Steeles Tavern, Rockbridge County. (Woodside).

SUGARCANE BEETLE (Euethoeola rugiceps) - ALABAMA - Adults again present in 75-acre field of corn in old sod land in Dallas County; field previously destroyed and replanted. Beetles being controlled with soil insecticides very satisfactorily. Numerous dead and dying adults observed. (Speir).

SEED-CORN BEETLE (Agonoderus lecontei) - ILLINOIS - Extensively injured Adams County cornfield; moderately damaging corn in Tazewell, Lee, and De Kalb Counties. (Moore, Kuhlman).

WIREWORMS - ILLINOIS - Severely damaged corn in De Witt County fields. (Moore, Kuhlman). NEW YORK - Field of corn planted May 18 in Livingston County contains one half-grown Limonius agonus larva per kernel; stand established despite infestation. (N. Y. Wkly. Rpt., June 5).

WHITE GRUBS - MINNESOTA - Damaging corn in Redwood County. (Minn. Ins. Rpt.). NEBRASKA - Larvae in Kearney County cornfield averaged about 3 per square foot. (Keith, Beland, June 2). MISSOURI - Phyllophaga spp. adults emerging from corn in southwest area field. Stand reduced earlier in season, probably by larvae. (Munson).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Due to rather early spring, economic populations in few sorghum fields. (Texas Coop. Rpt.). Very sporadic, but economic infestations of 6-8 adults per head near Ben Arnold, Milam County, (Moore), and near Hearne, Robertson County, (Randolph). Adult populations in all of many fields checked from Jackson, De Witt, Karnes, and Atascosa Counties north to Hill, Bosque, and Comanche Counties, considered noneconomic and do not warrant controls. Few midges found in several fields indicating first major generation will emerge during mid-June. (Texas Coop. Rpt.).

SEED-CORN MAGGOT (Hylemya platura) - NEW JERSEY - Total of 521 adults taken on 5 sticky boards at Cedarville; ranged 61-186 June 5. (Ins.-Dis. Newsltr.).

THRIPS - MISSOURI - Damaged small corn in southwest area; ranged 5-20 per plant in scattered fields. (Munson).

GARDEN SYMPHYLAN (Scutigerella immaculata) - COLORADO - Damaged corn in Kuner area, Weld County. (Rothe).

SLUGS - VIRGINIA - Damaging sod-planted corn in Alleghany County. (Isakson, Copehaver, June 2). Feeding on 2 to 6-inch sod-planted corn in Pulaski County. (Isakson).

#### SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - MICHIGAN - Adults and nymphs still widespread in wheat; becoming established in most oats sampled. (Dowdy). WISCONSIN - Increasing slowly, 20 per 50 sweeps, in Iowa, Grant, and Columbia Counties. (Wis. Ins. Sur.). NORTH DAKOTA - Remains low in all areas; highest, 10 per 100 sweeps, on Richland County spring wheat; 4 per 100 sweeps in Pembina County. (Brandvik). MINNESOTA - Low in south-central, southwest, and central districts; none found in west-central and northwest districts. (Minn. Ins. Rpt.). ARIZONA - Light on barley in Kansas Settlement area, Cochise County. No apparent damage. (Ariz. Coop. Sur.). CALIFORNIA - Medium on 40-acre oat planting in Dos Palos, Fresno County. (Cal. Coop. Rpt.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - WASHINGTON - Averaged 50 per wheat plant in Eltopia field, Franklin County; unusual abundance past month probably due to mild winter. (Johansen, June 5).

CHINCH BUG (Blissus leucopterus) - INDIANA - Overwintering survival in 52 bunch grass samples collected March 21-23 in west-central and east-central districts noneconomic; only 3 had more than 50 per square foot: 60 adults at Ade, Newton County, 81 at Geneva, Adams County, and 91 at Eaton, Delaware County. Potential importance in 1967 predicted as minor in State. (Huber, June 5).

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - ARKANSAS - Numbers probably higher than for past few years although no standard counting methods systematically used. Traditionally controlled by drainage. Timing based on degree of root pruning. Control by automatic seed treatment very effective for several years prior to 1966 when species became resistant. Numbers probably built up last year. Sticky boards in rice fields being tried as survey tool for adults. No weevils taken by June 5 on boards placed in fields June 2; however, 3,000 weevils taken by June 7 on 48 small plots in Arkansas County. No prior records available for comparison. (Tugwell). TEXAS - Larvae moderate and damage light in field of rice near Bay City, Matagorda County. (Vestal).

WHITE GRUBS (Phyllophaga spp.) - NORTH DAKOTA - Ranged 3-5 per square foot; damage moderate to heavy in small grain fields in McIntosh, Dickey, and Pembina Counties. (McBride).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Damaged at least 20,000 acres of fall dryland wheat in San Juan County, largely at Monticello area. One grower plans to spray 3,000 acres. (Knowlton, Jones).

#### TURF, PASTURES, RANGELAND

GRASS BUGS - UTAH - Irbisia spp. conspicuously marking 5 percent of giant ryegrass examined in Logan Canyon, Cache County, and occasional plants in the Pickleville and Laketown area of Rich County. A green grass bug more numerous in one area near Bear Lake, causing discoloration. Irbisia pacifica severely discolored and

bleached 3,000 acres of range planted grasses in vicinity of and in mountains about Beaver Dam, Box Elder County. Population 80 percent winged adults. As many as 50-800 per clump of grass. (Knowlton). Labops hesperius damaged 400 acres of planted range grasses in area 20 miles east and 2 miles north of Saline, Sevier County. (Rickenbach, Knowlton). Up to 1,000 L. hesperius or more per square foot in an area of Kanab Creek; only 5 percent adults. At lower elevations, including Sheep Creek, populations largely adult. Mating underway; populations spotty and damage conspicuous wherever numerous. Lower in Pines area, but generally highest in East Fork area, Garfield County. Apparently lower than 1966 in several areas. Aerially sprayed 1,400 acres in control tests. (Thornley, Knowlton). Irbisia spp. and other grass bugs moderately discoloring giant rye grass and other grasses in Huntsville and Eden area of Weber County. (Knowlton). NEW MEXICO - Surveys in Santa Fe National Forest and adjacent areas during May showed L. hesperius caused limited damage to crested wheatgrass plantings in most reseeded areas. Hatched about one month earlier than previously since pest has been under observation. (PPC).

A CHINCH BUG (Blissus insularis) - TEXAS - Moderate to heavy with damage noted in St. Augustine grass lawns throughout Seguin, Guadalupe County. (Massey).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Limited survey made in untreated area in Colfax County May 24. Egg masses plentiful in much of area, but no hatching observed. Collected egg masses hatched at room temperature in 48-72 hours. (PPC).

BLUEGRASS WEBWORM (Crambus teterrellus) - KANSAS - Moths unusually heavy for this time of year in Riley County. (Brooks).

A PYRALID MOTH (Surratha indentella) - KANSAS - Up to 240 sixth-instars per square foot, mostly on golf courses, in Ellsworth, Rice, Kingman, Pawnee, and Meade Counties; considerable damage to buffalo grass in infested spots. (Thompson).

WHITE GRUBS - NORTH DAKOTA - Ranged 3-5 per square foot; damage moderate to heavy in pastures in fields in McIntosh, Dickey, and Pembina Counties. (McBride). NEBRASKA - Phyllophaga anxia and others severely damaged pastures in Buffalo, Hall, Kearney, Pierce, Phelps, and Polk Counties. (Keith et al.).

THRIPS - ARIZONA - Chirothrips spp. ranged 1-4 per boot in Bermuda grass seed fields in lower Yuma Valley and the Texas Hill area of Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Adults and larvae of Anaphothrips obscurus and A. zeae abundant on several cool season grasses (Agropyron spp.) grown under irrigation at Los Lunas, Valencia County. Chirothrips simplex females common on several cool and warm season grasses grown under cultivation in same area. C. mexicanus present in typically small numbers. Most, if not all, adults presumed to be overwintered females. No males observed. (Watts).

A CHLOROPID FLY (Scatonia graminivora) - NEW MEXICO - This recently described species building up rapidly on cultivated alkali sacaton (Sporobolus airoides) at Los Lunas, Valencia County. First adults of season taken May 5; rapid buildup apparent last week in May. Third instars found May 29. (Watts).

BERMUDAGRASS MITE (Aceria neocynodonis) - OKLAHOMA - Light on many lawns in Oklahoma County, but severe on occasional lawn. (Okla. Coop. Sur.). TEXAS - Moderate on Bermuda grass lawns in Abilene, Taylor County, and in Houston, Harris County. (Crain, Fruman).

GRAY GARDEN SLUG (Deroceras reticulatum) - CALIFORNIA - Medium on dichondra and Bermuda grass turf in Highland, San Bernardino County. (Cal. Coop. Rpt.).

## FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - VERMONT - Averaged 1 adult per 3 sweeps and larvae up to fourth instar, 1 per 2 sweeps. (MacCollom, June 5). MASSACHUSETTS - In 5 Hampshire County fields, adults 0-4 per 100 sweeps, larvae 5-256; damage obvious in fields with high larval counts. In 6 Berkshire County fields, adults 7-30 per 100 sweeps, larvae 0-98. (Miller, June 2). RHODE ISLAND - Larvae feeding at Gloucester and Johnston, Providence County; very few larvae but many eggs in field at Kingston, Washington County. (King, Mathewson, June 1). CONNECTICUT - Larval feeding heavy in Southbury area; 70 percent of tips injured; 10 percent of tips injured at Northford. (Kemmerer, June 7). Numerous adults in Woodstock and Plainfield area; some fields show 50 percent of tips damaged. (Roberts, June 7). At Storrs: 10 adults and 32 larvae per 100 sweeps, no eggs as of June 5; larval injury not evident. (Savos). NEW YORK - In Livingston County, 10 larvae per 10 sweeps, 1 adult per 30 sweeps. In Allegany County, larvae only found 3 miles south of Wellsville, 6-10 per 10 sweeps; adults 1-2 per 10 sweeps. Eggs not easily found in any area. Alfalfa 6-10 inches high. Larval numbers increased with warm temperatures in Tompkins, Tioga, Ulster, and Rensselaer Counties; increased 10-fold (30-50 per sweep) in an Ulster County field. Most larvae small, but approaching third or fourth instar in Ulster County field where alfalfa half vegetative and half in bud stage. Most fields 30-40 percent damaged in Rensselaer County; one field 50 percent or more damaged. Controls applied or underway. (N. Y. Wkly. Rpt., June 5). Eggs and adults reported in Oswego and Wayne Counties in CEIR 17(22):458. Adults, eggs, and larvae reported in Livingston County in CEIR 17(23):480. These are new county records. (PPC). NEW JERSEY - Many growers apply stubble sprays in central and southern counties. (Ins.-Dis. Newsltr.).

ALABAMA - Established stands of white clovers damaged earlier at Tallassee in Elmore County and in Madison County recovered from damage by first-generation larvae and adults. No permanent damage apparent to established stands of Regal or other white clovers. Regal clover and alfalfa planted in fall of 1966 in mixture with orchard grass and ryegrass in 30-acre field in Madison County completely destroyed this spring. (Johnston, Andrews). MISSISSIPPI - Shortly before second cutting of alfalfa in Pontotoc County field, 50 sweeps made with 15-inch net in area flame treated in February, and in untreated area; 41 adults and 62 larvae taken in treated area, 57 adults and 108 larvae taken in untreated area. (Dinkins). OHIO - Continues most destructive insect in State. First cutting of alfalfa hay nearly 20 percent completed June 5. (Ohio Crop & Weather Bull.). Feeding damage in untreated cases 50-100 percent; loss high in heavily infested fields; hay stubble treated in Medina, Wayne, and Ashland Counties. More damaging in Holmes County field where only grass remains. Most sprays successful but control inadequate in some instances probably due to faulty application. Pupation begun; cocoons present in northeastern area. (Glass, Niemczyk). Larvae ranged 55-120 per sweep in alfalfa sampled in Holmes, Coshocton, and Franklin Counties. Damage apparent on 60-90 percent of leaves; crop loss estimated 20-70 percent. (Rose). MICHIGAN - Light at Fariss, VanderVeen, and Cooper in Cass, Berrien, and Clinton Counties. These are new county records. (Newman). INDIANA - Generally light to moderate on second-growth alfalfa in southern districts. All stages present; larvae average 2 per sweep on treated, 21 per sweep (range 15-36) on untreated second-growth alfalfa. (Huber). ILLINOIS - Rapidly declining in southern area; migration of new adults from alfalfa beginning. (Armbrust). Found for first time in Warren, Henderson, Mercer, Boone, McHenry, and Mason Counties. (Armbrust).

SOUTH DAKOTA - Increasing in Lawrence and Butte Counties June 1-7. Greater variability than in 1966. Up to 60 adults and 20 larvae per 100 sweeps in southern Butte County, with other fields up to 60 larvae and 10 adults. Hatch well underway near Spearfish, Lawrence County, with up to 200 (mostly first instar) per 100 sweeps. Some damage to alfalfa apparent. (Jones). NEBRASKA - Young larvae 12 per 10 sweeps on alfalfa in Scotts Bluff and Morrill Counties. (Hagen). COLORADO - Larvae decreased in Pueblo, Crowley, Bent, and Prowers Counties; 0-500 per 100 net sweeps. Ranged 260-2,600 per 100 sweeps in Weld County alfalfa; controls recommended. Larvae moderate to heavy, with first cutting of alfalfa underway in Mesa, Delta, Garfield, and Montrose Counties. Adults averaged 39 per 100 sweeps

and damage moderate in Larimer County; larval numbers high. (Schweissing et al.).  
NEW MEXICO - Heavy in alfalfa in Sandoval and Bernalillo Counties. (Heninger).  
NEVADA - Infestations of 50-80+ larvae per sweep general in Carson Valley, Douglas County; damage medium to heavy. Spraying to begin as weather permits. (Munk).  
Larvae increasing in Lovelock, Pershing County; 10-30 per sweep in many fields. Controls applied to some other fields where counts slightly higher (above 30 per sweep). Control results erratic due to unsettled weather. (Martinelli). OREGON - Larvae damaging alfalfa in Crook County. Counts during week ending June 2 averaged approximately 15 per sweep. (Dickason).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - VERMONT - Adults numerous on trefoil. (MacCollom, June 5). MISSOURI - Adults numerous in red clover in central and north-central areas; ranged 20-110 per 10 sweeps. Only occasional larva collected. (Munson). KANSAS - Adults averaged 8-10 per 10 sweeps in red clover in Brown and Nemaha Counties. (Simpson).

SWEETCLOVER WEEVIL (*Sitona cylindricollis*) - MINNESOTA - Feeding damage on lower leaves in old stands of sweetclover in northwest district; crop vigorously outgrowing damage. (Minn. Ins. Rpt.). NORTH DAKOTA - Adults on sweetclover ranged 1-120 per 100 sweeps in Dickey, Emmons, and Morton Counties; up to 25 percent of leaves consumed on all plants. Counts in northeast ranged 6-150 per 100 sweeps (averaged 50); feeding less evident. (Brandvik). UTAH - Adults very numerous; severely damaged sweetclover leaves near Laketown, Rich County. (Knowlton).

CLOVER ROOT CURCULIO (*Sitona hispidula*) - MARYLAND - Adults averaged 2 per 10 sweeps on red clover near Centreville, Queen Annes County. (U. Md., Ent. Dept.). KANSAS - Adults low to moderate, 3-20 per 10 sweeps, on alfalfa in Butler, Cowley, and Sumner Counties. (Simpson).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - KANSAS - Low, 0-3 per 10 sweeps, in many southeast and east-central district alfalfa fields. (Simpson).

A CARRION BEETLE (*Silpha bituberosa*) - IDAHO - Nearly full-grown larvae damaging 40 acres of alfalfa hay near Grace, Caribou County. Infestation widespread over field; this is unusual for species. (Alldaffer).

A FLEA BEETLE (*Systema bitaeniata*) - ARIZONA - Adults feeding heavily on alfalfa leaves in 10-acre field in Graham County. Apparently migrating from desert areas. (Ariz. Coop. Sur.).

SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata howardi*) - MICHIGAN - First of season in Berrien, Cass, Van Buren, and Kalamazoo Counties. (Newman, June 5).

ALFALFA CATERPILLAR (*Colias eurytheme*) - COLORADO - Larvae appearing in some Pueblo County alfalfa; 0-20 per 100 sweeps. In area south of Johnstown, Weld County, counts 0-60 per 100 sweeps. (Schweissing, Urano).

ALFALFA LOOPER (*Autographa californica*) - OREGON - Second and third instars present in all alfalfa of Benton County and in Jefferson, Brooks, and Woodburn areas of Marion County. Averaged 1-3 per 50 sweeps. First appeared last year during early July. (Morrison).

VARIEGATED CUTWORM (*Peridroma saucia*) - OREGON - No economic populations reported this year in western part of State. (Morrison).

GREEN CLOVERWORM (*Plathypena scabra*) - KANSAS - Low, 0-2 per 10 sweeps, in many northeast and north-central alfalfa fields. (Simpson).

PEA APHID (*Acyrtosiphon pisum*) - NEVADA - Varied 5-100 per sweep in most Carson Valley alfalfa in Douglas County. (Munk). Varied 15-40 per sweep in Lovelock, Pershing County; averaged 6 per sweep in Reese River, Lander County. (Martinelli). COLORADO - Some population decrease noted in Pueblo, Crowley, Otero, Bent, and Prowers Counties, but remains high in many fields not cut. Ranged from zero to

over 5,000 per 100 sweeps. In Weld County, numbers building up, but not sufficient to warrant control. In Larimer County, numbers moderate, damage low. (Schweissing et al.). NEW MEXICO - Light to moderate in alfalfa over State, with heavier populations noted in isolated instances. (N. M. Coop. Rpt.). TEXAS - Light to moderate on vetch throughout Delta County. Clustering on growing parts as well as on pods. Wet weather also causing much damage. (Turney). ARKANSAS - Continues heavier than usual for time of year in alfalfa, but declining. Ranged 200-300 per 100 sweeps in Crawford County. Decline expected to continue with higher temperatures and less rain. (Ark. Ins. Sur.). MISSOURI - High numbers observed on alfalfa in southwest area; 80-2,500 per 10 sweeps. Populations lower in west-central and central areas; 20-500 per 10 sweeps. (Munson). KANSAS - Low in alfalfa throughout eastern half of State. Ranged 0-5 per 10 sweeps in Butler and Cowley Counties to high of 65 per 10 sweeps in Chase and Lyon Counties. Very low, 0-5 per 10 sweeps, in red clover in Brown, Atchison, and Jefferson Counties. (Simpson). NEBRASKA - Averaged 21 per 10 sweeps in Scotts Bluff and Morrill County alfalfa. (Hagen). NORTH DAKOTA - Ranged 3-250 (average 56) per 100 alfalfa sweeps in northeast area. (Brandvik). MINNESOTA - Continues to increase on alfalfa; ranged 60-2,000 per 100 sweeps. Predators increasing, but not rapidly. (Minn. Ins. Rpt.). WISCONSIN - General increase. Ranged 20-80 per 10 sweeps in alfalfa in Dane, Iowa, Grant, Columbia, Marquette, and Dodge Counties with an average of about 30 per 10 sweeps. (Wis. Ins. Sur.).

CLOVER APHID (*Nearctaphis bakeri*) - WASHINGTON - Up to 50 per stipule in uncut red clover seed field near Eltopia; probably survived mild winter on red clover. (Johansen, June 5).

SWEETCLOVER APHID (*Therioaphis riehmii*) - NORTH DAKOTA - Ranged up to 50 per 100 sweeps (averaged 31) on sweetclover in Dickey, Emmons, and Morton Counties. (Brandvik).

TARNISHED PLANT BUG (*Lygus lineolaris*) - VERMONT - Adults numerous on trefoil. (MacCollom, June 5). MARYLAND - Adults averaged 2 per 10 sweeps on red clover near Centreville, Queen Annes County. (U. Md., Ent. Dept.). IOWA - Ranged 8-15 per 10 sweeps in Decatur County alfalfa. (Iowa Ins. Sur.).

PLANT BUGS (*Adelphocoris* spp.) - MINNESOTA - Hatching on alfalfa in southern half of State. *A. rapidus* and *A. lineolatus* ranged 10-700 per 100 sweeps. (Minn. Ins. Rpt.). IOWA - *A. lineolatus* ranged 18-55 per 10 sweeps in Decatur County alfalfa. (Iowa Ins. Sur.).

LYGUS BUGS (*Lygus* spp.) - NEVADA - Varied 1-5 per sweep in Carson Valley, Douglas County, and Reese River, Lander County. Infestations spotty. (Martinelli, Munk). COLORADO - Nymphs and adults at low levels in Larimer County alfalfa. (Sower). KANSAS - Remain low, 6-12 per 10 sweeps, in most eastern area alfalfa. (Simpson). NEBRASKA - Numbered 5 per 10 sweeps in Scotts Bluff and Morrill Counties. (Hagen).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - MARYLAND - Nymphs heavy, over 3 per stem, on red clover near Centreville, Queen Annes County. First adults of season found June 6 on red clover. (U. Md., Ent. Dept.). OHIO - Adults comprise 50 percent of numbers on Franklin County alfalfa; averaged 30 per sweep in one field. No adults found further north in Coshocton and Holmes County alfalfa. (Rose). MISSOURI - Collected for first time in Boone County. (Puttler). WISCONSIN - Nymphs ranged second through fourth instars; spittle masses up to 1 inch in diameter. Highest in southwest counties with up to 34 per 10 stems. In parts of Dane County, infestations on wide variety of plants other than alfalfa. (Wis. Ins. Sur.). MINNESOTA - General in Houston County alfalfa. Light in south-central, east-central, and central districts. In Chisago County field, 11 of 20 stems infested with average of 1.5 nymphs per spittle mass. (Minn. Ins. Rpt.).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ARIZONA - Very light (5 per 100 sweeps) in alfalfa of Cochise and Graham Counties. This is much below normal. Counts higher in Maricopa and Yuma Counties; average 20 per 100 sweeps. (Ariz. Coop. Sur.).



BROWN WHEAT MITE (*Petrobia latens*) - NEW MEXICO - Heavy in alfalfa in Bernalillo and Sandoval Counties. Populations heavier in fields where water scarce. (Heninger).

#### SOYBEANS

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - DELAWARE - First adults of season on young soybeans in western Sussex County. (Burbutis). ILLINOIS - Holes in leaves of newly emerged soybeans not severe. (Moore, Kuhlman). MINNESOTA - On soybeans in Carver County. Damage light in most fields. Higher on marginal rows in fields adjacent to alfalfa. (Minn. Ins. Rpt.).

BLACK CUTWORM (*Agrotis ipsilon*) - SOUTH DAKOTA - Caused some damage in 50-acre soybean field adjacent to corn in Lake County. (Berndt).

GREEN STINK BUG (*Acrosternum hilare*) - MISSISSIPPI - Light to moderate on 4 to 6-inch high soybeans in Yazoo County. Highest count, one stink bug per 20 feet of row. (Dinkins).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - MISSISSIPPI - Increasing in 6-inch tall soybeans. Approximately one per 10 feet of row in Yazoo County. No damage apparent. (Dinkins).

#### PEANUTS

BURROWING STINK BUGS - ALABAMA - Large numbers of *Pangaeus bilineatus* and probably few *Tominotus communis* observed along field borders and under trash and litter adjoining large peanut field on farm in Geneva County; no damage reported. Heavy population could develop in field similar to 1966 if climatic conditions become favorable later. (Bond).

TOBACCO THRIPS (*Frankliniella fusca*) - ALABAMA - This species and other thrips medium to heavy and causing much damage to untreated peanuts in Pike, Houston, Covington, Barbour, and Henry Counties. (Carter et al.).

A WEEVIL (*Artipus floridanus*) - FLORIDA - Adults completely defoliated over 0.5 acre of peanuts; still numerous in peanuts bordering heavily damaged spot at Chiefland, Gilchrist County, June 5. Det. by L. C. Kuitert. (Yelvington).

#### COTTON

BOLL WEEVIL (*Anthonomus grandis*) - SOUTH CAROLINA - Emergence continues very light in Florence area. Very few weevils seen in fields. (Taft et al., June 7). TENNESSEE - Overwintered weevils present in large numbers over regularly infested area. Emergence from hibernation should be complete by July 1. Some bud injury noted. (Locke). GEORGIA - Continued heavy emergence in south area. (Womack). ALABAMA - Emergence of overwintered weevils in cotton very high in southern and central areas. Egg laying in squares of older cotton high. Numerous fully fruiting fields with 2-3 nearly grown squares per stalk with 25-80 percent of squares punctured. Over half of affected squares contain eggs and larvae. Weevils heavy and widespread in Washington County; percent punctured squares 50-80 in older cotton. One field in Sumter County shows 95-100 percent of young squares punctured. Several fields of older cotton in Lee, Macon, and Tallapoosa Counties with 8-75 percent infestation. Live weevils heavy in squares. First "hatchout" of first-generation weevils will probably begin about June 15 and become heavy by June 25 in these counties. Weevils emerging in northern area and range none to heavy in presquare cotton. Numbers extremely high per acre on many farms in Lawrence, Madison, and Colbert Counties; expected to increase in next 15 days. Weevils present in all northern counties except Cullman. (McQueen et al.). MISSISSIPPI - Overwintered weevils found in 14 of 36 fields (mostly

presquaring) in delta counties. Ranged 50-450 (average 60.5) per acre for all fields checked. Percent punctured squares 71 in one field squaring well. (Pfrimmer et al.). Overwintering weevils moving into older cotton in Yazoo County. Approximately one per 1,000 feet of row found in cotton with very small squares. (Dinkins). TEXAS - Weevils found in 26 of 33 untreated fields and in 3 of 14 treated fields in Waco area. Averaged 140 (maximum 875) per acre in untreated fields and 60 (maximum 188) in treated fields. Overall average of 105 per acre compares with 9 per acre at same time in 1966. In field with sufficient squares to make counts, percent punctured averaged 4.9 (range 3.8-6) in 2 treated fields and averaged 24.4 (range 9.2-37) in 3 treated fields. One weevil collected on flight screens. (Cowan et al.).

FLEA BEETLES - TENNESSEE - Damage evident throughout western area. Some infestations justify controls. (Locke).

BOLLWORMS (Heliothis spp.) - SOUTH CAROLINA - Total of 4 H. zea moths taken in light trap at Florence. (Taft et al., June 7). GEORGIA - Eggs and some small larvae in terminals in south area (Womack); increasing in light trap, but still lower than normal in Spalding County (Beckham). MISSISSIPPI - Heliothis spp. eggs found in 3 fields in delta counties. (Pfrimmer et al.). TEXAS - H. zea larvae very light in one of 14 treated fields and in 4 of 33 untreated fields in Waco area. Eggs found in 5 of 14 treated fields and in 6 of 33 untreated fields. (Cowan et al.). NEW MEXICO - Heavy flights of H. zea moths collected in light trap in Las Cruces area. (Durkin). ARIZONA - H. zea eggs and larvae light to moderate in cotton in Yuma, Maricopa, and areas of Pinal County. (Ariz. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ALABAMA - Few larvae feeding on young cotton plants in isolated fields in Madison and Lawrence Counties. (Halla et al.).

BEEF ARMYWORM (Spodoptera exigua) - ARIZONA - Scattered but very light populations feeding on new terminal leaves in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

APHIDS - MISSISSIPPI - Light in one and medium in one of 38 fields checked in delta counties. (Pfrimmer et al.). TEXAS - Light in 24 of 36 fields in Waco area. (Cowan et al.). NEW MEXICO - Aphis craccivora building up on cotton in northern Dona Ana County fields. (Nelson). Generally light on cotton in Chaves County. (Mathews). CALIFORNIA - Aphis gossypii and Myzus persicae occurring on cotton seedlings in Kerman, Fresno County. (Cal. Coop. Rpt.).

PLANT BUGS (Lygus spp.) - MISSISSIPPI - L. lineolaris light on older cotton in Yazoo County. Averaged one per 100 feet of row found in cotton just beginning to form squares. (Dinkins). ARIZONA - Lygus spp. adults ranged 2-8 per 100 sweeps in Yuma County cotton. Smaller numbers found in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

FLEAHOPPERS - ARIZONA - Light infestations of Psallus seriatus (6 per 100 sweeps) general through Pinal, Maricopa, and Graham Counties. (Ariz. Coop. Sur.). MISSISSIPPI - P. seriatus light in older cotton in Yazoo County; buildup expected next 7 days. Spanogonicus albofasciatus very light on older cotton in same area. (Dinkins).

THRIPS - TENNESSEE - Continue to cause much damage to young cotton in western area. Infestations range light to heavy. (Locke). GEORGIA - Damage light to moderate to younger cotton in southern area (Womack); damage moderate to seedling cotton in Spalding County (Beckham). MISSISSIPPI - Of 38 fields checked in delta counties, injury heavy in 2, medium in 6, light in 10, and none evident in 20 fields. Thrips mostly Frankliniella fusca. (Pfrimmer et al.). ARKANSAS - Increased past few days in Mississippi County. Very low in cotton in areas of heavy rainfall. One report of up to 20 (mostly larvae) per plant received. (Ark. Ins. Sur.). MISSOURI - High numbers damaging cotton in southeast area; counts as high as 15 per small plant. (Munson). TEXAS - Heavy in one, medium in 3, and light

in 23 of 27 untreated fields in Waco area. Light in 7 of 9 treated fields. (Cowan et al.).

#### TOBACCO

SLUGS - WISCONSIN - Ranged 25-40 per rod in Dane County tobacco seed bed. Metaldehyde bait killed 25 percent first day. (Wis. Ins. Sur.).

#### SUGARBEETS

BEEB WEBWORM (*Loxostege sticticalis*) - COLORADO - Moths continue numerous throughout Arkansas Valley including Baca County. Few larvae found in Otero and Pueblo Counties; 0-2 per 20 plants. No economic infestations found. Moths observed in trace numbers in sugarbeet fields in Weld County. (Schweissing, Jenkins).

SUGAR-BEEB WIREWORM (*Limonium californicus*) - IDAHO - Destroyed sugarbeet field and reduced following corn stand by 80 percent at Sand Hollow, Canyon County. Field treated in 1966. (Linford). Seed in potato field at Blackfoot, Bingham County, generally infested. Field treated prior to planting. (Weston). WASHINGTON - Larvae ranged 1-10 per sugarbeet plant at Toppenish, Yakima County; caused severe loss of plants on about 35 acres. (Onsanger).

SUGAR-BEEB ROOT MAGGOT (*Tetanops myopaeformis*) - COLORADO - Maggots found on sugarbeets in areas where adults emerged early southeast of Berthoud in Larimer County and northeast of Greeley in Weld County. Trace numbers of beetles show evidence of injury. (Marsh et al.).

#### MISCELLANEOUS FIELD CROPS

BLACK VINE WEEVIL (*Brachyrhinus sulcatus*) - WASHINGTON - Adults active. Larvae killing hop crowns in small areas of 2 hop yards at Grandview, Yakima County. About 90 percent adults; few pupae and larvae remain. (Cone, June 2).

PACIFIC COAST WIREWORM (*Limonium canus*) - WASHINGTON - Damage light to heavy on new planting of mint, especially new sprouts, at Zillah, Yakima County. (Onsanger).

HOP APHID (*Phorodon humuli*) - OREGON - Abundant in hops in most fields in the Willamette Valley; 50-60 percent of leaves infested with 10-15 aphids per infested leaf. (Morrison).

A MINT APHID (*Ovatus crataegius*) - OREGON - Appearing in peppermint fields in the Willamette Valley. Pupae appear light at this time. (Morrison).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Light increase observed in safflower fields of Yuma, Pinal, and Maricopa Counties; however, populations continue very light for this time of year. (Ariz. Coop. Sur.).

#### POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) - NEW YORK - Adults increasing with more potatoes emerging in Suffolk County. Very heavy on tomato field in Orleans County. (N. Y. Wkly. Rpt., June 5). NEW JERSEY - Activity increased due to warmer weather. (Ins.-Dis. Newsltr.). DELAWARE - Adults and eggs on tomatoes throughout State. (Burbutis). MARYLAND - Eggs and larvae heavy on large tomato planting in Dorchester County. (U. Md., Ent. Dept.). VIRGINIA - All larval stages present on Eastern Shore; some entered soil to pupate. Development about 10 days later than normal. (Hofmaster). KANSAS - All stages heavy on Dickinson County potatoes. (Brooks).

FLEA BEETLES - COLORADO - Ranged 0-20 per 100 sweeps of potatoes in Otero and Bent Counties; 0-12 per 100 sweeps in Weld County. (Schweissing, Urano). VERMONT - Prevalent in most vegetable gardens; damage heaviest on newly set tomatoes and crucifers. (MacCollom, June 5). NEW JERSEY - Activity increased with advent of warm weather. (Ins.-Dis. Newsltr.). VIRGINIA - Adults troublesome on tomatoes on Eastern Shore. (Hofmaster). MARYLAND - Epitrix hirtipennis adults averaged 3 per plant on newly set tomatoes near Lanham, Prince Georges County. (U. Md., Ent. Dept.). RHODE ISLAND - E. cucumeris less numerous on tomato at Peace Dale than on radish at Kingston, Washington County. (Mathewson, Colodney, June 1).

PACIFIC COAST WIREWORM (Limoni<sup>us</sup> canus) - WASHINGTON - Caused light damage to potato seed pieces on 28 acres at Warden, Grant County. (Onsanger). IDAHO - Infestation general in 20-acre potato field at Caldwell, Canyon County; up to 4 larvae per hill May 11. (Homan, Portman).

POTATO TUBERWORM (Phthorimaea operculella) - VIRGINIA - Large number of larvae observed mining potato foliage on Eastern Shore. This undoubtedly reflection of extremely high 1966 fall population and survival of some overwintering larvae in discarded and volunteer potatoes. (Hofmaster). ALABAMA - Larval damage in potatoes resulting in low grades at sheds and causing much loss to growers in Baldwin County. (Turner et al.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Egg masses on potatoes in Kent County. (Burbutis).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Medium on seedling tomato plantings in Stockton, San Joaquin County. (Cal. Coop. Rpt.).

POTATO APHID (Macrosiphum euphorbiae) - DELAWARE - Increased on tomatoes in many areas. (Burbutis). OHIO - Averaged less than one per leaf on young tomatoes and potatoes in truck crop plantings in Washington County. (Rose).

