



Centurion
UNIVERSITY

INSECT PESTS OF GROUND NUT AND THEIR MANAGEMENT

WHITE GRUB OR ROOT GRUB

Holotrichia consanguinea, H. serrata

Scarabaeidae: Coleoptera

DISTRIBUTION

- Root grub is a polyphagous pest, feeding on the roots of a wide range of plants like pulses, groundnut, sugarcane, vegetables *etc.* and it is a serious pest on groundnut in Kurnool and Anantapur districts.

APPEARANCE

- Full grown grubs are creamy white with a brown head and reach 2” in length.
- They are curled up in position.



LIFEHISTORY

- Adults emerge out of soil during first monsoon showers at dusk, mate and feed on the leaves of the trees and early in the morning get back and burrow into the soil and lay the eggs @ single egg per cell during April – July in the soil at a depth of 12-15 cm.
- Pupation takes place in an earthen cocoon in soil
- Pupal period is 7-10 days.
- **Only one generation in a year.**
- Total life history from egg to adult is 171 days
- Beetles are active during May-July months and disappear by first week of August.

Different stages of whitegrub



NATURE OF DAMAGE

- Upon hatching grubs feed on nodules, fine root lets and also girdle the main root ultimately killing the plants.
- They become full grown by September end and move deeper down into the soil.

SYMPTOMS OF DAMAGE

- In case of severe infestation the patches of dead plants are seen in the infested fields.
- The cut end of the attacked stem of a dead groundnut plant is swollen.



MANAGEMENT

- Deep ploughing after summer showers would expose the pupae and beetles to hot sun or birds predations.
- Mass collection and destruction of beetles from the branches of **neem, subabul, Acacia, ber trees** immediately after receiving summer showers.
- Spraying surrounding trees with carbaryl 3 g/l at first monsoon showers .
- Flooding the field for 24 hours kills grub population.
- **Utilisation of fungal pathogens like *Metarhizium anisopliae*, *Beauveria brongniartii***
- Seed treatment with chlorpyrifos 6 - 10 ml/kg seed is effective against root grubs. .
- Application of phorate 10 G 15 kg/ha at sowing time.

GROUNDNUT LEAF MINER

Aproaerema modicella

Gelechiidae: Lepidoptera

MARKS OF IDENTIFICATION

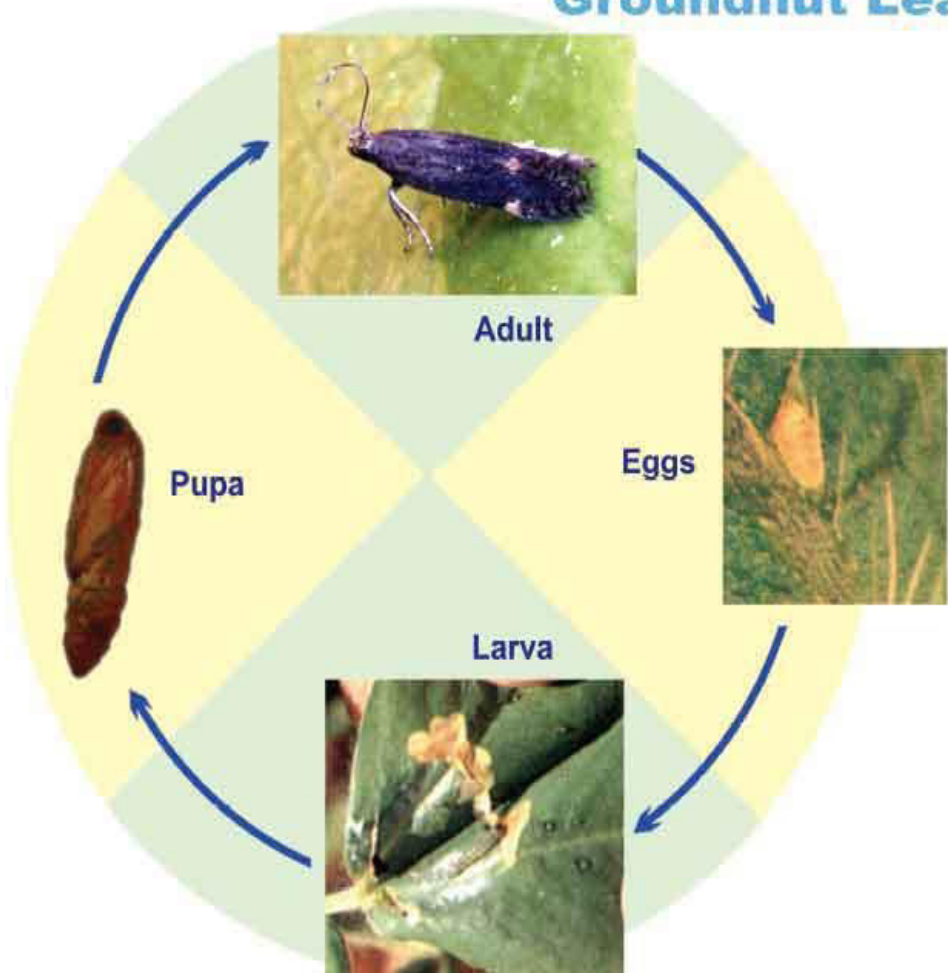
- Moth is very small with dark brown wings and **small distinct white spot on forewings.**
- Full grown caterpillar is greenish with a small dark head.

