

GUAVA MOTH ON NORFOLK ISLAND IDENTIFICATION AND MANAGEMENT

Background

Guava moth (*Coscinoptycha improbana*, Lepidoptera: Carposinidae) is considered by many residents of Norfolk Island to be a significant threat to food security. Several growers have reported they did not pick any stone fruit in the 2021 season due to guava moth and that citrus fruit is becoming heavily infested, reducing its availability on island.

Guava moth is native to the Australian mainland. Because it is not considered a pest in its native range, it has received very little scientific attention and little is known about it. The New Zealand Ministry of Primary Industries (MPI) have been funding guava moth research since its arrival in New Zealand in 1997. MPI has published some useful research on lifecycle and population dynamics used in this factsheet. It is not clear how well findings of this research will directly translate to Norfolk Island.

Identification

Adult guava moths are about 10 - 12 millimetres long. They have speckled forewings which, when folded at rest, produce the appearance of a dark transverse bar about halfway along the body (Figure 1).



Figure 1. Adult guava moth. Credit: Plant and Food Research.

Guava moth larvae are a pinkish-brown colour with a darker segment near a brown head capsule. They are up to 10 millimetres long when ready to pupate (Figure 2).



Figure 2: Left: Guava moth larvae in feijoa fruit. Credit Lottie Hedley. Right: Close up guava moth larvae. Credit Plant and Food Research.

Biology and lifecycle

The guava moth is a serious pest of macadamias and feijoas in New Zealand. It has also been recorded in citrus, loquat, guava, plum, peach, nectarine, apples, pears and nashi pear.

Guava moths lay their eggs on the surface of fruit, as it is beginning to swell and before it ripens. The egg hatches and the larva burrows directly into the fruit, where it feeds and grows until it is ready to pupate. Attack by guava moth in younger fruit can cause premature fruit drop. Once mature, the larvae pupate either within fallen fruit or in the leaf litter under the tree. After adults emerge from pupation, females attract mates using a sex pheromone and, following mating, begin looking for new hosts.

Evidence from New Zealand suggests that damage outbreaks can be sporadic, with different crops being more heavily attacked from season to season. Evidence also shows that early ripening fruit may be more likely to be attacked than fruit that ripens later in the season.

Damage and symptoms

Burrowing by guava moth larvae creates tunnels in fruit which are filled with frass (faeces). This causes breakdown of the fruit. The tunnelling also allows bacteria and fungi to enter, which in turn can cause decay, making the fruit inedible (Figure 3).



Figure 3. Feijoa fruit infested with guava moth larvae.
Credit: Plant and Food Research.

Monitoring and management

Bearing in mind there is little information on the basic biology of this pest, there are a few simple steps that can reduce guava moth damage in your garden. These include:

- covering individual fruit with net bags once flowering has finished
- prune trees to keep size manageable and net trees in fine mesh (2 – 3 millimetres)
- pick fallen fruit at least daily
- fence chickens in around your fruit trees to eat fallen fruit and moth pupae.

Much of the basic biology of this pest is still unknown and it is unclear how much these steps will help if neighbours' trees or wild hosts like guava are not managed. Specifically, we don't know how far females will fly to find hosts, how long they live for, or whether they can aestivate (similar to hibernation) when no hosts are available. Such basic biological information can be useful in formulating an Integrated Pest Management (IPM) program for the pest.

A sex pheromone is available for purchase from suppliers in New Zealand. The pheromone is a 'chemical copy' of the scent that female guava moths secrete to help males find them. It is a useful tool for monitoring guava moth populations. If used on a large scale, it may also be useful for disrupting mating. However, there is little evidence to suggest that using a pheromone trap in your garden alone will reduce fruit damage from guava moth.

Light traps are also available commercially, which could be used to attract guava moths. However, there is no evidence that using a light trap in your garden will reduce guava moth damage to your fruit. Furthermore, because most flying insects are attracted to the light, catches in these traps are indiscriminate and may include beneficial insects.

Knowing more information about the phenology (biological cycles) of guava moth hosts on Norfolk Island and how the pest is exploiting host fruit may help inform any future community-wide management programs.



Australian Government

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