CABBAGE MAGGOT (Hylemya brassicae) - NEW YORK - Eggs hatched in Orleans County. (N. Y. Wkly. Rpt., June 5).

#### BEANS AND PEAS

PEA APHID (Acyrtosiphon pisum) - DELAWARE - Populations remain low on peas in most areas; highest numbers present in few fields in western Kent and New Castle Counties. (Burbutis). WISCONSIN - Population in pea fields in Dane, Iowa, Columbia, and Dodge Counties averaged 2 per 10 sweeps. (Wis. Ins. Sur.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Adults and foliage damage increasing on snap and young lima beans on Eastern Shore. (U. Md., Ent. Dept.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Light on lima beans in Spalding County. (Dupree). COLORADO - Low numbers of adults found on pasture land north of Fort Collins, Larimer County. (Wellso).

GREEN CLOVERWORM (Plathypena scabra) - MICHIGAN - First adults of season in black-light trap in Livingston County. (Janes, June 5).

SEED-CORN MAGGOT (Hylemya platura) - VIRGINIA - Larvae infesting lima beans at Blacksburg, Montgomery County. (Isakson).

#### COLE CROPS

CABBAGE MAGGOT (Hylemya brassicae) - WISCONSIN - Some larval damage to cabbage seedlings in Columbia County. (Wis. Ins. Sur.). NEW YORK - First flies and eggs of season in Ontario County. (N. Y. Wkly. Rpt., June 5). RHODE ISLAND - Eggs on radish in Kingston, Washington County. (Mathewson, Colodney, June 1).

RED TURNIP BEETLE (Entomoscelis americana) - MINNESOTA - Reported from Stearns and Sibley Counties and in Minneapolis and St. Paul area. (Minn. Ins. Rpt.).

#### CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittatum) - COLORADO - Low (1-2 per 50 plants) on cantaloup in all fields checked in Pueblo, Otero, Crowley, Bent, and Prowers Counties. (Schweissing). OHIO - Some damage to cucumbers in Washington County. (Racer, June 1). MARYLAND - First adults of season found June 6 on young cucumbers in Dorchester County. (U. Md., Ent. Dept.). DELAWARE - First adults of season in blacklight trap June 1 in Sussex County. (Burbutis).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - GEORGIA - Feeding on squash in Spalding County. (Dupree).

A FLEA BEETLE (Phyllotreta cruciferae) - DELAWARE - Adults averaged 2 per plant on melons in New Castle and Sussex Counties; injury noticeable. (Evans).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Controls required on cantaloups in Wellton area of Yuma County. (Ariz. Coop. Sur.).

SQUASH BUG (Anasa tristis) - OKLAHOMA - Ranged 5-6 per plant on squash in Washita County. (Okla. Coop. Sur.).

LEAFHOPPERS (Empoasca spp.) - ARIZONA - Heavy (120 per 100 sweeps) on cantaloups in Wellton area, Yuma County. Some controls applied. (Ariz. Coop. Sur.).

#### GENERAL VEGETABLES

ASPARAGUS BEETLES (Crioceris spp.) - COLORADO - First C. asparagi adults of season observed in low numbers on asparagus at Fort Collins, Larimer County. (Wellso). WISCONSIN - C. asparagi problem on asparagus in several areas. (Wis. Ins. Sur.). DELAWARE - C. duodecimpunctata adults abundant on asparagus spears with injury noticeable in several areas of State. (Burbutis).

BLACK CUTWORM (Agrotis ipsilon) - WISCONSIN - Severely damaged vegetable crops in central counties. (Wis. Ins. Sur.).

CELERY LOOPER (Anagrapha falcifera) - MICHIGAN - Greater than normal numbers in blacklight traps. (Newman).

THRIPS - NEW MEXICO - Some controls underway on late onions in Dona Ana County. (Campbell). COLORADO - Small numbers of Thrips tabaci appearing on seeded onions in Arkansas Valley area; 0-5 per plant. Populations on transplants increasing rapidly, reaching highs of 30 per plant. Damage occurring to heavily infested plants. (Schweissing).

ONION MAGGOT (Hylemya antiqua) - NEW YORK - In mature onion bulbs June 1 in Orange County. (N. Y. Wkly. Rpt., June 5). COLORADO - Larvae active in onion fields north of Greeley, Weld County. (Urano).

## DECIDUOUS FRUITS AND NUTS

**CODLING MOTH** (Carpocapsa pomonella) - UTAH - Largest flight night of June 4-5; 15 in blacklight trap at Logan, Cache County, and many in attractant traps at Payson, Utah County. (Davis, Knowlton). COLORADO - Nearing end of first-brood flight; fewer moths in attractant traps. (Bulla). MISSOURI - No entries this period. (Wkly. Rpt. Fr. Grs.). INDIANA - Adult emergence continues at Vincennes; 57 moths in light trap comparable to 53 previous week. Small larvae reached seeds. (Dolphin, June 5). OHIO - Numerous adults emerged June 1-6 in Wayne County. (Forsythe). MARYLAND - Moth emergence continues but no egg hatch at Hancock, Washington County. (U. Md., Ent. Dept.). NEW YORK - First moths of season in Monroe County and at Stone Ridge, Montgomery County, June 2, but leaf-miner cage at Stone Ridge caught 3 end of May. (N. Y. Wkly. Rpt., June 5).

**ORIENTAL FRUIT MOTH** (Grapholitha molesta) - NEW YORK - Numerous adults appeared May 29 in bait pails at Claverack Columbia County; fewer at Lagrangeville, Dutchess County. (N. Y. Wkly. Rpt., June 5). INDIANA - Adults scarce at Vincennes. Many prepupae of first summer brood left infested terminal twigs and fruit. (Dolphin, June 5).

**CHERRY FRUITWORM** (Grapholitha packardii) - NEW JERSEY - First entries observed. (Ins-Dis. Newsltr.).

**RED-BANDED LEAF ROLLER** (Argyrotaenia velutinana) - NEW YORK - Adults still flying near Lake Ontario shore; significant number of males in sex attractant traps. Some freshly laid egg masses found in this orchard where infestation moderate to heavy in 1966. South of State Route 104 very few males trapped; no egg masses. (N. Y. Wkly. Rpt., June 5). INDIANA - Emergence of first summer-brood adults increased at Vincennes: 3-day capture of 617 males by 20 virgin-female traps. (Dolphin, June 5).

**PEACH TREE BORER** (Sanninoidea exitiosa) - OKLAHOMA - Adults emerging from peach trees at Perkins, Payne County. (Okla. Coop. Sur.).

**A CHERRY LEAF MINER** (Nepticula slingerlandella) - MICHIGAN - Adult emergence peaked at Lawrence, Van Buren County; eggs up to 221 per 100-leaf samples. No activity in Oceana County. (Wooley).

**LESSER PEACH TREE BORER** (Synanthedon pictipes) - INDIANA - Male captures at Vincennes orchard declined from 78 to 69. (Dolphin, June 5).

**ROSY APPLE APHID** (Dysaphis plantaginea) - UTAH - Unusually numerous in apple orchards at Payson, Utah County. (Davis, Knowlton). COLORADO - High on apples in Delta, Garfield, Mesa, and Montrose Counties due to prolonged cool weather and rains; controls applied at first cover. (Bulla). INDIANA - Numerous, especially on north side of trees, at Vincennes. Nymphal and adult feeding curled leaves; small, distorted fruit evident in many orchards. (Dolphin, June 5). OHIO - Conditions favorable for buildup on unsprayed apple trees; at damaging levels in unsprayed sections of the experimental Fairfield County orchard. Moved from leaves to apple fruit May 27; since then some apples malformed. Ratio of predators to aphids low. (Holdsworth). In Wayne County, some curled leaves contained 100 or more aphids per leaf; alates appearing. (Forsythe). MARYLAND - Deformed some apples in unsprayed Talbot and Washington County orchards. (U. Md., Ent. Dept.).

**GREEN PEACH APHID** (Myzus persicae) - MARYLAND - Heavy in peach orchard near Smithburg, Washington County. (U. Md., Ent. Dept.). COLORADO - Increasing on Mesa County peaches without early controls, 10-20 colonies per tree. Heavy in many unsprayed peach orchards. (Bulla, Sisson). WASHINGTON - Caged peach trees produced 100-200 alates per tree a day May 18-26, at Parker, Yakima County. (Powell).

ARMORED SCALES - FLORIDA - Pseudaulacaspis pentagona still serious on unsprayed peaches at Gainesville, Alachua County. Mostly eggs May 26, but as of June 8, principally first sedentary stage. This is second generation this year. (Fla. Coop. Sur.). INDIANA - Aspidiotus perniciosus crawlers left mother scales and attached to apples, causing characteristic red-spot blemish; percentage affected seems small at Vincennes. (Dolphin, June 5). WISCONSIN - Lepidosaphes ulmi egg hatch accelerated and apparently complete; 80 percent of crawlers exposed on tree branches in south area. (Wis. Ins. Sur.). NORTH DAKOTA - Chionaspis fufura heavy on apple at Lakota, Nelson County; controls applied. (McBride).

PLUM CURCULIO (Conotrachelus nenuphar) - INDIANA - Some larvae in peaches at Vincennes up to half grown. Many larvae died while feeding, but left unmarketable fruit. Some apples with adult feeding and oviposition scars falling as part of June drop. (Dolphin, June 5). NEW YORK - Laid eggs on sweet cherries May 31 in Ulster County. (N. Y. Wkly. Rpt.). CONNECTICUT - Not easily found, but weather ideal. Few feeding and egg laying scars at New Haven, Storrs, Bantam, and Woodstock. (Savos, June 7). RHODE ISLAND - First 2 adults of season on apple in Kingston, Washington County. (Mathewson, May 28).

APPLE CURCULIO (Tachypterellus quadrigibbus) - CONNECTICUT - Six adults collected on apple blossom May 31; 1 adult on June 6. (Savos).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - CONNECTICUT - Hatched, larvae tunneling in young fruit apparent at New Haven and Storrs; not as abundant as in past years. (Savos, June 7). NEW YORK - Adults active May 29 in Ulster County; larvae damaged unsprayed apples in Ulster Park area June 2. (N. Y. Wkly. Rpt.).

A CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) - OREGON - Emerging in cherry orchards in Hood River County June 2. (Peifer).

SPIDER MITES - MAINE - Panonychus ulmi hatched May 24 at Monmouth, Kennebec County. (Boullanger, June 2). VERMONT - P. ulmi eggs hatched rapidly. (MacCollom, June 5). CONNECTICUT - P. ulmi expected to increase rapidly. (Savos, June 7). NEW JERSEY - Eggs, larvae, and adults of P. ulmi easily found in poorly sprayed blocks. Tetranychus spp. very light; feeding on fruit tree foliage near Elm, Camden County. (Ins.-Dis. Newsltr.). OHIO - First P. ulmi summer eggs of season in Wayne County June 5. Egg counts June 6 on apple leaves untreated for this pest, yielded 0.5-2.5 per leaf. (Forsythe). Summer eggs June 7, few on Licking County apple trees on a regular spray program. (Rose). INDIANA - P. ulmi and Tetranychus urticae lower than previous week in unsprayed Vincennes check orchard; sample counts between 0.25-0.75 mobile form per leaf. (Dolphin, June 5). MICHIGAN - P. ulmi continues egg laying in unsprayed or poorly sprayed orchards. (Wooley). MISSOURI - P. ulmi damaged foliage on unsprayed plum trees in southeast area. Few noted in an orchard near Rocheport. (Wkly. Rpt. Fr. Grs.).

FALL CANKERWORM (Alsophila pometaria) - CALIFORNIA - Larvae heavy on English walnut trees at Fairfield, Solano County. (Cal. Coop. Rpt.).

WALNUT CATERPILLAR (Datana integerrima) - NORTH DAKOTA - Abundance moderate on walnut at Fargo, Cass County; controls applied. (McBride).

PECAN BUD MOTH (Gretchena bolliana) - VIRGINIA - Larvae feeding in tips of pecan trees at location in Rocky Mountain, Franklin County. (Isakson, Tucker, June 2).

A FALSE POWDER-POST BEETLE (Xylobiops basilaris) - ALABAMA - Adults heavy and widespread throughout Mobile County, damaged young pecan trees injured by sudden freeze early November 1966 and by drought early this spring. Heavy numbers damaged weak and dying limbs; also damaged and killed nearby healthy young trees. (Deakle).

A LONG-HORNED BEETLE (Elaphidionoides parallelus) - MICHIGAN - Adults emerged from Carpathian walnut trees. (Newman, Wallner).

## CITRUS

Citrus Insect Situation in Florida - End of May - CITRUS RUST MITE (*Phyllocoptruta oleivora*) on leaves infested 53 percent of groves (norm 36 percent); 44 percent economic (norm 19 percent). Population decreased but still near high range and at highest record for May. Little change expected until summer increase starts in late June. Highest districts central, south, and north. TEXAS CITRUS MITE (*Eutetranychus banksi*) infested 76 percent of groves (norm 54 percent); 56 percent economic (norm 34 percent). New record high level for May. Further expected increase through June will keep population well into high range. All districts high. CITRUS RED MITE (*Panonychus citri*) infested 58 percent of groves (norm 57 percent); 26 percent economic (norm 43 percent). Population will increase into high range late in June but is not expected to exceed level for period. Highest district east. GLOVER SCALE (*Lepidosaphes gloverii*) infested 88 percent of groves; 32 percent economic. Population above normal and in high range. Further increase expected. Highest districts east, south, central, and west. PURPLE SCALE (*L. beckii*) infested 84 percent of groves; 9 percent economic. Population near normal and in moderate range. Little change expected. Very few infestations will be important. Highest district central. BLACK SCALE (*Saissetia oleae*) infested 43 percent of groves; 22 percent economic. Rapid increase underway and population will enter high range by mid-June. A peak near average level expected about mid-July. Highest districts east and west. CHAFF SCALE (*Parlatoria pergandii*) infested 72 percent of groves; 8 percent economic. Population below average and in moderate range. Slight increase expected through June. Highest districts central and east. An ARMORED SCALE (*Unaspis citri*) is present in 11 percent of survey groves and is spreading and increasing. YELLOW SCALE (*Aonidiella cintrina*) infested 69 percent of groves; 2 percent economic. Will occur only as light to moderate infestations and be less important than in past 2 years. Highest district central. WHITEFLIES infested 62 percent of groves; 22 percent economic. Larval forms will be in above normal numbers during June and population may enter high range. MEALYBUGS infested 50 percent of groves; 8 percent economic. Population will increase rapidly and enter high range in late June. Infestations will be about as numerous as in past 2 years with heavy infestations expected in 5 to 10 percent of groves. (W. A. Simanton, (Citrus Expt. Sta., Lake Alfred)).

CITRUS THRIPS (*Scirtothrips citri*) - ARIZONA - Controls necessary to reduce damaging numbers on citrus in Tacna area of Yuma County. (Ariz. Coop. Sur.).

PRIVET MITE (*Brevipalpus obovatus*) - FLORIDA - Adults collected on sweet orange at Auburndale, Polk County. (Knorr, May 24). First Florida Department of Plant Industry record on sweet orange. (Denmark).

## SMALL FRUITS

BLACK-HEADED FIREWORM (*Rhopobota naevana*) - MASSACHUSETTS - Larvae just appeared on cranberry bogs, 2 weeks later than usual because of cold, wet spring. (Tomlinson, June 2). NEW JERSEY - Moderate on most-advanced cranberry bogs. (Ins.-Dis. Newsltr.).

STRAWBERRY LEAF ROLLER (*Ancyliis comptana fragariae*) - KANSAS - Small larvae moderate on Dickinson County strawberries. (Brooks).

OMNIVOROUS LEAF TIER (*Cnephasia longana*) - WASHINGTON - Larvae on strawberry foliage at Vancouver, Clark County. (Shanks, June 5).

A LEAF ROLLER MOTH (*Sparganothis sulfurana*) - MASSACHUSETTS - Larvae just appeared on cranberry bogs, 2 weeks later than usual because of cold, wet spring. (Tomlinson, June 2).

A CRANBERRY BLOSSOMWORM (*Epiglaea apiata*) - MASSACHUSETTS - Larvae just appeared on cranberry bogs, 2 weeks later than usual because of cold, wet spring. (Tomlinson, June 2).



CRANBERRY FRUITWORM (Acrobasis vaccinii) - NEW JERSEY - First eggs on blueberry June 1; increased ten fold June 4-6, from 0.33 to 3.5 per 100 fruit clusters. First entries also noted. (Ins.-Dis. Newsltr.).

STRAWBERRY WEEVIL (Anthonomus signatus) - MAINE - Damaged early varieties at West Gardiner and Monmouth, Kennebec County. (Boulanger, June 2).

EASTERN RASPBERRY FRUITWORM (Byturus rubi) - RHODE ISLAND - Adults on raspberry at Kingston and Peace Dale, Washington County. (Mathewson, Colodney, June 1).

MEADOW SPITTLEBUG (Philaenus spumarius) - MAINE - Light June 1 on strawberries at West Gardiner, Kennebec County. (Boulanger).

TARNISHED PLANT BUG (Lygus lineolaris) - MAINE - Light on strawberries at Union, Knox County, May 22. (Boulanger).

SPIDER MITES (Tetranychus spp.)-- NEW JERSEY - Increasing on strawberries due to warm weather. (Ins.-Dis. Newsltr.).

#### ORNAMENTALS

LEAF ROLLER MOTHS - NEVADA - Argyrotaenia cockerellana infestations and damage on ornamental juniper increased in southwest Reno, Washoe County. All larval stages few pupae, present; adults emerged in late May 1966. (Bechtel). Choristoneura zapulata infesting various shrubs in same area. (Lauderdale). NORTH DAKOTA - C. rosaceana larval damage light on rose at Fargo, Cass County; controls applied. (McBride).

BAGWORM (Thyridopteryx ephemeraeformis) - MARYLAND - First larvae of season June 6 on arborvitae near Kingsville, Baltimore County. (U. Md., Ent. Dept.). INDIANA - Eggs hatched June 6 in Indianapolis area of Marion County. (Clark).

A COTONEASTER WEBWORM (Cremona cotoneastri) - NORTH DAKOTA - Larval damage moderate to heavy on cotoneaster at Jamestown, Stutsman County; controls applied. (McBride).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - OHIO - Crawlers or nymphs active in Licking and Franklin Counties; crawlers numerous on lilac. (Walker).

SPIDER MITES - CALIFORNIA - Eotetranychus lewisi heavy on poinsettia plants at San Bernardino, San Bernardino County; unusually early for these infestations. (Cal. Coop. Rpt.). OKLAHOMA - Tetranychus sp. heavy and damaged Pfitzer juniper in Osage County. (Okla. Coop. Sur.).

#### FOREST AND SHADE TREES

TENT CATERPILLARS (Malacosma spp.) - MAINE - M. americanum egg masses began to hatch May 21 in Hancock County. (Boulanger). RHODE ISLAND - M. americanum tents conspicuous. (Mathewson, King, June 2). OHIO - M. americanum pupating; damage to wild cherry and apple over for season. Adults at blacklight traps central and southern areas. Few cocoons in webbing on heavily infested host trees, parasitism heavy, and relatively few adults in blacklight traps in Washington County suggest larvae may be much lighter in 1968 than in 1966 and 1967 in parts of southeastern area. (Rose). WISCONSIN - M. americanum infested cherry and apple in southern counties. Many larvae full grown and migrating. (Wis. Ins. Sur.). MINNESOTA - M. disstria spotty at Virginia, Hibbing and Eveleth in St. Louis County; some chemical control applied in Virginia. (Minn. Ins. Rpt.). OREGON - M. pluviale pupating in several areas of Multnomah and Washington Counties. Numbers spotty this year with numerous tents noted in Multnomah, Washington, and Yamhill Counties. (Larson).

CANKERWORMS - NEW JERSEY - Heavy throughout State. (Ins.-Dis. Newsltr.).  
MICHIGAN - Paleacrita vernata larvae common on ornamental trees in several mid-State areas. (Hanes, Guyer). WISCONSIN - Alsophila pometaria larval feeding damage severe at some sites in western Dane and Sauk Counties. Lush growth of elms masked injury somewhat. (Wis. Ins. Sur.). MINNESOTA - P. vernata moderate at Minneapolis and Saint Paul and suburbs. Individual controls on some ornamentals, but not serious enough for area or municipal control. Almost full grown in Twin City area; feeding should be complete by end of next period. (Minn. Ins. Rpt.).

TORTRICID MOTHS - CALIFORNIA - Archips argyrospilus larvae heavy on oak trees and Oregon-grape plants in Loomis, Placer County. (Cal. Coop. Rpt.). MINNESOTA - Choristoneura pinus second instars fed in staminate flowers for past week or more. (Minn. Ins. Rpt.). WISCONSIN - C. pinus second instars just becoming active in northwest area June 2 when all jack pine pollen had been shed. (Wis. Ins. Sur.).

OLETHREUTID MOTHS (Rhyacionia spp.) - CONNECTICUT - R. buoliana in pupal stage. (Savos, June 7). INDIANA - R. buoliana adult emergence underway in Marion County. (Clark). KANSAS - Second-generation adults of R. frustrana emerging in Riley and Labette Counties. Up to 80 percent of tips very severely damaged. (Thompson).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Heavy moth flights noted in light trap in Las Cruces area. (Durkin). ARKANSAS - Red-headed race appeared as far north as Crittenden and Craighead Counties. (Warren).

LARCH CASEBEARER (Coleophora laricella) - VERMONT - Common on European larch in Champlain Valley. (MacCollom, June 5).

A GELECHIID MOTH (Exoteleia sp.) - OHIO - Larvae mining this year's growing tips in Scotch pine plantings in east-central and northeastern areas. Very numerous in 10-acre Christmas tree planting in Stark County and in 50-acre planting in Trumbull County. (Campbell, June 2).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEW JERSEY - Adults appearing on elms. (Ins.-Dis. Newsltr.). KANSAS - First-generation larvae still feeding in most areas. (Thompson). TEXAS - Moderate to heavy on elm trees throughout Glasscock County. (Werst). NEW MEXICO - Larval feeding heavy on Siberian elms in Belen and Valencia Counties. Adults heavy in Bernalillo and Sandoval Counties. (Heninger). NEVADA - Some first instars in southern Washoe County; some eggs laid. Development later than normal due to weather. (Coop. Rpt.).

WHITE-PINE WEEVIL (Pissodes strobi) - RHODE ISLAND - Adults easily found on white pine leaders in Kingston area, Washington County. (Mathewson, June 1).

A LEAF-MINING WEEVIL (Odontopus calceatus) - OHIO - Eggs through second instars on yellow-poplar foliage in Athens, Vinton, and Hocking Counties. Mines becoming visible; adult feeding damage especially noticeable on foliage of larger trees. (Donley, Burns, June 2).

NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) - NORTH DAKOTA - Adults in window trap at Wishek, McIntosh County, for new county record. (Brandvik).

BALSAM TWIG APHID (Mindarus abietinus) - OHIO - Light but common on new growth of Scotch pine in one-acre Christmas tree planting and 10 acres of blue spruce in Lake County; light on 100-acre pine planting in Jefferson County. (Anderson, Campbell). RHODE ISLAND - Heavy in fir planting at Kingston, Washington. (Mathewson, June 2).

GALL APHIDS (Adelges spp.) - CONNECTICUT - A. abietis galls forming, young adults within; many eggs from stem mothers yet to hatch indicate long hatch period. (Savos, June 7). WISCONSIN - A. abietis egg laying ceased; nymphs within galls producing flocculence by June 8. A. cooleyi plentiful on Douglas-fir in Jefferson County. Eggs hatching in open but not shaded areas. (Wis. Ins. Sur.). OHIO - A. cooleyi heavy on 300 Douglas-fir trees about 5 feet high in Ashland County; some yellow discoloration of needles occurred. (Barth). Galls on blue spruce enlarging in Wayne County. (Campbell).

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) - OHIO - First infestation of season on maple in Wayne County; severe on many trees. (Rings).

EUROPEAN ELM SCALE (Gossyparia spuria) - KANSAS - Heavy in Harvey County; crawlers moving. (Brooks).

PINE SPITTLEBUG (Aphrophora parallela) - DELAWARE - Abundant on loblolly and Virginia pines in Sussex County. (Burbutis).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - NEW YORK - Larvae damaged pine in Ithaca area. (N. Y. Wkly. Rpt., June 5). OHIO - Most economically damaging pine defoliator in State. Larvae very heavy in extensive roadside plantings of red pines in Ashland and Knox Counties; many trees 25-50 percent defoliated and some completely stripped of last year's needles. Smaller trees, 6-12 feet high most severely damaged. Larvae nearing pupation. (Rose). Trees 15-20 feet tall in 5 to 6-acre planting in Muskingum County, barren of old needles. Scotch pine as well as red pine in vicinity badly defoliated. (Donley, Burns). Pupating in southern area. (Lautz, Hanson).

BIRCH LEAF MINER (Fenusa pusilla) - RHODE ISLAND - Adults common on birch Statewide. (Mathewson, King, June 2). WISCONSIN - Mines appearing on Jefferson County birch. (Wis. Ins. Sur.).

ASH PLANT BUG (Neoborus amoenus) - MINNESOTA - Very heavy on 8 to 10-foot nursery trees at location near Hastings. Severe feeding shriveled leaves and caused leaf drop on some trees. (Minn. Ins. Rpt.).

SPRUCE SPIDER MITE (Oligonychus ununguis) - KANSAS - Severely discolored pines in Shawnee, Riley, and Labette Counties. (Thompson).

AN ERIOPHYID MITE (Nalepella tsugifoliae) - RHODE ISLAND - Adults common on hemlock needles at nursery in Peace Dale, Washington County. (Mathewson, Colodney, June 1).

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Weather continued from page 500.

TEMPERATURE: Cool temperatures continued for the 2nd week from the Pacific coast to the western Great Plains. Across the South and from the central Great Plains to New England, afternoon temperatures climbed to the 80's or low 90's almost every day. Averages were below normal over the Deep South for the 4th week. It seemed especially hot and humid from the Great Lakes to New England where temperatures averaged warmer than in any week since last September. (Summary supplied by Environmental Data Service, ESSA).

MAN AND ANIMALS

MOSQUITOES - MAINE - Mainly woods-pool Aedes spp. very active in Orono area June 3-4. (Boulanger). VERMONT - Mosquitoes annoying over State. (MacCollom, June 5). MICHIGAN - Situation unchanged. (Dowdy). WISCONSIN - Numerous and biting in northern counties; few problem areas in central and in low areas near rivers and streams. Aedes sticticus principal species; few Aedes vexans and Culex restuans appearing. (Wis. Ins. Sur.). MINNESOTA - Aedes vexans hatch significant wherever run-off water accumulated; first significant hatch of season. Substantial increase expected week of June 19. Of 52 larval collections made week ending June 3, Aedes fitchii present in 11 and Culiseta inornata 20. Of 295 females in light traps: Aedes abserratus 72, A. excrucians 33, A. punctor 32, Culex restuans 19, Culiseta inornata 39. (Minn. Ins. Rpt.). UTAH - Troublesome in Delta-Abraham area of Millard County; active at Ideal Beach, Rich County. (Knowlton). NEVADA - Adults heavy in Fallon area, Churchill County; mostly Aedes dorsalis with some A. campestris. (Lauderdale). TEXAS - In Jefferson County, 3 flights of Culex salinarius occurred on Pleasure Island during May. Large flight of Psorophora confinnis occurred in Beaumont area. Light trap index well below last year. Landing rates in Beaumont high during latter part of the month. Culex salinarius occasionally heavy in Port Arthur area during month; averaged 800 per night for 4 days. Culex spp. present throughout county. Aedes sollicitans numerous only in southern part of county. Aedes vexans occurred in northern part of county. Psorophora ciliata locally common in northern Beaumont. P. confinnis common in midcounty and south Beaumont areas, but very numerous in west Beaumont area. Anopheles crucians occurred throughout Jefferson County. Anopheles quadrimaculatus found only in south Beaumont. Single Mansonia perturbans flight occurred in south Beaumont, one day later in Port Arthur. Uranotaenia sapphirina general in county. (Jefferson Co. Mosq. Cont. Comm.).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Averaged 1,100-1,200 per animal on 125 head of cattle in Lowndes County. (Dinkins). OKLAHOMA - Ranged 800-1,000 per head on cows in Kay County; heavy in Mayes County. (Okla. Coop. Sur.). NORTH DAKOTA - Averaged 120 per animal on beef herd in Emmons County. (Brandvik). NEW JERSEY - Increasing rapidly throughout State. (Ins.-Dis. Newsltr.).

SCREW-WORM (Cochliomyia hominivorax) - Total of 3 cases reported in U. S. June 4-10 as follows: TEXAS - Pecos 1, Hidalgo 1, Crockett 1. Total of 82 cases reported in portion of Barrier Zone in Republic of Mexico May 28-June 3 as follows: Territorio sur de Baja California 19, Sonora 13, Chihuahua 4, Coahuila 3, Nuevo Leon 8, Tamaulipas 35. Total of 127 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U. S. Sterile flies released June 4-10: Texas, 17,158,000, Mexico 145,596,000. (Anim. Health Div.).

HORSE BOT FLY (Gasterophilus intestinalis) - OKLAHOMA - First adults of season active on horses in Payne and Muskogee Counties. (Okla. Coop. Sur.).

HOUSE FLY (Musca domestica) - NEW JERSEY - Increasing rapidly throughout State. Controls recommended in poultry houses. (Ins.-Dis. Newsltr.).

BLACK FLIES (Simulium spp.) - UTAH - Large numbers swarming about horses and annoying man and cattle in Beaver Dam and Collinston area, Box Elder County. (Knowlton).

TICKS - WISCONSIN - Unusually abundant this season in northern counties although there may be reduction in some far northern counties. Reported in Iowa, Columbia, and Dane Counties. (Wis. Ins. Sur.). OKLAHOMA - Amblyomma americanum comprised 98 percent of ticks on cattle checked in Muskogee and Cherokee Counties; 90 percent adults. Moderate on cattle in Choctaw County, increasing in Pontotoc County. (Okla. Coop. Sur.). MARYLAND - Dermacentor variabilis abundant in wooded areas in southern sections. Case of Rocky Mountain spotted fever reported in 2-year-old child in Prince Georges County. (U. Md., Ent. Dept.).

## BENEFICIAL INSECTS

LADY BEETLES - NEVADA - Varied 3-5 per sweep in some alfalfa in Carson Valley, Douglas County. (Munk). ARIZONA - Several species very heavy in various crops in Graham County. (Ariz. Coop. Sur.). COLORADO - Hippodamia convergens numerous in Arkansas Valley; low in Larimer County, 6 per 100 sweeps. (Schweissing, Sower). NORTH DAKOTA - Lady beetle adults ranged 3-50 per 100 sweeps (averaged 12) on northeast area alfalfa. (Brandvik). IOWA - Abundant on Decatur County alfalfa. (Iowa Ins. Sur.). MISSOURI - H. convergens larvae and pupae averaged 80 per 10 sweeps in north-central area field of red clover. (Munson). MISSISSIPPI - H. convergens most prevalent predator in cotton. Approximately one beetle per 50 feet of row in some older fields. (Dinkins). VIRGINIA - Very large numbers of H. convergens adults observed on Eastern Shore in potato fields and on other cultivated crops. Noted feeding on Colorado potato beetle and European corn borer egg masses. (Hofmaster).

A MELYRID BEETLE (Collops vittatus) - COLORADO - Adults 12 per 100 sweeps in Larimer County. (Sower).

DAMSEL BUGS - IOWA - Abundant on Decatur County alfalfa. (Iowa Ins. Sur.).

LACEWINGS - IOWA - Abundant on Decatur County alfalfa. (Iowa Ins. Sur.).

AN ICHNEUMON WASP (Bathyplectes cucurlionis) - ILLINOIS - Infesting more than 4 percent of Hypera postica larvae in Bond County field. (Ill. Ins. Rpt.).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - CALIFORNIA - Hatch late and uneven in southern part of State. Rangeland conditions good with abundance of native vegetation and moisture. Camnula pellucida nymphs at Warner area, San Diego County, and at Morango and the Camuilla Indian Reservation, Riverside County. Oedaleonotus enigma nymphs infesting about 1,000 acres in area infested last year in Fresno County, and about 5,000 acres in Panoche Valley, San Benito County, with little movement to croplands noted. (Cal. Coop. Rpt.). NEW MEXICO - Drought prevailed over most of State to end of May. Nymphs ranged up to 50 per square yard in area of approximately 12,000 acres in east-central Lea County. First instars heavy on rangeland in few small areas scattered over an estimated 1,000 acres in extreme northwestern McKinley County. (PPC). COLORADO - First instars heavy in few crop margins in Mesa County. (Sisson). OKLAHOMA - Ranged 5-20 per square yard on rangeland in west-central and southwest counties with higher numbers on about 7,000 acres in Washita County, and 15,000 acres in Roger Mills County. Counts of 5-20 per square yard in scattered rangeland areas interspersed with cropland in Caddo and Kiowa Counties. Ageneotettix deorum, Phlibostroma quadrimaculatum, Melanoplus bivittatus, Aulocara elliotti, and Psoloessa delicatula dominant. Late hatch underway in some areas of Delaware, Mayes, and Pittsburg Counties. Counts ranged 10-15 per square yard in spots. M. bivittatus, M. differentialis, Boopedon nubillum, and Hesperotettix sp. dominant. (Okla. Coop. Sur.). KANSAS - Stops at roadsides and field borders in Butler and Cowley Counties showed 6-10 nymphs per square yard; nymphs up to 15 per 10 alfalfa sweeps in Chase, Butler, and Cowley Counties. Mostly Melanoplus spp. (Simpson). SOUTH DAKOTA - For May 30-June 5, hatch still light but more general. First and second instars mostly M. bivittatus appearing along roadsides and in alfalfa fields in more heavily infested areas of south-central and southeastern sections. Nymphs averaged up to 20 per square yard on Sanborn County alfalfa in sandy soil. May become extremely heavy in drought area, which includes much of south-central and southeastern areas. (Burge). In western section rain and cool weather held back hatch. Still low in Wasta area of Pennington County, most heavily infested area last summer. (Zimmerman). NORTH DAKOTA - Mostly first instars (some second instars) noneconomic in Dickey, Emmons, Burleigh, Morton, and Sioux Counties. Marginal and field counts ranged 0-4 per square yard (averaged less than 1). Species included M. bivittatus, M. sanguinipes, and few C. pellucida. (Coupe). First instars noneconomic, less than 1 per

square yard, in margins and fields in Stark, Hettinger, Adams, Grant, Bunn, Mercer, Oliver, Billings, and Golden Valley Counties. M. sanguinipes, M. packardii, and M. bivittatus dominant. (Stoltenow). MINNESOTA - Few first and second instars in northwest and central districts. Eggs coagulated in west-central district and coagulated to early eye spot in southwest district. Few newly hatched nymphs expected next period: M. bivittatus and M. sanguinipes should be of minor importance in most areas. (Minn. Ins. Rpt.). WISCONSIN - A green meadow grasshopper matured in Dane County. Dendrotettix quercus eggs just hatched at a site in Marinette County June 7, week later than 2 years ago. (Wis. Ins. Sur.). MICHIGAN - Early instars in Kalkaska County most numerous of recent years. (Cook).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Three larvae collected from fruit of imbe, Garcinia livingstonei, at tropical garden in Coral Gables, Dade County, June 2. This is new host record. (Sherron).

