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Integrated Pest Management of Red Hairy Caterpillar in Groundnut

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Abstract

Groundnut is a key legume food crop in India commonly called as peanut, monkey nuts, goober peas and earthnuts. The production of groundnut was decreased by many insect pests. Red hairy caterpillar is a serious and devastating pest of rainfed groundnut crop. This pest can be well efficiently managed by several integrated pest management strategy including, cultural, physical, mechanical, bio-control agents, bio-pesticides and chemical methods.

Introduction

Groundnut, *Arachis hypogaea* L. is one of the most important oilseed crop in India also called as peanut, monkey nuts, goober peas and earthnuts. India is the second largest producer of groundnut in the world. The production and productivity of groundnut was contrived by many insect pests. Among, them the red hairy caterpillar *Amsacta albistriga* (Walker) (Arctiidae: Lepidoptera) cause major damage to the crop. It is a serious pest causing severe damage under rainfed conditions on groundnut in southern part of India (Ghewande and Nandagopal, 1997). The yield loss can be diminished by following proper management practices. The damage symptoms caused by them and their management measures are given below.

Bionomics

The adults of *A. albistriga* are whitish with brownish streaks all over the fore wings. They have a yellow streak on the anterior margin of fore wings and head. The hind wing is white in colour with black spots. In *A. moorei*, the anterior margin of the fore wings is red. The head is also red. The female moth lay their eggs in batches on the under surface of leaves. A female can lay about 800 eggs that hatch in 3 to 4 days. The young caterpillars are gregarious. They become reddish brown in colour with presence of hairs all over the body (Figure 1) and move from field to field. The larval period lasts 40-50 days. Pupation occurs in the moist soil. The pupa remains in the soil until next year (pupal diapause) and the adult emerges after rainfall.

Damage Symptoms

The reddish brown young caterpillar scrapes the chlorophyll of the leaves to form a papery structure. The matured larvae cause complete defoliation of leaves and also its feed on flowers, buds and growing points, leaving the main stem alone (Figure 2). Severely damaged field resembles as cattle grazed. If the larvae damage is after the pod formation stage, the yield will not be reduced. But, the incidence during vegetative stage leads to significant reduction in yield (Singh *et al.,* 2020). The red hairy caterpillar is highly polyphagous

Figure 1: Larvae of red hairy caterpillar

because it also feed on cumbu, ragi, sorghum, pulses, cotton, sunnhemp, cashew, castor, cucurbits and *Calotropis gigantea*.

Figure 1: Larvae of red hairy caterpillar

IPM Practices

Cultural Control

• Sow the groundnut earlier to avoid peaks in populations.

• Crop rotation with sorghum, pearl millet or maize should be followed.

• Raise cowpea or red gram or castor as an intercrop for every six rows of groundnut to attract female moths for oviposition.

• Planting of barnyard millet around the groundnut field may act as strong physical barrier.

• Avoid migration of larvae from field to field by digging trenches (1 ft × 1 ft).

• Install T-shaped bird perches (10-15 per ac).

• Irrigate once a week to avoid prolonged mid-season drought to prevent pre-harvest infestation.

Mechanical Control

• Collect and destroy pupae after summer ploughing.

• Collect and destroy the egg masses and gregarious early instar larvae.

• Placing the twigs of *Ipomoea*, *Jatropha* and *Calotropis* to attract the migrating caterpillars and kill them mechanically.

Physical Control

• Set up light traps @ 12 /ha and bonfires immediately after the rains to attract and destroy the adults emerging in broods.

• Install sex pheromone trap (Amsactin lure) @ 5 /ha from planting, when 2-3 eggs are found for every 10 plants.

Biological Control

• Spray Amsacta Nuclear Polyhedrosis Virus (ANPV) @ 250 LE + jaggery 1 kg + 200 lit. of water/ac in the evening hours with a hand sprayer.

• Apply entomopathogenic nematodes (EPNs) @ 20-120 crore infective juveniles of *Steinernema feltiai*.

• Release any one of the following natural enemies to minimize the red hairy caterpillar populations.

Egg parasitoid: *Trichogramma* sp.;

Larval parasitoid: *Bracon hebetor*, *Apanteles creotonoti*, *Exorista civiloides, Sturmiopsis inconspicuoides;* Prepupal parasitoid: *Megascelus scalaris;*

Larval predator: *Cantheconidia furcellata.*

Chemical Control

• Distribute poison bait @ 50 kg/ha (prepared by mixing 10 kg rice bran, 1 kg jaggery and 1 lit. quinalphos) broadcast in the field during evening hours.

• Spray chlorpyriphos 2.5 ml/lit.

Conclusion

The above mentioned IPM measures can be successfully imposed wherever applicable for the management of red hairy caterpillar in groundnut. Apply insecticides when they cross Economic Threshold Level (ETL). The minimum yield loss caused by these pests can even be avoided.

References

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