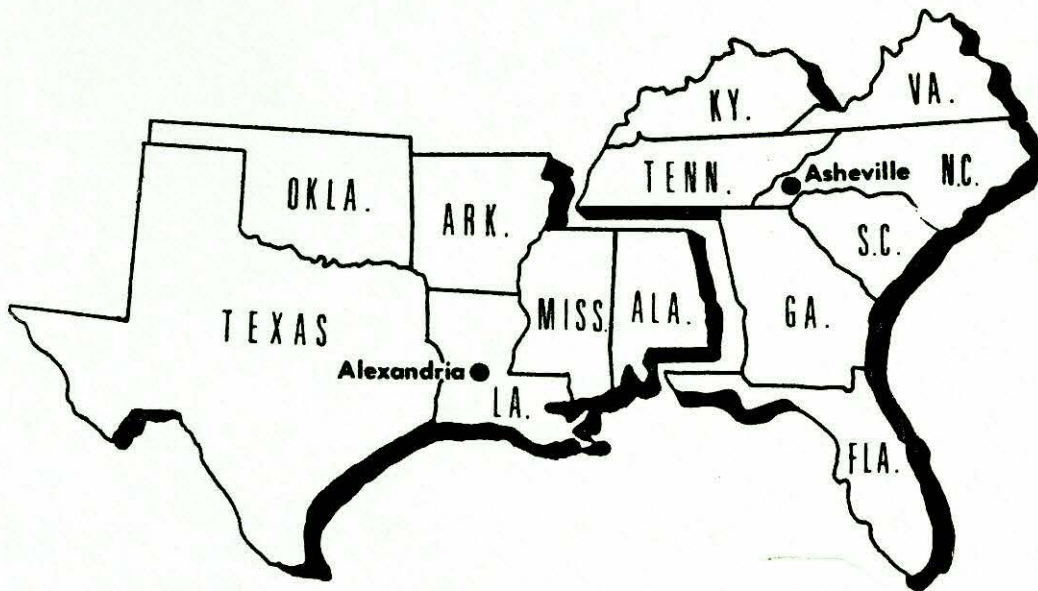


PRESUPPRESSION AND POST-SUPPRESSION
EVALUATIONS OF FIRST GENERATION PINE
TIP MOTH POPULATIONS AT THE
STUART ORCHARD, LOUISIANA

U. S. FOREST SERVICE
Pineville, Louisiana



U. S. DEPARTMENT OF AGRICULTURE — FOREST SERVICE
SOUTHEASTERN AREA, STATE AND PRIVATE FORESTRY
DIVISION OF FOREST PEST MANAGEMENT GROUP

PRESUPPRESSION AND POST-SUPPRESSION
EVALUATIONS OF FIRST GENERATION PINE
TIP MOTH POPULATIONS AT THE
STUART ORCHARD, LOUISIANA

by
Neil A. Overgaard and H. N. Wallace

ABSTRACT

Pre- and post-suppression evaluations of first generation pine tip moth populations were conducted at the Stuart Orchard, Kisatchie National Forest, during March and April 1973, by the Alexandria Field Office of the Forest Pest Management Group. The presuppression evaluation showed high populations (50%-60% infested tips) on shortleaf pine and moderate populations (20-30% infested tips) on loblolly pine. Post-suppression surveys indicated good control results on areas sprayed with hydraulic equipment and poor results on areas sprayed with air blast equipment. Areas showing poor results were re-treated. Examination of these areas after treatment showed the second spray to be effective.

INTRODUCTION

The nantucket pine tip moth, *Rhyacionia frustrana* Comstock has continued to be a problem on shortleaf and loblolly pine at the Stuart Orchard in recent years. An evaluation during October 1972, showed moderate overwintering tip moth populations on the Orchard. Consequently, a presuppression evaluation was conducted by the Alexandria Field Office of the Forest Pest Management Group during March 1973, to determine if and when tip moth suppression measures would be needed. Post-suppression evaluations were conducted on March 29 and April 2 to evaluate the effectiveness of dimethoate sprays.

METHODS

Both presuppression and post-suppression evaluations were conducted by collecting 30 branch tips from each geographical source of loblolly and shortleaf pines (4 sources) for each examination. Tips were examined microscopically in the laboratory. The number of tips containing one or more eggs, the number of tips infested with one or more larvae, the total number of eggs and the total number of larvae were recorded for each 30 tip sample.

It was decided prior to the presuppression evaluation that controls were to be applied when egg hatch was over 90 percent complete and over 2 percent of the tips were infested.

RESULTS AND DISCUSSION

On March 9, presuppression examinations showed 27% and 30% respectively of the tips of Louisiana and Texas shortleaf sources to be infested with tip moth eggs. Evaluations from March 16 to March 19 showed egg hatch to be nearly completed (> 90%) on all shortleaf and loblolly pines. Since the infestation level was high on shortleaf and moderate on loblolly sources (Table 1), it was suggested that all shortleaf and loblolly pines be sprayed as soon as possible.