CEREAL LEAF BEETLE (Oulema melanopus) - ILLINOIS - Larva swept from oats at Oakwood, Vermilion County, 25 miles southwest of 1966 finds. (Lanier). INDIANA - Third instars on wheat and early oats at New Carlisle, St. Joseph County. Adults moving from wheat to oats. Adults moderate to heavy on corn adjacent to wheat; averaged 2 eggs per corn seedling in research area. (Shade, June 2). Larvae in oat field at Bellmore, Parke County. New county records: Ripley and Bartholomew. (Clark). MICHIGAN - Larval feeding not generally noticeable in mid-State counties. Mostly first instars, very few second instars June 5. Of 4 southern counties, Jackson had most adult feeding holes, eggs, and larvae on oats June 2, but sprays not required yet. (Dowdy).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Biological Control Zone - Total of 2,500 trees inspected on 2 properties in Municipios Hidalgo and Padilla, Tamaulipas. Both properties lightly infested. Chemical Control Zone - Inspections made of 85,150 trees on 1,345 properties in 9 municipios of Tamaulipas and Nuevo Leon including 31,647 nursery trees. Infestations found on 93 trees on 3 properties in Linares, Nuevo Leon. Inspections of 5,059 trees on 310 properties in 4 municipios of Sonora and Baja California negative. (PPC Mex. Reg., Apr. Rpt.).

EUROPEAN CHAFER (Amphimallon majalis) - OHIO - Grubs averaged one per square foot in 185th Street area of Cleveland week of April 7. (PPC Cent. Reg.).

GYPSY MOTH (Porthetria dispar) - RHODE ISLAND - Still in first instar at Johnston, Providence County. (Mathewson, Merriam, May 31). MASSACHUSETTS - Larvae appeared on cranberry bogs, 2 weeks later than usual because of cold, wet spring. (Tomlinson, June 2).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - In Municipios Ensenada, Tecate, and Tijuana, Baja California, 2,895 trap servicings made on 710 traps on 703 properties. Total of 22 marked specimens (9 females, 13 males) recovered in Tijuana. No unmarked flies trapped. Weekly releases of irradiated pupae initiated April 14 at Tijuana; subsequent releases made April 21 and 28. Total of 2,450,000 pupae released in April; 64 release points used. Adult emergence for these 3 releases averaged 89.1 percent. (PPC Mex. Reg.).

ORIENTAL WOOD BORER (Heterobostrychus aequalis) - FLORIDA - Larvae and adults collected in "light mahogany lumber" at commercial lumberyard in Tampa, Hillsborough County, June 7. (Todd, Hale). This is a new county record. (Fla. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Moth catches in sex lure traps again increased in all areas, but Cochise and Pima Counties. Larval finds increasing in blooms and small squares in Yuma County and warmer areas of Maricopa County. (Ariz. Coop. Sur.). CALIFORNIA - High of 17 moths trapped in one night in center of Palo Verde Valley, Riverside County; high of 17 moths taken during same interval in cages in southern part of valley. First moth of season May 24 near Brawley, Imperial County. No moths in 50 traps in Cantil area, Kern County. Traps installed by county: Kern 174 in Bakersfield area; Kings 90; Tulare 163;

Fresno 130; Madera 41; Merced 26. Approximately 1,200 traps scheduled for San Joaquin Valley. (Cal. Coop. Rpt.).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - ALABAMA - Larvae damaging 3.5-acre peanut field in Geneva County. (Hartzog).

WHITE GARDEN SNAIL (*Theba pisana*) - CALIFORNIA - Fourth and final baiting of season under way in Manhattan Beach, Los Angeles County. No live specimens found in 27-block eradication area since third treatment. (Cal. Coop. Rpt.).

#### HAWAII INSECT REPORT

Pastures - A BILLBUG (*Sphenophorus venatus vestitus*) light to medium and causing moderate damage in scattered areas of Kikuyu grass pasturelands at Kaupakalua and Kaiku, Maui; larvae ranged 3-11 per square foot. (Miyahira, Funasaki, Nakao).

Vegetables - SMALL GARDEN SNAIL (*Bradybaena similaris*) heavy (up to 3 per square inch of leaf surface) on small plantings of broccoli, Chinese cabbage, and daikon in Lanai City, Lanai. Damage light. (Miyahira). Larvae and adults of LEAF MINER FLIES (*Liomyza* spp.) medium to heavy in cucumber and snap bean fields in Wailua, Kauai. Most persistent pests for past several months. (Au). MELON FLY (*Dacus cucurbitae*) population at unusually low levels in Kawaihau District of Kauai. (Au).

Ornamentals - SPOTTED GARDEN SLUG (*Limax maximus*) heavy and causing moderate damage in chrysanthemum and head cabbage fields in Kula, Maui. (Mori, Tamura). BLACK TWIG BORER (*Xylosandrus compactus*) infestations found in 6 of 25 commercial and private nurseries surveyed throughout Hilo, Hawaii Island, during May. Ranged light to medium on epidendrums, dendrobiums, and epicalleyas. Heavy infestation noted on bifoliate type cattleyas at one nursery. (Yoshioka).

Forest and Shade Trees - Nymphs and adults of a MIRID BUG (*Rhinacloa forticornis*) abundant on Kiawe blossoms (*Prosopis pallida*) in Pearl Harbor and Waialae-Kahala areas of Oahu; 4-5 per flower spike. This insect first recorded in State in 1962. Known to damage many plants, including *Acacia*, corn, pepper, tomato, and lettuce. (Kajiwara). A PSYLLID (*Psylla uncatoides*) found for first time on Maui infesting *Acacia koa* at Olinda and Haiku and Formosa koa at Kahului; averaged 5, 5, and 1 per sweep, respectively. Averaged 2 per sweep on 10 Formosa koa trees in Waimanalo. (Funasaki, Miyahira, Nakao). A CONIFER APHID (*Cinara carolina*) light to medium in Kokee area of Kauai on slash pine and on other pine species, including loblolly and Monterey pines. Yellowing of needles common on some trees. (Au).

Man and Animals - Total of 1,221 *Aedes vexans nocturnus* and 8,373 *Culex pipiens quinquefasciatus* collected in 48 light traps operated by Mosquito Control Branch, Dept. of Health, on Oahu during May. *Aedes* counts highest on windward side of island. Highest *Culex* counts recorded at Nanakuli, Kahuku, and in Haleiwa and Waialua area. (Haw. Ins. Rpt.).

Beneficial Insects - LANTANA SEED FLY (*Ophiomyia lantanae*) infested 75 percent of lantana seeds collected in Kula and Ulupalakua area of Maui. (Miyahira, Ah Sam).

Miscellaneous Pests - GIANT AFRICAN SNAIL (*Achatina fulica*) - Surveillance and metaldehyde treatments continued at Kailua-Kona, Hawaii Island, and Wahiawa, Kauai, sites of recent discoveries. Total of 198 snails collected at Kailua-Kona and 76 at Wahiawa during May. Both infestations restricted to about 2 acres. (Yoshioka, Au). VAGRANT GRASSHOPPER (*Schistocerca vaga*) adults on weed hosts in farming areas of Waianae, Oahu, becoming common. Crop damage negligible. (Jackson, Funasaki, Ketchum).

## INSECT DETECTION

### New State Records

A FULGORID PLANTHOPPER (Epiptera opaca) - DELAWARE - Adults collected in blacklight trap at Dover, Kent County, August 28, 1965, by J. Franklin. Det. by J. P. Kramer. Recorded elsewhere as feeding on pine. (Burbutis).

A MELANDRYID BARK BEETLE (Phloeotrya vaudoueri) - DELAWARE - Adults collected in blacklight trap at Dover, Kent County, July 13, 1966, by J. Franklin. Det. by T. J. Spilman. (Burbutis).

A SCARAB (Diplotaxis sordida) - DELAWARE - Adult collected in blacklight trap at Dover, Kent County, August 18, 1966, by J. Franklin. Det. by O. L. Cartwright. (Burbutis).

TWIG GIRDLER (Oncideres cingulatus) - DELAWARE - Adult collected in blacklight trap at Dover, Kent County, September 19, 1966, by J. Franklin. Det. by G. B. Vogt. (Burbutis).

### New County and Island Records

ALFALFA WEEVIL (Hypera postica) - NEW YORK - Oswego County in CEIR 17(22):458. Livingston County in CEIR 17(23):480. MICHIGAN - Cass, Berrien, and Clinton Counties. OHIO - Warren, Henderson, Mercer, Boone, McHenry, and Mason Counties. (p. 506).

MEADOW SPITTLEBUG (Philaenus spumarius) - MISSOURI - Boone County. (p. 508).

NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) - NORTH DAKOTA - At Wishek, McIntosh County. (p. 518).

CEREAL LEAF BEETLE (Oulema melanopus) - INDIANA - Ripley and Bartholomew Counties. (p. 522).

ORIENTAL WOOD BORER (Heterobostrychus aequalis) - FLORIDA - At Tampa, Hillsborough County, June 7. (p. 522).

A PSYLLID (Psylla uncatoides) - HAWAII - Maui. (p. 51).

### Insect Detection in Canada

Individual specimens of CEREAL LEAF BEETLE (Oulema melanopus) collected in 4 Townships of Essex County, Ontario, immediately across the Detroit River from Michigan, U. S. A. Single specimen also collected in Lambton County, adjacent to St. Clair River. ALFALFA WEEVIL (Hypera postica) found for first time in eastern area; 2 specimens found in Haldimand County on north shore of Lake Erie, and one specimen in Welland County at Niagara Falls. (D. S. MacLachlan).

## CORRECTIONS

CEIR 17(22):457-458 - WIREWORMS - IDAHO - Ctenicera glauca should read Ctenicera callida. Det. by M. C. Lane. (Portman).

CEIR 17(23):494 - HAWAII INSECT REPORT - Vegetables - Line 6: (Liromyza spp.) - should read (Liriomyza spp.) -









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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**



# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

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## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMYWORM troublesome in wheat in northeast Missouri; damaging corn in Ohio and several crops in Indiana; activity and damage expected to be above normal in Maine. CORN EARWORM appears more damaging to corn than for several years in 2 South Carolina counties. (p. 529). TOBACCO HORNWORM problem on tobacco for first time this season in Florida. (p. 530). GREEN PEACH APHID considerably above normal on tobacco beds in southern Maryland; could become problem in Pittsylvania County, Virginia. (p. 538).

EUROPEAN CORN BORER egg masses reported in Massachusetts, New York, New Jersey, and Missouri; small larvae in corn in some areas. (p. 530). SORGHUM MIDGE damaging in central Texas. (p. 531). SLUGS damaging several crops. (pp. 531, 540, 543).

ALFALFA WEEVIL infestations heavy and increasing; extensive damage continues in Ohio and other areas. (pp. 533-534). PEA APHID continues problem on alfalfa throughout New Mexico; heavy on some alfalfa in California, very heavy in New Jersey. (p. 534). LYGUS BUGS increasing on alfalfa in areas of Arizona. FALL ARMYWORM and LESSER CORNSTALK BORER damaging peanuts in Brazos County, Texas. (p. 535).

BOLL WEEVIL emergence increasing in Florence area of South Carolina, continues heavy in southern Georgia; very active in western Tennessee; large numbers continue to emerge over Alabama. (p. 536). BOLLWORMS damaged cotton in Louisiana; egg laying common in Alabama; infestations appearing in Mississippi and range moderate to heavy in some Arizona cotton. (pp. 536-537). THRIPS damaging cotton in several areas. (p. 537).

Appearance of POTATO FLEA BEETLE and COLORADO POTATO BEETLE adults expected to be delayed on Virginia Eastern Shore; damage reported in other areas. (pp. 538, 539). SPIDER MITES problem on tomatoes in Alabama, threatening in southern California (p. 539). ASPARAGUS BEETLES troublesome in some Eastern States. (p. 540).

WESTERN PINE BEETLE killing ponderosa pines on 3,000-acre stand in Tuolumne County, California. (p. 546).

MOSQUITOES remain troublesome in several areas. CATTLE GRUB adults running cattle in Utah and Nebraska. HORN FLY continues to increase in New Jersey; heavy in Oklahoma. (p. 546). HOUSE FLY annoying cattle in some areas; controls recommended for cattle and poultry in New Jersey. (p. 547).

GRASSHOPPERS at economic levels in areas of South Dakota, Oklahoma, and New Mexico. (pp. 548, 549). CEREAL LEAF BEETLE moderate to heavy on oats in area of Indiana. (p. 549). First JAPANESE BEETLE adults of season reported in Rhode Island, Virginia, and South Carolina. (p. 550).

Detection

New State records, 2 PLANT BUGS, Delaware. (p. 551). New county records. (p. 551).

Predictions

RANGE CATERPILLAR may cause serious losses in New Mexico. (p. 532).

Special Reports

Infestation by Sugarcane Borer and Crop Loss in Louisiana Lower in 1966 Than in 1965. (pp. 530-531).

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Reports in this issue are for week ending June 19 unless otherwise indicated.

WEATHER BUREAU'S 30-DAY OUTLOOK

MID-JUNE TO MID-JULY 1967

The Weather Bureau's 30-day outlook for mid-June to mid-July is for temperatures to average above seasonal normals east of the Continental Divide except for near to below normal in the Northeast and in Florida. Below normal temperatures are expected in west coast States and the Great Basin while near normal temperatures are anticipated elsewhere. Precipitation is expected to exceed normal from eastern portions of the northern Plains eastward to the Great Lakes region, and also over the Pacific Northwest, the southern Plateau region, and Florida. Little or no precipitation is indicated for the southern Plains, most of the middle and south Atlantic Coast States and the far Southwest. In unspecified areas near normal rainfall is in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

For Weather of the Week see page 554.



## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMYWORM** (*Pseudaletia unipuncta*) - MAINE - Flight heavy June 7; total of 19 adults taken in blacklight trap at Monmouth. Single moth taken June 8; activity diminished due to rain and cool temperatures. Total of 30 moths collected June 9-12. Activity above normal; higher than normal activity and damage expected this season. Eggs being laid; should hatch in about 14 days. (Boulanger, June 14).  
**MASSACHUSETTS** - Total of 15 taken in blacklight trap at East Wareham, Plymouth County, June 3-9. (Tomlinson).  
**DELAWARE** - Larvae present on corn in areas of Kent and Sussex Counties. (Burbutis).  
**VIRGINIA** - Larvae heavy in sod-planted corn in Pulaski County. Treatment apparently very satisfactory. (Scyphers).  
**OHIO** - Damaged numerous corn fields in 10-square-mile area in Wayne County. Damage moderate to heavy in 3 reported instances. (Glass, Berry). Infested Champaign County timothy hay (Rinehart, Blair); nondamaging numbers on Auglaize County wheat (Rose).  
**INDIANA** - Very severe local outbreaks damaged wheat, corn, and grass pastures throughout west-central area. (Lehker).  
**ILLINOIS** - Declining in south-central section as larvae pupate or die; still damaging in central area. (Kuhlman).  
**MISSOURI** - Moderate to heavy on some wheat in northeast area; ranged 4-15 fourth instars per square foot. Larvae light in most fields; 0-3 per square foot. Parasitism very low. (Munson).  
**IOWA** - Averaged 2 larvae per square yard in broome in central area. (Gunderson).

**BET LEAFHOPPER** (*Circulifer tenellus*) - WASHINGTON - Adults abundant on sugarbeets. Much curly top in nonresistant varieties at upper Yakima Valley, Yakima County. (Wallis).

**CORN EARWORM** (*Heliothis zea*) - SOUTH CAROLINA - Appears more damaging to corn than for several years in Clarendon and Lee Counties; most larvae in late stages. Large numbers expected to move into cotton and tomatoes in some areas week of June 18. (Nettles et al., June 13).  
**ALABAMA** - Larvae medium in whorls of corn in 40-acre field in Cleburne County; corn in early tassel stage. Full-grown larvae frequently noted in whorls of corn in Colbert, Madison, and St. Clair Counties. (Ventress et al.).  
**MISSISSIPPI** - Less than 1 percent of corn plants checked showed whorl damage in Pontotoc County. Approximately 10 percent of sweet corn ears infested in Yazoo County field. (Dinkins).  
**MISSOURI** - Fed in whorls of corn not tasseled in southeast area. Up to 10 percent of plants in some fields infested. (Jones).  
**TEXAS** - Light to moderate in corn in Wilson, Hays, Guadalupe, and Caldwell Counties. Up to 1-4 larvae in many ears. (Massey).  
**ARIZONA** - Larvae infesting 20 percent of sorghum terminals in Yuma Valley, Yuma County. (Ariz. Coop. Sur.).

**CORN LEAF APHID** (*Rhopalosiphum maidis*) - ALABAMA - Light in whorls of all corn examined in Colbert, Madison, and St. Clair Counties. Light to heavy, 25-100 per plant, in whorls of Johnson grass just prior to seed head emerging in corn and cotton fields. (McQueen).  
**MISSISSIPPI** - Alates present in 8 percent of mosaic diseased Johnson grass in whorl stage around corn field in Yazoo County. At least one alate in whorls of 18 percent of young corn plants 2-3 inches tall. (Dinkins).  
**NEVADA** - Light, spotty numbers in grain in Hualapai Valley, Washoe County. (Galloway, Martinelli).

**GREENBUG** (*Schizaphis graminum*) - WISCONSIN - Increase very slight in oats. "Red leaf" detected in few areas. (Wis. Ins. Sur.).  
**MINNESOTA** - Occasional field in central district with up to 50 per 100 sweeps. Lady beetles and lacewings increasing. (Minn. Ins. Rpt.).  
**NORTH DAKOTA** - No increase noted; high of 3 per 100 sweeps on Cass County barley. (Brandvik).

**POTATO LEAFHOPPER** (*Empoasca fabae*) - VIRGINIA - Adults averaged 2 per 10 sweeps in alfalfa in Nottoway County. (Isakson).  
**MISSOURI** - Adults ranged 5-35 per 10 sweeps in alfalfa in central, east-central, and northeast areas. (Munson).  
**WISCONSIN** - Some on alfalfa in southwestern and central counties. Highest in Dane County with 3 per 10 sweeps. (Wis. Ins. Sur.).

SIX-SPOTTED LEAFHOPPER (*Macrosteles fascifrons*) - NEW YORK - Numerous in lettuce fields; controls should be underway to minimize spread of lettuce yellows. (Muka). WISCONSIN - Averaged 8 per 50 sweeps in oats in Iowa, Grant, and Columbia Counties. Averaged 1 per 50 sweeps in central counties in oats. No aster yellows on central area lettuce. (Wis. Ins. Sur.). IOWA - Ranged 1-14 per 10 sweeps in alfalfa and red clover in central and west-central areas. (Mast). MISSOURI - Corn field in Shelby County had 8-50 per plant feeding on marginal rows. Field next to plowed soil bank land. Plants small; damage severe to marginal rows. (Munson).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - NEW MEXICO - Definite buildup in Pecos Valley, especially in Roswell and Artesia area. Control necessary. (Wade). Light to heavy and spotty in southern Dona Ana County. (Campbell). NEBRASKA - Ranged 0-2 (averaged 1) per 10 sweeps in Lancaster County field. None found in Gage County. (Keith). SOUTH DAKOTA - Low, less than 10 per 100 sweeps, in alfalfa sampled near Spearfish, Lawrence County. (Jones).

TOBACCO HORNWORM (*Manduca sexta*) - FLORIDA - Reported as problem for first time this year. Second and third instars very light on flue-cured tobacco at Mayo, Lafayette County. (Strayer, Whitty).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - ALABAMA - Second and third instars heavy (2-10 per cornstalk) in 15-acre field of pretasseling corn in Colbert County. Part of mixed infestation, including southwestern corn borer and lesser number of corn earworm, in whorls. *O. nubilalis* heavy and caused severe damage in this field last year. Grower plans to cut corn immediately and feed to cattle rather than experience loss to crop as last year. Moth emergence 20-30 days ago apparently extremely heavy as some egg laying occurred on nearby cotton where few larvae now feeding in stalks. Larvae numerous in St. Clair County corn field on Chandler Mountain. (Reid et al.). MISSISSIPPI - No infestation found in 4 corn fields checked in Pontotoc County. (Dinkins). MISSOURI - Leaf feeding damage on corn over 30 inches tall ranged 0-30 percent in central and east-central areas and 0-8 percent in extreme northeast area. Feeding damage light in southeast area; less than 10 percent of plants in fields checked in this area had leaf feeding. (Jones). Very few egg masses observed in any areas checked. Moth emergence 92 percent in field in extreme northeast area. (Munson). NEBRASKA - First moths of season in blacklight trap at Mead, Saunders County. (Keith, May 28). NORTH DAKOTA - Percent pupation in east-central and southeast counties; Cass 4, Sargent 22, Richland 35, and Ransom 8. Averaged 11 for all counties. Adult emergence light. Tallest corn 6 inches high. (Brandvik). MINNESOTA - Pupation slow in southwest and west-central districts; less than 10 percent. (Minn. Ins. Rpt.). WISCONSIN - Adults continue in blacklight traps at Madison and Platteville. Some young larvae feeding in corn whorls in Walworth County. (Wis. Ins. Sur.). ILLINOIS - Percent adult emergence by district: South-central 100, central 64-88, north-central 30-90, and north 24. Eggs laid on 15 to 30-inch corn in southern, south-central, central, and north-central districts. Egg masses averaged 200 per 100 plants in early planted south-central area field. Averaged 50-70 egg masses per 100 plants on 30-inch corn in central and north-central areas. (Kuhlman). NEW JERSEY - Egg masses on sweet corn from Middlesex County south; extremely heavy in field near Hamilton Township, Mercer County; one larva present. Two egg masses per 100 plants near New Market, Middlesex County. (Ins.-Dis. Newsltr.). MASSACHUSETTS - First egg masses on 6 to 8-inch sweet corn at Franklin, Norfolk County; egg masses on about 1 per 6 plants. (Wave). NEW YORK - Changing rapidly in hot weather. In cages about 6 percent emerged as moths June 12; moths appeared in trap and hedgerow. Eggs first detected in Rockland June 7, and hatched June 11. Expected to be important. (N. Y. Wkly. Rpt., June 12).

Infestation by Sugarcane Borer (*Diatraea saccharalis*) and Crop Loss in Louisiana Lower in 1966 Than in 1965 - The annual harvesttime survey to determine degree of infestation and crop loss showed 14 percent of the joints (internodes) of sugarcane bored, with an estimated crop loss of 11 percent. Infestations in 1965 averaged

18 percent. For the 31-year period 1935-1965 joints bored averaged 16 percent. The sugarcane belt was struck by a rather hard unprecedented freeze on November 3, about 2 weeks after the beginning of harvest, the temperature in many places reaching 23°F. The freeze caused considerable damage to cane, necessitating lower topping and leaving some late-generation borer infestation in the field. (Ent. Res. Div., Hauma, La.).

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) - ALABAMA - One to two second instars boring into and feeding in developing stalks of 15-acre field of pre-tasseling corn in Colbert County. Excessive leaf feeding evident where eggs hatched and prior to larvae entering whorls and stalks. Few larvae observed in pretassel corn in garden in Madison County. This is first generation of year. (Hood et al.). MISSISSIPPI - None found in 4 corn fields checked in Pontotoc County. (Dinkins).

FALL ARMYWORM (Spodoptera frugiperda) - TEXAS - Heavy larval population destroyed 50-acre field of 8-inch milo near Caldwell, Burleson County, in about 4-day period. Larvae averaged approximately 25-30 per foot of row. (Engbrock).

CUTWORMS - NEW JERSEY - Damage heavy to field corn near Hope, Warren County. (Ins.-Dis. Newsltr.). DELAWARE - Several species feeding heavily on young corn in several areas. (Burbutis). MINNESOTA - Damaged corn in Yellow Medicine County. Damage light in some central district fields. (Minn. Ins. Rpt.). NEBRASKA - Euxoa detersa damaged corn in Antelope County. (Ehlers).

BLACK CUTWORM (Agrotis ipsilon) - See page 550.

CORN ROOTWORMS (Diatrotica spp.) - MINNESOTA - No hatch in southwest and central districts. (Minn. Ins. Rpt.). NEBRASKA - D. virgifera and D. longicornis hatch delayed by prolonged cool weather. (Lawson). TEXAS - D. longicornis larvae heavy on roots of corn in Medina County field. (Deer).

CORN FLEA BEETLES (Chaetocnema spp.) - NEW YORK - C. pulicaria ranged 4-30 per 100 plants except on freshly sprayed corn. (N. Y. Wkly. Rpt., June 12). OHIO - C. pulicaria damaged young corn in heavily infested Wayne County field. (Barry). ARIZONA - Increasing populations of C. ectypa causing light leaf damage to newly planted corn in Yuma, Maricopa, and Pinal Counties. (Ariz. Coop. Sur.).

SEED-CORN BEETLE (Agonoderus lecontei) - WISCONSIN - Necessitated some replanting of corn in Ripon area. (Wis. Ins. Sur.).

POTATO FLEA BEETLE (Epitrix cucumeris) - OHIO - Heavy on Darke County corn. (Juester).

WIREWORMS - MINNESOTA - Necessitated replanting of corn in 2 Lyon County fields. Fields in "idle acres" program in 1966. (Minn. Ins. Rpt.).

THRIPS - MISSOURI - Ranged 10-100 per small corn plant in central and east-central areas; feeding damage evident. (Munson). DELAWARE - Abundant on corn and causing noticeable injury in several areas. (Burbutis). MARYLAND - Infesting young corn in Wicomico and Worcester Counties. (U. Md., Ent. Dept.).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Sporadic but widespread and damaging populations of 4-8 midges per newly emerged head found in some fields in most central counties south of Hill County by June 16. Economic damage expected in most fields blooming in this area beyond this date. (Thomas).

SLUGS - OHIO - Infested 2 Franklin and Clark County corn fields. In Clark County, 4 acres of 10-acre field affected. Some corn completely eaten, in others leaves riddled. Infestation occurred in low-lying soil high in organic matter. (Miller, June 8-9). MARYLAND - Deroceras reticulatum heavily damaged 3 acres of field corn near Taneytown, Carroll County. (U. Md., Ent. Dept.).

#### SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - WISCONSIN - Increased slightly on oats in southwestern and central counties; averaged about 25 per 50 sweeps. Some "red leaf" of oats observed in few central counties and in Chippewa County. (Wis. Ins. Sur.). MINNESOTA - Numbers low in most fields. Lady beetles and lacewings increasing. (Minn. Ins. Rpt.). NORTH DAKOTA - Remains light; high of 24 per 100 sweeps on Cass County rye. (Brandvik). UTAH - Light on dryfarm fall wheat in Nephi-Levan area, Juab County. (Knowlton).

GRASS BUGS - UTAH - Small numbers of Irbesia pacifica moved to wheat adjacent to severely bleached intermediate and crested wheatgrass in Beaver Dam area of Box Elder County. (Knowlton).

SUGAR-BEET WIREWORM (Limoniua californicus) - IDAHO - Larvae ranged up to 3 per plant on 300 acres of Gaines wheat planted on land in ryegrass seed last season. Some bare areas up to 15 feet in diameter observed. Population 90 percent full grown; will pupate this season. Det. by M. C. Lane. (Hackler, Portman, May 12).

#### TURF, PASTURES, RANGELAND

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Hatch began June 1; almost complete in most parts of Farley and Abbot area, Colfax County, June 7; just beginning in area north of Roy, Harding County. Ranged 70-160 larvae per group for 5 groups counted. Occasional larval group in area treated summer of 1966; in areas untreated in 1966 and with abundant egg masses this spring, as high as 2-8 groups of larvae present per square yard. Infested area not delimited. Larvae, eggs, and pupae found in Raton area to northwest and as far south as 5 miles north of Roy. Only small percentage of eggs parasitized. Serious losses may occur in heavily infested areas this summer. These areas may be source for wider distribution. (Nielsen).

A SOD WEBWORM (Crambus sp.) - TEXAS - Larvae heavy and caused severe damage to buffalo grass lawns near Graham, Young County. Larvae as deep as 6-8 inches in sandy type soil. (McCarroll).

GRASS BUGS - UTAH - Labops hesperius damaged crested wheatgrass areas in Parowan Valley, Iron County. (Knowlton, Sjoblom). Irbesia pacifica moderately discolored wheatgrasses in Logan Canyon, Petersboro, and Mendon, Cache County. Wheat fields near heavily infested intermediate wheatgrass at Beaver Dam, Box Elder County. (Knowlton).

YELLOW SUGARCANE APHID (Sipha flava) - TEXAS - Heavy and causing much damage in 30 to 40-acre field of Coastal Bermuda grass in Williamson County. Grass stunted and hay production decreased drastically. Previously not recorded as pest of this crop in State. (Doby).

ENGLISH GRAIN APHID (Macrosiphum avenae) - WASHINGTON - Mostly small nymphs of this species and Rhopalosiphum fitchii light (3-5 per head) in bluegrass seed fields near Walla Walla, Walla Walla County. (Johansen, Eves).

FIELD CRICKETS (Gryllus spp.) - CALIFORNIA - General on range plants in the Bear Valley in Williams area of Colusa County. Infestations periodic in northern and central areas of State. This early occurrence may indicate heavy nuisance this season if weather favorable. (Cal. Coop. Rpt.).

FRIT FLY (Oscinella frit) - NEW MEXICO - Serious at golf course at Las Cruces. Adults range 70-100 per 25 sweeps. (Campbell).

SAWFLIES - UTAH - Larvae defoliated crested wheatgrass in Parowan Valley, Iron County. (Knowlton, Sjoblom). Larvae light, but common on intermediate wheatgrass range areas discolored by Irbesia pacifica in Beaver Dam area of Box Elder County. (Knowlton).

FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - NEW HAMPSHIRE - Percent tip injury 10-30 in Hollis and Nashua area; 1-10 in southeastern area. (Sutherland). VERMONT - Buildup continues; 30-40 percent injury in most fields. (MacCollom, June 12). MASSACHUSETTS - Numbers per 100 sweeps and percent damage by county June 9: Bristol - adults 1-38, damage 34-90; Plymouth - adults 4-25, larvae 10-1,090, damage 2-100; Hampshire - adults 1-12, larvae 65-1,172, damage 10-80; Berkshire - adults 2-40, larvae 20-869, damage 22-84; Franklin - adults 0-21, larvae 0-146. Larvae 10-1,172 per 100 sweeps. Percent alfalfa injury by county June 12: Hampshire 10-80; Berkshire 22-84; Plymouth 2-100; and Bristol 24-90. Current counts per 100 sweeps of alfalfa 20-32 inches by county: Berkshire - adults 4-15, larvae 82-695; Essex and Middlesex - adults 1-6, larvae 80-153; Hampshire - adults 2-15, larvae 157-801; and Worcester - adults 1-9, larvae 25-233. (Miller). RHODE ISLAND - Adults, larvae numerous; larval feeding evident in fields in Kingston, Washington County. (Mathewson, June 8). NEW YORK - Peak infestation in much of central area. Many fields in Tioga and Tompkins Counties severely injured. Pupation underway. Many eggs laid and hatched in Broome County May 29-June 2. Numbers exploded June 6-12. Older stands less injured. Unsprayed, uncut alfalfa will be just stalks in over 90 percent of Broome County fields by June 20. Heavy in unsprayed Ulster County field; hay quality seriously reduced. (N. Y. Wkly. Rpt., June 12). PENNSYLVANIA - Causing economic damage to alfalfa for first time in Erie County area. All 800 thousand acres of alfalfa in State need controls. (Adams). NEW JERSEY - Larvae very active in many areas of State. Considerable acreage stubble treated. In one large alfalfa field near Cranbury, 160 larvae per sweep collected June 13. (Ins.-Dis. Newsltr.). MARYLAND - Larvae, up to 20 per sweep, damaging second-growth alfalfa in Frederick County. (U. Md., Ent. Dept.). VIRGINIA - Larvae light (2-10 per 10 sweeps) in alfalfa in Nottoway County; adults averaged 3 per 10 sweeps. About 10 percent of alfalfa in bloom. (Isakson).

OHIO - Extensive damage continues except in northwest area. First cutting of alfalfa 40 percent completed. (Ohio Crop & Weather Bull.). In most Wayne, Ashland, and Medina County fields, stubble sprayed to protect second growth. Treatment of first growth in area successful in most instances. Damaged alfalfa in these counties early this year; warm June temperatures brought rapid increase in larval numbers and crop damage. Most damage expected to be over within 14 days. In unsprayed stubble, damage may last for 21 more days. In Wayne and Medina Counties, larvae estimated at 3 per square inch in one field of stubble and many young larvae in another. (Glass). Untreated fields in Logan and Mercer Counties averaged 48 and 29 larvae per sweep respectively; estimated 50-90 percent leaf damage and 20-50 percent loss. Larvae 5 per sweep in Allen County field; little damage. (Rose). In Wood County, approximately 3-4 larvae per sweep. (Jones). Some badly damaged fields, gray in appearance, in Lorain County and numerous in Wayne County. (Niemczyk). INDIANA - Larvae and adults in 2 fields surveyed in Whitley County for new county record. (Smith). ILLINOIS - Found for first time in Stark and Putnam Counties. (Kuhlman). MISSOURI - Total of 4 larvae and 1 adult collected in Adair County alfalfa field for new county record. (Munson). MISSISSIPPI - Larvae per 100 stems averaged 2 in flame treated alfalfa, 12 in untreated alfalfa in Pontotoc County. Total of 73 larvae and 4 adults taken in flame treated alfalfa and 254 larvae and 4 adults from untreated alfalfa per 50 sweeps of 15-inch net. Larvae ranged from first instar to prepupae, indicating peak of second-generation adult emergence will occur next 14 days. (Dinkins). SOUTH DAKOTA - Increased markedly in some Lawrence County fields near Spearfish. Mostly first and second instars ranged up to 600 per 100 sweeps compared with 200 previous week. Less than one per sweep in fields checked east of Hermosa, Custer County, and Oral, Fall River County. (Jones, Kantack). NEBRASKA - One larva in 150 sweeps near Ringgold, McPherson County, for new county record. None in Brown County. (Manglitz, June 5). Ranged 0-198 (averaged 25) per 50 sweeps in Dawson County alfalfa. (Manglitz, Neiman). COLORADO - Adult populations high in San Miguel County; 120 per 100 sweeps. Larvae and adults low on alfalfa in Las Animas County; 20-50 larvae and 10-20 adults per 100 sweeps. Populations in Delta, Mesa, and Montrose Counties at same level as previous week. (Haslem et al.).