LIFE HISTORY

- Shiny and sculptured eggs are laid singly on tender leaves.
- Incubation period is 3 days.
- Pupation is inside the blotch mine and emerges as an adult in about 4 days.



Groundnut Leaf Miner



Damage

Shriveled leaves due to mining

Dried up field

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NATURE OF DAMAGE

– The newly hatched caterpillar mines into tender leaflets or it webs together adjacent leaflets and feeds on the tissue.

- The leaflets get distorted and due to feeding get dried up in due course of time.

SYMPTOMS OF DAMAGE

- Mining of larvae in the upper epidermis of leaves which causes in characteristic blotches
- Folded leaves.
- Drying of affected leaves and withering of plants.
- Severely infested field looks as if **burnt from a distance**.



MANAGEMENT

- Collection and destruction of the larvae and infested plant parts
- Crop rotation with a non leguminous crop to avoid out breaks of the pest.
- Raising soybean as trap crop.
- Setting of light traps / pheromone traps
- Foliar sprays with acephate 1 g/l or chlorpyrifos 2.5 ml/l or monocrotophos 1.6 ml/l
- Dusting or spraying with quinalphos 1.5 D @ 10 – 12 kg /ac or 2 ml /l
- Regular monitoring and surveillance

RED HAIRY CATERPILLAR

Amsacta albistriga, *Amsacta moorei*

Arctiidae: Lepidoptera

DISRIBUTION

- Among the whole group of hairy caterpillars, red hairy caterpillars are most injurious to agriculture throughout India. Although the red hairy caterpillars are found in southern and northern regions of the country, they are said to belong to two species of the genus *Amsacta*.
- This is a serious and devastating pest of rainfed *kharif* crop. It is an endemic pest. Its seasonal outbreak in various tracts is largely dependent on climatic conditions.

MARKS OF IDENTIFICATION

A. albistriga:

- The adult is a medium sized moth. The forewings are white with brownish streak all over and yellow streak along the anterior margin and the hindwings are with black markings. A yellowish band is seen on the head.

A moorei

- The anterior marginal streak of forewings and the band on the head are red in colour.
- Full grown caterpillars of both these species are reddish brown with black bands on either end and have long reddish brown hairs all over the body arising on warts. The head and prothorax are red.





LIFE HISTORY

- The creamy or light yellowish eggs are laid in groups mostly on the under surface of leaves, on clods, stones, dry twigs *etc*
- Single female lays 300-1000 eggs. Incubation period is 3-4 days
- The grown up larva burrows into the moist soil and pupates in earthen cell at a depth of 10-20 cm.
- The insect undergoes pupal diapause in the soil till next year. There is only one generation per year.

NATURE OF DAMAGE

- The caterpillars in early stages are found in groups on the underside of leaf lets and feed on them. Later they disperse to surrounding plants





- As they grow they feed voraciously on leaves leaving behind the petiole and mid ribs of leaves and the main stem of plants. They may be seen marching from one field to another in thousands. Often it results in total loss of crop.



MANAGEMENT

- Deep summer ploughing after harvest to expose diapausing pupae
- Collection and destruction of egg masses and gregarious larvae.
- **Setting bonfires** or light traps to attract the moths within 24 h after receipt of monsoon showers.
- **Placing shoots of Jatropha or Ipomoea on bunds to attract migrating larvae and spraying on shoots**
- Growing **cowpea** and **castor** as trap crops.
- **Trenching around the field** and dusting with carbaryl or methyl parathion dust @ 250 g /one meter length.
- Spraying with dimethoate 2ml/l, monocrotophos 1.6 ml/l

- Poison baiting for late instars with rice bran 10 kg + jiggery 1 kg + quinalphos 1 litre or methomyl 350 ml + water.
- Natural enemies include a predatory pentatomid bug attacking larvae and larval parasites, *Apanteles flavipes*, *A. creatonoti* (Braconidae), *Exorista civiloides*, *Sturnia inconspicua* (Tachinidae)

LEAF EATING CATERPILLARS

Spodoptera litura, Helicoverpa armigera

Noctuidae: Lepidoptera

- These caterpillars feed on foliage causing extensive defoliation.

Note: Life histories, nature of damage and their management are detailed under cotton pests.