The Orchard was sprayed March 20 through 23 using an air blast sprayer and hydraulic equipment (Figure 1). The hydraulic sprayer was used on the portion of the Texas shortleaf source in which soil conditions were too wet for use of the air blast sprayer. Post spray examinations conducted on March 29 and April 2, revealed that tip moth populations were slightly reduced on air blast sprayed areas and greatly reduced on the hydraulically sprayed areas.

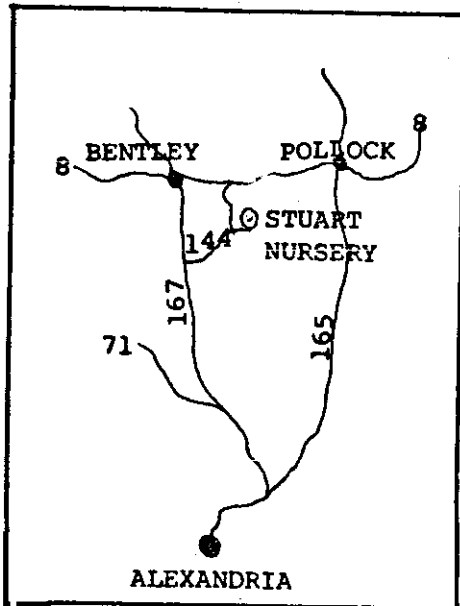
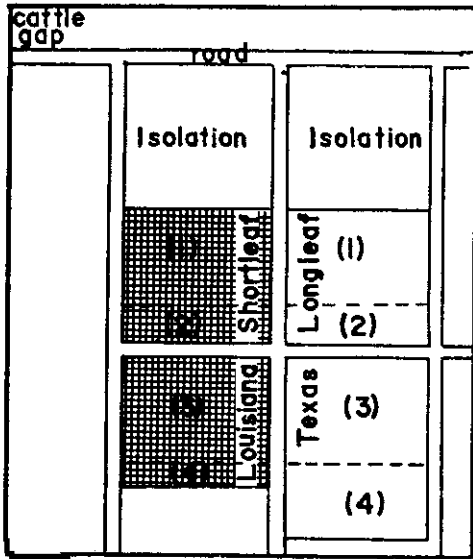
It is not certain why control was poor on the air blast sprayed areas except that relatively high winds during applications may have carried away much of the spray and heavy rains shortly after application may have washed off some of the insecticide. Also, post-suppression examinations of the hydraulically sprayed areas were made four days after inspections of the air blast sprayed areas. This allowed more time between treatment and examination for larvae in hydraulically sprayed areas to feed and receive a lethal dose of insecticide. Because of the poor control it was suggested that the air blast sprayed areas be re-sprayed.

The second treatment was applied during the week of April 2. To increase spray coverage, twice the number of nozzles used on the first treatment were opened on the sprayer.

