



Sap Feeder Insects of Coffee and their Management

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Sap-feeding insects of coffee, such as scale insects (green scale and brown scale insects), and mealy bugs, can significantly impact coffee production by weakening plants, reducing yield, and potentially introducing harmful viruses and fungal pathogens into plants. Effective management strategies, often incorporating biological control, cultural practices, and judicious use of insecticides, are crucial for mitigating the damage caused by these insects in coffee.

Keywords: Sap feeder insects, coffee, management

Introduction

Sap-feeding insect pests are important concern for coffee production, causing damage by sucking plant fluids and potentially leading to reduced yields and affects overall plant health. Effective management strategies, often involving integrated pest management (IPM) approaches, are crucial for minimizing their impact on coffee plantations.

Coffee green scale: *Coccus viridis* (Coccidae: Hemiptera)

- It is a regular pest of arabica and robusta coffee.
- It occurs virtually in all countries where coffee is grown.
- It is found on coffee from low lying coastal areas up to 1200 meters MSL
- The pest occurs on a number of host plants other than coffee such as cassava, citrus, guava, mango, tea, fig and rubber.
- The bugs are sedentary and found in large number, sticking on lower surfaces of leaves.
- They are flat green to yellowish green oval slightly convex measuring about 3 mm long.
- Males are free living with one pairs of wings.
- Green scale is a summer pest, proliferating during hot dry weather.
- Reproduction is by parthenogenesis, The female may lay 500-600 eggs, which are deposited under the body
- The eggs hatch with in a few hours into 'crawlers'
- Nymphs: are pale yellow in colour.
- They passes through 3 instars before becoming an adult female.
- It takes 1-3 months to complete the life cycle.

Nature of damage:

- Nymphs and adults females suck the sap from the green shoots and leaves and occasionally on spikes and green berries, thus the reducing the vigour of the plant.
- The severe infestation results in death of the plant.
- The infested leaves may curl up and tender twigs droop down.
- Sooty mould on the affected plants due to honey dew, which affect the photosynthetic activity of the plant.
- Infested plants are associated with ants which help in spreading the pest.

- The damage is mainly to coffee bushes under five years of age and most severe in drought or during summer months.



Fig.1: Infestation of Coffee green scale (*Coccus viridis*)

Management practices

- To control of ants by dusting Malathion 5% dust and destroy ant nests near the garden.
- Scales are parasitised by *Coccophagus* sp. and predated upon by *Cheilomenes sexmaculata* and *Chilocoris nigrinus*.
- Release the coccinellid predator, *Cryptolaemus montrouzieri* @ 3000 beetles/acre.
- Spray the crop with systemic insecticides: monocrotophos 36 SL @ 2 ml/lit or dimethoate 30 EC @ 2 ml/lit or quinolphos 25 EC @ 2 ml/lit.
- Use fungal pathogen: *Verticillium lecanii*
- Remove and burn the weeds which harbour the scale insects.

2. Brown scale: *Saissetia coffeae* (Coccidae: Hemiptera)

- Adult female is hemispherical in shape body is covered by a brown hard shield.
- Nymphs are yellow, greenish brown or dark pink, flat and oval in shape
- Adult male is winged.
- Female is sedentary

Nature of damage:

- Nymphs and adults suck sap from undersurface of the leaves.
- Honey dew excrete: development of sooty mould fungus.
- Vegetatively propagated clones are susceptible.



Fig. 2: Coffee brown scale (*Saissetia coffeae*)



Fig. 3: Infestation of *Saissetia coffeae*

Management practices

Spray any of the following insecticides Viz., quinalphos 25 EC or chlorpyrifos 20 EC 1000 ml/ha or ethion 50 EC 500 ml or profenofos 50 EC 800-1000 ml with 500 lit. water/ha.

3. Mealy bugs: *Planococcus lilacinus*, *Planococcus citri*, *Planococcus kenyae* (Pseudococcidae: Hemiptera)

- These mealy bugs are major pest of *coffea arabica* in Coorg, Karnataka.
- It infests roots and some -arts of the aerial shoots.

- These are small, soft bodied insects, adult females are wingless, oval shaped body is clothed with mealy secretion in the form of small, white threads.
- Males are rare, smaller and winged
- Reproduction is mainly through parthenogenesis, Female lay 100 to 1000 eggs, I.P: 2 to 3 days.
- Nymphs : The first instar nymphs crawl away, settle in a place for feeding and secrete the mealy covering over the body. Nymphs pass through three instars.
- The life cycle completed in a month.
- Nymphs and adults from the root zone migrate to aerial parts, settle down, feed and reproduce
- Infestation becomes severe in summer, intermittent showers and irrigation helps in the build up of the pest.

Nature of damage

- Both nymphs and adults suck the sap from tender branches, nodes, leaves, spikes, berries and roots in large numbers.
- Flower buds and berries becomes small if severely infested
- If suck the sap from roots as result spongy tissues develop on the roots.
- The leaves become chlorotic and fall down.
- Spikes are suppressed and the fruits drop off.
- A black fungus (sooty mould, *Capnodium* sp.) develops on the honey dew excreted by the bugs
- Consequently, the leaves of infested plants become black, affecting photosynthesis.
- Among the cultivated varieties of coffee, Robusta and Cauvery suffers worst from mealy bug attack.



Fig. 4: Mealy bug, *Planococcus kenyae*



Fig. 5: Mealy bug Infestation on coffee berries

Management practices

- To control the ants, by dusting quinalphos 1.5% D or malathion 5% D around the base of coffee and shade trees.
- Spray the affected patches with quinalphos @ 750ml or fenthion @ 375ml or fenitrothion @ 750ml in 500 lit. of water.
- If the roots are infested, drench the soil near the root zone with any one of the above insecticides at the same dosage.
- In young plants (2-4 years old), drench with dimethoate 30 EC @ 3ml/litre to control both root and shoot mealy bugs.
- Release two introduced natural enemies i.e., *Cryptolaemus montrouzieri* (predator) *Leptomastrix dactylopii* (parasitoid)

Conclusion

Effective management of sap-feeding insect pests of coffee requires a multifaceted approach that integrates prevention, suppression, and eradication strategies. This includes understanding the pest's biology, utilizing natural enemies and employing selective pesticides etc. it is essential for maintaining healthy and productive coffee plants, ensuring high yields, and preserving the quality of coffee beans.

References

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