NEW MEXICO - Widespread, heavy on alfalfa in Farmington and Aztec area, San Juan County; averaged 80-200 larvae and 2-10 adults per 25 sweeps. (Heninger, Kloefer). UTAH - Caused much damage in Millard County as storms prevented harvest and spraying. Hay cut to prevent weevil damage, largely injured by storms which prevented removal from fields. Much alfalfa cut in various counties before injury became serious. Storms made harvest difficult and delayed. Damage occurring in numerous fields in Sevier County where about 50 percent of acreage sprayed. (Knowlton). Damage severe in many Millard County alfalfa fields. (Hall, Knowlton). NEVADA - Damage continues in Churchill, Douglas, Lyon, Pershing, and southern Washoe Counties. Chemical control still applied and increasing as weather continues to improve. (Nev. Coop. Rpt.). OREGON - Averaged 46 larvae per sweep June 14 in Crook County alfalfa fields. (Dickason). WASHINGTON - Larvae severely damaged alfalfa at Ellensburg, Kittitas County, for new county record. This extends range considerably northward and westward into extensive alfalfa-growing areas. (Retan, Bloom).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - VERMONT - Feeding on buds of birdsfoot trefoil. Numbers sufficient for concern. (MacCollom, June 12). MISSOURI - In all red clover checked in northeast area; adults ranged 4-45 per 10 sweeps. (Munson).

CLOVER SEED WEEVIL (Miccotrogus picrostris) - IDAHO - Reaching economic levels in white clover fields in Bonners Ferry, Boundary County. Controls recommended. (Studer, Gittins).

CLAY-BACKED CUTWORM (Agrotis gladiaria) - PENNSYLVANIA - Destroyed 16 acres of new alfalfa seeding in Huntingdon County; averaged 4 larvae per foot between plant rows. (Udine).

PEA APHID (Acyrtosiphon pisum) - NEW JERSEY - Very heavy in alfalfa near Cranbury. (Ins.-Dis. Newsltr.). VIRGINIA - Few in alfalfa (less than 10 per sweep) in Nottoway County. (Isakson). IOWA - Ranged 5-19 per 10 sweeps in alfalfa and clover in central and west-central areas. (Mast). WISCONSIN - Continues to decline in alfalfa and peas. Less than one per sweep in southern alfalfa. (Wis. Ins. Sur.). SOUTH DAKOTA - Continues to increase in some western area alfalfa. Near Oral, Fall River County, counts as high as 80-100 per sweep in 18 to 20-inch alfalfa, although as low as 4-20 per sweep in some fields. Predators present. In Buffalo Gap area, Custer County, counts lower than in irrigated fields near Oral. Up to 8-10 per sweep in some Lawrence County fields near Spearfish. (Jones, Kantack). NEBRASKA - Ranged 0-30 (averaged 14) per 10 sweeps in Gage and Lancaster County alfalfa. (Keith). COLORADO - Moderate on alfalfa in Las Animas County; 3,000 per 100 sweeps. (Hantsbarger, Jenkins). NEW MEXICO - Continues problem throughout most of State. Averaged 1-2 tablespoons of nymphs per 25 sweeps in Farmington and Aztec area. (Campbell et al.). UTAH - Generally light on alfalfa in northern and central areas. (Knowlton). NEVADA - Averaged 5 per sweep in Hualapai Valley, Washoe County, alfalfa hay fields. (Gallaway, Martinelli). CALIFORNIA - This species and Myzus persicae heavy on some alfalfa plantings in Woodland, Yolo County. (Cal. Coop. Rpt.).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - MISSOURI - In all alfalfa fields checked in northeast area; ranged 5-30 per 10 sweeps. (Munson). NEBRASKA - Adults and nymphs light on Lancaster and Gage County alfalfa. Ranged 0-18 (averaged 8) per 10 sweeps. (Keith). IOWA - Ranged 6-30 per 10 sweeps in central and west-central area alfalfa. No damage evident. (Mast). WISCONSIN - All stages common in central and southern alfalfa fields. Averaged 4 per sweep in most fields; only 5 percent adults. (Wis. Ins. Sur.).

RAPID PLANT BUG (Adelphocoris rapidus) - NEBRASKA - Very light (averaged less than 1 per 10 sweeps) in Lancaster County alfalfa. (Keith). IOWA - Ranged 3-12 per 10 sweeps in central and west-central area alfalfa. (Mast).

TARNISHED PLANT BUG (Lygus lineolaris) - MISSOURI - Most common insect in red clover and alfalfa; ranged 6-40 per 10 sweeps. (Munson).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Adults increasing in alfalfa in Yuma, Maricopa, and Pinal Counties; average 70 per 100 sweeps. Heavy (400 per 100 sweeps) in San Simon area of Cochise County. (Ariz. Coop. Sur.). NEW MEXICO - Counts per 25 sweeps in alfalfa: 20-50 in Dona Ana County; 5-25 larvae, 2-5 adults in northern San Juan County. (Campbell, Heninger). Heavy, averaged 2-4 adults and 4-12 nymphs per sweep in 2 Curry County alfalfa fields. Foliage damage very noticeable. (Nielsen). UTAH - Nymphs generally light in northern and central alfalfa fields. (Knowlton). NEBRASKA - Ranged 3-18 (averaged about 7) per 10 sweeps on Gage and Lancaster County alfalfa. (Keith).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - MISSOURI - Collected from red clover and alfalfa in Adair, Knox, Marion, Scotland, and Shelby for new county records. Collected June 1 in Clark County for new county record. (Munson). WISCONSIN - Adults appearing in some Grant and Iowa County fields; most nymphs third and fourth instar. Highest in southwestern counties. (Wis. Ins. Sur.). OHIO - Some subsequent dispersion occurred throughout State. Adults in alfalfa in Logan, Allen, and Mercer Counties, averaged 5-30 per sweep. (Rose). RHODE ISLAND - Nymphs common on variety of plants statewide. (Mathewson et al., June 8).

#### SOYBEANS

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - MINNESOTA - Damaged soybeans in Renville County. Numbers high last year in southeast corner of county near Fairfax. Light in McLeod County. (Minn. Ins. Rpt.). MARYLAND - Adults causing light foliage damage to soybeans in Saint Marys and Wicomico Counties. (U. Md., Ent. Dept.).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - SOUTH CAROLINA - Damage to young soybeans apparently declining. (Nettles et al., June 13).

GREEN CLOVERWORM (*Plathypena scabra*) - MISSISSIPPI - Light numbers appearing in soybeans in Yazoo County. Approximately 3-4 larvae per 200 feet of row taken with vacuum sweeper. (Dinkins).

YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) - DELAWARE - Few larvae present on soybeans in New Castle and Kent Counties. (Burbutis).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - SOUTH CAROLINA - Infesting soybeans in Piedmont area. (Nettles et al., June 13).

GREEN STINK BUG (*Acrosternum hilare*) - MISSISSIPPI - Averaged 2-3 per 200 feet of row in Yazoo County soybeans. (Dinkins).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - MISSISSIPPI - Numbers continue high in Yazoo County soybeans. Averaged approximately 15-25 per 200 row feet. (Dinkins).

THRIPS - MARYLAND - First infestations of season found on young soybeans in Wicomico County. (U. Md., Ent. Dept.). DELAWARE - *Sericothrips variabilis* averaged 3-4 per leaf on young soybeans in areas of Sussex County and 1-2 per leaf in Kent County. (Burbutis).

#### PEANUTS

FALL ARMYWORM (*Spodoptera frugiperda*) - TEXAS - Larvae causing much defoliation of peanuts near Bryan, Brazos County. (Texas Coop. Rpt.).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - GEORGIA - Damage ranged light to severe in most fields in Seminole County; heaviest on sandier soils. (Paine). TEXAS - Moderate to heavy in root systems of peanuts near Bryan, Brazos County. Approximately 75 percent of plants 4-5 inches high. (Texas Coop. Rpt.).

## COTTON

BOLL WEEVIL (*Anthonomus grandis*) - SOUTH CAROLINA - Found on squaring cotton in Bowman area, Orangeburg County. Damage heavy in some fields. (Nettles et al., June 6). Emergence increasing in Florence area, but numbers relatively small in fields. Weevils ranged 28-483 per acre in untreated plots. (Taft et al., June 14). TENNESSEE - Very active in regularly infested portion of State. Feeding on terminal buds. Weevils more active in early morning; difficult to find later in day. (Locke). GEORGIA - Emergence continues heavy in southern area; overwintered weevils feeding on cotton terminals in northern area. (Womack). ALABAMA - Large numbers of overwintered weevils continue to emerge throughout State. Square infestation on fully fruiting cotton ranged 37-66 percent in Tallapoosa, Coffee, and Barbour Counties. Percent infestation ranged 33-56 in Dallas County. Infestation in fully fruiting cotton on one farm in Montgomery County ranged 21-41 percent; ranged 10-43 percent on younger cotton with fewer squares per stalk on other farms in county. Weevils heavy in 9 Perry County fields; infestation 18-76 percent. Square infestation ranged 20-30 percent in Elmore County. Infestation ranged 18-28 percent in Colbert County field with numerous half-grown squares; few 3 to 5-day-old larvae observed in older squares in this field. First-generation "hatchout" in older fields of central and southern areas expected June 20-25 and of northern area July 1-6; but "hatchout" not expected until 18-20 days after egg laying occurs in squares yet to be formed. Numerous live weevils present in all fields examined in Colbert and Madison Counties; cotton in most fields 2 to 6-leaf stage. (Ledbetter et al.). MISSISSIPPI - Overwintered weevils moved into several fields in Yazoo County. In older cotton with squares, egg punctures noted. Percent punctured squares averaged 4 in one field, 2 in another field. In several fields in which cotton not squaring, live weevils taken with vacuum sweeper. (Dinkins). Overwintered weevils found in 5 of 56 fields, mostly presquaring or early squaring, in delta counties; ranged 50-125 per acre. Numbers appeared lower than previous week. (Pfrimmer et al.). LOUISIANA - Overwintered weevils found in 6 of 23 fields in Madison Parish. Ranged 26-286 per acre; averaged 6.5 per acre for all fields. Total of 26 weevils found in 20 of 65 fields checked for square infestation; punctures found in all fields. Percent punctured squares ranged 5-29 (average 17) in all fields. (Cleveland et al.). TEXAS - Weevils found in 14 of 17 untreated fields and in 5 of 27 treated fields in Waco area. Averaged 178 (maximum 300) per acre in untreated fields and 40 (maximum 212) in treated fields. Overall average of 103 compares with 5 during corresponding week in 1966. Percent punctured squares averaged 3.8 (range 0-7.4) in 9 treated fields and averaged 17.1 (range 16.7-17.6) in 2 untreated fields; these in fields with sufficient squares to make counts. No weevils collected on flight screens. (Cowan et al.).

BOLLWORMS (*Heliothis* spp.) - SOUTH CAROLINA - Total of 9 *H. zea* and 3 *H. virescens* taken in light trap at Florence. (Taft et al., June 14). GEORGIA - Averaged 3 eggs and one small larva per 100 terminals in southern area. (Womack). ALABAMA - Egg laying common, with 2-10 per 100 terminals reported on 7 farms in Montgomery County; eggs 0-22 per hundred terminals in Dallas County. Very few eggs observed in cotton in northern area. Larvae extremely light. (Wilder et al.). MISSISSIPPI - Infestations appearing in older cotton in Yazoo and in other counties in this region. Larvae per 100 terminals averaged 7 in one field, 4 in another field. All larvae first and second instars and feeding in terminals. Younger cotton not infested. (Dinkins). Eggs found in 44 of 56 fields in delta counties. Averaged 675 (range 0-2,550) per acre, based on number of row feet checked in each field. Single *H. zea* larva found in each of 3 fields. (Pfrimmer et al.). LOUISIANA - Damaged squares ranged 1-5 (average 2) percent in 63 of 65 fields in Madison Parish. Larvae ranged 1-3 per 100 squares in 32 fields. Terminal counts made in 18 fields; eggs ranged 1-13 (average 4) per 100 terminals in 14 fields; larvae ranged 1-6 (average 3) per 100 terminals in 13 fields. Total of 23 *H. zea* and 2 *H. virescens* moths taken in light trap. (Cleveland et al.). TEXAS - Generally light in Waco area, although heavy infestation found in one field. Averaged 0.9 egg and 0.8 larva per 100 terminals in 36 treated fields. Averaged 0.4 egg and 0.4 larva per 100 terminals in 15 untreated fields. Percent damaged squares



averaged 3.3 in 9 treated fields, and 1.1 in 2 untreated fields. (Cowan et al.). ARIZONA - *H. zea* numbers appear moderate to heavy in areas of Maricopa, Pinal, and Yuma Counties. Larvae averaged 20 per 100 plants in more heavily infested fields; however, predation heavy in most fields. (Ariz. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) - ALABAMA - More larvae reported in northern area fields than usual. Ranged 15-20 per 600 feet of row in few Madison County fields. No infestation yet requires control. (McQueen).

BET ARMYWORM (*Spodoptera exigua*) - ARIZONA - Few small, but light infestations found, particularly in Queen Creek and Buckeye areas of Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - Larvae, probably this species, light with scattered feeding on cotton foliage in Dona Ana County. (Campbell).

THRIPS - SOUTH CAROLINA - Widespread in Orangeburg County. Severe injury noted in one field where plants 6 inches tall and averaged 2 leaves per stalk in Abbeville County. (Nettles et al., June 6). Continue problem in some fields in Florence area. (Taft et al., June 14). TENNESSEE - Continue problem on late-planted cotton in western area; range light to heavy. (Locke). GEORGIA - Damage heavy to seedling cotton in Bartow and Walton Counties (Womack); continue moderate on seedling cotton in Spalding County (Beckham). ALABAMA - Adults and nymphs, mostly *Frankliniella fusca*, heavy on 1 to 4-leaf cotton not treated in Colbert, Madison, and other northern counties; 2-10 small nymphs common inside leaf bud of each plant. Lateness of cotton and heavy migration of thrips into these fields, as well as damage, causing many growers to apply controls. (McQueen). MISSISSIPPI - *F. fusca* infestations declined in delta county area. (Pfrimmer et al.). ARKANSAS - Thrips infestations reported in east and southwest areas; spotty and locally heavy. Numbers low to as high as 25-50 per plant. Much cotton very late and susceptible to injury. Large acreages of late cotton being treated. (Ark. Ins. Sur.). MISSOURI - Heavy; damaged seedlings in southeast area. Averaged 120 per plant in plots on research station at Portageville. Much of cotton in southeast area treated. (Harrendorf, Jones). TEXAS - Heavy in one, medium in one, and light in 5 of 7 untreated fields in Waco area; light in 13 and medium in one of 20 treated fields. (Cowan et al.). NEW MEXICO - Damage minor in Dona Ana County cotton. (Campbell). NEVADA - Leaf distortion evident in parts of some fields in Pahrump Valley, Nye County. Cotton later than normal; no controls applied to date. (Galloway, Zoller). CALIFORNIA - Damaging some cotton replanted in early June in Fresno County. (Cal. Coop. Rpt.).

APHIDS - SOUTH CAROLINA - Widespread in Orangeburg County. (Nettles et al., June 6). NEW MEXICO - *Aphis gossypii* light, spotty in most Dona Ana County cotton. (Campbell). CALIFORNIA - Some dusting for aphids underway on more advanced cotton in Fresno County. (Cal. Coop. Rpt.).

TARNISHED PLANT BUG (*Lygus lineolaris*) - LOUISIANA - Averaged 8 per 100 sweeps in 30 fields in Madison Parish. (Cleveland et al.). MISSISSIPPI - Found in 9 of 16 fields in delta counties. Averaged 229 (range 0-806) per acre. (Pfrimmer et al.).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Continue much below normal. Only occasional economic infestation found in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

FLEAHOPPERS - TEXAS - *Psallus seriatus* remained low in Waco area, although some increase noted. Averaged 0.9 (range 0-8.5) per 100 terminals in 36 treated fields; averaged 3 (range 0-11.4) per 100 terminals in 15 untreated fields. (Cowan et al.). LOUISIANA - Fleahoppers averaged 0.25 per 100 sweeps in 30 fields checked in Madison Parish. (Cleveland et al.). MISSISSIPPI - *P. seriatus* increased in Yazoo County cotton. Approximately 15-30 per 1,000 feet of row taken with vacuum sweeper. Very little square damage evident. (Dinkins).

## TOBACCO

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Populations considerably above normal in tobacco fields in southern area. (U. Md., Ent. Dept.). VIRGINIA - Could be problem on tobacco in Pittsylvania County if warm weather continues. (Dominick, Isakson).

FLEA BEETLES - WISCONSIN - One tobacco seed bed in Dane County treated specifically for this pest. (Wis. Ins. Sur.). MARYLAND - Epitrix hirtipennis adults averaged 4 per plant on newly set tobacco in Anne Arundel County. (U. Md., Ent. Dept.).

## SUGARBEETS

FLEA BEETLES - NEW YORK - Not as severe as May 30-June 5; good weather aided growth of sugarbeets. (N. Y. Wkly. Rpt., June 12).

SPINACH LEAF MINER (Pegomya hyoscyami) - COLORADO - Probably this species, causing much foliage damage on sugarbeets in Johnstown, Eaton, and Ault areas of Weld County. (Marostica et al.).

## MISCELLANEOUS FIELD CROPS

A JUNE BEETLE (Phyllophaga sp.) - TEXAS - Moderate in Russian sunflower plantings near Levelland, Hockley County. Adults girdling stalks and causing much lodging. (Hanson).

SUNFLOWER MOTH (Homoeosoma electellum) - TEXAS - From several to several hundred small larvae infesting fields of sunflower in Brazos and McLennan Counties. Feeding in heads and consuming seed. (Teetes).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Light numbers migrating near safflower fields in Maricopa and Graham Counties. (Ariz. Coop. Sur.).

ALFALFA LOOPER (Autographa californica) - OREGON - Half-grown larvae averaged 1-3 per 50 sweeps (same as last week) in mint fields in high plains area of Jefferson County; in Brooks, Woodburn, and Buena Vista areas of Marion County; and in Corvallis area of Benton County. None found in mint fields at lower elevations in Jefferson County. (Morrison).

GREAT BASIN WIREWORM (Ctenicera pruinina) - OREGON - Larvae light on mint roots in Madras area of Jefferson County. It is not known if they are causing damage at this time. This species caused economic damage in 1950 to potatoes in same area. (Morrison).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - This species and Macrosiphum euphorbiae medium on hop plantings generally in Yuba City area, Sutter County. (Cal. Coop. Rpt.).

## POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW HAMPSHIRE - Adults active on potatoes at Durham June 4. (Sutherland). MASSACHUSETTS - Very abundant on most potato plantings. Heavy feeding noticeable on rapidly growing plants in Hadley area June 10. Eggs very heavy on most plants. Early control advisable to prevent large larval populations. (Crop Pest Cont. Mess., June 12). DELAWARE - Adults, eggs, and larvae very common on tomatoes and some potatoes in several areas of State. (Burbutis). VIRGINIA - Many spring-brood larvae completed growth and left potato plants. Should present dry weather and high temperatures continue, adult emergence may be delayed on Eastern Shore. (Hofmaster). UTAH - Eggs

numerous in Weber and northern Davis County potato and tomato fields. No larvae observed to June 13. (Knowlton).

POTATO FLEA BEETLE (*Epitrix cucumeris*) - VIRGINIA - Appearance of first-brood adults on Eastern Shore anticipated to be later than usual; should appear about June 20 or later. (Hofmaster). DELAWARE - Damage to potatoes in Kent County heavy along edges of some fields. (Burbutis). MAINE - Numbers and damage light to tomato foliage in home gardens in Washington County. (Boulanger, June 9).

POTATO APHID (*Macrosiphum euphorbiae*) - NEW JERSEY - Very abundant on tomatoes throughout State. (Ins.-Dis. Newsltr.). TEXAS - Heavy numbers causing serious damage to tomato fields near De Kalb, Bowie County. Aphids clustering about on leaves, stems, and blossoms. (Lynch). VIRGINIA - Reported on tomatoes on the Eastern Shore. (Hofmaster).

GREEN PEACH APHID (*Myzus persicae*) - OREGON - Showing up on potato leaves in Marion and Jefferson Counties. (Every). NEW JERSEY - Light on peppers near Mullica Hill. Very light on tomatoes. (Ins.-Dis. Newsltr.).

SPIDER MITES (*Tetranychus* spp.) - ALABAMA - Caused some discoloration and light damage to first 3 rows adjoining field border in commercial tomato planting on Chandler Mountain, St. Clair County; 15-200 mites with hundreds of eggs per leaf on 2-foot high plants. Mites migrated from heavy growth of hairy vetch along field border. (McQueen). Probably *T. cinnabarinus*, heavy, with several hundred per leaf destroying an entire home planting of tomatoes in Coffee County. Numbers extremely heavy on stems of plants from ground up. (Speed). CALIFORNIA - *T. marianae* heavy on tomatoes in Yorba Linda, Orange County. Research indicates this pest capable of explosive buildup and rapid kill. Movement from wild and ornamental solanaceous hosts threatening tomato fields in southern part of State. (Cal. Coop. Rpt.).

#### BEANS AND PEAS

PEA APHID (*Acyrtosiphon pisum*) - DELAWARE - Building up on peas in eastern Kent County. (Burbutis). WISCONSIN - Decreased in pea fields, with 4 per 10 sweeps unusually high. Trace numbers in most fields. (Wis. Ins. Sur.).

BEAN APHID (*Aphis fabae*) - DELAWARE - Very common on snap beans in one area of Sussex County. (Burbutis). MARYLAND - Heavy on lima beans near Graysonville, Queen Annes County. (U. Md., Ent. Dept.).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - COLORADO - Adult caught in flight at Fort Collins, Larimer County. Migration to bean fields will occur soon. Trace numbers found in Windsor area, Weld County. (Thatcher, Colette).

THRIPS - DELAWARE - Abundant on some peas in Sussex and Kent Counties. (Burbutis).

SEED-CORN MAGGOT (*Hylemya platura*) - OREGON - Caused some damage to pole beans in early spring in some Marion County fields. (Every).

#### COLE CROPS

IMPORTED CABBAGEWORM (*Pieris rapae*) - NEW YORK - Very active in most cabbage in Orleans, Genesee, and Niagara Counties. Few in Monroe County. (N. Y. Wkly. Rpt., June 12). MISSOURI - Fed on broccoli in southeast area. (DiCarlo).

CABBAGE APHID (*Brevicoryne brassicae*) - TEXAS - Heavy on rape plantings near Level-land, Hockley County. All stages present with up to 20 per flower tip in some instances. (Hanson).

CABBAGE MAGGOT (Hylemya brassicae) - MASSACHUSETTS - Numerous in many plantings. (Crop Pest Cont. Mess., June 12).

POTATO FLEA BEETLE (Epitrix cucumeris) - MAINE - Numers and damage light to turnip foliage in Washington County. (Boulanger, June 9).

#### CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittatum) - DELAWARE - Adults causing some injury to cucumbers in Sussex and New Castle Counties; abundant in blacklight trap collections in Sussex County. (Burbutis). MASSACHUSETTS - Becoming active; will require control to prevent bacterial wilt. (Crop Pest Cont. Mess., June 12).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardii) - OKLAHOMA - Averaged 2 per cucumber plant in Payne County. (Okla. Coop. Sur.).

POTATO FLEA BEETLE (Epitrix cucumeris) - MAINE - Numbers and damage light on cucumbers and melons at Newport, Penobscot County. (Boulanger, June 9).

SQUASH BUG (Anasa tristis) - OKLAHOMA - Ranged 3-4 per hill on squash and pumpkins in Payne County. (Okla. Coop. Sur.).

#### GENERAL VEGETABLES

ASPARAGUS BEETLE (Crioceris asparagi) - NEW HAMPSHIRE - Adults numerous at Kensington and Salem June 6. (Sutherland). VERMONT - Prevalent. (MacCollom, June 12). NEW YORK - Active in Monroe County. (N. Y. Wkly. Rpt., June 12). RHODE ISLAND - Adults very heavy in commercial asparagus planting in East Greenwich, Kent County. (Mathewson, June 9). WISCONSIN - Adults in some southern area asparagus plants. (Wis. Ins. Sur.).

SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata) - RHODE ISLAND - Adults very heavy in commercial asparagus planting in East Greenwich, Kent County. (Mathewson, June 9). NEW HAMPSHIRE - Adults numerous at Kensington and Salem June 6. (Sutherland).

CARROT BEETLE (Bothynus gibbosus) - MARYLAND - Heavy in carrot planting near Centreville, Queen Annes County. Adults very heavy in blacklight trap at same location. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - NEW YORK - In unprotected Orange County lettuce fields June 5; none in fields with weekly spray schedule. (N. Y. Wkly. Rpt.).

THRIPS - MISSOURI - Damaged various vegetables in southeast area. (DiCarlo).

CABBAGE MAGGOT (Hylemya brassicae) - NEW YORK - Widespread across State. Control poor with either chlorinated-hydrocarbons or organo-phosphates in some areas; control good in other areas. Egg laying continues. (N. Y. Wkly. Rpt., June 12).

ONION MAGGOT (Hylemya antiqua) - OREGON - Damaged untreated onions June 6 at Lake Labish, Marion County. (Crowell).

GRAY GARDEN SLUG (Deroceras reticulatum) - PENNSYLVANIA - Slugs, principally this species, caused large amount of damage to young vegetable plants; defoliated pepper transplants at several central area locations. (Gesell).

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**BLACK CUTWORM (*Agrotis ipsilon*)** - MISSOURI - Moderate to heavy in few widely scattered corn fields in northeast. Heavy, destroyed all small corn plants in Shelby County field. (Munson). ILLINOIS - Occasional damage in scattered areas. (Kuhlman). INDIANA - This and other cutworms caused widespread damage throughout State, but most serious in west-central area. (Lehker). OHIO - This and other cutworms damaged corn in 14 counties. (Blair et al.). Damage to corn in Wayne County heavy, up to 90 percent. (Glass, Barry). Late instars damaged corn in central area. (Miller). MARYLAND - Several heavy infestations found are young corn in western Talbot County. Some replanting and controls necessary. Also damaging corn in Calvert, Queen Annes, and Saint Marys Counties. (U. Md., Ent. Dept.).

#### DECIDUOUS FRUITS AND NUTS

**CODLING MOTH (*Carpocapsa pomonella*)** - MASSACHUSETTS - Active; earliest laid eggs will hatch soon. (Crop Pest. Cont. Mess., June 12). NEW YORK - Emergence very heavy June 10-11 in Monroe County. (N. Y. Wkly. Rpt.). NEW JERSEY - Emerging from overwintering cocoons in central and southern counties. (Ins.-Dis. Newsltr.). MARYLAND - Moth emergence from overwintered material passed peak at Hancock. First-generation eggs hatching; some small larvae found in unsprayed orchards. (U. Md., Ent. Dept.). WISCONSIN - Moths in blacklight traps at Platteville and Madison. (Wis. Ins. Sur.). - COLORADO - Sporadically collected in attractant traps in Delta, Mesa, and Montrose Counties; nearing end of first brood. (Bulla).

**ORIENTAL FRUIT MOTH (*Grapholitha molesta*)** - COLORADO - Late instars heavily damaged 50 percent of young peach terminals in some Mesa County orchards. (Sisson). NEW JERSEY - Larvae flagging peach terminals in unsprayed blocks in southern and central counties. (Ins.-Dis. Newsltr.).

**GREEN FRUITWORM (*Lithophane antennata*)** - MAINE - Numbers and damage light in several areas throughout State. (Boulanger, June 9). VERMONT - Troublesome in some areas. (MacCollom, June 12).

**CLIMBING CUTWORMS** - VERMONT - Numbers and injury increased on fruit trees for third consecutive year. Control effective with a chlorinated hydrocarbon applied to trunks and orchard cover at prebloom. (MacCollom, June 12).

**CANKERWORMS** - CONNECTICUT - Problem at Southington and Storrs. (Savos, June 14). NEW JERSEY - Numbers high throughout State. (Ins.-Dis. Newsltr.). NEW YORK - *Alsophila pometaria* larvae unusually high in most areas; numerous in apple orchards in western area, in Hudson Valley, and in Ithaca area. (N. Y. Wkly. Rpt., June 12).

**LEAF ROLLER MOTHS** - NEW JERSEY - Larval numbers high throughout State. (Ins.-Dis. Newsltr.). *Archips argyrospilus* larval problem chemically controlled; larvae damaged fruit in unsprayed orchards. (Savos, June 14).

**LESSER PEACH TREE BORER (*Synanthedon pictipes*)** - NEW JERSEY - Moth emergence increased June 7-14; peak emergence probably will occur in early July. (Ins.-Dis. Newsltr.).

**WOOLLY APPLE APHID (*Eriosoma lanigerum*)** - UTAH - Common in apple orchards in Utah, Davis, Salt Lake, and Box Elder Counties. (Davis) NEW MEXICO - Widespread, light to heavy in bark wounds and cracks of apple trees in Farmington area, San Juan County (Heninger); on apple nursery stock in Dona Ana County (Elson). TEXAS - Moderate on apple trees near Memphis, Hall County. (Boring). ALABAMA - Heavy on apple trees and root systems in Blount and Cullman Counties. (Leeper et al.). GEORGIA - Damaging apple tree roots in Butts County. (Brack).

**APPLE APHID (*Aphis pomi*)** - MAINE - Numbers increasing; damage negligible to date. (Boulanger, June 9). CONNECTICUT - Building up and will be problem in many orchards soon. (Savos, June 14).

BLACK CHERRY APHID (*Myzus cerasi*) - UTAH - Very numerous; severely curled sweet cherry foliage at Brigham City, Box Elder County, and black sweet cherry at Murray, Salt Lake County. Some areas sprayed 10 days ago severely infested again. (Knowlton). COLORADO - Very high on cherries in Fort Collins area, Larimer County; 5 percent of leaves curled. Controls recommended. (Thatcher, Drage).

APHIDS - WASHINGTON - *Anuraphis helichrysi* heavy in Wenatchee areas on prunes. (Anthon). OREGON - *A. helichrysi* and *Phorodon humili* damaged prune leaves in Polk County week of June 30. (Every).

GREEN PEACH APHID (*Myzus persicae*) - COLORADO - Very heavy in some unsprayed peach orchards in Mesa and Delta Counties. Mostly alates leaving stone fruits for summer hosts. (Sisson, Bulla).

WHITE PEACH SCALE (*Pseudaulacaspis pentagona*) - FLORIDA - All stages moderate to severe in stems of 25 of 30 peach nursery plants at Miami, Dade County. (Sloan, June 8).

PLUM CURCULIO (*Conotrachelus nenuphar*) - NEW HAMPSHIRE - Adults active, egg punctures on cherry and apple at Exeter and Hollis June 7. (Sutherland). VERMONT - Warm weather and fruit size suitable for curculio attack. (MacCollom, June 12). CONNECTICUT - Activity still light; unsprayed orchards do not show many feeding or egg-laying scars. Trees should be protected at least to June 24. (Savos, June 14). OKLAHOMA - Moderate to heavy on native plums in Woodward and Major Counties. (Okla. Coop. Sur.).

CHERRY FRUIT FLIES (*Rhagoletis* spp.) - PENNSYLVANIA - *R. cingulata* adults emerging from Erie County and northeast area cherry June 12. (Cox). NEW YORK - *R. cingulata* June 10 in Spencerport area. First *R. fausta* adult at Geneva June 6; Steady, heavy emergence since. (N. Y. Wkly. Rpt.). OHIO - First *R. fausta* adults in Lake County June 9; emergence heavy to June 15. (Still).

PEAR-SLUG (*Caliroa cerasi*) - COLORADO - Adults depositing eggs on cherry leaves in Fort Collins area, Larimer County; 4-22 per 10-inch branch, 3-5 per leaf. (Thatcher).

EUROPEAN APPLE SAWFLY (*Hoplocampa testudinea*) - CONNECTICUT - Damage by second and third instars noticeable on check trees. (Savos, June 14).

EUROPEAN RED MITE (*Panonychus ulmi*) - MAINE - Development strong. Adults and summer eggs at Kents Hill, Kennebec County, June 9; should hatch by June 16 with continued warmth. (Boulanger). NEW HAMPSHIRE - First eggs of season at Hollis June 7. (Sutherland). MASSACHUSETTS - Some summer eggs hatched. (Crop Pest Cont. Mess., June 12). CONNECTICUT - Numbers down in most areas but should increase. (Savos, June 14). NEW YORK - Summer eggs laid June 6 and 7 throughout State. Adults and numerous eggs June 5 on young nonbearing Red Delicious in Clinton County; heavy in some fruit orchards in Monroe and Clinton Counties. (N. Y. Wkly. Rpt.). NEW JERSEY - Very scarce in well-managed blocks throughout State. (Ins.-Dis. Newsltr.). MISSOURI - Building up on southeast area apples. (Wkly. Rpt. Fr. Grs.).

ERIOPHYID MITES - COLORADO - *Eriophyes pyri* in Bartlett pear orchards in Palisade area, Mesa County. Not economic yet. (Bulla). NEW YORK - *Aculus schlechtendali* on apple leaves in Clinton County. (N. Y. Wkly. Rpt., June 12).

FALL WEBWORM (*Hyphantria cunea*) - NEW MEXICO - Larvae appearing in some nut trees in Mesilla Valley. (Campbell).

SPITTLEBUGS - GEORGIA - Heavy on pecan trees in Emanuel County. (Varner).

