

Tea Mosquito Bug - An Emerging Threat to Cotton



Egg



1st instar



2nd instar



3rd instar



4th instar



5th instar



Female



Male



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Tea Mosquito Bug (TMB) is a serious pest in tea, cashew and cocoa which causes severe yield loss. The pest belongs to genus *Helopeltis* under order Hemiptera. In India, the genus *Helopeltis* has three dominant species, *Helopeltis antonii* Signoret, *Helopeltis theivora* Waterhouse and *Helopeltis bradyi* Waterhouse. TMB was found to infest cotton crop at Coimbatore, Tamil Nadu during 2018. *Helopeltis theivora* is the dominant species infesting cotton. Nymphs and adults suck the sap from leaves, stems, squares and bolls and cause considerable yield loss.

Host range

The TMB is reported to infest a wide range of hosts from cash crops, vegetables and weeds. Primary host plants are tea, cashew, cocoa and neem. Other economically important host plants are viz., cotton, drumstick, black pepper, guava, mango, jamun, anona, apple, grapes, teak, cinchona, cinnamon, castor, henna etc. The pest was also recorded on ornamental plants viz., *Duranda*, *Acalypha* and on weed species viz., *Chromolaena odorata*, *Lantana camera*, *Solanum torvum*, *Coccinia grandis* etc. TMB infestations were reported throughout the year on various crop plants because of its wide host range.

Life cycle

Egg: Eggs are inserted into the tender shoots, midribs of leaves and petioles, either singly or in group. They are translucent white; ovo-elongate with a pair of tiny hair like chorionic processes at their anterior end. Egg period lasts for 6-10 days.

Nymph : The nymphal stage consists of five instars that vary in size and colour. The nymphal period is completed within 10-14 days.

Adult : Adults are 6-8 mm in length. A female adult is bigger than male. *H. theivora* adult dark brown, with yellow or orange bands in female and greenish patches on the abdomen. A pin-like knobbed scutellar process is present dorsally. Adults survive for 9-11 days and a female can lay about 60-80 eggs during its lifetime. The entire life cycle is completed within 25-35 days subject to the environmental and weather factors.

Damage symptoms

- Both the nymphs and adults suck sap from the flushes, young leaves, succulent stems, squares and bolls by inserting its stylet, it injects toxic saliva at the feeding site.
- Feeding on new flush of shoots causes drying up of new flushes i.e die back symptom. Bunched terminal growth develops after severe attack.
- Infested new flushes become stunted with retarded growth. It also affect the formation and development of bolls.
- Feeding damage by TMB appears as a discoloured brownish necrotic lesion around the point of entry of the stylets which becomes darker as the tissue around the stylet puncture dies.
- The feeding lesions are elongate in shape on shoots and round on bolls. Light brown to dark coloured scabs are observed on the damaged bolls.
- The infested squares and bolls drop prematurely or remain on the plant in shriveled condition.
- TMB infested bolls gets damaged by secondary fungal or bacterial infection.
- Severe infestation results in retarded growth, boll shedding and

poor boll opening and considerable yield loss in cotton.

Integrated pest Management measures

- Regular monitoring and surveillance for the occurrence of the tea mosquito bug damage symptoms on cotton and other alternate host is the first and foremost step in management practices.
- Neem trees act as reservoir for TMB, besides guava and drumstick. It is important to monitor TMB population in these plants to reduce the spread and damage.
- Avoid the alternate hosts like neem, guava and drumstick near the cotton field. Tea mosquito bug damage found to be more in most shaded areas. Hence, trim the lower branches of shade trees.
- Collection and proper destruction of the affected plant parts, shedded squares and bolls, crop residues after harvest.
- The predatory fauna of spiders, reduviid bugs, green lacewing and ants helps to manage the pest.
- Encourage the activities of predators and *Telenomus* sp. egg parasitoid by reducing the insecticide application.
- Spraying of *Beauveria bassiana* at a concentration of 10^8 spores/ml has the potential to reduce the infestation of tea mosquito bug.
- Application of 3% neem oil or 5% Neem seed kernel extract recommended to manage the pest.



Adult Female



Adult Male



Infested New flush



Damaged bolls