

## Mango red-banded caterpillar (281)

### Common Name

Red-banded mango caterpillar, mango seed borer

### Scientific Name

*Deanolis sublimbalis*; also known as *Noorda albizonalis*, and *Deanolis albizonalis*. It is a member of the Crambidae.

### Distribution

Asia, Oceania. It is reported from Australia (the islands in the Torres Strait, and from the tip of Cape York Peninsular), and Papua New Guinea.

### Hosts

Mango, both the cultivated (*Mangifera indica*), and wild species (*Mangifera minor* and *Mangifera odorata*). It is also reported on the purple nut sedge (*Cyperus rotundus*).

### Symptoms & Life Cycle

The caterpillars or larvae tunnel into the flesh and seed of the fruit (Photos 1&2). Young fruit are particularly susceptible. Bacteria, fungi and fruit flies invade and rot the fruit. Sticky liquid exudes from the larval entry hole, dribbles down the fruit as a dark stain and collects at the base (Photo 3). Cracks appear on the fruit at the entry hole. Damaged fruits may fall.

In Papua New Guinea, the eggs are white to crimson, laid in groups of up to 15 on the fruit stalk, or more rarely on the base of the fruit or in crevices, such as spots caused by the anthracnose fungus, *Colletotrichum gloeosporioides* (see **Fact Sheet no. 09**). After hatching in about 10 days, the first instars bore together into the side of the fruit, and they and the second instars, feed beneath the skin. Several larvae can occur in the same fruit, but usually they disperse and there is only one that tunnels into the seed. When mature, the larva is white with a brown or black head, up to 2 cm long, and has 11 bands along the back, pink at first and then red (Photo 4). The five larval stages occur over about 16 days, and then pupation occurs on the ground or in or under the bark. It lasts up to 14 days before the adults emerge; they are greyish/pale brown, 12 mm long, and nocturnal (Photo 5).

Spread over short distances is by natural dispersal of adults, and over longer distances in infested fruit and, perhaps, by wind.

### Impact

In Papua New Guinea, losses of 40-55% have been reported from Port Moresby, Central Province and East New Britain. Fruit are damaged at all stages of development, some as small as 10 mm. Similar yield losses have been reported from the Philippines and India although, overall in Asia, losses are said to be 10-15%.

### Detection & inspection

Look for black stains on the fruit. Cut the fruit open and look for caterpillars with 11 red bands along the back in the flesh or in the seed.



Photo 1. Red-banded mango caterpillar, *Deanolis sublimbalis*, showing the destruction of the seed.



Photo 2. Larvae of the red-banded mango caterpillar, *Deanolis sublimbalis*, in the seed of a mango fruit.



Photo 3. Dark stains on the sides of the fruit from liquid oozing out of entry sites made by the larvae of the red-banded mango caterpillar, *Deanolis sublimbalis*.



Photo 4. Red-banded mango caterpillar, *Deanolis sublimbalis*.

## Management

### NATURAL ENEMIES

No parasitoids of *Deanolais sublimbalis* have been recorded in Papua New Guinea, but two egg parasitoids, *Trichogramma chilonis* and *Trichogramma chilostraeae* have been recorded in the Philippines. In Papua New Guinea, the weaver ant, *Oecophila smaragdina*, is a predator of the moth, although it is said that it does not feed on the eggs or larvae.

### CULTURAL CONTROL

The following have been recommended, but are all labour-intensive and are likely to be too expensive for commercial orchards, but might be of interest to smallholders to safeguard fruit from high losses.

During growth:

- Bag individual fruits.
- Remove and destroy fruits with black stain that are likely to contain larvae in the flesh or seed.

After harvest:

- Collect and destroy dried branches and other dead wood in mango orchards in the off-season. This is a recommendation from India, where pupae are also collected from cracks and crevices of trunks and branches during the off-season.

### CHEMICAL CONTROL

A pheromone has been identified and trialed in Papua New Guinea, but has, as yet, not been used commercially.

Use neem at 10-day intervals, starting when mango trees are in flower and continue for 2 months.

In Papua New Guinea, thiacloprid was the most effective insecticide tested and, in the Philippines, the synthetic pyrethroids, deltamethrin and cyfluthrin, gave acceptable control commencing at 60 days after fruit formation. Note that residue data are required for these chemicals before recommendations can be made.

Note, too, that in Papua New Guinea, chlorpyrifos-treated trees had increased levels of damage compared to the untreated control, perhaps due to removal of the weaver ant (*Oecophylla smaragdina*), a possible biocontrol agent.

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*When using a pesticide, (even a biopesticide) always wear protective clothing and follow the instructions on the product label, such as dosage, timing of application, and pre-harvest interval. Recommendations will vary with the crop and system of cultivation. Expert advice on the most appropriate pesticide to use should always be sought from local agricultural authorities.*



Photo 5. Adult of the red-banded mango caterpillar, *Deanolais sublimbalis*.

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Information from Red banded mango caterpillar (2020) Business Queensland. Queensland Government. (<https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/crop-growing/priority-pest-disease/red-banded-mango-caterpillar>); and Royer J (2008) Red banded mango caterpillar. Mango industry biosecurity plan (threat-specific contingency plan). Department of Primary Industries and Fisheries, Queensland Government. (<http://www.planthealthaustralia.com.au/wp-content/uploads/2013/03/Red-banded-mango-caterpillar-CP.pdf>); and Tenakanai D, et al. (2006) Red-banded mango caterpillar, *Deanolais sublimbalis* Snellen (Lepidoptera: Pyralidae: Odontinae), in Papua New Guinea. In: Price TV (ed) 'Pest and disease incursions: risks, threats and management in Papua New Guinea'. Canberra, ACIAR Technical Reports No. 62:161-165; and from CAB (2012) *Deanolais albizonalis* (mango seed borer). Crop Protection Compendium. (<https://www.cabi.org/cpc/datasheet/36492>). Photos 1-5 Walker K et al. (2005) Red banded mango caterpillar (*Deanolais sublimbalis*). (PaDIL - (<http://www.padil.gov.au>)).

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