LEAFHOPPER

Empoasca kerri

Cicadellidae: Hemiptera

- This species, besides groundnut, also attacks brinjal, chillies, cowpea, tomato, castor *etc.*
- Both nymphs and adults suck sap from central surface of leaves, also inject toxin causing whitening of veins and chlorotic patches at tips of leaflets in a typical 'V' – shape. There will be hopperburn in severe cases.
- In presence of coccinellids @ 2 or more / plant insecticidal sprays can be limited. Insecticides found effective are dimethoate 2 ml/l or methyl demeton 2 ml/l or monocrotophos 1.6 ml/l.



THRIPS

Caliothrips indicus, Scirtothrips dorsalis

Thripidae: Thysanoptera

- Both nymphs and adults suck the sap from the leaf surface. Infested leaves show pale white patches and curling of tender leaflets. It **transmits peanut bud necrosis virus disease.**
- Foliar spray with dimethoate 2 ml/l or imidacloprid 0.50ml/l or thiamethoxam @ 0.4g/l or fipronil @ 2ml/l are effective measures.



GROUNDNUT APHID

Aphis craccivora

Aphididae: Hemiptera

- It is a polyphagous pest. The tender shoots of 2 to 2 ½ months old crop of groundnut are sometimes severely infested by this aphid.
- Both nymphs and adults suck sap from tender leaves and shoots of plant causing the leaves to curl and stunted growth. Flowers and pods are also affected.
- Excrete honeydew on which sooty mould develops which interferes with photosynthetic activity of plants.
- The groundnut aphid also transmits **groundnut rosette virus and sometimes groundnut stunt virus diseases.**



- Spraying with tobacco decoction (1 kg tobacco boiled in 10 lit of water of ½ hour and make up to 30 lit + 100 g soap) and systemic insecticides like monocrotophos 1.6 ml/l or dimethoate 2 ml/l or or methyl demeton 2 ml/l are effective.

GROUNDNUT POD BUG

Elasmolomus sordidus

Lygaeidae: Hemiptera

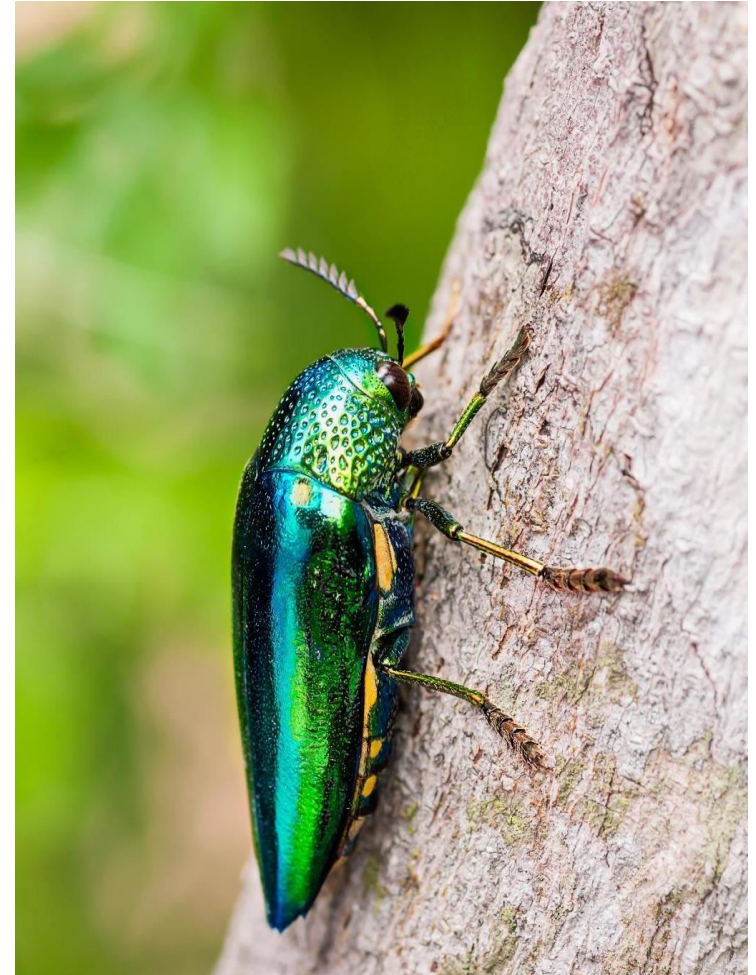
- Nymphs and adult are dark brown bugs. They suck sap from developing seeds of groundnut pods in the field. As a result, the **seeds get shrivelled and become rancid and give bitter taste.**
- The oil content and germination percentage of infested seed is also adversely affected. Besides causing damage in the field, it continues to infest the pods in threshing yard and even in storage
- Collection of bugs which on rubbish heaps in threshing floors and their destruction, application of carbaryl 10 D @ 10 – 12 kg/ac or foliar spray with malathion 2 ml/l are effective



JEWEL BETLE

Sphenoptera perotetti
Buprestidae: Coleoptera

- It is important during rainy and post rainy season. Elongated dorso ventrally flattened grub with a globular head burrows into the stem close to soil surface causing drying and death of plants. When examined grub or pupa can be seen in hollowed stem.
- Application of carbofuran granules in planting row is effective.





Thank u.....