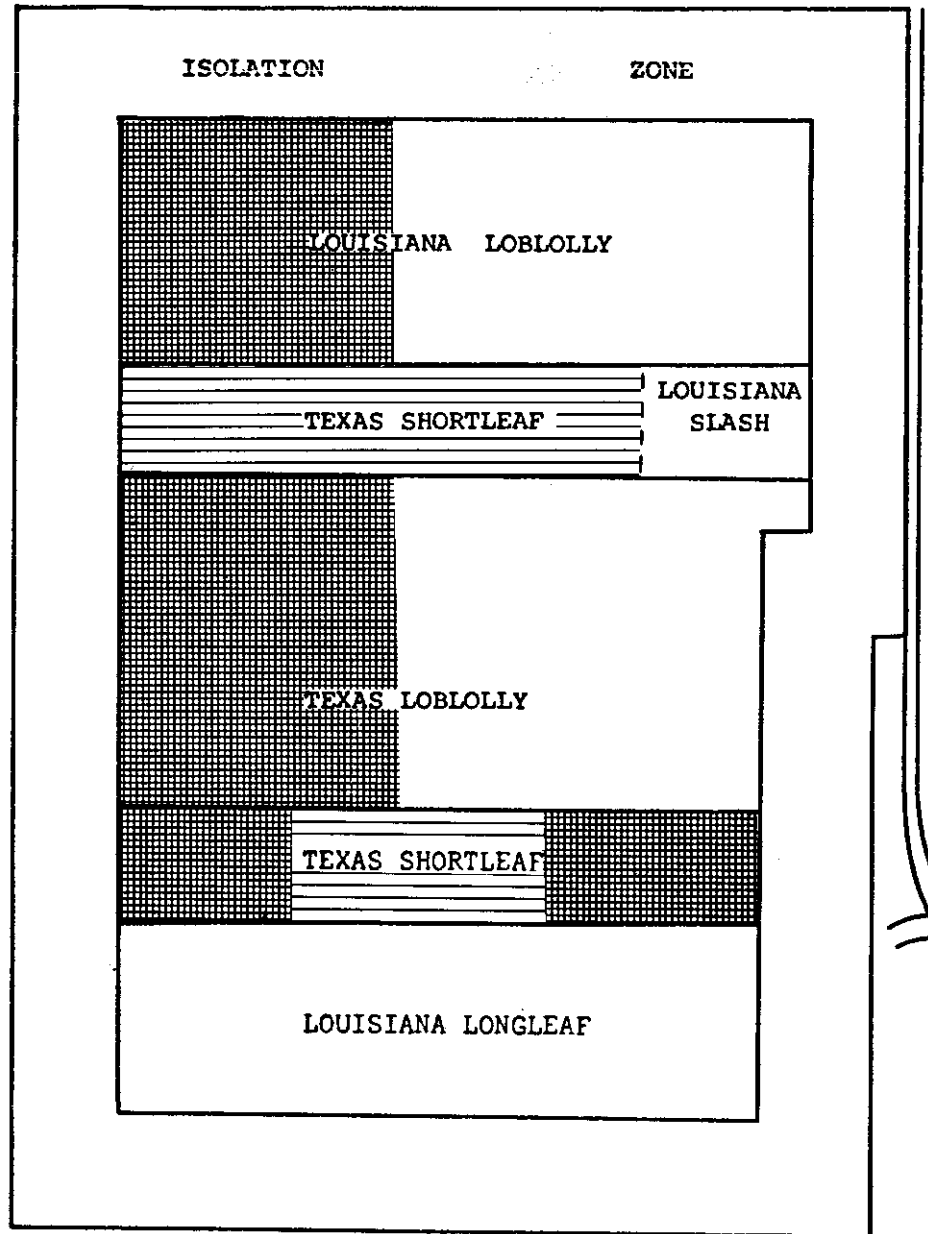
Table 1. Infestation level of first generation tip moth populations (pre-and post spray) at the Stuart Orchard, March and April 1973.

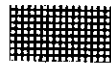
Geographical Source	Percent tips infested with one or more larvae ^{1/}			Average # of larvae per tip examined ^{1/}		
	<u>Prespray</u> March 16 & 19	<u>Postspray</u>		<u>Prespray</u> March 16 & 19	<u>Postspray</u>	
		Air blast March 29	Hydraulic April 2		Air blast March 29	Hydraulic April 2
Louisiana Shortleaf	60	40	--	1.23	0.63	--
Texas Shortleaf	50	50	3	1.04	1.04	0.03
Louisiana Loblolly	30	10	--	0.53	0.13	--
Texas Loblolly	26	16	--	0.57	0.33	--

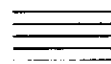
^{1/}Based on a 30 tip sample from each source.



VICINITY MAP



 Air blast sprayer

 Hydraulic sprayer

100' 500'

SCALE

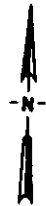


Fig. 1. Layout of Stuart Seed Orchard.

On April 13, an evaluation of re-treated areas revealed no tips infested with tip moths. However, examinations of 53 conelets from the Texas shortleaf showed 39 percent of these killed by tip moths. Young tip moth larvae which began feeding soon after hatching, evidently destroyed the young conelets during the two week period between hatch and the second spray. To minimize conelet damage during the first generation of tip moth, sprays should be applied soon after egg hatch.

According to data from previous years, the next spray should be applied about May 15-21. Forest Pest Management Personnel will conduct another evaluation about May 10-15 to determine the proper time to control the second generation tip moth population at the Orchard.

For more detailed information, contact the Forest Pest Management Field Office listed below or the Atlanta Office.

FIELD OFFICES

FOR STATES OF:

Alexandria Office

Donald A. Pierce
Supervisor
2500 Shreveport Highway
Pineville, Louisiana 71360
Phone A/C 318 445-6511 Ext. 311

Alabama
Arkansas
Louisiana
Mississippi
Oklahoma
Texas

Asheville Office

John L. Rauschenberger
Supervisor
P. O. Box 5895
Asheville, No. Carolina 28803
Phone: A/C 704 254-0961 Ext. 625

Florida
Georgia
Kentucky
North Carolina
South Carolina
Tennessee
Virginia

AREA OFFICE

F. M. Yasinski
Group Leader
1720 Peachtree Road N.W.
Atlanta, Georgia 30309
Phone A/C 404 526-3734



Use Pesticides Safely

FOLLOW THE LABEL

U.S. DEPARTMENT OF AGRICULTURE