BLACK-MARGINED APHID (*Monellia costalis*) - NEW MEXICO - Increasing on untreated pecan trees in Mesilla Valley; honeydew becoming very evident. (Campbell).

EUROPEAN EARWIG (Forficula auricularia) - CALIFORNIA - Adults heavy in English walnut trees in Chino, San Bernardino County; spreading into many locations. (Cal. Coop. Rpt.).

#### CITRUS

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Special survey continues; several thousand citrus nursery trees inspected. Infestation heaviest in area of Orange, Lake, and neighboring counties; ranged very light to heavy in individual nurseries. (Fla. Coop. Sur.). At Bithlo, Orange County, 500 nursery citrus trees quarantined because of infestations. (Crews).

#### SMALL FRUITS

BLACK-HEADED FIREWORM (Rhopobota naevana) - MASSACHUSETTS - Larvae just hatching, webbing new terminal growth of cranberries at East Wareham, Plymouth County. (Tomlinson, June 9).

CHERRY FRUITWORM (Grapholitha packardi) - OHIO - Adults emerged June 12 in blueberry plantings in Ashtabula County. (Still).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - NEW JERSEY - Entering blueberries in untreated fields. Egg counts increased from 11 to 38 per 100 clusters June 9-12 in one field; larvae entering berries increased from 1 to 17. (Ins.-Dis. Newsltr.).

CURRANT SPANWORM (Itame ribearia) - NORTH DAKOTA - Heavy larval numbers severely damaged currant at Fargo. (Frye).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - ARIZONA - Heavy, damaged backyard grape plantings and abandoned commercial vineyards in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

GRAPE FLEA BEETLE (Altica chalybea) - ARIZONA - Moderate in many commercial vineyards in areas of western Maricopa County; damage light to moderate. (Ariz. Coop. Sur.).

RASPBERRY CANE BORER (Oberea bimaculata) - OHIO - Infested some raspberry canes in Muskingum County. (Knotts, Miller).

GRAY GARDEN SLUG (Deroceras reticulatum) - PENNSYLVANIA - Slugs, mainly this species, damaged 10-30 percent of ripe strawberries at several locations. (Gesell).

CURRANT APHID (Cryptomyzus ribis) - UTAH - Curled red currant foliage at Bountiful, Davis County. (Knowlton).

IMPORTED CURRANTWORM (Nematus ribesii) - NORTH DAKOTA - Larval damage moderate on gooseberry at Fargo. (Frye).

BLUEBERRY THRIPS (Frankliniella vaccinii) - MAINE - Leaf rolling substantial on newly emerging shoots June 6 at Sedgwick, Hancock County. (Boulanger).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - OREGON - Building up on strawberries in Willamette Valley area. (Every).

## ORNAMENTALS

BAGWORM (Thyridopteryx ephemeriformis) - GEORGIA - Heavy on junipers in Monroe County. (Self, Williams). DELAWARE - Hatching; small new bags on variety of trees in Sussex and Kent Counties. (Burbutis). OHIO - First larvae of season and some feeding on juniper June 1 in Green County. (Kennedy).

MIMOSA WEBWORM (Homadaula albizziae) - OHIO - First adults of season May 25. (Peacock, Galford). ALABAMA - Some first and second instars of first generation on isolated mimosas in Madison and other northern counties. Much feeding and webbing by older first-generation larvae on isolated trees in central area. (Hood et al.).

ARBORVITAE LEAF MINER (Argyresthia thuiella) - OHIO - Infested 90 percent of 200 arborvitae trees in Summit County; adults expected soon. (Kelly, June 6).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - OHIO - Pupation underway over State; 100 percent in Montgomery County (Kennedy); ranged 0 to more than 90 percent in 3 Lake County yew plantings. (Walker, Campbell). First adults of season in Cuyahoga (Wells) and Lake Counties June 13. Adults 12 percent of population in Lake County; pupae still predominate. (Campbell).

SOFT SCALES - FLORIDA - All stages of Saissetia nigra moderate to severe on stems of 25 percent of 300 hibiscus plants at nursery in Miami, Dade County. (Sloan, June 8). CALIFORNIA - Lecanium corni complex heavy on pyracantha at Biggs, Butte County; medium on viburnum in Visalia, Tulare County. (Cal. Coop. Rpt.).

GREENHOUSE ORTHEZIA (Orthezia insignis) - FLORIDA - Moderate to severe on stems and leaves of 500 Texas silverleaf, Leucophyllum frutescens, at nursery in Miami Dade County. (Sloan, June 8).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - NEW JERSEY - Crawlers active. (Ins.- Dis. Newltr.).

## FOREST AND SHADE TREES

FOREST TENT CATERPILLAR (Malacosoma disstria) - VERMONT - Larvae large and troublesome. (MacCollom, June 12). VIRGINIA - Larvae numerous on cabins at Shenandoah farms, Clarke County; had fed on nearby oak trees. (Isakson, Boyner). MINNESTOA - Light at Baudette. Averaged 1.5-2.0 inches long; through feeding in about 7 days. (Minn. Ins. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - MAINE - Light in most areas of State. (Boulanger, June 9). VERMONT - Building up again. (MacCollom, June 12).

TORTRICID MOTHS - WISCONSIN - Third instars of Choristoneura pinus in Jackson County. (Wis. Ins. Sur.). MAINE - Fourth instars of C. fumiferana in Aroostook County. (Boulanger, June 9). OREGON - Cacaecimorpha pronubana larvae severely damaged leaves of Portugal-laurel in areas of Portland, Multnomah County, during April. (Every). RHODE ISLAND - Rhyaciona buoliana larvae infest candles in East Providence, Providence County. (Hartley, June 8).

CANKERWORMS - WISCONSIN - Heavy on elm, oak, and apple east of Wautoma, Waushara County. Larvae about ready to pupate. Infestations should decline rapidly in about 7 days. (Wis. Ins. Sur.). NEW YORK - Alsophila pomataria larvae unusually high in most areas; heaviest on shade and forest trees. (N. Y. Wkly. Rpt., June 12).

CALIFORNIA OAKWORM (Phryganidia californica) - CALIFORNIA - Full-grown larvae seeking pupation sites in Sonoma County. Defoliation of oak trees not as severe as at this time last year. (R. Hunt, CDF).



ELM LEAF BEETLE (Pyrrhalta luteola) - OREGON - Hatched on elms at Corvallis, Benton County. (Every). NEVADA - Adults, eggs, and larvae at Henderson, Clark County. (Nichols). NEW MEXICO - Averaged 5-10 larvae per 12 leaves on Siberian elm at Farmington, San Juan County. (Heninger, Kloefer). OKLAHOMA - First generation pupated in Payne County; last instars in Major County. (Okla. Coop. Sur.). SOUTH CAROLINA - First damage of season evident in Clemson area. (Nettles et al., June 6). OHIO - Larvae of all sizes of first generation feeding on Chinese elm in Franklin County; leaf skeletonization to date not severe. (Rose). NEW JERSEY - Common on elm throughout State. (Ins.-Dis. Newsltr.). RHODE ISLAND - Adults feeding; some oviposition evident statewide. (Mathewson, Hartley, June 9).

IMPORTED WILLOW LEAF BEETLE (Plagiodera versicolora) - RHODE ISLAND - Adults more numerous on willows at Kingston and Saunderstown, Washington Counties. (Mathewson, Colodney, June 8).

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - Killed more than 250 ponderosa pine trees in 3,000-acre stand in Tuolumne County on Stanislaus National Forest and on adjacent private lands. Heaviest damage in group kills between Sierra Village and Tuolumne City. (R. Kielhorn, USFS).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - OKLAHOMA - First-generation adults began emergence June 13 in Stillwater area, Payne County. (Okla. Coop. Sur.).

BRONZE BIRCH BORER (Agrilus anxius) - DELAWARE - Adults emerging from infested gray birch trees in New Castle County; apparently heavy in many trees. (Bray).

A WEEVIL (Hypomylyx piceus) - VERMONT - Attacked recently cut conifer stumps. Large numbers can threaten adjacent trees in dry weather. (MacCollom, June 5).

RED TURPENTINE BEETLE (Dendroctonus valens) - VERMONT - Attacked recently cut conifer stumps. Large numbers can threaten adjacent trees in dry weather. (MacCollom, June 5).

ARMORED SCALES - RHODE ISLAND - Phenacaspis pinifoliae hatched and moved to needles at Kingston, Washington County. (Mathewson, Novak, June 8). OHIO - Diaspis carueli infested juniper in Darke and Marion Counties. (Kuester et al.). WISCONSIN - About 80 percent of P. pinifoliae crawlers exposed; rest under scales in Dane County. (Wis. Ins. Sur.). FLORIDA - All stages of Diaspidiotus liquidambaris moderate on 80 percent of 100 sweetgum trees in nursery at Groveland, Lake County. (Henderson, June 9).

SPRUCE GALL APHIDS (Adelges spp.) - OHIO - A. cooleyi eggs 6-24 per cottony mass on 10 acres of Douglas-fir Christmas trees in Columbiana County. (Campbell, June 9). RHODE ISLAND - A. abietis formed new galls. (Hartley, June 8).

EUROPEAN ELM SCALE (Gossyparia spuria) - CALIFORNIA - Medium in street plantings of Zelkova trees in Biggs, Butte County. (Cal. Coop. Rpt.). NEBRASKA - Heavy in Sheridan County. (Peters).

SOFT SCALES - MINNESOTA - Toumeyella numismaticum beginning to hatch. (Minn. Ins. Rpt.). WISCONSIN - Lecanium fletcheri egg laying completed on Dane County arbovitae June 14. (Wis. Ins. Sur.).

APHIDS - UTAH - Pemphigus populiramulorum developing in Ogden and Slaterville area of Weber County. (Knowlton). OHIO - Euceraaphis betulae heavy on 3-acre planting of birch in Lake County. (Campbell).

HICKORY BARK BEETLE (Scolytus quadrispinosus) - MARYLAND - Infesting 2 young hickory trees near Forest Heights, Prince Georges County. This beetle unusual in State. (U. Md., Ent. Dept.).

GALL MIDGES (*Dasineura* spp.) - NEW HAMPSHIRE - Honeylocust leaflets galled by *D. gleditchiae* larvae at Durham, Strafford County, June 5. (Sutherland). *D. balsamicola* first adults May 29. Numerous adults ovipositing at Franconia Grafton County, June 1. (Conklin et al.).

#### MAN AND ANIMALS

MOSQUITOES - VERMONT - Particularly annoying in all areas. (MacCollom, June 12). RHODE ISLAND - Heavy throughout State. (Mathewson, June 9). CONNECTICUT - Abundant and annoying. (Savos). WISCONSIN - Annoying cattle in Price and Rusk Counties. Becoming numerous, especially in northern lake regions. (Wis. Ins. Sur.). MINNESOTA - Of 880 larval collections for week ending June 10, *Aedes vexans* in 198 and *Culiseta inornata* in 118. In bite collections, *Aedes abserratus*, *A. stimulans*, *A. fitchii* and *A. excrucians* predominated. Light trap collections mostly *A. abserratus*. Rain totaling 5-6 inches June 4-15 resulted in largest broods of *A. vexans* in several years; fourth instar present. By last week of June, adults will be generally very high throughout State. (Minn. Ins. Rpt.). NEBRASKA - Increasing rapidly in eastern area following prolonged, heavy rains. Biting severe in Lincoln, Lancaster County. *Aedes vexans* abundant. (Raun). UTAH - Troublesome over much of Deseret, Delta, and Sutherland areas of Millard County. (Knowlton). NEVADA - *Culex tarsalis* larvae medium, adults present in Las Vegas area, Clark County. (Milner).

CATTLE GRUBS (*Hypoderma* spp.) - UTAH - Adults annoying cattle in several Sevier County localities. (Knowlton, Rickenbach). WISCONSIN - Survey conducted February 13 through June 6. Total of 56 counties found infested. Grubs per animal averaged 0-1.7 in 38 counties, 2-5 in 17 counties, and 17.6 in 8 Eau Claire County herds. (Wis. Ins. Sur.). NEBRASKA - *H. bovis* adults running cattle in Hooker County. (Raun, June 7).

SCREW-WORM (*Cochliomyia hominivorax*) - Total of 7 cases reported in U. S. June 11-17 as follows: TEXAS - Terrell 3, Bexar 1; ARIZONA - Maricopa 3. Total of 62 cases reported in portion of Barrier Zone in Republic of Mexico June 4-10 as follows: Territorio sur de Baja California 12, Sonora 14, Chihuahua 8, Coahuila 3, Nuevo Leon 3, Tamaulipas 22. Total of 11 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U. S. Sterile flies released June 11-17: Texas 33,778,000; Arizona 1,720,000; Mexico 124,300,000. (Anim. Health Div.).

HORN FLY (*Haematobia irritans*) - UTAH - Becoming common on cattle, but not generally numerous in central and northern area. (Knowlton). NORTH DAKOTA - Up to 300 per head (average 120) on Cass County beef cattle. (Brandvik). SOUTH DAKOTA - On Holstein herd in Moody County counts 30-50 per side on dark cattle, much less on predominantly white ones. (Balsbaugh, McDaniel). East of Hermosa, Custer County, up to 500 flies per side on bulls; east of Buffalo Gap, 100-200 per side on large herds of two-year-old steers. (Kantack). NEBRASKA Ranged 0-20 per head on Hereford cattle in Thomas and Hooker Counties; ranged 1-15 per head on Angus cattle in Sheridan County. (Raun, June 7). OKLAHOMA - Averaged 1,200 per head on yearlings and 3,000 per head on bulls in Payne County; ranged 800-1,000 per head on cows in Major and Woodward Counties. Heavy in Mayes County; moderate in Marshall County. (Okla. Coop. Sur.). MISSISSIPPI - Average counts per head by county as follows: Pike 30 on 40 cattle; Montgomery 150 on 450 animals; Tate 150 on 70 animals; Washington 30 on 200 animals. (Dinkins). GEORGIA - Up to 1,000 per head of beef cattle in Hancock County. (Nolan). NEW JERSEY - Continues to increase rapidly throughout State. Controls recommended for dairy cattle. (Ins.-Dis. Newsitr.). VERMONT - Very prevalent. (MacCollom, June 12).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Numerous in many areas; annoyance to cattle slight to moderate in most areas except Outagamie County where annoyance severe. (Wis. Ins. Sur.). IOWA - First of season June 3. This is 25 days later than 1965 and 10 days later than 1966. Cool, dry weather probably delayed emergence. (Iowa Ins. Inf.). OKLAHOMA - Ranged 10-12 per head on cows in Payne County. (Okla. Coop. Sur.).

HOUSE FLY (Musca domestica) - UTAH - Numerous about some corrals and dairy farms in Davis and Weber Counties. (Knowlton). OKLAHOMA - Ranged 40-50 per Scudder grid in untreated barns in Payne County. (Okla. Coop. Sur.). GEORGIA - Adults annoying beef cattle in Thomas County (Whittle, Nolan); larvae infesting hog droppings and numerous adults around hog operation in Wilkinson County (Maxey, Nolan); adults and larvae numerous in caged layer operations in Clarke County (Massey). FLORIDA - All stages very heavy in manure from 50,000 chickens in caged poultry operations near Molino, Escambia County. (Strayer, June 7). NEW JERSEY - Continue rapid increase throughout State. Controls recommended for dairy cattle and poultry. (Ins.-Dis. Newsltr.).

FACE FLY (Musca autumnalis) - WISCONSIN - Present in most areas; no problems. (Wis. Ins. Sur.). OHIO - Rapid increases on cattle expected with prolonged warm weather. Holstein dairy cattle in Logan County with 10-50 flies per face (averag 28). Face flies on backs of animals; cattle clustered in tight group. (Rose). GEORGIA - Heavy on herd of 30 Hereford cows and calves in Rabun County. (Coleman).

TABANID FLIES - UTAH - Horse flies annoying horses near Brigham City, Box Elder County, and Layton, Davis County. (Knowlton). OKLAHOMA - Tabanus lineola complex averaged 2 per head on horses in Payne County. Counts per head on horses in Cherokee and Muskogee Counties as follows: T. lineola complex 3-4, T. abactor 2-3, and T. equalis 1-2. (Okla. Coop. Sur.). MISSOURI - Light numbers feeding on undersides and udders of beef cattle in east-central area. Munson). WISCONSIN - Horse flies slightly annoying cattle in Price County. (Wis. Ins. Sur.). Deer fly adults becoming evident in localized areas from Dane County north to Vilas County. (Wis. Ins. Sur.). VERMONT - Horse flies and deer flies becoming numerous and annoying to livestock. (MacCollom, June 12). CONNECTICUT - Deer flies abundant and annoying. (Savos). GEORGIA - Many species annoying beef cattle and causing blood loss in Hancock County. (Nolan).

LESSER MEALWORM (Alphitobius diaperinus) - NEW JERSEY - Adults extremely heavy in poultry farm near Vineland; becoming nuisance to neighbors. Apparently coming from spilled feed in manure pits beneath wire floor. (Ins.-Dis. Newsltr.).

DARK MEALWORM (Tenebrio obscurus) - CALIFORNIA - Heavy in earthworm bed media in Clovis, Fresno County. (Cal. Coop. Rpt.).

AMERICAN DOG TICK (Dermacentor variabilis) - RHODE ISLAND - Record numbers continue in parts of northern and western areas. (Mathewson, June 9). CONNECTICUT - Complaints numerous statewide. (Savos). OKLAHOMA - Occasionally annoying to man in Payne County. (Okla. Coop. Sur.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Averaged 20 replete females, 80 unfed females, and 3 nymphs per head on cows in Cherokee and Muskogee Counties; annoyance to residents in area decreasing. Moderate on cattle in Mayes and Marshall Counties. (Okla. Coop. Sur.).

#### STORED PRODUCTS

GRAIN MITE (Acarus siro) - CALIFORNIA - Heavy in sacked oats in storage in Oregon House, Yuba County. (Cal. Coop. Rpt.).

## BENEFICIAL INSECTS

LADY BEETLES - MISSISSIPPI - Numbers very high in cotton and soybeans. (Dinkins).  
OKLAHOMA - Hippodamia convergens adults ranged 6-10 per 200 feet of row in cotton in Jackson and Harmon Counties. Only occasional larva seen. (Okla. Coop. Sur.).  
NEBRASKA - Lady beetles ranged 0-12 (averaged 5) per 10 sweeps on alfalfa in Gage and Lancaster Counties. (Keith).

A PUNCTURE-VINE SEED WEEVIL (Microlarinus lareynii) - NEW MEXICO - Few puncture-vine plants growing due to dry weather; however, almost every seed on plants with larva or pupa within. (Campbell).

A GROUND BEETLE (Calosoma frigidum) - PENNSYLVANIA - Adults averaged about 6 per tree infested with fall cankerworm; adults preying on larvae. (Gesell).

DAMSEL BUGS (Nabis spp.) - NEBRASKA - Averaged about 2 per 10 sweeps in Gage and Lancaster County alfalfa. (Keith). MISSISSIPPI - Moderate to high in cotton and soybean; numbers higher in soybeans. (Dinkins).

BIG-EYED BUGS (Geocoris spp.) - MISSISSIPPI - Numbers high in cotton but low in soybeans. (Dinkins).

AN ALFALFA LEAF-CUTTING BEE (Megachile rotundata) - WASHINGTON - Males moderate, emerged in nest stations under natural conditions by June 9 (not incubated) in Walla Walla, Lowden, and Touchet areas, Walla Walla County about 2 weeks later than 1966. (Johansen, Eves).

ALKALI BEE (Nomia melanderi) - WASHINGTON - Adult males fairly active on earliest nest sites June 8 near Lowden and Touchet, Walla Walla County; first females digging new nests at 2 locations; pupae only up to eye-colored stage in late nest sites. Few Heterostylum robustum, a parasitic bee fly, laid eggs in alkali bee emergence holes. (Johansen, Eves).

A CHALCID (Monodontomerus obscurus) - IDAHO - This parasite of Megachile rotundata first observed emerging in numbers near Parma, Canyon County, May 18. (Waters).

## FEDERAL & STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - UTAH - Cold, wet spring reduced numbers and outbreak outlook in many parts; decreased from 15 to 1 per square yard in Fisher Valley, Grand County; also reduced in Salt Valley, northeast of Moab. Hatching in Uintah and Duchesne Counties. (Thornley, Knowlton). COLORADO - Low, 1-2 per square yard, on rangeland pasture in Las Animas and Pueblo Counties; first and second instars in crop margins being sprayed in Mesa County; hatching in Delta County; Melanoplus bivittatus, M. differentialis, M. femurrubrum and other number 20 per 100 sweeps. (Hantsbarger et al.). NEW MEXICO - Averaged 2-4 nymphs per 25 alfalfa sweeps in northern San Juan County fields and 3-8 nymphs per 25 sweeps in Curry and Roosevelt County fields. (Kloepfer, Nielsen). Approximately 12 sections of rangeland east of Crossroads, Lea County, with 5-20 first to fourth instars per square yard. In one area near Ration, Colfax County, first instars as high as 40 per square yard. (PPC). OKLAHOMA - Range and crop margin numbers in Cimarron and Texas Counties generally below threatening level. Most grassland counts ranged 1-6 per square yard. Nymphs 7-12 per square yard on about 5,000 acres in northwest Cimarron County; averaged 15 per square yard in few scattered rangeland areas in Texas County. Ageneotettix deorum, Amphitornus coloradus, and Phibostroma quadrimaculatum dominant; approximately 80 percent first instar. One small band of Metator pardalinus in Texas County. Economic counts of 8-20 per square yard on approximately 15,000 acres of rangeland in eastern half of Beaver County. A. deorum, A. coloradus, P. quadrimaculatum, and Melanoplus bivittatus dominant. Ranged 2-7 per square yard at other stops in county. Economic infestations of 10-20 per square on 10,000 acres of Beckham

County grassland, 25,000 acres in Ellis County, and 10,000 acres in Roger Mills County. P. quadrimaculatum, A. deorum, Aulocara elliotti, and M. bivittatus dominant; ranged second to fourth instar. (Okla. Coop. Sur.). NEBRASKA - No more than 1 per 2 sweeps in Sheridan, Grant, and Hooker Counties. (Raun). SOUTH DAKOTA - Hatch held back by cool, rainy weather in much of State, except in following areas: Numbers in southern Tripp County, near Wewela, 15 per square yard along roadsides and field margins and 1 per square yard in alfalfa; M. bivittatus and M. sanguinipes up to third instar; M. differentialis and Ageneotetrix deorum up to second instar; M. femurrubrum in first instar. Noneconomic in Lyman, Stanley, Hughes, Hyde, Hand, and Beadle Counties. (Burge) In Meade County, south of Howes, on Cheyenne River, one per square yard in fields and 4-6 along roadsides, maximum of 10 per square yard in one location; M. bivittatus dominant on river bottom, A. deorum on high ground. Near Wasta, Pennington County, generally up to 10 per square yard, as in State Highway 40 and Cheyenne River area, although in localized weedy areas up to 200 per square yard; M. differentialis up to third instar. (Burge, Zimmerman). On rangeland in western Custer County, 1-4 nymphs per square yard; situation similar on Fall River County rangeland. (Zimmerman). In weedy areas near Hot Springs airport, Fall River County, up to 100 per square yard; M. bivittatus up to fourth instar. In irrigated alfalfa near Oral, 8-10 per square yard in fields and 40 per square yard in margins; M. bivittatus up to third instar. (Burge, Kantack). NORTH DAKOTA - Up to second instars (mostly second) noneconomic; ranged 0-5 (averaged less than 1) per square yard, M. bivittatus most abundant with some M. sanguinipes and Camula pellucida. (Stoltenow, Coupe). MINNESOTA - First instars, probably M. bivittatus, averaged one per square yard in Norman County alfalfa field. M. femurrubrum eggs in this county coagulated and segmented. Some M. bivittatus in Redwood, Lyon, and Pipestone Counties. (Minn. Ins. Rpt.). IOWA - First and second instars low in road ditches and fence rows in central area. (Mast).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Numbers continue to increase. Host list and distribution gradually increasing; no major commercial crops affected. Two larvae collected from litchi fruit from tree in West Miami, Dade County, June 13. (Swanson, Dillon). This is new host record. (Fla. Coop. Sur.).

CEREAL LEAF BEETLE (Oulema melanopus) - ILLINOIS - Larvae in Woodford, Edgar and Iroquois Counties for new county records. (Kuhlman). INDIANA - Moderate to severe on oats in northwestern St. Joseph and northwestern La Porte Counties and light to moderate in Allen and Noble counties. Two larvae per plant in Noble County fields. (Matthew). OHIO - Survey made in 27 wheat and 2 oat fields in township in Williams County to indicate population intensity. Larvae ranged 0-54 per 100 sweeps (average 7.1 larvae) per field; adults 0-4 per 100 sweeps (averaged 0.52). (Turner, et al.). Some approaching pupation in Franklin and Perry Counties (Walker). Wheat conditions progressing well; some southern county fields began to turn. (Rose).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - In Bakerfield, Kern County, control area circumscribed by intensive inspection band approximately 0.5 mile wide. None beyond original 5 infested blocks. In San Diego, San Diego County, new focus of infestation apparently developing at Encanto, Lemon Grove, La Mesa area. This new area more heavily planted to citrus and other host plants. Warm weather decreasing sprayer operations. Total of 1,094 blocks sprayed. Intensive survey of quarantine zone in Fresno, Fresno County, continued; all collections negative. In Sacramento, Sacramento County, additional 16 buffer blocks infested; to be treated when property owners contacted. First-generation crawlers found; some spray and dust test materials being applied. (Cal. Coop. Rpt.).

EUROPEAN CHAFER (Amphimallon majalis) - OHIO - Adults began to emerge at Cleveland and in Cuyahoga County. Evening flight activity began night of June 13-14. (Shephard, Custer).

GYPSY MOTH (*Porthetria dispar*) - NEW YORK - Sprays applied June 7 at Nissequogue, Head of Harbor, and San Remo (Kings Park), Suffolk County. (N. Y. Wkly. Rpt., June 12). CONNECTICUT - Larvae active in Norwalk and Old Lyme areas. (Savos).

JAPANESE BEETLE (*Popillia japonica*) - RHODE ISLAND - One adult collected on Japanese knotweed at Kingston, Washington County, perennial site of early beetles. (Mathewson, June 6). VIRGINIA - First adults of season on pyracantha in Portsmouth June 9. (Cunningham). SOUTH CAROLINA - First specimen of season on corn in Pickens County. (Nettles et al., June 13)

MEXICAN FRUIT FLY (*Anastrepha ludens*) - CALIFORNIA - Total of 3,174 traps in operation. Nine sterile flies trapped, made total of 12 for this season; one caught on Otay Mesa, San Diego County, 2 miles north of United States-Mexican border. (Cal. Coop. Rpt.).

ORIENTAL WOOD BORER (*Heterobostrychus aequalis*) - FLORIDA - Larvae and adults collected from "mahogany lumber" at lumber company in Jacksonville, Duval County, June 14. This is new county record. (Fla. Coop. Sur.).

PINK BOLLWORM (*Pectinophora gossypiella*) - ARIZONA - Moth numbers in sex lure traps remain about same as last week. Larvae numerous in squares and blooms in Yuma and Maricopa Counties; few in Graham County; bloom infestations 1-25 percent in Maricopa County. (Ariz. Coop. Sur.).

WESTERN GRAPE LEAF SKELETONIZER (*Harrisina brillians*) - CALIFORNIA - First 9 moths of season collected in Sacramento County; one found in Davis, Yolo County. Surveys negative in Fresno, Fresno County; Livermore, Alameda County; and Stratford, Kings County. (Cal. Coop. Rpt.).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - ALABAMA - Larvae destroyed second planting of corn in 50-acre field near Evergreen, Conecuh County. Following soil treatment, field planted to soybeans. (Lemons et al.).

#### HAWAII INSECT REPORT

Vegetables - Abundant DIAMONDBACK MOTH (*Plutella xylostella*) larvae seriously damaged head cabbage at Wailua, Kauai. Adults also abundant. (Au). Larvae and adults of LEAF MINER FLIES (*Liriomyza* spp.) heavy on Oahu in several snap bean fields at Waimanalo and Waianae and in large watermelon fields at Kahuku. Controls difficult. (Yamamoto, Sato). TOMATO FRUITWORM (*Heliothis zea*) larvae medium in tomato fields in Waialua and Halawa, Oahu. (Yamamoto).

Fruits - OBSCURE MEALYBUG (*Pseudococcus obscurus*) scattered and light, decreasing in 200 acres of passion-fruit at Kahului, Maui. Larvae of a LADY BEETLE (*Cryptolaemus montrouzieri*) moderate amid mealybug infestation. (Miyahira). Nymphs and adults of a WHITEFLY, probably *Bemisia giffardi* heavy on 25 citrus trees in nursery at Wailuku, Maui. (Takishita). LITCHI MITE (*Aceria litchii*) medium to heavy on litchi trees throughout Hilo, Hawaii. Damaged leaves very conspicuous. (Yoshioka). Young nymphs of HEMISPHERICAL SCALE (*Saissetia coffeae*) numerous and adults light (1 per leaf) on several citrus trees at Kula, Maui. (Funasaki).

Ornamentals - SOUTHERN GARDEN LEAFHOPPER (*Empoasca solana*) nymphs and adults very heavy on wedelia at several residences in Kaneohe, Oahu. (Kawamura).

Shade Trees - MONKEYPOD MOTH (*Polydesma umbricola*) and BLACK WITCH MOTH (*Ascalapha odorata*) defoliation 50-90 percent on 20 trees at Lahaina area, Maui; late instars light to medium under tree bark. (Funasaki, Miyahira).

Beneficial Insects - Larvae of an introduced TORTRICID MOTH (*Aptoforma* sp.) very heavy on Blackberry at Olinda and Waiakamoi, Maui; on 90 percent of terminal leaves in many areas. (Miyahira). Many fresh oviposition scars on lantana stems indicate recent adult emergence of LANTANA CERAMBYCID BEETLE (*Plagiohammus spinipennis*) throughout Kau, Hawaii Island. (Yoshioka). Adults of TACHINA FLY (*Trichopoda pennipes* var. *pilipes*) often seen in vacant, weedy areas and in small, backyard vegetable plantings at Lahaina and Kahului, Maui. (Ah Sam).

## INSECT DETECTION

### New State Records

A PLANT BUG (Pilophorus laetus) - DELAWARE - Adult collected in blacklight trap at Dover, Kent County, July 13, 1966, by J. Franklin. Det. by R. C. Froeschner. Reported in literature as breeding on Pinus virginiana. (Burbutis).

A PLANT BUG (Slaterocoris pallipes) - DELAWARE - Adults collected in blacklight trap at Dover, Kent County, August 13, 1966, by J. Franklin. Det. by R. C. Froeschner. (Burbutis).

### New County Records

ALFALFA WEEVIL (Hypera postica) - INDIANA - Whitley County. ILLINOIS - Stark and Putnam Counties. MISSOURI - Adair County. NEBRASKA - Near Ringgold, McPherson County. (p. 533). WASHINGTON - At Ellenburg, Kittitas County. (p. 534).

MEADOW SPITTLEBUG (Philaenus spumarius) - MISSOURI - Clark, Adair, Knox, Marion, Scotland, and Shelby Counties. (p. 535).

CEREAL LEAF BEETLE (Oulema melanopus) - ILLINOIS - Woodford, Edgar, and Iroquis Counties. (p. 549).

ORIENTAL WOOD BORER (Heterobostrychus aequalis) - FLORIDA - At Jacksonville, Duval County. (p. 550).

## CORRECTIONS

CEIR 17(24):503 - CORN FLEA BEETLE (Chaetocnema pulicaria) should read (Chaetocnema pulicaria).

CEIR 17(24):505 - A PYRALID MOTH (Surratha indentella) should read (Surattha indentella).

CEIR 17(24):511 - A MINT APHID (Ovatus crataegius) should read (Ovatus crataegarius). Pupae should read Populations. (Morrison).

CEIR 17(24):516 - Citrus Insect Situation in Florida - End of May - Line 25: (Aonidiella cintrina) should read (Aonidiella citrina).

CEIR 17(24): 517 - TENT CATERPILLARS (Malcosma spp.) should read (Malacosoma spp.).

CEIR 17(24):520 - HORSE BOT FLY (Gasterophilus intestinalis) should read (Gasterophilus intestinalis).

CEIR 17(24):523 - HAWAII INSECT REPORT - Vegetables - Line 4: (Liriomyza spp.) should read (Liriomyza spp.)

CEIR 17(24):524 - INSECT DETECTION - A PSYLLID (Psylla uncatoides) - HAWAII - Maui. (p. 523).

CEIR 17(24):522 - CEREAL LEAF BEETLE (Oulema melanopus) should read (Oulema melanopus).

CEIR 17(24):521 - AN ICHNEUMON WASP (Bathyplectes cucurlicionis) should read (Bathyplectes curculionis).







Continued from page 528.

WEATHER OF THE WEEK ENDING JUNE 19, 1967

**HIGHLIGHTS:** Another very wet week with many storms in the upper Midwest. Warm in the East but continued cool in the West.

**PRECIPITATION:** Violent weather continued over the northern and central Great Plains in connection with a storm system which remained stationary for eleven days. Tornadoes and violent thunderstorms, some accompanied by strong gusty winds, large hail, and heavy rains occurred from the Dakotas and Minnesota southward to New Mexico and Texas. A few tornadoes occurred in New York and New England. On Wednesday, hail as large as golf balls accumulated to 6 inches in northeastern Colorado. About a score of the tornadoes occurred Wednesday afternoon in 8 States causing property damage but few personal injuries. In eastern Nebraska and nearby State areas and extending to as far as Wyoming and Wisconsin, two to three weeks of persistent heavy rain showers have caused much flash and river flooding and otherwise seriously hampered agricultural activity. Parts of eastern Nebraska have received 11 to 13 inches in three weeks. As the weekend approached, cooler and more stable air moved into the Great Plains and stormy weather diminished. A late-week storm off the Carolina coast brought generous rains to the Atlantic coast. A large area from the lower Rio Grande Valley extending northeastward to northern Virginia received little or no rain for the second week. However, in Florida where the summer shower season began on schedule in early June, reports of moderate to heavy rains have replaced the drought stories of a few weeks ago.

