

Pests of Papaya

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Papaya trees are often infested by insect pests, mites and snails. The major insect pests include fruit flies, thrips, mealy bugs, scale insects and white flies. Severe damage normally occurs when a large number of pests feed on the plants. Certain pests such as thrips and mites can be problematic during the prolonged dry season. We experienced serious thrips infestation at Kebuloh Station in Miri during the 2009 drought. Fruit fly is very common especially when the trees are laden with fruits.

Fruit flies

The fruit fly females cause damage on the fruit skin, while laying their eggs. The larvae feed on the fruit, causing it to rot. Timely harvesting of fruits, at fruit harvesting index 2 and 3, is recommended as a means to reduce the pest infestation. The harvesting index 2 is when the fruit is still green with a tinge of yellow at the bottom part of the fruit, while the harvesting index 3 is when 70% of the fruit is still green with the remaining 30 % yellow. In our observation at the station, we found that mass trapping with methyl eugenol (eg. Maxilure) is effective in reducing the pest population. Good sanitation in the field and collection centres should be practiced. The damaged and over ripe fruits should be collected and destroyed. This measure is to remove the pest breeding places. Often, these unwanted fruits if left unattended, are the root cause of the pest problem.



Adult fruit fly



Larva feeding in the fruit

Thrips

Thrips are very minute, measuring about 0.9 mm long. It is light brown to grey and narrow-bodied. It has two pairs of wings, which are fringed with hairs. It is usually found around the calyx and flower buds. The eggs are laid in soft tissues of flowers and young leaves. Pupation takes place in the soil. The life cycle is very short. It takes about 10 – 15 days. The egg stage takes 3 – 6 days, while the nymph stage 7 – 9 days.

Both nymph and adult feed on the flowers, developing fruits and leaves. They feed by sucking the contents of living cells, which they ruptured with their mouth parts. The dead cells filled with air results in a silvery patch. On young fruits, the damage is also visible as corkiness on the affected skin. In less severe cases, the earlier feeding on the flowers resulted in malformed fruits. However, in severe cases, the flowers will drop. The feeding on the leaves provides the infection sites for invasion by the saprophytic fungus, *Cladosporium*

oxysporum. The damaged leaf, on expansion, exhibited the typical bunchy and malformed symptoms, characterised by distorted leaf spots and shot-holes on the lamina. Thrips, in the absence of *C. oxysporum* only cause slight mottling of the leaves without malformation. The nymphs also deposit liquid excrement on the fruits resulting in poor quality fruits.

The presence of thrips on papaya plants has dual roles. First, it acts as a pollinator and secondly, as pest. Thus, there must be a balance between controlling them and properly managing their presence in the farm. The spraying of deltamethrin at biweekly interval during serious infestation is recommended.



Adult thrips



Corkiness on affected fruit skin



Malformed shoots



Excrements on fruits

Mealy bug

Both the adults and nymphs suck sap from the leaves and fruits. The honey dew secreted during feeding results in sooty mould, which affect the cosmetic appearance of the fruits. Spraying with abolineum may repel them. The affected shoots and leaves should be removed and destroyed.



Sooty mould on damaged fruits

Scale insects

Both the adults and nymphs suck sap from the stems and fruits resulting in reduced plant vigour. Spraying the infected farm with albolineum, is recommended, as a means to suffocate them. The infected plant should also be removed and destroyed.



Scales on fruit and stem

White flies

White flies are small sap sucking bugs, measuring about 1.5 – 2 mm long. They are often found on the underside of leaves. The adults resemble small moths, and readily fly when disturbed. The nymphs are wingless and flattened in shape. Both nymph and adult produce sticky honey dew on which sooty mould will grow. Infestation is normally not serious, and thus not necessary to take up any control measure.



Adult and nymphs on underside of leaf

Mites

Mites are not insects. Both adult and nymph suck the sap from the leaves and fruits. They are very minute and cause problem during the dry season. Spraying miticides on the infested plants may be required, when serious infestation occurs.



Adult mite



Damaged fruit

Snails

Snails often feed on the fruits. The use of snail baits at the mound is effective against them.



Damaged fruit