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## MAJOR INSECTS' PEST OF GUAVA AND THEIR MANAGEMENT

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#### 1. Fruit fly

The fruit flies are the maximum damaging insects in the production of guava mainly in rainy periods. Adult flies puncture the fully ripen fruits for oviposition and insert their eggs inside them. Emerging maggots feed the pulp from inside and are responsible for bad smell. The fruits colour at the punctured site changes oozing semi liquid mass.

#### Management

- Pupation of the flies takes place inside the soil, so deep regular summer ploughing helps in exposing the hibernating pupae to the sun and other natural enemies.
- Destroy the infested fallen fruits with maggots.
- Place methyl eugenol traps to monitor and kill adult flies for effective control. Methyl eugenol and malathion insecticide are mixed at 1:1 ratio and randomly keep all over the orchard at 25 traps or hanging 10 traps at a height of 5-6 feet taking per hectare 10 ml mixture per trap earlier to the fruit ripening.
- Spray thiamethoxam at 1 ml per liter of water in severe infestation.

#### 2. Bark eating caterpillar

Old trees are more likely attacked by caterpillars. They bore into the trunk or at the junction between the branches. They remain in the tunnel during day time comes out during time and feeds the bark. The presence of irregular channels and spots covered with silken web containing excreta and chewed up wood from tree parts are the key symptoms of the pest.

#### Management:

- Age old orchards should be kept neat and healthy by periodic examine for dried young branches to prevent the pest infestation and also remove severely affected shoots from the tree.
- Cultivation of Mango, zizyphus, litchi, orange, pomegranate, bauhinia, loquat, mulberry, moringa, rose and eugenia should be discouraged close to guava orchards as they acts as the most preferred hosts of this pest.
- Kill the caterpillars mechanically by removing loose bark and inserting the iron spike in shelter holes made by the larvae.
- Apply coal tar and kerosene at 1:2 ratios at the lower portion of the tree trunk to a height of 3 feet.
- Place carbofuran 3G granules at 4 gm per hole and plug the bored hole with the mud.
- Insert cotton swab soaked in 0.05% chlorpyrifos or monocrotophos and plug the holes with mud or apply copper oxychloride solution on the tree trunk in severe infestation.

#### 3. Fruit borer

Larvae bore into fresh matured fruits before ripening and feed the pulp internally which eventually make the fruit hollow. The infested fruits are commonly malformed at the point of entry of larvae. Affected fruits drop off in rotten condition. Such fruits are attacked by bacteria and fungi also, which eventually give an offensive odor.

### Management:

- Avoid cultivation of pomegranate orchards close to guava orchards.
- Infested fruits are collect and then destroy to halt the spread of pest.
- Install light traps @ 2 per hectare and the activity of adults can be monitored.
- Spray chlorpyrifos + cypermethrin @ 1 ml/l of water for two times depending on severity of attack.

### 4. Spiraling whitefly

Both adults and nymphs pierce and suck the sap from the leaves. Such leaves become yellow and drop off. Sooty moulds (fungi) developed on the honeydew secreted by whiteflies. The mould weakens the plant growth by hindering sunlight for photosynthesis. Infestation is less during cool and rainy days and increases in warm and dry days.

### Management

- Remove weeds like *Abutilon*, *Acalypha*, *Euphorbia*, etc., in the nearby vicinity of the guava orchards and destroy them, as these plants acts as alternate hosts.
- Install sticky yellow traps at 15 per hectare which attracts and kill the adults.
- Release predators like *Chrysoperla carnea*, *Encarsia*, *Chilocorus nigrita*, and *Chilomenus sexmaculatus* at 10,000 per hectare.
- Controlling the pest with insecticides with spraying the insecticides once is very difficult as nymphs remain under the waxy covering. Spray imidacloprid 2 ml/l or acephate 1.5 g/l and repeat the spray at 10 days interval based on the incidence.

### 5. Mealy bug

Both adults and nymphs pierce and suck the sap usually from twigs, leaves and flowers of young plants resulting crinkling with yellow leaves, wilting of terminal shoots, blighted appearance of buds and prematurely dropping of fruits. Affected fruits may have irregular shapes, low quality, and are prone to secondary attack by pathogens.

### Management

- Tree trunks should be tied with alkathene banding.
- Avoid the cultivation of guava orchards in the vicinity of mango orchards.
- Overlapping branches should be pruned and swab with methyl parathion @ 1 ml /l to minimize the pest population.
- Release *Cryptolaemous montrouzieri* beetles @ 10 per tree or 2500 – 3750 per hectare.
- In the early incidence of pest spray the orchards with neem oil at 5 ml/1 or profenophos 2ml/l or buprofezin 2ml/l if the pest is still persist.