**TEMPERATURE:** Afternoon temperatures over most of the eastern half of the United States climbed to the high 80's or low 90's on most days but were somewhat cooler on Sunday. In some areas, it was the warmest week since mid-July 1966 and a few degrees warmer than last week. It was the 2nd hot week in the Northeast but the 5th cool week from Alabama to North Carolina and southward to Florida. Temperatures averaged below normal from California to the western Great Plains. Utah averaged 5° to 9° cooler than normal. In general it was the 3rd cool week in this area. Washington and Oregon averaged 2° to 6° warmer than normal. (Summary supplied by Environmental Data Service, ESSA).



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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMYWORM light to heavy in small grains and corn in some areas with damage reported. POTATO LEAFHOPPER building up on alfalfa in Missouri; counts high in other States on potatoes and alfalfa. (p. 557).

EUROPEAN CORN BORER egg hatch continues, some damage in corn-growing areas. (pp. 558-559). BLACK CUTWORM damaging corn and other crops in some areas. (pp. 559, 566). CORN ROOTWORMS hatching, some larval feeding. (p. 559).

ALFALFA WEEVIL reported for first time in Iowa; damage continues in several States. (pp. 560-561).

BOLL WEEVIL emergence increased at Florence, South Carolina; overwintered weevils more numerous in southern Tennessee; emergence continues high in Alabama; overwintered weevils found in one field in High Plains area of Texas. BOLLWORM injury reported in some areas; larvae increasing and egg counts high in Arizona. (p. 564).

COLORADO POTATO BEETLE serious in some areas in New York; adults heavier than past 2 years in New Hampshire; controls recommended in Colorado. (p. 566).

CODLING MOTH larval entries heavy in central Missouri. (p. 569).

EUROPEAN RED MITE and other SPIDER MITES increasing in some orchards. (pp. 570-571).

PINE NEEDLE MINER outbreak on pitch pine in Connecticut. FIR ENGRAVER killing white fir in Nevada and Modoc Counties, California. (p. 573).

HORN FLY increasing rapidly on cattle in New Jersey; heavy in several other States. (p. 575).

GRASSHOPPERS heavy on grassland in several areas of Oklahoma. (p. 577).

Detection

New State records include ALFALFA WEEVIL in Iowa (p. 561), a SPIDER MITE in Missouri (p. 575), CEREAL LEAF BEETLE in Pennsylvania (p. 578), and 2 PLANT BUGS in Delaware (p. 579). For new county and island records see (p. 579).

Reports in this issue are for week ending June 23 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING JUNE 26, 1967

HIGHLIGHTS: Another wet week with moderate to heavy rains in nearly all areas; many local storms. Cool in most areas, especially in Central sections.

PRECIPITATION: A pattern of wet spells producing moderate to heavy rains and at various times affecting most, but not all, areas from the Rockies eastward has now lasted for about 2 months. Last week the only sizeable dry areas were in Texas and the Far Southwest. Severe weather occurred along a front that extended from Wisconsin to the Texas Panhandle early in the week and along another front from Michigan to New Mexico as the weekend approached. Late-week rains with totals near 8 inches caused flooding along the streams in northeastern Kansas, southeastern Nebraska, southwestern Iowa, and western Missouri. Heavy thunderstorms spotted a band 50 to 100 miles wide extending from the eastern slope of the central Rockies to the southwestern Great Lakes region. At midweek, heavy rains struck eastern New England, the Birmingham, Alabama, area, and other spots in Virginia and Texas. Many areas needed moisture but fieldwork and some crops were adversely affected. Soil moisture is now adequate in most of Florida. The usual damaging wind and hailstorms occurred with one report of hailfall to a 5-inch depth west of Ely, Nevada. Tornadoes occurred in eastern Kansas on Tuesday.

Weather continued on page 568.



## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (*Pseudaletia unipuncta*) - MAINE - Adults continue to emerge in greater than average numbers; 45 taken June 13-16. (Boulanger). PENNSYLVANIA - Light to heavy on barley, corn, and wheat locally in southwest quadrant. Some corn and numerous small grain fields being treated. (Udine, Adams). MARYLAND - Larvae medium on barley with some migration to corn in Frederick and Somerset Counties week ending June 20. Outbreak numbers migrated from small grains into several eastern Frederick County corn fields. Controls needed in about 10 fields. (U. Md., Ent. Dept.). VIRGINIA - Larvae severely damaging corn in Fauquier County. One field with 100 percent loss of stand; nearby field with 50 percent loss. Both fields in continuous corn with little damage in past. (Tudor, Isakson). OHIO - Larvae infested corn in Wayne, Auglaize, Fayette, Madison, Williams, and Pickaway Counties June 14-21. Damage light to severe to young corn; one grower considering replanting 10-acre field. (Barry et al.). MICHIGAN - Half to nearly grown larvae infested wheat fields in Berrien, Cass, and St. Joseph Counties. (Janes). INDIANA - Damaging populations on wheat concentrated in northern districts, especially north-central area. (Huber). KANSAS - Damaged broom and wheat in Johnson County. (Kan. Ins. Newsltr.).

CORN EARWORM (*Heliothis zea*) - ARIZONA - Found in most fields of alfalfa, sorghum, and safflower in Yuma and Maricopa Counties. Moderate in okra in Yuma County. (Ariz. Coop. Sur.). OKLAHOMA - Ranged 4-5 per 100 sweeps in most alfalfa in Jackson County; as high as 80 per 100 sweeps in one field. Ranged 4-5 per 100 terminals in Jackson County sorghum. Moderate in corn in Cleveland and Bryan Counties. (Okla. Coop. Sur.). ARKANSAS - Only two larvae found in several fields of sorghum in southwest area. (Ark. Ins. Sur.). MISSOURI - Larvae, first to fourth instars, very low on alfalfa in southwest, west-central, and central areas. Maximum average of 2 per 10 sweeps. (Munson). DELAWARE - First 2 adults collected in blacklight trap in Sussex County. This is an early record for species in State. (Burbutis).

CORN LEAF APHID (*Rhopalosiphum maidis*) - OKLAHOMA - Ranged 500-800 per whorl in sorghum in isolated Greer County fields. Heavy in sorghum in Cleveland County. (Okla. Coop. Sur.). KANSAS - Light, ranged 1-15 per plant, in corn and sorghum in Shawnee, Lyon, Chase, Butler, Cowley, Jefferson, and Atchison Counties. Most adults winged; some nymphs present. (Kan. Ins. Newsltr.). INDIANA - Colonies of 6-100 aphids present in 60-70 percent of preboot stage Johnson grass in Knox, Gibson, Vanderburgh, and Posey Counties. No alates observed. (Everly).

GREENBUG (*Schizaphis graminum*) - NEBRASKA - Very light in wheat in Scotts Bluff, Banner, and Kimball Counties. (Andersen). WISCONSIN - Averaged less than 4 per 50 sweeps in most fields. Possibility of red leaf rapidly decreasing. (Wis. Ins. Sur.).

POTATO LEAFHOPPER (*Empoasca fabae*) - MINNESOTA - First specimen of season recovered in Dodge County alfalfa. (Minn. Ins. Rpt.). WISCONSIN - As high as 1 per sweep in alfalfa in few southern area fields. Averaged about 3 per plant in commercial potatoe planting in Spring Green area. Few half-grown nymphs appearing. (Wis. Ins. Sur.). MISSOURI - Building up, ranged 70-200 adults and nymphs per 10 sweeps on alfalfa in southwest, west-central and central areas. Pettis County field showed some plant yellowing. (Munson). INDIANA - Adults light on northern area alfalfa; 1-6 per 10 sweeps. (Huber). MICHIGAN - Adults averaged 37 per 25 sweeps in Ingham and Livingston County alfalfa June 19; some nymphs present. (Dowdy). OHIO - On alfalfa through much of State; yellowing evident in Pickaway County. (Flessel). Averaged about 12 per sweep on alfalfa in Stark and Knox Counties. (Rose). MARYLAND - Adults 0-4 per sweep in Frederick and Montgomery County alfalfa. Adults averaged 2 per sweep on alfalfa at Cambridge, Dorchester County. Adults on potatoes near Willards, Wicomico County. (U. Md., Ent. Dept.). VIRGINIA - Adults ranged 1-5 per 10 sweeps on alfalfa in Orange, Culpeper, and Rappahannock Counties. (Isakson).

POTATO PSYLLID (*Paratrioza cockerelli*) - COLORADO - Numbers decreased on matromony-vine in Arkansas Valley; 500-700 per 100 sweeps. Remains low in potato fields in Otero, Bent, and Prowers Counties; 0-2 per 100 sweeps. (Schweissing).

SIX-SPOTTED LEAFHOPPER (*Macrosteles fascifrons*) - WISCONSIN - Populations increased on lettuce and oats June 14; controls accelerated. (Wis. Ins. Sur.). MICHIGAN - Adults averaged 3 per 25 sweeps in Ingham County wheat June 19. (Dowdy).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - COLORADO - Continues low in some Arkansas Valley fields; 0-2 per 100 sweeps. (Schweissing). KANSAS - Survey negative in 15 eastern and 4 southwestern counties. (Kan. Ins. Newsltr.). ARKANSAS - Survey negative in Lafayette, Miller, and Howard Counties. (Ark. Ins. Sur.).

TOBACCO BUDWORM (*Heliothis virescens*) - VIRGINIA - Generally very light on tobacco in Pittsylvania County. (Dominick, June 20).

TOBACCO HORNWORM (*Manduca sexta*) - DELAWARE - First adult of season collected in blacklight trap in Sussex County on June 16. (Burbutis).

HORNWORMS (*Manduca* spp.) - VIRGINIA - Larvae very light on tobacco in Pittsylvania County. Few adults captured in blacklight traps. (Dominick, June 20).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - KANSAS - Adults numerous and active on weeds and grasses bordering corn in Shawnee, Jefferson, Atchison, Brown, and Nemaha Counties. Blacklight catches increased in Brown County. (Kan. Ins. Newsltr.). MISSOURI - Third to last instars fed on 5-35 percent of corn in southeast area. Pupation begun. (Jones, Keaster). Infested more than 50 percent of plants in some scattered southeast area fields; larvae first to third instar. Some feeding in midribs observed and few larger larvae entered stalks. Heavy infestations reported in few fields in one area of Cooper County. (Munson). IOWA - First and second instars fed on up to 35 percent of leaves on seed corn in central and east-central areas. (Brindley). MINNESOTA - First egg masses of season found in Lac qui Parle and Scott Counties. Hatch light in Dakota County field. Pupation of overwintering larvae indicates peak emergence and egg laying will occur in 1-2 weeks. Percent pupation averaged as follows: Southwest 50, west-central 70-80, central 100, southeast 100. (Minn. Ins. Rpt.). WISCONSIN - Taller field corn in Rock, Sauk, Dane, and La Crosse Counties with 2 egg masses per 25 plants. Leaf feeding noted. (Wis. Ins. Sur.). ILLINOIS - In west-southwest and west districts, hatch of 30-100 egg masses per 100 plants nearly complete; up to 3 first and second instars per plant fed on 20-90 percent of 35 to 57-inch corn. In north east district, 20-100 egg masses per 100 plants; up to 2 first instars fed on 5-20 percent of 25-44 inch corn. (Ill. Ins. Rpt.). INDIANA - Feeding observed on 16-28 percent of plants 36-40 inches extended leaf height in Gibson County. (Everly). Generally, larvae present throughout southern areas, but few corn fields sufficiently advanced to be damaged. Adult activity and egg laying underway throughout northern half of State. Egg masses ranged 7-11 per 25 corn plants 38-40 inches high in Kankakee River sandy soil area in northwest. (Huber). MICHIGAN - First heavy egg laying June 13 in Washtenaw and Wayne Counties on sweet corn; some eggs laid 3 weeks ago. (Janes). MARYLAND - Adults increasing in blacklight traps at Eastern Shore; averaged 16 per night at Centreville and 14 per night at Snow Hill, week ending June 16. Adults averaged 8 per night in blacklight trap at Centreville, Queen Annes County. First-generation larvae infested early planted corn in all sections; 50 percent in few fields. (U. Md., Ent. Dept.). NEW JERSEY - Eggs hatching on sweet corn in central counties. Growers applying controls. (Ins.-Dis. Newsltr.). NEW YORK - Light, scattered in sweet corn planting near Riverhead, Suffolk County, June 12; 9 egg masses on 50 sweet corn plants in

sweet corn plants in Rensselaer County. Larvae in Monroe County garden planting of corn June 15; eggs heavy. (N. Y. Wkly. Rpt., June 19). MASSACHUSETTS - First eggs June 6-12 in Norfolk County. (Crop Pest Cont. Mess., June 19).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - MISSOURI - Third to last instars infested 30-50 percent corn in Mississippi County. Some entered stalks. (Keaster, Jones).

BLACK CUTWORM (Agrotis ipsilon) - DELAWARE - Larval feeding continues heavy on corn in several areas. (Burbutis). MARYLAND - Continued to damage much young corn in eastern and southern sections. (U. Md., Ent. Dept.). OHIO - Mostly this species major problem on field corn past 14 days in Wayne, Licking, Pickaway, Williams, Mahoning, Lorain, Delaware, Ross, and Madison Counties. Completely destroyed 10 acres of corn in Wayne County. (Rings et al.). Infestation and damage by cutworms more frequent than in recent years. (Rings). INDIANA - Infestations, mostly this species, numerous in corn in Hancock, Shelby, Rush, and Decatur Counties. (Huber). ILLINOIS - Pupating; damage practically over, with possible exception of northern sections. (Ill. Ins. Rpt.). WISCONSIN - Caused much damage to corn in central counties and some scattered southern counties. All larval stages damaged half of 40-acre Green Lake County field. (Wis. Ins. Sur.).

STALK BORER (Papaipema nebris) - MINNESOTA - Light to moderate on marginal rows of corn. (Minn. Ins. Rpt.). WISCONSIN - Few early instars appearing in corn-stalks near field margins. (Wis. Ins. Sur.). ILLINOIS - Feeding in whorls of some corn plants and stalks of oats. Damage most common along edges of fields, especially adjacent to fence rows, ditch banks, roadsides and grass waterways. (Ill. Ins. Rpt.).

PALE WESTERN CUTWORM (Agrotis orthogonia) - KANSAS - Larvae damaging in fields planted to row crops in southwest. (Kan. Ins. Newsltr.).

BEEF ARMYWORM (Spodoptera exigua) - CALIFORNIA - Larvae medium; damaging corn plantings in Blythe, Riverside County. (Cal. Coop. Rpt.).

CORN ROOT WEBWORM (Crambus caliginosellus) - VIRGINIA - Larvae killed approximately 80 percent of corn stand in 8-acre field in Halifax County. Field being replanted to sorghum. (Gordon, Isakson).

CORN ROOTWORMS (Diabrotica spp.) - NEBRASKA - Hatch well underway. Second and third instars feeding on corn roots at Mead Experiment Station and in Dawson County. Many fields treated at planting time retreated with rootworm insecticides. (Lawson, Stevens). MISSOURI - D. virgifera hatch well underway in northwest area. (Munson). ILLINOIS - Diabrotica spp. larvae feeding on corn roots in occasional fields. Less than half grown. Too soon to predict overall abundance and damage. D. longicornis larvae present in northeast and central districts. (Ill. Ins. Rpt.). MINNESOTA - Diabrotica spp. hatch and first instars found for first time this season June 22; 6 days earlier than in 1966. Larvae found only in Wright County; check in other counties negative. Averaged 14 larvae per plant in one Wright County corn field. Larvae believed to be primarily D. longicornis since 95 percent of adult population in this field last year was this species. (Minn. Ins. Rpt.).

WIREWORMS - NEBRASKA - Causing severe damage to corn in scattered fields in panhandle area where seed treatments not applied. (Andersen).

THRIPS - MARYLAND - Beginning to streak young corn leaves in all sections. (U. Md., Ent. Dept.). ILLINOIS - Anaphothrips obscurus abundant in whorls of corn; few fields damaged. (Ill. Ins. Rpt.).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Moderate to heavy in corn and sorghum in Greer, Jackson, Harmon, and Tillman Counties. (Okla. Coop. Sur.).

SYMPHYLANS - IDAHO - Badly damaged 6-acre section of corn field near Caldwell, Canyon County, by root pruning. Adjoining fields showed spotty feeding damage. (Homa, June 16). INDIANA - Scutigereella spp. seriously stunted corn in areas of Clinton, Shelby, Harrison, and Randolph Counties. Current infestations involve larger areas than last year. (Gould, Matthew). Stunting less severe in those rows compacted by tractor wheels during planting. (Huber). MISSOURI - Probably Scutigereella immaculata damaged northeast area corn. (Munson).

#### SMALL GRAINS

STALK BORER (Papaipema nebris) - MINNESOTA - Causing white-heads of oats, wheat, and barley in southeast, south-central, and central districts. Less than 1 percent of plants appear infested. (Minn. Ins. Rpt.).

THRIPS - MICHIGAN - Very numerous in some Ingham County wheat fields. (Dowdy). NORTH DAKOTA - Limothrips denticornis ranged 11-47 per 100 sweeps on barley in Cass and Ransom Counties (McBride); trace numbers of adults evident in leaf sheaths of headed winter wheat in McKenzie County (Brandvik).

#### TURF, PASTURES, RANGELAND

GRASS BUGS - UTAH - Irbisia pacifica ranged 25-300 per sweep on severely discolored Great Basin wildrye at Beaver Dam, Box Elder County. (Knowlton). Labops hesperius and Irbisia spp. caused moderate discoloration to wheat-grasses in south Pine Valley area of Washington County; damage more severe in parts of Spanish Fork and Hobbie Creek Canyons, Utah County. (Jorgensen) Irbisia sp. badly discolored 200 acres of intermediate wheatgrass at 7,000 feet elevation above Peterson; this area severely damaged in 1966. (Knowlton, Winn, Heywood).

TWO-LINED SPITTLEBUG (Prosapia bicincta) - ALABAMA - First adults noted throughout central and southern areas. Becoming common on lawns and other grasses; no damage reported. (Johnson et al.).

A BILLBUG (Sphenophorus venatus vestitus) - FLORIDA - Adults, probably this species, active at night and causing very light damage to zoyia grass golf greens in Miami, Dade County. (Davis, Habeck).

A MILLIPED (Pleurolooma brunnes) - ARKANSAS - Taken in St. Augustine grass in Desha County. This is same species that has been heavy in city of Paragould, Greene County. (Ark. Ins. Sur.).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - NEW HAMPSHIRE - Damage increased. Tip damage 10-50 percent, larvae 190-930 per 100 sweeps at Concord. (Sutherland, June 15). Tip damage 20-75 percent, larvae up to 1,500 per 100 sweeps at Hollis and Amherst area; pupation started June 15. (George). VERMONT - Reaching peak in south and west areas; peak expected this period in central area. New infestations from Waterbury south common. All stages easily found June 17 at Shoreham with 15-20 larvae per sweep. Controls giving good results on standing forage. (MacCollom). RHODE ISLAND - Larvae damaging wherever alfalfa grown in State. (Mathewson, King, June 16). DELAWARE - Larvae average 2 per 10 sweeps in second-growth alfalfa in some areas of Kent County; injury noticeable. (Burbutis). MARYLAND - Larvae ranged 1-10 per sweep in 8 Frederick County alfalfa fields. (U. Md., Ent. Dept.). VIRGINIA - Under 1 larva per 10 sweeps on alfalfa at Steeles Tavern, Rockbridge County, (Woodside, June 21). Counts per 10 sweeps by county: Orange, 5 larvae, 2 adults; Culpeper, 30 larvae; Rappahannock, 12 larvae. Alfalfa 6-12 inches high. (Isakson, June 22). OHIO - Damage decreasing as larvae reach full growth. In Wayne County, numerous new adults present;

many new adults aestivating and others dispersing from alfalfa in southern area. Larvae much lower than previously in southern counties; damage to second crop decreasing. (Flessel). Damaging second-cutting alfalfa in Huron and Henry Counties. Population increase heavy in Huron County; many farmers planning stubble sprays as haymaking progresses. (Wells). Infestation involving 40-percent terminal damage in second-growth Henry County field indicates some controls may be justified in 1968. Larval numbers dropped in Stark and Knox Counties; 2-9 per sweep. Damage light to second growth. (Rose). ILLINOIS - Larvae in Putnam and Stark Counties for new county records. (Ill. Ins. Rpt.). IOWA - Adults and/or larvae collected from alfalfa June 5 and 6 from following southeast counties: Clinton, Des Moines, Lee, Muscatine, and Scott. This is a new State record. (Stockdale). IDAHO - Adults general throughout Idaho County; up to 2 per sweep. Larvae up to 3 per sweep June 12. (Portman). NEVADA - Large numbers of pupae and newly emerged adults in Churchill and Lyon Counties where cutting of first-crop alfalfa starting. Pupating in Douglas, Pershing, and southern Washoe Counties where most larval treatments completed. Peak populations about 1.5-2 weeks later than normal. (Arnett). Averaged 2 larvae per 10 sweeps in Ruby Valley, Elko County. (Earnist). UTAH - Much alfalfa being cut to prevent damage. Continued stormy weather prevented spraying or hay harvest through June 17. (Knowlton). COLORADO - Larval populations remain high in Weld County. Pupae numerous in windrowed fields. Pupating in Larimer County; prepupae easily found. About 75 percent of larvae full grown. Peak pupation should occur June 26-30. (Urano, Simpson). NEW MEXICO - Various larval stages damaging alfalfa in Bernalillo County. (Heninger). SOUTH DAKOTA - Again increased in Lawrence and southern Butte Counties. First to third instars up to 1,900 per 100 sweeps. Maximum of 10 adults per 100 sweeps. Damage still light but could become serious in next several days before cutting. (Jones, Walstrom). NORTH DAKOTA - Larvae heavy in irrigated alfalfa in Yellowstone and Missouri River Valleys in McKenzie County; ranged up to 5,000 (average 1,117) per 100 sweeps; development through third instar. Adults ranged up to 150 (average 42) per 100 sweeps in same fields. Up to 100 percent of tips infested; averaged 48 percent. Up to 4 percent of foliage eaten. Alfalfa 20-30 inches high and in late bud to early bloom stages; first cutting underway. In irrigated alfalfa near Fort Clark, Oliver County, larvae averaged 20 and adults averaged 4 per 100 sweeps. No foliage feeding evident; 2 percent of tips infested. Larvae all first instar. Alfalfa 20-24 inches high and in late bud stage. First cutting underway. (Brandvik).

CLOVER LEAF WEEVIL (Hypera punctata) - WISCONSIN - Summer adults appearing in advanced areas. (Wis. Ins. Sur.).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - NEBRASKA - Adults 233 per 50 sweeps in red clover near Auburn, Nemaha County. (Keith, June 19).

CLOVER ROOT CURCULIO (Sitona hispidula) - MISSOURI - Adults ranged 5-90 per 10 sweeps on alfalfa and red clover in southwest, west-central and central areas. High of 90 per 10 sweeps in Cedar County alfalfa. (Munson).

A WEEVIL (Sitona scissifrons) - WISCONSIN - Common in alfalfa in southern half of State. Up to 2 per sweep common in some Sauk and Vernon County fields. (Wis. Ins. Sur.).

ROSE CHAFER (Macrodactylus subspinosus) - MICHIGAN - Outbreaks near Howell and South Lyon in Livingston County severely defoliated alfalfa. (Newman et al.).

ASH-GRAY BLISTER BEETLE (Epicauta fabricii) - SOUTH DAKOTA - Common in alfalfa in northern Lawrence and southern Butte Counties. Adult ranged 15-35 per 100 sweeps. (Jones, Walstrom). WISCONSIN - Few adults appearing in central area alfalfa. (Wis. Ins. Sur.).

PALE-STRIPED FLEA BEETLE (Systema blanda) - VIRGINIA - Approximately 100 adults per 200 sweeps in Franklin County alfalfa. (Jones, June 15).

ALFALFA CATERPILLAR (*Colias eurytheme*) - ARIZONA - First larval infestations of season in Yuma and Maricopa County alfalfa. (Ariz. Coop. Sur.).

GREEN CLOVERWORM (*Plathypena scabra*) - MARYLAND - Light in Frederick and Montgomery County alfalfa. (U. Md., Ent. Dept.).

PEA APHID (*Acyrtosiphon pisum*) - IDAHO - Low throughout Butte County; parasites numerous (York, Portman, June 16). COLORADO - Erratic throughout Arkansas Valley; 100-5,000 per 100 sweeps. In many instances, cutting alfalfa significantly reduced populations; remained heavy on stubble and retarding growth in some fields. (Schweissing). NEW MEXICO - Heavy on most alfalfa. Some limited spraying in Pecos Valley. (N.M. Coop. Rpt.). NEBRASKA - Ranged 2-35 per 10 sweeps on alfalfa in Otoe, Nemaha, Johnson, and Saunders Counties. (Keith). NORTH DAKOTA - Ranged up to 100 per 100 sweeps in first-crop alfalfa in Ward, Burke, McHenry, Mountrail, Bottineau, and Renville Counties. (Brandvik). MINNESOTA - Counts varied greatly due to fungus disease; declined sharply in southeast and central districts. Generally high on alfalfa in southwest, south-central, west-central and northwest districts; up to 3,000 per 100 sweeps. (Minn. Ins. Rpt.). WISCONSIN - Very low in alfalfa in southern half of State. More than 3 per 10 sweeps rare. High in alfalfa in several Trempealeau County fields; about 60 per 10 sweeps. (Wis. Ins. Sur.). IOWA - Decreased to very low numbers past 2 weeks. (Iowa. Ins. Sur.). MICHIGAN - Adults and nymphs very low in central area alfalfa sampled June 19; predators and parasitids common. (Dowdy). VIRGINIA - Few found in alfalfa in Orange, Culpeper, and Rappahannock Counties; less than 10 per sweep. (Isakson, June 22). MARYLAND - Adults abundant, up to 15 per sweep, in Frederick County alfalfa. (U. Md., Ent. Dept.). NEW YORK - Activity ceased. (N.Y. Wkly. Rpt., June 19).

ALFALFA PLANT BUG (*Adelphocoris lineolatus*) - INDIANA - Most common insect on second-growth alfalfa in northern districts; adults 4-9 per sweep. (Huber). MICHIGAN - Adults and nymphs common in central area alfalfa. (Dowdy). WISCONSIN - Abundant in alfalfa; average about 4 per sweep over southern half of State. About 25 percent adults; most of remainder late instars; first and second instars common in many Trempealeau County fields. (Wis. Ins. Sur.). NORTH DAKOTA - Adults and nymphs ranged up to 100 (average 43) per 100 sweeps in first-crop alfalfa in Ward, Burke, McHenry, Mountrail, Bottineau, and Renville Counties. (Brandvik). NEBRASKA - Ranged 0-15 per 10 sweeps in alfalfa in Otoe, Nemaha, Johnson, and Saunders Counties. A. rapidus averaged less than one per 10 sweeps in same counties. (Keith).

TARNISHED PLANT BUG (*Lygus lineolaris*) - NORTH DAKOTA - Ranged up to 30 (average 13) per 100 sweeps in first-crop alfalfa in Ward, Burke, McHenry, Mountrail, Bottineau, and Renville Counties. (Brandvik). IOWA - Ranged 3-13 per 10 sweeps in central and southeast area alfalfa. (Iowa Ins. Sur.). MICHIGAN - Adults and nymphs widespread in central area hay fields. (Dowdy). NEW YORK - Activity ceased. (N. Y. Wkly. Rpt., June 19).

LYGUS BUGS (*Lygus* spp.) - NEVADA - Averaged 5 nymphs and adults per sweep in alfalfa seed fields in Reese River southwest of Austin, Lander County. (Sebbas). Averaged 4 per 10 sweeps in Ruby Valley, Elko County. (Earnist). ARIZONA - Increasing in alfalfa and safflower fields in Pinal, Yuma, and Maricopa Counties. Nymphs now outnumber adults. (Ariz. Coop. Sur.). NEW MEXICO - Generally light on alfalfa over State; heavier in some areas. Counts per 25 sweeps: 11-40 in Bernalillo County (Heninger); 5-10 in Dona Ana County (Elson, Campbell); 6 adults and 4 nymphs in Hidalgo County (Hare). NEBRASKA - Ranged 8-45, averaged about 22, per 10 sweeps in Otoe, Nemaha, Johnson, and Saunders County alfalfa. (Keith).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ARKANSAS - Low, 40-50 in 100 sweeps, in alfalfa in Lafayette, Miller, and Howard Counties. No yellow stems from girdling observed. (Ark. Ins. Sur.).

A LEAFHOPPER (Empoasca mexara) - ARIZONA - Adults increasing in alfalfa in Yuma County; average 20 per 100 sweeps. (Ariz. Coop. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - VIRGINIA - Adults 5-25 per sweep in Rockbridge County (Woodside); ranged 6-40 per sweep in Orange, Culpeper, and Rappahannock Counties (Isakson). MICHIGAN - Adults range 2-25+ per sweep in Ingham County alfalfa June 19; some late-instar nymphs still present. (Dowdy). ILLINOIS - Adults numerous in many clover and alfalfa fields in northern districts. (Ill. Ins. Rpt.). WISCONSIN - As many as 100 adults per 10 sweeps in much alfalfa but nymphs still common in some fields in west-central counties. (Wis. Ins. Sur.). IOWA - First adult of season in east-central area June 12. (Gunderson). IDAHO - General in Idaho County; late instars dominant. Ranged up to 50 (average 10) percent of alfalfa stems infested with one or more nymphs. (Portman, June 12).

THRIPS - NEW JERSEY - Caused extensive injury to tips of spring seeded alfalfa in Salem County fields. (Ins.-Dis. Newsltr.). NEW MEXICO - Heavy in alfalfa in Dona Ana, Luna, and Hidalgo Counties. (Campbell, Elson). Increasing in Bernalillo County alfalfa. (Heninger). ARIZONA - Frankliniella occidentalis moderate to heavy in alfalfa in Kansas Settlement area, Cochise County. One field heavily damaged; damage light to moderate in most fields. (Ariz. Coop. Sur.).

#### SOYBEANS

BEAN LEAF BEETLE (Cerotoma trifurcata) - MINNESOTA - Surveys in central counties show counts highest on Renville County soybeans, especially in southern part of county. Damage very evident along State Highway 19. Numbers per plant do not warrant spraying. Numbers highest along field margins. One field in Brown County sprayed. Numbers light in Chippewa, Kandiyohi, Meeker, McLeod, and Redwood Counties. (Minn. Ins. Rpt.). IOWA - Damage light but adults on central and east-central area soybeans. (Iowa Ins. Sur.). MARYLAND - Adults light to medium on young soybeans in Talbot and Wicomico Counties. (U. Md., Ent. Dept.).

BLISTER BEETLES (Epicauta spp.) - ARKANSAS - Heavy spot infestations of E. vittata observed in Clark County field. Heavy spot infestation of E. fabricii reported in Hempstead County. (Ark. Ins. Sur.).

CLOVER ROOT CURCULIO (Sitona hispidula) - ILLINOIS - This species and Hypera punctata damaging small soybeans planted after clovers. Damage also observed in marginal rows of soybeans next to clover field recently plowed or cut. (Ill. Ins. Rpt.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARKANSAS - Plants in most fields too small for plant shaking method of survey. General observation counts showed adults present in most southwest fields. Small nymphs appearing in some fields. Infestations heavier than in other areas of State. (Ark. Ins. Sur.).

THRIPS - MARYLAND - Light but building up on young soybeans in Talbot and Wicomico Counties. (U. Md., Ent. Dept.). ILLINOIS - Anaphothrips obscurus abundant on soybean leaves; few fields damaged. (Ill. Ins. Rpt.).

#### PEANUTS

THRIPS (Frankliniella spp.) - OKLAHOMA - Moderate in peanuts checked in Bryan County. (Okla. Coop. Sur.).

## COTTON

BOLL WEEVIL (*Anthonomus grandis*) - SOUTH CAROLINA - Emergence increased greatly in Florence area, although generally large numbers still not in fields. Effective protection now required for cotton. Larval infestation in treated plots ranged 4.5-10 percent. Adults averaged 75 per acre in untreated plots. (Taft et al., June 21). TENNESSEE - Overwintered weevils more numerous in fields in southern counties. Probably peak emergence for this season. All fields scouted found infested; most considered heavy. Unless control started to protect small squares now forming, much damage can be expected in regularly infested portion of cotton-growing area. (Locke). ALABAMA - Emergence of overwintered weevils continues high throughout State. Egg laying high in fruiting cotton where suitable squares present; most cotton in northern area in presquaring stage. Square infestations high in southern and central areas; mostly 20-60 percent. "Hatchout" of first-generation weevils beginning in Montgomery County; should begin in all counties from Lee, Montgomery, Dallas, Sumter, and south during next 7 days. "Hatchout" more difficult to predict than in most years due to varying ages of cotton within counties and within fields. Controls applied in many southern counties, especially Clarke, Butler, Conecuh, Dale, Henry, and Covington. (McQueen). LOUISIANA - Punctured squares found in all of 67 fields examined in Madison Parish. Percent infestation ranged 4-46 (average 17). Single weevils found in each of 21 fields. (Cleveland et al.). MISSISSIPPI - Weevils found in 6 of 40 fields checked in delta counties; ranged 50-250 per acre. Punctured squares found in 36 of these fields. Percent punctured squares averaged 8.87 (range 0-44). (Pfrimmer et al.). TEXAS - Overwintered weevils found in High Plains area in one field in Kent County which is in Boll Weevil Control Zone. Weevils first found June 13 in field 4 miles southwest of Girard. (Rummel). Overwintered weevils found in 3 of 4 untreated fields and 4 of 11 treated fields in Waco area. Averaged 228 (maximum 500) per acre in untreated fields; averaged 78 (maximum 125) in treated fields. Percent punctured squares averaged 12.1 (maximum 29.6) in 5 untreated fields; averaged 2.7 (maximum 13) in 36 treated fields. "Hatchout" of new-generation weevils heavy in few fields of early cotton. Single weevil collected on flight screens. (Cowan et al.). OKLAHOMA - Peak adult migration to cotton in southwest area occurred since June 21 due to rains and warm weather. Heaviest infestation noted in Blair area of Jackson County; 62 percent of squares punctured and weevils 4-7 per 100 row feet. (Okla. Coop. Sur.).

