

Pest Management in Mango Crop

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Mango is king of all fruits and India is the major producing and exporting country in the world. Mango production has been threatened by insect pests attack and disease problems. Among several insect pests i.e., mango hoppers, mealy bug, stem borer, fruit fly, mango nut weevil were most abundant, destructive and play a major role in bringing down the fruit quality and yield.

Insect pests of mango

Several insect pests will cause damage to the foliage and fruits will leads to yield loss.

Stem borer (*Batocera rufomaculata*)

Grubs will bore inside the main stems and branches and feeds the inner contents leads to wilting and drying of the infested branches and finally the effected plants will taple down to soil surface.

Mango hoppers (*dioscopus niveoparsus*, *I. clypealis*, *Amirtodus atkinsoni*)

Three species of mango hoppers will cause damage to both foliage and flowers. both nymphs and adults of hoppers suck sap from the foliage and flowers. Nymphs and adults will suck sap from the leaves and excrete huge amount of honeydew, this leads to development of sooty mould. Both nymphs and adults will suck sap from flowers and the effected flowers will dry and drop down from the flower cluster. Flower and fruit set was reduced due to sootymould growth which casuse photosynthesis loss form the infected plant parts.

Mango nut weevil (*Sternochaetus mangiferae*)

Adult will egg on marble sized fruits, grubs after emergence will enter into the fruits and feed on the inter contents of the unripped fruit. After feeding grubs will enter into nuts and completes its pupal instar inside the nut itself and adult emerge out from the nuts. Thus, both grub and adult will cause damage and make them unfit for consumption. The effected fruits were dropdown from the tree surface.

Mango fruit fly (*Bactrocera (Dacus) dorsalis*)

Adult will lay eggs on semi ripened fruits, after hatching maggots will enter to fruit flesh and make zig zag tunnels inside the flesh and make it as non-edible

patches. After some days the infested fruits will dropdown and the maggots will enter into soil and completes its pupation inside the soil.

Mango fruit borer (*Deonaliis sublimbalis*)

Adult will oviposit eggs on the fruits surface at the junction of the fruits or beak of the fruits. After hatching the caterpillar, the caterpillar will feed on fruit surface and beak region, brownish excreta will excude from the infested portion and also gum will excude from the infested region. The infested fruits emit foul smell and unfit for market.

Mango gall fly (*Erosomyia mangiferae*)

Maggots will enter into leaf lamina and excrete toxic chemicals and the infested portion looks like raised portions on the entire leaf lamina.

Mango leaf and shoot webber (*Orthaga exvinacea*)

Caterpillar webs the leaf and shoots and feeds inside the webs and scrapes the leaf lamina and feeds on the internal contents of the web and leaf veins.

For managing these insect pests, the following month wise operation were recommended.

January

- Pruning of dense orchards should be done.
- Orchard sanitation should be done.
- Avoid excessive use of nitrogenous fertilizers.
- Fastening of alkathene bands around the tree trunks and clean the alkathene bands regularly to control mealy bugs.
- Application of 5% NSKE and *Beauveria bassiana* for sucking pests management.

February

- Application of Buprofezin - 1.25ml/lit, Imidachloroprid - 3ml/lit, Lambda - cyhalothrin-0.5-1.0ml / lit for sucking pests management.

March and April

- Collection and destruction of infested and fallen fruits at weekly interval till fruit harvest.
- Application of Buprofezin - 1.25ml/lit, Imidachloroprid - 3ml/lit, Lambda-cyhalothrin - 0.5-1.0ml/lit for sucking pests management.

May

- i. Hanging of methyl eugenol traps (Methyl eugenol 0.1% + Malathion 0.1%) for fruit fly management.

June

- i. Changing of chemical in hanging methyl eugenol traps.
- ii. Male annihilation technique (5 x 5 cm² wooden blocks soaked in solution of 6 : 4 : 1 Ethanol: Methyl eugenol: Malathion) were adopted for fruit fly management.
- iii. Collection and destruction of fruitfly infested fruits.
- iv. Early harvesting of mature fruits.

July

- i. Timely picking of fruits.
- ii. Hot water treatment (48°C) of harvested fruits for 4 - 5 months.
- iii. Vapour Heat Treatment was done for harvested fruits to control infection of fruit flies in post-harvest.

August

- i. Removal of leaf webber affected branches.

- ii. Sanitation and removal of weeds from orchards.
- iii. Spraying of Quinolphos @ 2ml/lit of water for managing shoot and flower webber.

September

- i. Pruning the overcrowded and overlapping branches.
- ii. Cutting of stem borer affected branches.
- iii. Stem borer grubs can be killed by pouring chloroform into the bore hole and then closing the hole with mud.

October

- i. Flooding the orchard to kill the pupae present inside the soil.

November

- i. Deep ploughing of orchard basins and soil to expose the pupae present inside the soil.

December

- i. Racking of tree basins.
- ii. Spraying of water and Imidachloroprid - 3ml/lit for sucking pests.

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