

INSECT PESTS OF COCOA AND THEIR MANAGEMENT



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Insect Pests of Cocoa and their Management

Pest management is one of the critical components in health management of cocoa. More than 50 insect pests infesting cocoa are recorded in India. The major insect pests and vertebrate pests infesting cocoa are described below.

Tea mosquito bug (*Helopeltis spp.*) :

Among the *Helopeltis* species, *Helopeltis bradyi* is commonly observed infesting cocoa. Being a ubiquitous pest, tea mosquito bugs are quite damaging in cocoa gardens adjoining cashew plantations irrespective of all seasons.

Symptoms :

Nymphs and adults feeds on the pods in all stages of development as well as on young shoots. Typical feeding damage appears as a discolored, necrotic lesion around the point of feeding. Damage on pods appears as dark, circular lesions externally visible as hardened scars on the pods. Heavy infestations could result in pod malformation and premature drop.



Management:

- * Reducing shade and exposing the twigs to sunshine could reduce TMB damage.
- * Removal of alternate hosts such as guava, cashew, neem etc from the immediate vicinity.
- * Spraying any one of following insecticides viz., Lamdacyhalothrin 5EC (0.003 %) 0.3 ml/L (or) imidacloprid 17.8 SL (0.004 %) 0.3 ml/L.
- * If infestation persists spray may be repeated at 20 to 30 days interval, one spray each during flushing and flowering seasons. Spraying shall be resorted to afternoon hours.

Mealy bugs: (*Planococcus lilacinus* and *P. citri*) :

Mealy bugs are emerging insect pest of cocoa in India which is confined during summer season.

Symptoms :

Nymphs and adult female of mealy bug occur in colonies and infest growing shoots, terminal buds, flower stalks, foliage and pods and start sucking the sap. Flower development is affected, young pods dry up and tender leaves are deformed into hair like structures. Reduction in the vigor of pod development is common in severely affected gardens. Seedlings and young plants colonized by the mealy bugs show retarded growth and excessive branching at undesired height.

They also cause cushion abortion and wilting of cherelles. The red ant, *Oecophylla smaragdina* is usually associated with the pest encouraging phoretic behaviour and shielding the pest from predators.



Management:

- * Conservation of lady bird beetles belonging to *Pullus* sp. as well as Lycaenid, *Spalgus epius* for encouraging bio-suppression of mealy bugs.
- * Common management practices includes, spot application on the pest loci with 0.5% neem oil emulsion two-times at fortnightly intervals or need-based application of imidacloprid @ 0.3 ml /L of water or dimethoate 30 EC @ 1.6 ml /L of water.

Aphids (*Toxoptera aurantii*) :

Symptoms :

Aphids colonize terminal and growing shoots of cocoa causing leaf deformation during summer. They can also colonize on succulent stem, flower buds and small cherelles which may cause premature shedding of flowers and curling of leaves. Extensive damage is not



Management:

- * A number of natural enemies feed on aphids and exert natural check.
- * Spot application of Dimethoate at 1.6 ml /L of water is suggested if infestation is severe.

Leaf eating caterpillar (*Lymantria ampla*) :

Symptoms :

The caterpillars cause severe damage on leaves in young plants. The early-instar larvae feed on leaves or the surface tissues of growing pods during day and night, but later instar caterpillars are nocturnal in habit. Their population increases after the monsoon rains.

**Management :**

- * If the damage is very severe, neem oil (0.5%) spraying could be given.

Stem borer (*Zeuzera coffeae*)**Symptoms :**

Grubs tunnel the bark initially and penetrate deeper making galleries. On younger trees, the pest attack occurs at the jorquette, which normally results in the drying or breaking of the portion above. Attack is more in case of cocoa garden planted in forest cleared tracts or near forest zones.

**Management :**

- * Mechanical collection and destruction of grubs in the affected branches.
- * Place chlorpyrifos 0.05% soaked cotton and fasten with polythene strips. Swab Coal tar + Kerosene @ 1:2 (basal portion of the trunk - 3 feet height) after scraping the loose bark to prevent oviposition by

Cocoa pod borer (*Conogethes punctiferalis*) :**Symptoms :**

Though this pest was reported as a minor pest of cocoa now a days it is emerging as major pest. Caterpillar after hatching from eggs feed on rind of cocoa pods later bore and feed the internal contents of the pods extruding the granular faecal pellets are seen outside the pods.

**Management:**

- * Collection and destruction of infested pods.
- * Planting preferred hosts such as castor along the field borders.

Rats and Squirrels:

Rats (*Rattus rattus*) and squirrels (*Funambulus trisriatus* and *F. palmarum*) are the major vertebrate pests of cocoa. They cause serious damage to the pods.

Symptoms:

The rats usually gnaw the pods near the stalk portion whereas squirrels gnaw the pods in the centre. The rats are known to damage the mature as well as immature cocoa pods whereas, the squirrels damage only the mature ones. They gnaw the pods and feed on the mucilage covering of the beans.



Rat damage

- * The rats can be kept under check by keeping 10 g Bromadiolone (0.005%) wax cakes on the branches of cocoa trees twice at an interval of 10-12 days.
- * Squirrels are best controlled by trapping with wooden or wire mesh single catch 'live' trap with ripe coconut kernel as the bait.
- * The success is more if trapping is carried out during the lean periods of the crop (October- November) and when the alternate foods such as paddy, cashew apples, mangoes and jackfruits are not available.
- * Timely harvest of the pods as well as maintaining proper plant density will help in increasing the efficiency of poison baiting as well as trapping



Squirrel damage

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