BOLLWORMS (*Heliothis* spp.) - SOUTH CAROLINA - Larval infestations ranged 0-0.25 percent in treated plots in Florence area; none found in untreated plots. Total of 5 *H. zea* and 1 *H. virescens* moths taken in light traps; trap not operative part of period. (Taft et al., June 21). ALABAMA - Although eggs widely distributed on cotton throughout State, larvae not damaging except in few isolated fields. *H. zea* adults observed in fields in several counties. Beneficial insects destroying eggs and larvae in fields where insecticides not applied. (McQueen). MISSISSIPPI - Injured squares found in 26 of 40 fields checked in delta counties; averaged 2.17 (range 0-23) percent. Eggs found in 27 fields; averaged 1.36 per 100 terminals. (Pfrimmer et al.). LOUISIANA - Damaged squares found in 66 and larvae in 45 of 67 fields checked in Madison Parish. Eggs found in 11 and larvae in 18 of 34 fields where terminal examinations made. Three *H. zea* but no *H. virescens* moths taken in light trap. (Cleveland et al.). TEXAS - Eggs and light numbers of small larvae found in High Plains area in several Kent and Dickens County fields. (Rummel, June 20). Infestations remain generally light in Waco area; heavy in occasional field. Eggs average 1.2 (maximum 8) and larvae averaged 1.1 (maximum 4.5) per 100 terminals in 45 treated fields. Percent injured squares in 36 treated fields averaged 3.6 (maximum 18); in 5 untreated fields, percent injured squares averaged 3.5 (maximum 11). Percent injured bolls averaged 4.5 in one treated field and 7.4 in one untreated field. Of 145 bollworm larvae collected on cotton, 108 determined *H. virescens*. (Cowan et al.). ARIZONA - *H. zea* continues to increase in Pinal, Maricopa, and Yuma Counties; ranged 1-15 larvae per 100 plants. Egg counts remain heavy. (Ariz. Coop. Sur.).



**STALK BORER (Papaipema nebris)** - ALABAMA - Numerous injured stalks observed in Lawrence County fields. Common along field borders in northern counties. (Baits, Leeper).

**EUROPEAN CORN BORER (Ostrinia nubilalis)** - ALABAMA - Few larvae observed boring into stalks of fruiting cotton near old corn fields in Colbert County June 13. (Reid et al.).

**COTTON APHID (Aphis gossypii)** - NEW MEXICO - Present in most cotton in Dona Ana County; not heavy enough to damage. (Elson, Campbell).

**FLEAHOPPERS - OKLAHOMA** - Counts in Caddo County cotton ranged 5-18 Psallus seriatus and 3-6 probably Spanogonicus albofasciatus per 100 row feet. Counts in Jackson County taken with suction machine averaged 12.5 P. seriatus and 14.5 probably S. albofasciatus per 100 row feet. (Okla. Coop. Sur.). TEXAS - P. seriatus infestations remain light Waco area; however, increase noted. Averaged 4.1 (ranged 0-11) per 100 terminals in 45 treated fields and averaged 9.8 (ranged 1-19.2) in 8 untreated fields. (Cowan et al.).

**TARNISHED PLANT BUG (Lygus lineoloris)** - ALABAMA - Adults and nymphs numerous in most fields throughout State. Numbers and damage to squares, especially small squares, more noticeable in northern counties. Although some squares destroyed, numbers do not necessitate controls. (McQueen). MISSISSIPPI - Found in 27 fields in delta counties. Averaged 1.89 (range 0-26.5) per 100 terminals. (Pfrimmer et al.). LOUISIANA - Averaged 5.6 (range 1-24) per 100 sweeps in 48 of 58 untreated fields in Madison Parish; averaged 1.4 (ranged 1-2) in 15 treated fields checked. (Cleveland et al.).

**SAY STINK BUG (Pitiedia sayi)** - ARIZONA - Light in Tempe and Mesa areas, Maricopa County; averaged 2 per 100 plants. (Ariz. Coop. Sur.).

**THRIPS - OKLAHOMA** - Mostly Frankliniella spp. ranged 8-14 per 100 row feet in Caddo County; moderate to heavy in Washita County and light in Beckham County. (Okla. Coop. Sur.). NEW MEXICO - Damage evident on cotton in Animas and Cotton City area, Hidalgo County; however, thrips not heavy in fields. (Campbell, Hare). Cotton in Luna and Dona Ana Counties shows very little damage. (Campbell, Elson). Reported heavy in spots in Pecos Valley, with some fields being sprayed. (Mathews).

**SPIDER MITES - MISSISSIPPI** - Found in 5 of 40 fields checked in delta counties; heavy in one field, light in 4 fields. (Pfrimmer et al.).

#### TOBACCO

**TOBACCO FLEA BEETLE (Epitrix hirtipennis)** - MARYLAND - Averaged 6 adults per plant on newly set tobacco near Upper Marlboro, Prince Georges County. (U. Md., Ent. Dept.)

#### SUGARBEETS

**SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis)** - COLORADO - Larvae active on beets in Weld and Larimer Counties; 1-12 larvae per plant and 1-10 percent of plants wilting due to injury. No control satisfactory at this time. (Jenkins et al.). IDAHO - Sugarbeets showing damage; some beets dying near Rupert, Minidoka County. (Peay, June 18). NORTH DAKOTA - Adults abundant in beet fields in Walsh and Pembina Counties. Emergence began week of June 12; peak fly populations occurred week ending June 23. (Dogger).

**BEET WEBWORM (Loxostege sticticalis)** - COLORADO - Adults light in fields in Delta, Mesa, Weld, and Larimer Counties. Larval numbers light in Pueblo, Otero, Bent, and Prowers Counties. None found in Weld or Larimer Counties; trace numbers in

Delta and Mesa Counties. (Bulla, Schweissing, Jenkins). Trapping continues at Two Buttes and Rocky Ford. In Weld County, moths in traps gradually increasing. (Cambell et al.).

BEEB ARMYWORM (Spodoptera exigua) - CALIFORNIA - Larvae medium and damaging sugarbeet foliage in Blythe, Riverside County. (Cal. Coop. Rpt.).

STINK BUGS - COLORADO - Appearing in eastern Prowers County in area of Granada and Bristol; 1-40 per plant in infested fields. Damage to petioles appearing. (Schweissing).

#### POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW HAMPSHIRE - Greater numbers of adults than during last 2 years oviposited at Durham. (Sutherland, June 10). MASSACHUSETTS - Laying eggs where uncontrolled. Recent warm weather hastened hatch and development. (Crop Pest. Cont. Mess.). NEW YORK - Eggs heavy and hatching on Suffolk County potatoes. Serious at several locations in Orleans, Niagara, and Genesee Counties. (N. Y. Wkly. Rpt., June 19). NEW JERSEY - Generally light except in several fields where injury very extensive. (Ins.-Dis. Newsltr.). ALABAMA - Adults and larvae defoliated all potato plants in home garden in Etowah County. (Parker, Leeper). WISCONSIN - Larvae negligible in commercial potato field near Spring Green. (Wis. Ins. Sur.). COLORADO - Adults and larvae very spotty on potatoes in Weld County; ranged 0-400 per 100 sweeps. Control for heavy populations recommended. (Urano).

POTATO FLEA BEETLE (Epitrix cucumeris) - MICHIGAN - Remains problem in some fields. (Janes). RHODE ISLAND - Flea beetles, mainly this species, heavy on potato and tomato in Providence County. (King, June 16). MAINE - Moderate numbers caused light damage to tomatoes in Belmont and Brooks area. Light to moderate numbers caused light damage to potatoes in central area. (Boulanger, June 16). Small numbers of overwintered beetles caused light injury to potatoes in one field at Presque Isle. (Shands et al.).

DARKLING BEETLES (Blapstinus spp.) - ARIZONA - Larvae feeding on potato tubers in fields of Chino Valley, Yavapai County. (Ariz. Coop. Sur.).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Adults heavy in potato plantings in Visalia, Tulare County. (Cal. Coop. Rpt.).

BLACK CUTWORM (Agrotis ipsilon) - DELAWARE - Larvae common in several potato fields in New Castle and Kent Counties. Injury to vines very noticeable; some injury to tubers noted in 2 fields. (Burbutis). CALIFORNIA - Larvae heavy and damaging tomato fields in Orangevale, Sacramento County. (Cal. Coop. Rpt.).

POTATO TUBERWORM (Phthorimaea operculella) - ALABAMA - Present during last 60 days in potato fields in Baldwin County. (Strong, Poe et al.).

Potato Aphids in Maine - Due to unusually late spring, June 15 approximate date of spring migrations of Aphis nasturtii, Macrosiphum euphorbiae, and Myzus persicae in northeastern area. On early planted potatoes at Presque Isle, 53 percent of plants infested June 23-24. This is exceptionally large percentage for time of season. A. nasturtii dominant; only trace numbers of Macrosiphum euphorbiae noted. Survey made June 16-17 to determine abundance of Myzus persicae on primary host Canada thistle. Infestations found on 4 of 28 thickets examined. Colonies not abundant in any infested thickets in vicinities of Presque Isle and Monticello. (Shands et al.).

## BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Larvae very abundant and feeding on beans in De Kalb County. (Moore, Leeper). COLORADO - Not found in fields checked in Pueblo, Crowley, Otero, and Weld Counties. Inspections urged. (Schweissing, Jenkins).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Adults heavy in bean plantings in Visalia, Tulare County. (Cal. Coop. Rpt.).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Very low in peas in southern half of State. Up to 3 per sweep rare. Parasitism evident. (Wis. Ins. Sur.).

THRIPS - MARYLAND - Heavy on 50 acres of snap beans in St. Marys County. (U. Md., Ent. Dept.).

## COLE CROPS

FLEA BEETLES - NEW YORK - Very active in Ontario County; variable in Monroe County cabbage. (N. Y. Wkly. Rpt., June 19). RHODE ISLAND - Flea beetles mainly Epitrix cucumeris, heavy on radish in Providence County. (King, June 16).

RED TURNIP BEETLE (Entomoscelis americana) - WISCONSIN - Caused some damage on radishes near Almond, Waushara County. (Wis. Ins. Sur.).

IMPORTED CABBAGEWORM (Pieris rapae) - NEW HAMPSHIRE - Oviposited at Litchfield June 13. (Sutherland). NEW YORK - Adults and eggs scarce in Yates and Ontario Counties. In early set cabbage fields in Orlenas, Niagara, and Genesee Counties. Adults scarce in Monroe County. (N. Y. Wkly. Rpt., June 19).

DIAMONDBACK MOTH (Plutella xylostella) - NEW JERSEY - Large flight near New Market, Middlesex County, June 21. (Ins.-Dis. Newsltr.).

GREEN PEACH APHID (Myzus persicae) - NEW JERSEY - Appearing on escarole and curly endive. (Ins.-Dis. Newsltr.).

CABBAGE MAGGOT (Hylemya brassicae) - NEW YORK - Eggs numerous in Ontario County; some hatching. (N. Y. Wkly. Rpt., June 12).

## CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittatum) - COLORADO - Numbers very low in cantaloup fields in Arkansas Valley area; ranging 0-2 per 50 plants. Inspections urged. (Schweissing). IOWA - Ranged 8-14 adults per 2-5 plant hills of cucumbers and cantaloup in Polk County gardens. (Iowa Ins. Sur.). NEW JERSEY - More abundant on cucurbits than same time last week. (Ins.-Dis. Newsltr.).

POTATO FLEA BEETLE (Epitrix cucumeris) - MAINE - Moderate numbers caused light damage to cucumbers, squash, and melons in Belmont and Brooks area. (Boulanger, June 16).

SQUASH BUG (Anasa tristis) - OKLAHOMA - Eggs appearing on squash in Mayes and Payne Counties; moderate on squash in Bryan and Washita Counties. (Okla. Coop. Sur.).

## GENERAL VEGETABLES

ASPARAGUS BEETLE (Crioceris asparagi) - PENNSYLVANIA - Eggs on over 50 percent of asparagus spears in Centre County. Ferns defoliated. (Udine). OHIO - Larvae and adults of this species and C. duodecimpunctata numerous on asparagus in eastern Columbiana County. (Custer).

APHIDS - NEW JERSEY - Aphids, particularly Myzus persicae, will increase to economic levels on many vegetable crops; growers advised to spray early and often. (Ins.-Dis. Newltr.).

FOUR-LINED PLANT BUG (Poecilocapsus lineatus) - MICHIGAN - Adults and nymphs extremely numerous in central area counties. Feeding injury widespread and heavy on vegetables, ornamentals, and weeds in Livingston, Ingham, and Shiawassee Counties. (Dowdy).

PARSLEYWORM (Papilio polyxenes asterius) - NEW JERSEY - In commercial planting of parsley near Fairfield. (Ins.-Dis. Newltr.).

ONION THRIPS (Thrips tabaci) - COLORADO - Building up rapidly in untreated onion fields in Arkansas Valley; up to 40 per plant. (Schweissing). NEW YORK - In most Suffolk County onion fields. (N. Y. Wkly. Rpt., June 19).

ONION MAGGOT (Hylemya antiqua) - COLORADO - Damaging onions in Vineland and St. Charles Mesa areas, Pueblo County. Ranged 1-10 percent in infested fields. (Schweissing).

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Weather continued from page 556.

TEMPERATURE: Hot and humid weather continued across the South from Texas to the Atlantic; it was the 3d or 4th warm week in many areas. This was the 2d warm week along the Pacific coast and the southwestern desert areas turned seasonably hot. Needles, California, was above 100° on 6 days and to 115° on one of these. Cool air covered the Great Lakes region and the northern Plains averaged 6° to 10° below normal. (Summary supplied by Environmental Data Service, ESSA).

## DECIDUOUS FRUITS AND NUTS

CODLING MOTH (*Carpocapsa pomonella*) - MISSOURI - Some entries in unsprayed trees in southeast area June 15. Entries heavy June 15 in unsprayed central area orchards; first-brood larvae have left apples to pupate. (Wkly. Rpt. Fr. Grs.). WISCONSIN - Small larvae in apple fruit. (Wis. Ins. Sur.). MICHIGAN - First larval entry into apples in Ionia, June 6. (Wooley). INDIANA - Few adults of overwintering generation noted at Vincennes. Larvae in apples ranged from very small to full grown. First-brood damage ranged 6-15 percent of apples sampled in 3 local orchards. (Dolphin, June 19). OHIO - First full-grown larvae of first generation under collection bands on apple trees in Wayne County June 21. (Forsythe). MARYLAND - Small larvae continue to enter apples but moth emergence complete at Hancock, Washington County. (U. Md., Ent. Dept.). NEW YORK - Heavy egg laying without fruit entries in Ulster County; eggs but no entries in Columbia County. (N. Y. Wkly. Rpt., June 19). MASSACHUSETTS - Adults active for 7 days or more but few eggs laid; earliest laid eggs hatched. (Crop Pest Cont. Mess., June 19). MAINE - First male adult in bait trap at Monmouth, Kennebec County, June 16; pupation 10 percent in overwintered material. (Boulanger, June 16).

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - MISSOURI - Some activity on peach twigs in southeast area. (Wkly. Rpt. Fr. Grs., June 15). INDIANA - First summer-brood adults emerging at Vincennes June 6-12; 19 collected in bait pans, compared with one previous week. Almost full-grown larvae fed in peach fruit. Adults in bait jars decreased to 9 June 13-19. (Dolphin). OHIO - Flagging injury to terminal branches of peach trees more evident in Wayne County; 5-10 dead terminals on some young unsprayed trees. (Forsythe).

PEACH TREE BORER (*Sanninoidea exitiosa*) - NEW MEXICO - Heavy; killing some peach trees 3 years and older in Bernalillo, Sandoval and Valencia Counties; pupae on many. (Heninger). OHIO - Severely infested Wayne County nectarine tree. Pupation in progress. Ten pupae and one larva at base of tree. (Forsythe).

LESSER PEACH TREE BORER (*Synanthedon pictipes*) - INDIANA - Trapped 206 males June 6-12 at Vincennes orchard, marked increase over 69 of previous week. Total of 196 males taken June 13-19. (Dolphin).

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - MARYLAND - Some pupation on apples at Hancock, Washington County. (U. Md., Ent. Dept., June 20). INDIANA - Total of 595 males captured in 20 virgin female traps at Vincennes, compared with 918 previous week; indicates emergence of first summer-brood declining. Some hatched eggs found on apple fruit. Damage by first brood to unsprayed apple fruit ranged 1-6 percent in several orchards. (Dolphin, June 19).

FALL WEBWORM (*Hyphantria cunea*) - INDIANA - Well-developed webs in unsprayed apple trees at Vincennes; largest larvae one inch long. Egg-laying females still in trees. (Dolphin, June 12). ALABAMA - Considerable increase of broods in pecan trees in Mobile County. (Vickery).

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - WISCONSIN - Caused heavy damage in unsprayed orchards at many sites in Dane and Rock Counties. Some larvae still present. (Wis. Ins. Sur.).

PEACH TWIG BORER (*Anarsia lineatella*) - INDIANA - Half-grown larvae in fruit at Vincennes. (Dolphin, June 12).

PLUM CURCULIO (*Conotrachelus nenuphar*) - WISCONSIN - Scars generally high in untreated apple orchards in Dane and Rock Counties. (Wis. Ins. Sur.). MICHIGAN Larvae small, June 13, eggs still laid. (Wooley). INDIANA - Full-grown larvae in unsprayed ripe peaches June 6-12 most common fruit pest in an unsprayed orchard at Vincennes. Feeding and oviposition damage June 13-19, 4-18 percent in research plots and 59-79 percent in abandoned orchard. Many prepupae left ripe peaches to seek pupation sites. (Dolphin). OHIO - First full-grown larvae of season emerging from dropped plums in Wayne County. Injury extensive on

unsprayed plums, cherries, and apples. (Forsythe). NEW YORK - Egg laying continued in Ulster County; egg-laying scars on apples June 14. (N. Y. Wkly. Rpt.) CONNECTICUT - Damage increased but below normal levels. (Savos, June 21). VERMONT - Activity peaked. (MacCollom, June 19).

SHOT-HOLE BORER (*Scolytus rugulosus*) - NEW MEXICO - Damaged 50-75 percent of peach trees in Bernalillo, Sandoval, and Santa Fe Counties. (Heninger).

A FALSE POWDER-POST BEETLE (*Melalgus confertus*) - CALIFORNIA - Medium in apple trees at Weott, Humboldt County. Adults bored into limbs from broken ends of twigs. (Cal. Coop. Rpt.).

APPLE APHID (*Aphis pomi*) - MAINE - Increasing earlier than usual; ranged up to heavy numbers but damage light. (Boulanger, June 16). MASSACHUSETTS - Light in many orchards. (Crop. Pest Cont. Mess., June 19). CONNECTICUT - Destroyed by heavy rains, but increased rapidly. (Savos, June 21). OHIO - Increasing on apple foliage in Wayne County. Colonies on distal leaves of new vegetative shoots. (Forsythe). INDIANA - Increasing in Vincennes fruit orchards June 6-12; declining June 13-19. (Dolphin). MISSOURI - On young terminal shoots in unsprayed orchard in central area. (Wkly. Rpt. Fr. Grs.). NEW MEXICO - Infested 10-30 percent or more of new leaves in young orchards at Belen, Valencia County. (Heninger).

ROSY APPLE APHID (*Dysaphis plantaginea*) - CONNECTICUT - Present in most orchards at Bantam and New Haven but no longer problem. (Savos, June 21). INDIANA - Declining in Vincennes fruit orchard. (Dolphin, June 19). COLORADO - Colonies mostly gone from apple orchards; winged migrant forms in Delta and Mesa Counties. Fruit injury moderate to heavy when not controlled early in season. (Bulla).

WOOLLY APPLE APHID (*Eriosoma lanigerum*) - COLORADO - Colonies appearing in some orchards in Mesa and Delta Counties. Controls needed in some orchards. (Bulla). NEW MEXICO - Heavy on large apple trees in Santa Fe. Most intreated trees show large amounts of honeydew. (Heninger).

TEPHRITID FLIES (*Rhagoletis* spp.) - MICHIGAN - *R. fausta* emerged near Benzonia, Benzie County, June 13. *R. cingulata* started emergence June 15-16 at Grand Rapids, Kent County, and at Hart, Oceana County. (Dowdy). OHIO - First *R. pomonella* adult on stickyboard in Wayne County June 22. (Still). NEW YORK - No *R. pomonella* in cages in Columbia County. (N. Y. Wkly. Rpt., June 19).

LEAFHOPPERS - MISSOURI - Damage light to moderate on unsprayed trees in central area. (Wkly. Rpt. Fr. Grs.). WISCONSIN - Adults and nymphs of *Empoasca maligna* and *Typhlocyba pomaria* prevalent at several locations; damage noticeable. (Wis. Ins. Sur.).

EUROPEAN APPLE SAWFLY (*Hoplocampa testudinea*) - CONNECTICUT - Most larvae full grown. (Savos, June 21). NEW YORK - Fruit damage evident in Columbia County. (N. Y. Wkly. Rpt., June 19).

PEAR-SLUG (*Caliroa cerasi*) - VIRGINIA - Larvae 2-4 per leaf feeding on cherry and plum in Warren County. (Isakson, Owing, June 20).

EUROPEAN RED MITE (*Panonychus ulmi*) - MAINE - Adult females and summer eggs abundant on untreated check trees at Monmouth, Kennebec County; summer eggs expected to hatch June 18-24. (Boulanger, June 16). VERMONT - High temperatures favored buildup. (MacCollom, June 19). MASSACHUSETTS - Began rapid increase due to high temperatures. (Crop Pest Cont. Mess., June 19). CONNECTICUT - Present in many orchards. (Savos, June 21). NEW YORK - Very little activity in Ulster County. Still light in oil-treated Columbia County orchards. (N. Y. Wkly. Rpt., June 19). MARYLAND - Increasing with warm weather on apples at Hancock, Washington County. (U. Md., Ent. Dept.). OHIO - Increase expected in apple orchards over State with extended periods of warm temperatures.

Insignificant numbers in Erie and Ashland County apple orchards. Approximately 18 per leaf in commercial apple orchard in Licking County. Summer eggs very common on leaves checked. (Rose). Some increase averaged 9 per leaf in Wayne County in block insecticide-treated apple trees. (Forsythe). INDIANA - Increasing; 1.10-2.50 mobile forms in unsprayed apple orchard at Vincennes June 6-12; 2.30-10.65 June 13-19. (Dolphin). MISSOURI - Heavier on apples than peaches in southeast; in central area up to 40 per leaf in spots. (Munson).

SPIDER MITES (Tetranychus spp.) - MISSOURI - In some peach orchards in Crowley Ridge area; on apples in southeast and central areas. Buildup appears spotty. (Munson). INDIANA - T. urticae increasing; 0-0.25 per leaf in unsprayed apple orchard at Vincennes June 6-12; 0.05-3.45 per leaf June 13-19. (Dolphin). OHIO - T. urticae averaged 5 per leaf on some apple trees in neglected Erie County orchard. (Rose, June 21). MARYLAND - Tetranychus spp. increasing with warm weather on apples at Hancock, Washington County. (U. Md., Ent. Dept.). CONNECTICUT - Tetranychus sp. present in many orchards. (Savos, June 21).

PEAR RUST MITE (Epitrimerus pyri) - COLORADO - Russetting leaves in some Mesa County pear orchards. More prevalent than usual due to lack of sprays where fruit crop froze. (Bulla).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - First reported drop of pecan nuts of season at Auburn, Lee County, due to first-generation larvae entering small nuts. About half of nuts falling under one tree due to this species; remainder from undetermined causes. (Bagby).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Infestation averaged 8 percent in unsprayed orchards in Okfusgee County. (Okla. Coop. Sur.).

APHIDS (Monellia spp.) - ALABAMA - Becoming heavy on leaves in pecan orchards in Bullock, Mobile, and Baldwin Counties; difficulty with controls in coastal counties. (Vickery et al.). NEW MEXICO - Controls for M. costalis applied mostly on larger pecan plantings in Dona Ana County. (Campbell).

## CITRUS

Citrus Insect Situation in Florida - Mid-June - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 54 percent of groves (norm 38 percent); 36 percent economic (norm 18 percent). Population decreased but still higher than average for June. Further decrease expected, followed by increase in July. Statewide population will continue above normal with numerous heavy infestations in all districts. Highest districts south, central, west, and north. TEXAS CITRUS MITE (Eutetranychus banksi) infested 83 percent of groves (norm 64 percent); 66 percent economic (norm 42 percent). Population increased, established new high for mid-June. Further increase to new high level predicated with little downward trend until late July. All districts high. CITRUS RED MITE (Panonychus citri) infested 61 percent of groves (norm 64 percent); 35 percent economic (norm 42 percent). Summer increase started and will continue into July. Some heavy infestations will occur in all districts but statewide population not expected to exceed normal summer level. Highest districts east, west, and north. GLOVER SCALE (Lepidosaphes gloverii) infested 91 percent of groves; 31 percent economic. Population above average and in high range with downward trend expected. Highest districts east, south, central, and west. PURPLE SCALE (L. beckii) infested 79 percent of groves; 6 percent economic. Population decreased below normal summer level. This scale is unimportant and no change expected. Highest district central. BLACK SCALE (Saissetia oleae) infested 71 percent of groves; 44 percent economic. Sharply increased into high range. Further increase will occur through mid-July. Summer peak expected to be near normal level. All districts high. CHAFF SCALE (Parlatoria pergandii) infested 75 percent of groves; 12 percent economic. Increased to moderate range but still below normal abundance. Little change expected. Highest districts central and east. YELLOW SCALE (Aonidiella citrina) infested 71 percent of groves; 3 percent economic.

Population will remain in moderate range and infestations will be light. Highest district central. An ARMORED SCALE (Unaspis citri) is above normal abundance and increasing. MEALYBUGS infested 70 percent of groves; 16 percent economic. Population increased almost to high range. Expected to hold near this level which is lower than summer peak of past 3 years. WHITEFLIES infested 68 percent of groves; 23 percent economic. Population of larval forms near summer peak at average level. Adults will become more numerous. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

#### SMALL FRUITS

CRANBERRY FRUITWORM (Acrobasis vaccinii) - MASSACHUSETTS - Flight started June 11 at East Wareham, Plymouth County; common on warm nights in cranberry bogs and cultivated blueberry fields. (Tomlinson, June 16). NEW JERSEY - Entries in untreated blueberry area increased from 36 to 18 per 100 fruit clusters June 15-21. Peak period of activity. (Ins.-Dis. Newsltr.).

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - RHODE ISLAND - Larvae and pupae numerous around strawberry roots at West Kingston, Washington County. (Mathewson, June 12).

A GRAPE CANE GIRDLER (Ampelogypter ater) - OHIO - Larvae abundant this year on backyard grapevines as well as in commercial vineyards in northern area. (Still).

BLUEBERRY THRIPS (Frankliniella vaccinii) - MAINE - Numbers and damage moderate at Freeport, Cumberland County, but substantial at Cherryfield, Washington County. (Boulanger, June 16).

#### ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - OKLAHOMA - Heavy on juniper at Stillwater, Payne County, and Perry, Noble County; moderate in Beckham and Cleveland Counties. (Okla. Coop. Sur.).

ARMORED SCALES - CALIFORNIA - Hemiberlesia lataniae adults heavy on Japanese maple nursery stock in San Diego, San Diego County. (Cal. Coop. Rpt.). FLORIDA - Pinnaspis aspidistrae adults severe on 15 percent of 2,000 liriope plants at nursery in Dover, Hillsborough County. (Simmons, June 14).

GLOBOSE SCALE (Lecanium prunastri) - DELAWARE - Young crawlers on ornamental plum in New Castle County area. (MacCreary).

A FLATID PLANTHOPPER (Anormenis septentrionalis) - ALABAMA - Numerous nymphs feeding on new growth of azaleas, camellias, dahlias, and many other plants throughout southern, central, and much of northern areas; damage not serious. Growers and homeowners concerned for several weeks in Mobile, Lee, Bibb, Franklin Winston, and other counties. Mostly adults as far north as Winston County. (Seibels et al.).

WEEVILS - MARYLAND - Apion longirostre adults heavy on hollyhock at University Park, Prince Georges County. (U. Md., Ent. Dept.). RHODE ISLAND - Brachyrhinus sulcatus pupating in North Kingstown, Washington County. (Hartley).

SPIDER MITES - CALIFORNIA - Eurytetranychus buxi heavy on boxwood hedges generally in Ontario, San Bernardino County. Tetranychus telarius medium on boxwood nursery stock in Escondido, San Diego County. (Cal. Coop. Rpt.).



FOREST AND SHAD TREES

CANKERWORMS - NEW YORK - Peak descendance from trees at Riverhead, Suffolk County, June 11; some still present June 16. Numbers medium in Nassau County. (N. Y. Wkly. Rpt.). PENNSYLVANIA - Mainly Alsophila pomataria heavily defoliated oak and other hardwoods at Schickshinny, Luzerne County. (Jeffery, June 15).

SATIN MOTH (Stilpnotia salicis) - MAINE - Increasing in most areas. On poplar at Pittsfield, Somerset County, moderate numbers defoliated some trees; at Portland and South Portland, Cumberland County, numbers and damage heavy; at Corinna, Penobscot County, heavy numbers, moderate damage. (Boulanger, June 16). NEW HAMPSHIRE - First report. Defoliated 90 percent of 2 large heartleaf balsam poplar trees at Haverhill, Grafton County. (Kinder, Hutchins, June 13). VERMONT - Larvae heavy and pupating on lombardy poplar in Chittenden County. (MacCollom, June 19).

PINE NEEDLE MINER (Exoteleia pinifoliella) - CONNECTICUT - Heavy on pitch pine in Litchfield, Hartford, Tolland, and Middlesex Counties; tips of all needles brown and dead. Principal area of general outbreak in Hartford and Tolland Counties with bordering areas of other counties. Det. by J. P. Johnson. (Lovell).

TENT CATERPILLARS (Malacosoma spp.) - MAINE - M. americanum infestations and damage evident in most areas. (Boulanger, June 16). NEW HAMPSHIRE - M. americanum pupating at Durham June 14. (Sutherland). UTAH - M. disstria damaged bitterbush, serviceberry, chokecherry and wild rose in ranch area of Blacksmith Fork Canyon, Cache County. (Doell, Knowlton).

A PHYCITID MOTH (Acrobasis betulella) - NEW HAMPSHIRE - Very common on white and gray birch throughout State. Defoliation of some young trees severe at Boscawen, Merrimack County. (Mason, Hutchins, June 14).

A SHIELD BEARER (Coptodisca sp.) - ARIZONA - Larvae severely defoliated many cottonwood trees in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

TORTRICID MOTHS (Choristoneura spp.) - MINNESOTA - Mostly third instars of C. pinus in Park Rapids and Bemidji area; few second and fourth instars present. C. fumiferana light on white and black spruce in Duluth area nurseries. (Minn. Ins. Rpt.).

OLETHREUTID MOTHS - MICHIGAN - Eucosma gloriola larval feeding becoming evident; wilting, discolored shoots. (Wallner). OKLAHOMA - Second to fourth instars of Rhyacionia frustrana heavy in pine tips in Payne County. (Okla. Coop. Sur.).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - ALABAMA - Adults and larvae active on isolated pine trees in Lee, Baldwin, and other counties. (Turner et al.).

ENGRAVER BEETLES (Ips spp.) - NEBRASKA - Heavy in Nebraska National Forest near Halsey. (Keith). MAINE - Numbers and damage of I. pini heavy on white pine at Falmouth Foreside, Cumberland County; injured trees transplanted last fall. Heavy sap flow prevents insects from being established. (Boulanger, June 16).

FIR ENGRAVER (Scolytus ventralis) - CALIFORNIA - Heavily damaged white fir in Nevada and Modoc Counties. Killing trees from Christmas tree size to poles and saplings along Interstate Highway 80 and Cedar Pass area; trees not affected in 1966. Pupae and adults on south side of trees, larvae on north side. (Cal. Coop. Rpt.).

PINE CHAFER (Anomala obliqua) - MICHIGAN - Adults feeding on needles of plantation pines. (Wallner).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - OKLAHOMA - Numerous adults continue to emerge in Payne County. (Okla. Coop. Sur.).

NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) - NORTH DAKOTA - Adults collected June 16 in window trap at La Moure, La Moure County, for new county record. (Brandvik).

A BARK BEETLE (Hylurgops subcostulatus) - CALIFORNIA - Adults medium in Jeffrey pine at Doyle, Plumas County. (Cal. Coop. Rpt.).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEW MEXICO - Heavy on Siberian elm; skeletonized all leaves on many limbs at Albuquerque, Bernalillo County. (Heninger). OKLAHOMA - Averaged 5 adults and 20 larvae per 100 leaves on Siberian elm in Tulsa County. (Okla. Coop. Sur.). MISSOURI - First-generation larvae pupating in southwest area June 18-24; damage light. (Munson). NEBRASKA - Averaged 4 larvae per leaf on elms at Wahoo, Saunders County. (White, June 18). IOWA - Nearly full-grown larvae and eggs collected June 17-18 at Brighton, Washington County, for new county record. (Gunderson). ILLINOIS - Seriously defoliated some Chinese elm trees in central sections. (Ill. Ins. Sur.). ALABAMA - Increased activity of first-generation larvae on elm trees along city streets in Lee, Tallapoosa, and Dallas Counties. (McQueen).

ELM BORER (Saperda tridentata) - NORTH DAKOTA - Heavy larval populations damaged elm at Walhalla, Pembina County; pupae present. Controls applied. (McBride).

BIRCH LEAF MINER (Fenusa pusilla) - RHODE ISLAND - Mined leaves conspicuous statewide. (Mathewson, June 16). CONNECTICUT - Second generation expected to be active within next 7 days. (Savos, June 24). OHIO - Light on leaves in block of 200 birch trees 3-4 feet high in Delaware County June 2 (Galford); infested birch reported in Wayne County June 15 (Miller). MINNESOTA - Appearing on white birch at Duluth. (Minn. Ins. Rpt.).

SAWFLIES - NORTH DAKOTA - Nematus ventralis larvae damaging willow at Cooperstown Griggs County, and Lakota, Nelson County. Controls applied. (McBride). IOWA - Tethida cordigera larvae damaged green ash in Alleman, Polk County. (Iowa. Ins. Sur.)

CONIFER SAWFLIES - CONNECTICUT - Various species feeding and stripping needled evergreens throughout State. (Savos, June 24). OHIO - Neodiprion sertifer larval damage to various pines ended for 1967. Pupation begun in Ashland County where extensive infestations previously reported. (Rose). MINNESOTA - Mostly Diprion similis adults, laying eggs in Park Rapids and Bemidji area. (Minn. Ins. Rpt.).

