

Red-banded Thrips on Fruit Trees

(Selenothrips rubrocinctus)

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BACKGROUND

Red-banded thrips (RBTs) are found in many parts of the tropical and sub-tropical world. They are thought to have originated from northern South America.

RBTs attack a wide variety of ornamental shrubs, fruit trees, native trees and shrubs. In the Top End of the Northern Territory, RBTs attack fruit trees, particularly avocado, cashew, guava, mango, mangosteen and rambutan. Mango trees can suffer severe damage to recently-hardened flush between April and August.

APPEARANCE

Adult thrips are dark brown to black in colour and just over 1 to 1.3 mm long. They have two pairs of narrow feathery wings which are folded along the back when the insect is at rest. The nymphal stages are creamy yellow in colour with two characteristic bright red bands around the abdomen. One band is directly behind the hind legs and the other is at the tip of the abdomen.



Figure 1. Nymph



Figure 2. Adult

LIFE CYCLE

Similar to most species of thrips, RBTs, avoid direct light and, when not feeding, shelter on the underside of leaves, in curled-up leaves and on the buds of developing flush. The female inserts eggs into the lower surface of the leaf and covers the point of insertion with a drop of fluid which dries to form a black disc-like cover. Females lay up to 50 eggs and live for up to one month. The eggs hatch within four days. After hatching, there are two nymphal stages lasting nine to ten days. During these two stages the nymphs feed widely on the plant. Fully-grown second stage nymphs are about 1 mm long. The two nymphal stages are followed by two resting stages (pre-pupal and pupal stages) during which the nymphs congregate towards the end of the underside of leaves. The resting stages last three to five days before adults emerge. The average duration from the time eggs are laid to adults emerging is about two to three weeks.

SYMPTOMS AND DAMAGE

Nymphs and adults are generally found on the underside of new flush and mature leaves where they feed by rasping leaf tissue and sucking the contents out of leaf cells. Developing fruit is also attacked in a similar fashion. Nymphs usually carry a drop of liquid at the tips of their upturned abdomens. This excrement periodically falls onto the leaf surface; when it dries, it forms dark brown spots on the leaf. In the early stages, feeding damage is seen as a silvery sheen on the leaves and skin of fruit. The margins of leaves tend to curl downward as a result of feeding.

In severe infestations, leaves take on a brown sun-scorched appearance and may drop, while the skin of fruit becomes covered in silvery or brown scars, making it unmarketable. RBTs prefer recently-hardened flush to new flush and older leaves. There is some evidence that suggests that trees that are not growing well are more susceptible to attack.



Figure 3. Damage on leaves



Figure 4. Damage on fruit

MONITORING

RBTs are present from the end of February to November. Monitoring should commence at the end of February and be carried out every seven to ten days as infestations can build up very quickly. RBTs may be transferred by prevailing winds and are often first noticed in fruit trees on the edges of orchards.

The best time to monitor for RBTs is during the cooler part of the day, either in the early morning or late afternoon. Examine the underside of flush leaves with a x10 magnification hand lens. RBTs are usually on the outer-middle foliage of the tree. Look for adults, nymphs or the disc-like excrement and silverying of leaves along the mid vein on the under surface of the newly-hardened flush and mature leaves. RBTs may be difficult to find on older leaves, although there may be signs of damage or excremental remains (small black spots) from previous feeding. Monitoring of trees should be carried out evenly throughout the orchard or in a grid system covering 20% of the trees.

When RBTs are noticed on trees, they should be carefully monitored for any change in populations. Spot spraying should be carried out while infestations are still limited to a few trees. Control becomes difficult if RBTs are allowed to spread throughout the orchard. An infestation is best controlled before the start of mango flowering. Try to avoid using any insecticide sprays at the time of flowering as this will reduce fruit set. Spraying may physically damage flowers and the insecticide may repel or kill pollinators.

PEST MANAGEMENT

Chemical

The registered chemicals for control of RBTs are carbaryl (such as Bugmaster®) or dimethoate (such as Rogor). Petroleum spray oils (PSOs) (such as DC Tron plus®) are also used to control RBTs. PSOs are used at 2% oil in water. PSOs work by suffocating rather than poisoning the insect. For PSOs to be effective, the insect has to be coated with a thin film of the oil-water solution. That is why two to two and a half times more PSOs spray mixture is applied than when using a chemical pesticide spray.

Potassium soap such as Natrasoap or Neemtech potassium soap works in a similar manner to PSOs. Potassium soap requires a high volume spray and is therefore difficult to apply to larger trees. However, it is recommended for use against RBTs on mango seedlings and young trees. The surfaces of the leaves need to be thoroughly wetted with the soap solution.

Biological

RBTs are attacked by natural predators such as spiders, lacewings, predatory thrips and predatory bugs. Commercially-bred predatory insects, such as green lacewings, are available from commercial producers such as Bugs for Bugs (www.bugsforbugs.com.au/). The best time to introduce commercially-bred predators, such as green lacewings, to the orchard is in March when RBTs first start to appear.

For further information on this Agnote, contact DPIFM Entomology at insectinfo.dpifm@nt.gov.au. Agnotes or fact sheets on other pests are available from www.entomology.nt.gov.au or www.primaryindustry.nt.gov.au

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