

Papaya Mealybug, *Paracoccus marginatus* and Its Management

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INTRODUCTION

Paracoccus marginatus Williams and Granara de Willink, called as papaya mealybug, is a small hemipteran that attacks several genera of host plants, including economically important tropical fruits and ornamentals. This mealybug is exotic in origin and introduced into India from Mexico and Central America.

Description

- ✚ The mealybug infestations are typically observed as clusters of cotton-like masses on the above-ground portion of plants.
- ✚ The adult female is yellow and is covered with a white waxy coating. Adult females are approximately 2.2 mm long (1/16 inch) and 1.4 mm wide.
- ✚ A series of short waxy caudal filaments less than 1/4 the length of the body exist around the margin.
- ✚ Eggs are greenish yellow and are laid in an egg sac that is three to four times the body length and entirely covered with white wax.
- ✚ The ovisac is developed ventrally on the adult female.
- ✚ Adult males tend to be colored pink, especially during the pre-pupal and pupal stages, but appear yellow in the first and second instar.
- ✚ Adult males are approximately 1.0 mm long, with an elongate oval body that is widest at the thorax (0.3 mm).
- ✚ Adult males have ten-segmented antennae, a distinct aedeagus, lateral pore clusters, a heavily sclerotized thorax and head, and well-developed wings.
- ✚ Specimens of papaya mealybug turn bluish-black when placed in alcohol, as is characteristic of other members of this genus.

Biology

- In general, mealybugs have piercing-sucking mouthparts and feed by inserting their mouthparts into plant tissue and sucking out sap.
- Mealybugs are most active in warm, dry weather. Females have no wings, and move by crawling short distances or by being blown in air currents.
- Females usually lay 100 to 600 eggs in an ovisac, although some species of mealybugs give birth to live young.
- Egg-laying usually occurs over the period of one to two weeks. Egg hatch occurs in about 10 days, and nymphs, or crawlers, begin to actively search for feeding sites.
- Female crawlers have four instars, with a generation taking approximately one month to complete, depending on the temperature.
- Males have five instars, the fourth of which is produced in a cocoon and referred to as the pupa.
- The fifth instar of the male is the only winged form of the species capable of flight. Adult females attract the males with sex pheromones.
- Under greenhouse conditions, reproduction occurs throughout the year, and in certain species may occur without fertilization.

Host Plants

Economically important host plants of this mealybug include papaya, *Jatropha*, mulberry, hibiscus, avocado, citrus, cotton, tomato, eggplant, peppers, beans and peas, sweet potato, mango, cherry, and pomegranate.

Damage

- ✚ The mealybug injects a toxin as it feeds on leaves and fruit which results in chlorosis (yellowing), stunting, deformation, early leaf and fruit drop, and buildup of honeydew.
- ✚ Sooty mould fungus, *Capnodium* growing on honeydew excreted by the mealybugs interferes with photosynthesis resulting in black colour covering the affected parts.

Spread

Planting materials, infested materials, weed hosts, ants and wind.

Management

- Regular scouting in the field to detect early infestations
- The infested portions should be removed and destroyed to avoid further spread
- Keep fields free from alternate hosts and weeds
- Spray any one of the following insecticides when the infestation occurs
 - Profenophos 50 EC @ 2 ml/litre
 - Imidacloprid 17.8 SL 0.6 ml/litre
 - Thiomethoxam 25 WG 0.6 g/litre
 - Chlorpyrifos 20 EC 2 ml/litre
 - Buprofezin 25 SC 2 ml/litre
- Add one ml Teepol or Sandovit/litre
- Spraying can be repeated after fifteen days with Neem oil 20 ml/l
- Use recommended dose with recommended dilution
- Avoid using same chemical repeatedly
- Conserve the predator, *Spalgis epius* (Lycaenid) since the larval stage feeds on different stages of mealybug
- Release the parasitoid, *Acerophagus papayae*