SOFT SCALES - OHIO - Lecanium fletcheri hatched; crawlers moving about on yew in Lake County. (Campbell). Pulvinaria innumerabilis severe on maple and box-elder trees in Delaware County. (Burns, Galford). PENNSYLVANIA - P. innumerabilis eggs under females June 21 on Montgomery County maple. (Stearns).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - NEW HAMPSHIRE - Crawlers active at Lisbon and Warren, Grafton County. (Mason, Hutchins, June 13). MINNESOTA - Treatments for crawler stage recommended at Duluth, St. Louis County, and northward. (Minn. Ins. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - MINNESOTA - Treatments for crawler stage recommended at Duluth, St. Louis County, and northward. (Minn. Ins. Rpt.). IOWA - Winged males on pine at Des Moines, Polk County, and Ames, Story County. (Gunderson, Mast).

CHERMIDS - NEW HAMPSHIRE - Pineus pinifoliae adults leaving galls on spruce at Durham, Strafford County. (Sutherland, June 11). Adelges abietis forming galls at Durham. (Conklin, June 12).

PINE SPITTLEBUG (Aphrophora parallela) - VIRGINIA - Larvae found on most planted loblolly pines at Caroline County location. (Moody, Isakson, June 16).

A SPIDER MITE (*Oligonychus milleri*) - MISSOURI - Collected and det. by S. E. Thewke at Columbia, Boone County, June 18. This is a new State record. Light to heavy on new growth of shortleaf pine. (Munson).

#### MAN AND ANIMALS

MOSQUITOES - NEVADA - Mostly adults of *Aedes dorsalis* and *A. melanimon* extremely heavy in areas of Churchill, Lyon, Pershing, and southern Washoe Counties; annoyed humans and livestock. (Nev. Coop. Rpt.). UTAH - Annoying in Mendon, Cache Junction, and Benson areas of Cache County. (Knowlton). NEBRASKA - Increase rapid mostly in flooded eastern areas. *Aedes vexans* averaged 50 bites per man a minute in Lancaster County. (Raun, June 21). MINNESOTA - Of 2,442 larval samples June 12-17, *Aedes vexans* in 1,708. Light trap collections contained 1,291 females: 676 *Aedes abserratus*, 76 *A. vexans*, 206 *Anopheles walkeri*. First *Mansonia perturbans* adults in light trap and bite collections. Very heavy and frequent rains since June 5 produced one of the largest broods of *Aedes vexans* in several years; significant adult emergence in progress. (Minn. Ins. Rpt.). MICHIGAN - *Aedes* spp. adults present over much of Lower Peninsula but rapidly declining. (Dowdy). VERMONT - Annoying in many areas. (MacCollom, June 19). MAINE - Heavy numbers severely annoying in all areas. (Boulanger, June 16). RHODE ISLAND - Heavy Statewide. (Mathewson, King, June 16). CONNECTICUT - Still annoying Statewide. (Savos, June 24). SOUTH CAROLINA - Buildup heavy in Clemson area first 2 weeks of June. Controls successful. (Nettles et al., June 20). LOUISIANA - Larvae collected June 10-23: *Aedes vexans*, *Anopheles crucians*, *Culex pipiens quinquefasciatus*, *C. salinarius*; *C. restuans* June 10-16 only. *Aedes vexans* and *C. salinarius* dominated light trap collections throughout Jefferson Parish. (Heavey, Stokes).

CHIGGER MITES (*Eutrochicula* spp.) - OKLAHOMA - Heavy and annoying man in McCurtain, Choctaw, and Mayes Counties; remain light in Cherokee and Muskogee Counties. (Okla. Coop. Sur.).

SCREW-WORM (*Cochliomyia hominivorax*) - Total of 4 cases reported in U.S. June 18-24 as follows: TEXAS - Terrell 1, Kendall 1, Crockett 1; ARIZONA - Maricopa 1. Total of 58 cases reported in portion of Barrier Zone in Republic of Mexico June 11-17 as follows: Territorio sur de Baja California 22, Sonora 13, Chihuahua 5, Coahuila 2, Nuevo Leon 2, Tamaulipas 14. Total of 33 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile flies released June 18-24: Texas 15,808,000; Arizona 1,720,000; Mexico 120,404,000. (Anim. Health Div.).

HORN FLY (*Haematobia irritans*) - IDAHO - Heavy in Moscow, Latah County. (Graves, June 19). UTAH - Annoying cattle at Brigham City, Box Elder County, and at Ogden, Weber County. (Knowlton). NEBRASKA - Ranged 25-150, averaged about 75 per head on 7 Herefords in Otoe County. (Keith, June 19). OKLAHOMA - Averaged 500 per head on steers in Muskogee, Cherokee, and Payne Counties; heavy in Mayes County; moderate in Cleveland County. (Okla. Coop. Sur.). ALABAMA - Adults heavy, 300-500 per head June 13 in Colbert County on large herd of beef cattle. Other herds in area relatively free. (McQueen). MARYLAND - Light on dairy cattle at Buckeystown, Frederick County. (U. Md., Ent. Dept.). NEW JERSEY - Continues to increase rapidly throughout State on dairy animals. Controls recommended. (Ins.-Dis. Newsltr.). INDIANA - Averaged 130 per animal in Fair Oaks area of Newton and Jasper Counties. (Huber). MICHIGAN - Recently annoying to cattle herds in central area. (Dowdy).

FACE FLY (*Musca autumnalis*) - VERMONT - Averaged 25-30 per head on pastured cattle in Addison County. (MacCollom, June 19). MARYLAND - Averaged 9 per head on 42 Holstein cows checked at Buckeystown, Frederick County. (U. Md., Ent. Dept.). INDIANA - Ranged 4-15 per face on pastured cattle in Pulaski, Jasper, and Newton

Counties. (Huber). MICHIGAN - Recently annoying to cattle herds in central area. (Dowdy). NEBRASKA - Only 1 on 7 Herefords in Otoe County. (Keith, June 19). IDAHO - Ranged 3-50 per head of cattle in Moscow, Latah County. (Graves, June 19).

STABLE FLY (*Stomoxys calcitrans*) - MARYLAND - Averaged 3 per head on 42 Holstein cows checked at Buckeystown, Frederick County. (U. Md., Ent. Dept.). NEBRASKA - First adults in Lancaster County. Still low but buildup expected due to rotting vegetation left by flood waters. (Raun).

HOUSE FLY (*Musca domestica*) - NEW JERSEY - Continues to increase rapidly throughout State on dairy animals and poultry. Controls recommended for dairy animals and urged immediately for poultry. (Ins.-Dis. Newsltr.).

BLACKFLIES - MAINE - Annoyance from high numbers and activity severe in all areas. (Boulanger, June 16). VERMONT - Annoying in many areas. (MacCollom, June 19).

HORSE FLIES - VERMONT - Prevalent on pastured cattle in Addison County. (MacCollom, June 19). OKLAHOMA - Counts per head of cattle in Muskogee and Cherokee Counties as follows: *Tabanus lineola* complex 4-5 in lowland areas, *T. atratus* 0.5-1, *T. abactor* 1; *Chlorotabanus crepuscularis* 2-3 per 10 head. (Okla. Coop. Sur.).

TICKS - OKLAHOMA - *Amblyomma americanum* larvae not as numerous as expected in Cherokee and Muskogee Counties. *Dermacentor variabilis* adults active; comprise 4-5 percent of ticks taken by sweeping brush. (Okla. Coop. Sur.). MINNESOTA - *D. variabilis* numerous and troublesome in many areas. (Minn. Ins. Rpt.).

#### BENEFICIAL INSECTS

LADY BEETLES - NEW MEXICO - Very abundant in most areas. (N. M. Coop. Rpt.). NEBRASKA - Ranged 1-7 per 10 sweeps in Otoe, Nemaha, Johnson, and Saunders County alfalfa. (Keith, June 19,20). OKLAHOMA - *Hippodamia convergens* ranged 3-8 per 100 cotton plants in Jackson, Harmon, Greer, and Caddo Counties. (Okla. Coop. Sur.). ALABAMA - *H. convergens* most widespread lady beetle in cotton throughout State; feeding on aphids, bollworm eggs, and other insects. *Coleomegilla maculata fuscilabris* present in cotton throughout State; probably second most important lady beetle in cotton, corn, and other crops. (McQueen).

MELYRID BEETLES (*Collops* spp.) - OKLAHOMA - Ranged 2-10 per 100 cotton plants in Jackson, Harmon, Greer, and Caddo Counties. (Okla. Coop. Sur.). NEW MEXICO - Very abundant in most areas. (M. M. Coop. Rpt.).

DAMSEL BUGS (*Nabis* spp.) - NEW MEXICO - Very abundant in most areas. (N. M. Coop. Rpt.). NEBRASKA - Ranged 0-12 per 10 sweeps on alfalfa in Otoe, Nemaha, Johnson, and Saunders Counties. (Keith, June 20). ARKANSAS - One of two principal predators in soybeans in all areas; adults and nymphs present. (Ark. Ins. Sur.). ALABAMA - Numerous and exerting some control of bollworms in cotton fields throughout State. Averaged one per 5 feet of row in most fields. (McQueen).

A BIG-EYED BUG (*Geocoris punctipes*) - ALABAMA - Adults and nymphs heavy in cotton, corn, and vegetable crops throughout State; feeding on bollworm eggs, small bollworm larvae, and other insects. (McQueen). ARKANSAS - One of two principal predators in soybeans in all areas; adults and nymphs present. (Ark. Ins. Sur.).

FLOWER BUGS (*Orius* spp.) - NEW MEXICO - Very abundant in most areas. (N. M. Coop. Rpt.). ALABAMA - Large numbers destroying numerous *H. zea* eggs on corn silks throughout State. Numbers lower in cotton fields, vegetable gardens, and other crops. (McQueen). ARKANSAS - *O. insidiosus* adults and nymphs in soybeans. Several hundred per 100 sweeps in Lafayette County alfalfa. (Ark. Ins. Sur.). OKLAHOMA - *O. insidiosus* ranged 2-5 per 100 cotton plants in Jackson, Harmon, Greer, and Caddo Counties. (Okla. Coop. Sur.).

HONEY BEE (*Apis mellifera*) - NEW MEXICO - In good condition over State despite dry weather. Recent rains should bring some desert bloom which will aid bees to make surplus of honey. (N. M. Coop. Rpt.).

ALKALI BEE (*Nomia melanderi*) - IDAHO - Adults found for first time this season in Marsing, Owyhee County, at 3 different beds June 15. (Homan).

A LEAFCUTTING BEE (*Megachile rotundata*) - IDAHO - First emergence at Parma and Wilder, Canyon County, June 10. (Waters). Emerging from wood near Wilder without incubation or refrigeration. (Portman).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - NEW MEXICO - Widespread in alfalfa fields; nymphs of various instars damaging in Bernalillo County. (Heninger). WYOMING - Overwintering species reported heavy in some areas. Cool, wet weather apparently delayed general hatch; no economic infestations found. MONTANA - Extremely cold weather during May retarded hatch; occasional nymphs observed through May 31 in 12 areas checked. (PPC West. Reg., May Rpt.). NORTH DAKOTA - Up to fourth instars, mostly first, noneconomic in rangeland areas of Billings, Dunn, McKenzie, and Golden Valley Counties; ranged less than 1-4 per square yard. *Melanoplus bivittatus*, *M. sanguinipes*, and *M. packardii* dominant. First instars ranged 1-20 per square yard in rangeland areas of Richland and Ransom Counties. *M. femurrubrum*, *M. bivittatus*, and *M. sanguinipes* dominant. (Stoltenow, Coupe). MINNESOTA - First and second instars light along roadsides in central, southwest, and west-central districts. Earliest hatching species probably *Melanoplus bivittatus* and *M. sanguinipes*. Few first instar *M. femurrubrum* appearing in light, sandy soil areas; limited checks show eggs in segmented to fully formed stages. Hatch will increase in alfalfa fields after hay removal completed June 24-29. (Minn. Ins. Rpt.). SOUTH DAKOTA - Numbers heavier in some parts of State June 13-19. Heaviest to date at Wasta, eastern Pennington County. Ranged 5-25 per square yard in partly flooded Cheyenne River bottom, south of Howes, Meade County. (Zimmerman). KANSAS - Nymphs 6-10 per square yard in stops at roadsides and field borders in Butler and Cowley Counties; up to 15 per 10 sweeps on alfalfa in Chase, Butler, and Cowley Counties. Majority *Melanoplus* spp. Many small grasshoppers in west area. Field margins should be checked for damaging numbers during next 2 weeks. (Kan. Ins. Newsltr.). OKLAHOMA - Second instars to adults ranged 10-25 per square yard on grassland in west-central and northwest counties as follows: Beckham 20,000 acres, Custer 20,000 acres, Major 10,000 acres, Roger Mills 25,000 acres, Washita 15,000 acres, and Woodward 10,000 acres. *Phliobostroma quadrimaculatum*, *Ageneotettix deorum*, *Aulocara elliotti*, and *Melanoplus bivittatus* dominant. Second to fourth instars ranged 10-25 per square yard in southwest counties as follows: Caddo 10,000 acres, Comanche 20,000 acres, Greer 15,000 acres, Kiowa 15,000 acres, and Tillman 10,000 acres. Above species and *Boopedon nubilum* dominant. Counts ranged 2-6 per square yard on grassland in northeast and east-central areas. One alfalfa field in Delaware County with margin counts of 25-35 per square yard. *M. bivittatus*, *M. differentialis*, and *B. nubilum* dominant. (Okla. Coop. Sur.).

BROWN-TAIL MOTH (*Nygmia phaeorrhoea*) - MAINE - Several small infestations, primarily single fruit trees, found at Falmouth Foreside, Cumberland County, in late May. Intensive survey planned along coast, especially in Cumberland County and on island in Casco Bay. (PPC East. Reg.).

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Larvae or adults taken from 3 localities in Orlando, Orange County, and one female trapped at Daytona Beach, Volusia County, in recent weeks. With disappearance of favorable hosts in southern area, larvae being found in dooryard grapefruit and in some overripe grapefruit at small grove in Davie, Broward County. (Fla. Coop. Sur., June 16).

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - All larval stages mostly, second and third, widespread in oat fields throughout Lower Peninsula. Eggs relatively uncommon; some pupation underway. Larval levels among fields checked in Shiawassee, Ingham, and Jackson Counties ranged from practically no "flagging" to one larva per stem with spraying advised. Approximately 5 percent of oat fields in Ingham, Shiawassee, Jackson County area sprayed; about 20 percent of oat acreage in Kalamazoo County treated. (Cooper et al.). INDIANA - Larval infestations on oats outside heavily infested area at New Carlisle as follows by county: Porter, 18 per 50 sweeps in Valpariso area; western La Porte 20-27 per 50 sweeps; St. Joseph, 1 per stem in Walkerton area; Marshall, ranged 6 per 10 stems to 1 per stem in Bremen area; Elkhart, 1-3 per stem in Nappanee area; Kosciusko, 6-8 per 10 stems in Pierceton area; Noble, 8 per 10 stems to 2 per stem in Ligonier area, southwestern Allen, 1-2 per 25 stems. (Huber). OHIO - All counties now included in regulated area. (Porter, Walker). Reported on oats and wheat in northwestern counties. Larvae 240 per 100 sweeps in Williams County field (Phillips); heavy in some Defiance County wheat fields (Murphy). All instars, 1-3 per 10 feet of linear row and some adults on Hancock County oats. (Treece). PENNSYLVANIA - Both adults and larvae found June 7 in 7 different fields at Pulaski Township, Lawrence County, for new State record. Found few days later in Butler County. To date, infestation approximately 25 miles inside State line; light and scattered. (Eckess).

CITRUS BLACKFLY (Aleurocanthus woglumi) - TEXAS - Surveys conducted in Cameron, Hidalgo, Webb, and Zavala Counties with special attention given to cities of Donna, Laredo, and Weslaco. Examination of over 8,900 trees negative. (PPC South. Reg., May Rpt.).

A CUBAN MAY BEETLE (Phyllophaga bruneri) - FLORIDA - Adult populations declining rapidly in Miami area. (Habeck).

EUROPEAN CHAFER (Amphimallon majalis) - Grub digging as of May 31 indicated development to third instar in Connecticut, Massachusetts, and Sayre, Pennsylvania. Pupae in sewerage disposal area at Allentown, Pennsylvania. (PPC East. Reg.).

FORMOSAN SUBTERRANEAN TERMITE (Coptotermes formosanus) - LOUISIANA - Surveyed 18 parishes. One new property infested near Westlake, Calcasieu Parish, and several infested in Orleans Parish. Swarming occurred at New Orleans and in Calcasieu Parish. Winged forms taken in light traps and on stickyboards over one mile from known infestations and at Audubon Park in New Orleans approximately 6 miles from nearest infestation. TEXAS - Surveys conducted in cities of Houston and Texas City and in vicinity of Port Bolivar. Specimens collected from chemical company refuse dump positive. No new infestations found in large acreage of woodland and pastureland in Houston and Galveston areas. (PPC South. Reg., May Rpt.).

GYPSY MOTH (Porthetria dispar) - Totals of 14,520 acres in New Jersey and 7,990 acres in Bucks and Northampton Counties, Pennsylvania, sprayed by May 31. In New York, sprays applied to 445 acres in Forest Park, Queens County, and 632 acres in Van Cortlandt Park, Bronx County; infestations found in Prospect Park, Kings County, and Cunningham Park, Queens County, being treated. New York Conservation Department initiated spray program in generally infested area May 31. Spray programs hampered by inclement weather and slow foliage development. (PPC East. Reg.).

JAPANESE BEETLE (Popillia japonica) - GEORGIA - First adults of season collected in Cobb County May 19. Light emergence in Richmond County. (PPC South. Reg.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Larvae continue throughout Yuma, Maricopa, and Pinal Counties in squares and blooms. Emergence remains high in some locations. (Ariz. Coop. Sur.)

WHITE-FRINGED BEETLES (Graphognathus spp.) ALABAMA - Numerous larvae injured stand of soybeans in large planting in Jefferson County. (Griffin).

## INSECT DETECTION

### New State Records

A PLANT BUG (Phytocoris mundus) - DELAWARE - Adult collected in blacklight trap at Dover, Kent County, August 11, 1966, by J. Franklin. Det. by R. C. Froeschner. Reported in literature as feeding on Virginia pine. (Burbutis).

A PLANT BUG (Porpomiris curtulus) - DELAWARE - Adults collected in blacklight trap at Dover, Kent County, August 18, 1966, by J. Franklin. Det. by R. C. Froeschner. (Burbutis).

ALFALFA WEEVIL (Hypera postica) - IOWA - Collected from alfalfa June 5-6 in Clinton, Des Moines, Lee, Muscatine, and Scott Counties. (p. 561).

A SPIDER MITE (Oligonychus milleri) - MISSOURI - Collected and det by S. E. Thewke at Columbia, Boone County, June 18, 1967. (p. 575).

CEREAL LEAF BEETLE (Oulema melanopus) - PENNSYLVANIA - Collected in 7 different fields June 7 at Pulaski Township, Lawrence County. (Eckess).

### New County and Island Records

A JAPANESE WEEVIL (Calomycterus setarius) - MISSOURI - Collected June 17, 1967, by G. W. Thomas at Columbia, Boone County. (Munson).

ALFALFA WEEVIL (Hypera postica) - ILLINOIS - Putman and Stark Counties. (p. 561).

NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) - NORTH DAKOTA - La Moure County. (p. 574).

ELM LEAF BEETLE (Pyrrhalta luteola) - IOWA - At Washington County. (p. 574).

CEREAL LEAF BEETLE (Oulema melanopus) - PENNSYLVANIA - Butler County. (p. 578).

A SCOLYTID BEETLE (Xyleborus affinis) - HAWAII - At Lihue, Kauai. (p. 580).

FIRE ANT (Solenopsis geminata) - HAWAII - Maui. (p. 580).

## CORRECTIONS

CEIR 17(25):532 - TURF, PASTURES, RANGELAND - GRASS BUGS - Irbesia pacifica should read Irbisia pacifica.

CEIR 17(25):538 - SPINACH LEAF MINER (Pegomyia hyoscyami) should read (Pegomya hyoscyami).

CEIR 17(25):542 - APHIDS - OREGON - Phorodon humuli should read Phorodon humuli.

HAWAII INSECT REPORT

Sugarcane - A SCOLTYID BEETLE (Xyleborus affinis) tunneled and bred in healthy sugarcane at Lihue, Kauai, during April. This a new host plant and a new island record. (Binanchi). FIRE ANT (Solenopsis geminata) colonies found February 2, 1967, in low rainfall areas of Maui from Maalaea Bay to Ulupalakau near coastal regions and in pastures. This is a new island record. Previously reported from Oahu, Hawaii, and Molokai. (Huddleston).

Vegetables - GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) CARMINE SPIDER MITE (Tetranychus telarius) and LEAF MINER FLIES (Liriomyza spp.) medium to heavy on snap beans in all lowland farming areas of Oahu, Kauai, and Maui. (Yamamoto et al.). GREEN PEACH APHID (Myzus persicae) medium on eggplants in Pearl City, Oahu; approximately 25 per leaf. (Nakama, Chong).

Fruits and Nuts - ORIENTAL FRUIT FLY (Dacus dorsalis) oviposition damaged mango and litchi fruits on backyard trees at various areas of Honolulu, Oahu. (Funasaki).

Ornamentals - BARNACLE SCALE (Ceroplastes cirripediformis) nymphs and adults heavy on purple false eranthemum (Pseuderanthemum atropurpureum) at Maile, Oahu. Stems 0.25 inch in diameter with 60 adults per inch. This is a new host record. (Hanaoka, Kim). NEW GUINEA SUGARCANE WEEVIL (Rhabdoscelus obscurus) damaged several ornamental palms in Hilo, Hawaii; killed one palm. (Yoshioka).

Forest and Shade Trees - Light buildup of CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) occurred on Chinese banyan trees in scattered areas of all major islands. Moderate on terminal leaves of approximately 350 trees in Ala Moana area of Honolulu, Oahu. An anthorid bug (Montandoniola moraguesi) light but expected to increase and reduce thrips numbers in few months. (Nakao).

General Pests - Light scattered infestations of SOUTHERN GREEN STING BUG (Nezara viridula), mostly nymphs, on small plantings of yard-long beans, soybeans, hibiscus, and weeds on Oahu. Nymphs and adults light and confined largely to weed hosts on Maui and Hawaii and light on cowpea and asystasia in various areas on Kauai. (Kajiwara et al.). Nymphs and adults of a PLATASPID BUG (Coptosoma xanthogramma) moderate and breeding on Wisteria sp. in Palolo Valley, Honolulu, Oahu. This is a new host record. Elsewhere on Oahu, continues moderate on 36 coral trees on Mt. Tantalus and 5 coral trees at Kaneohe, heavy on 7 sesban trees at Kaneohe, and light to medium on maunaloa vines in almost all areas. (Matsukado et al.).

Miscellaneous Insects - Single female of VAGRANT GRASSHOPPER (Schistrocerca vaga) caught in yard at Pacific Palisades in Pearl City, Oahu. First report of this species in this area. (Shiroma).









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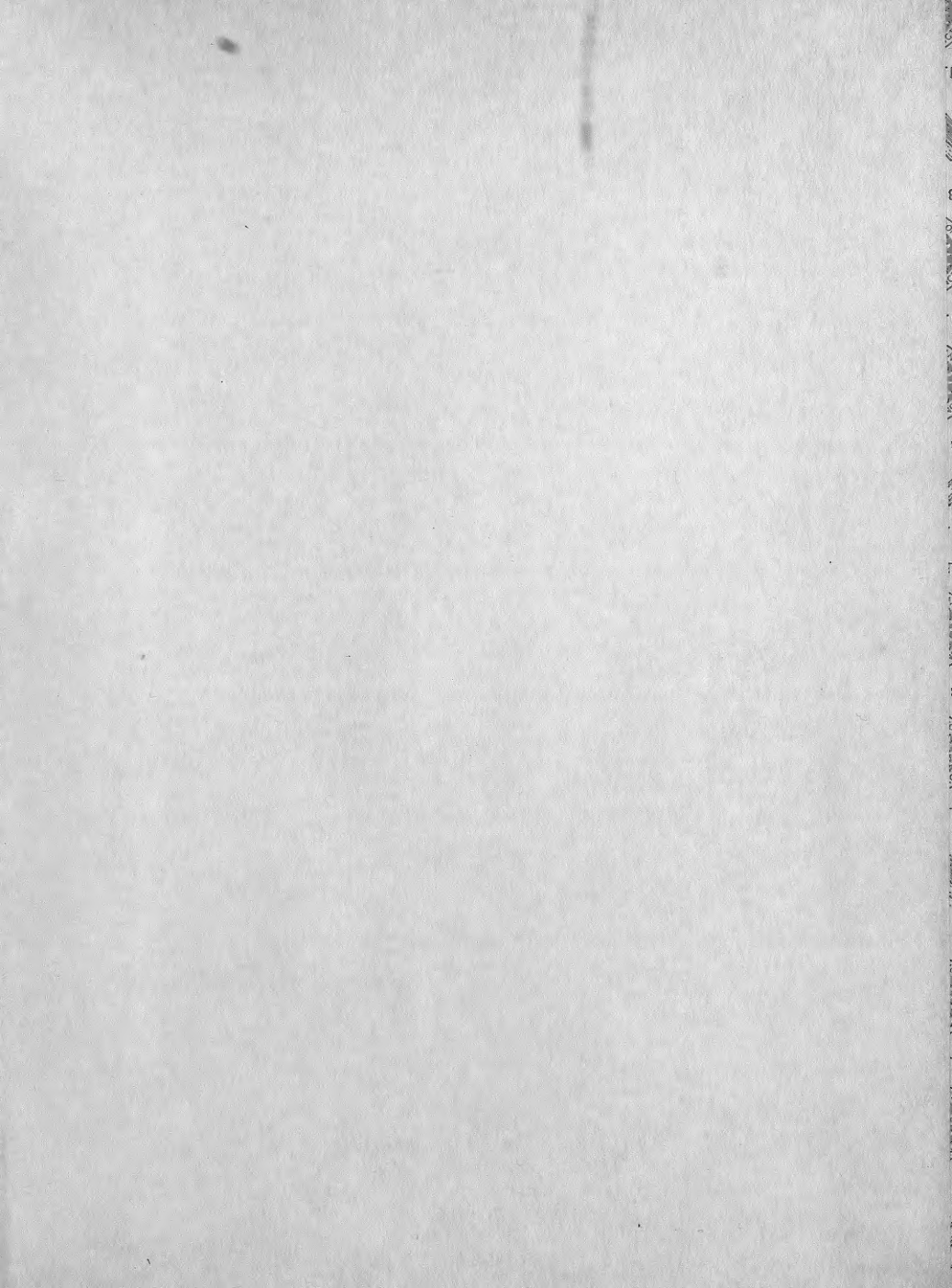
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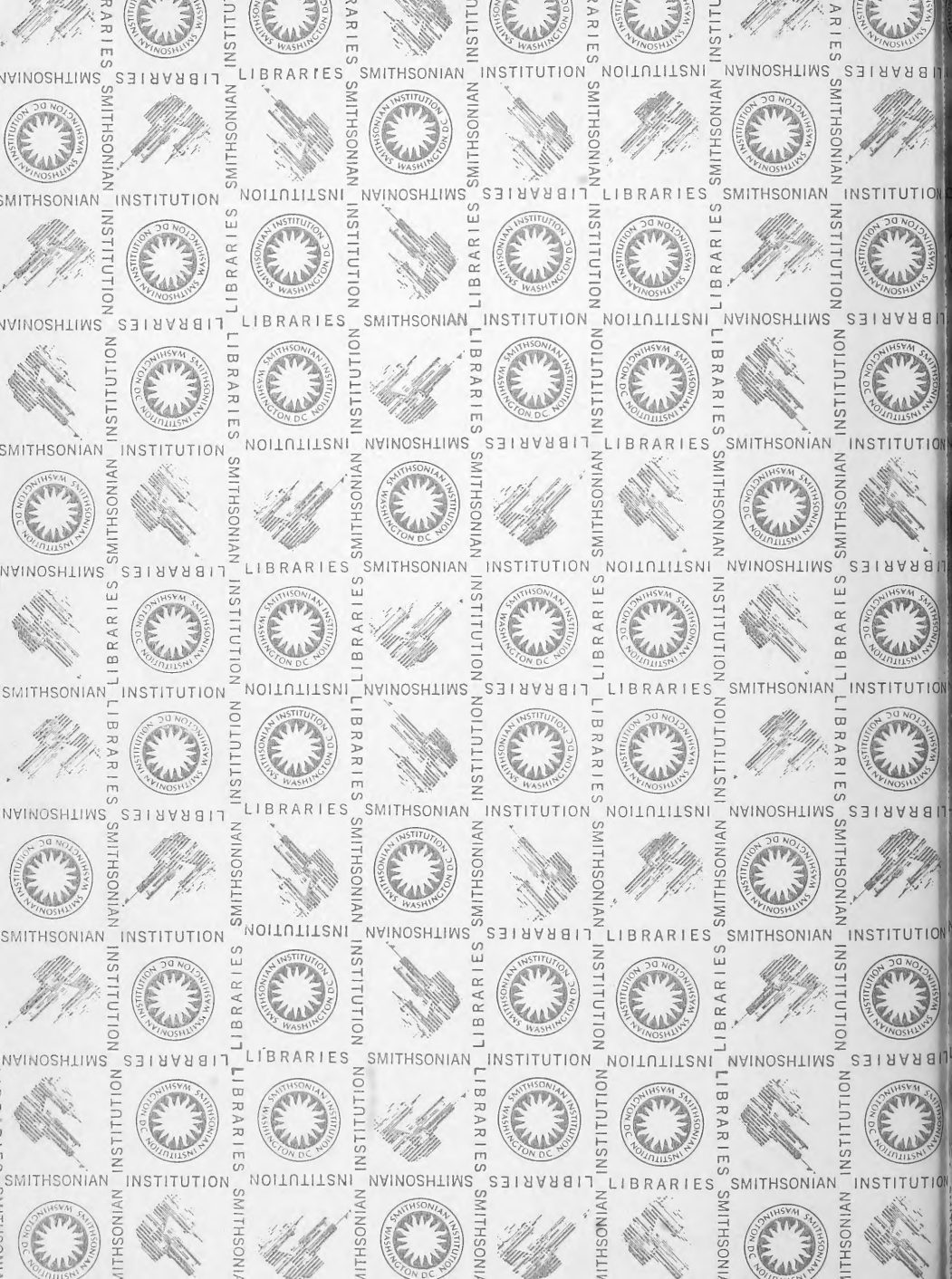
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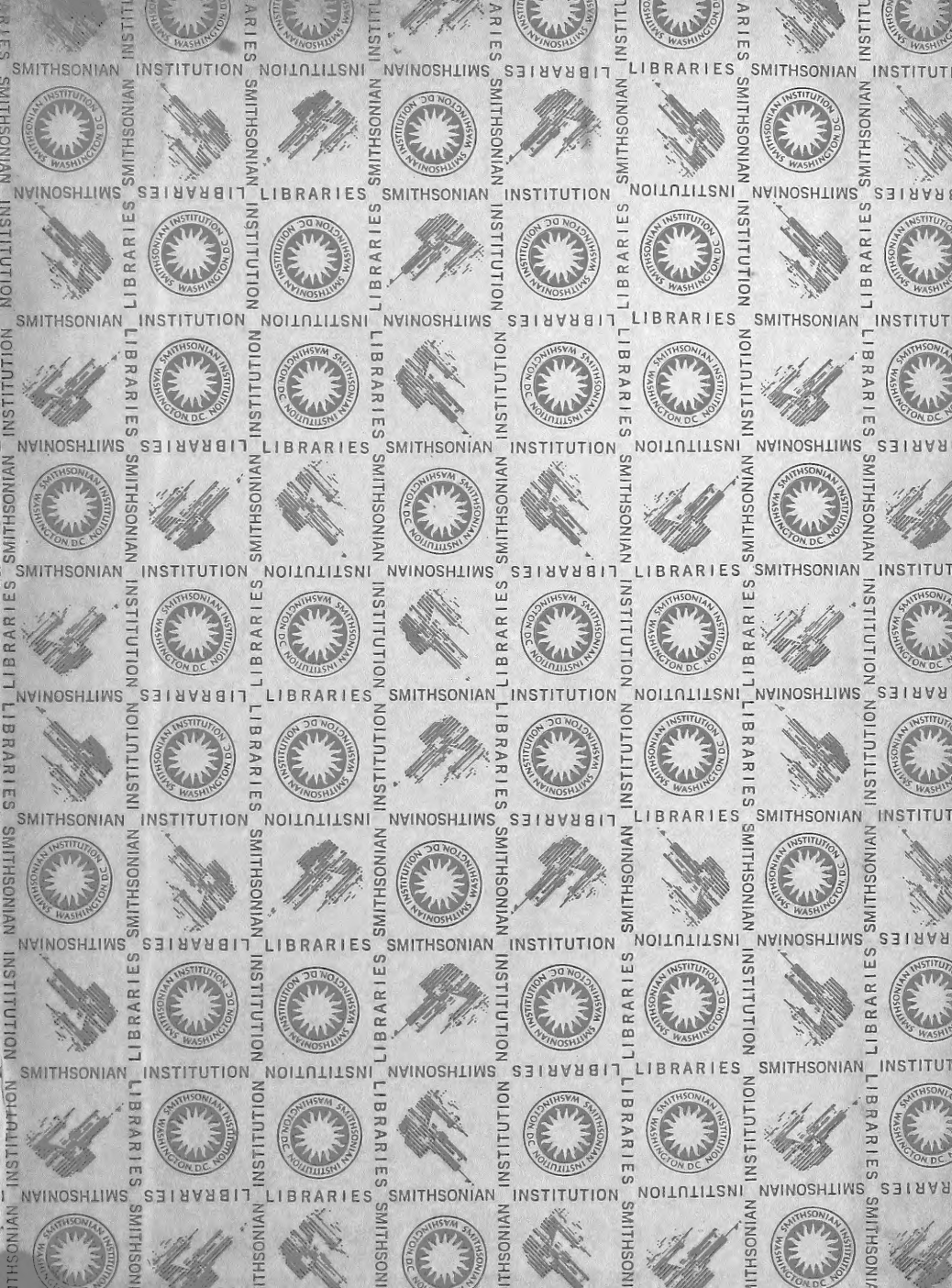














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