

A recent incursion of locusts in the Sunraysia area may cause problems for citrus growers in Spring.

The Australian Plague Locust, (*Chortoicetes terminifera*), is a native Australian insect that occurs naturally in the channel country, ie south-west Queensland and adjacent areas of South Australia, New South Wales and the Northern Territory. Locusts plagues develop following rainfall in this area. When locusts are present in small numbers they behave as a solitary insect and causes little damage, usually feeding on summer grasses. In large numbers they have been known to defoliate hectares of grasslands and horticultural crops.

Plague locust adults are easily identified by a characteristic black spot on the tip of each hind wing. Hoppers are more difficult to identify, however, if a large mass (band) of hoppers is found, it is most likely to be the plague locust.

Eggs: The adult female usually selects the barest and hardest ground available for egg laying, ie roadsides, tracks, fence lines etc. Eggs are laid 20 to 50mm beneath the soil surface in masses referred to as pods. Each pod can contain up to 50 pale yellow, banana shaped eggs, 5 to 6 mm long. Adult females can lay up to four pods before dying. Eggs laid in autumn remain dormant through winter and hatch in spring as soil temperature increases.

Hoppers: After hatching, hoppers grow through five stages, over four to six weeks, with the wing buds becoming more prominent in each stage. Hoppers often concentrate into dense moving bands which can vary in size from a few square metres to several hectares.

Adults: After the final moult, winged adults emerge and concentrate into swarms which make low drifting flights during the day. Locusts normally settle and do not feed at night.

Control: In Victoria, the control of locusts and the cost, is the responsibility of the landholders. Deep cultivation of egg beds will destroy the eggs, while hoppers and adults can be controlled by using insecticides such as Carbaryl, Fipronil, Diazinon, Fenitrothion, Maldison and Chlorpyrifos – none of these chemicals are registered for use on locust in citrus. It is best to direct insecticide sprays to hopper bands before they enter a crop.

However there is a biological control option that is registered for use in all crops. Green Guard<sup>®</sup> is based on *Metarhizium*, a naturally occurring, insect specific fungus that has been formulated for use as an insecticide to target locusts. Locusts are infected when *Metarhizium* spores attach to the insect. The spores germinate and penetrate the cuticle growing into the body and internal organs of the insect. Mortality usually occurs 8-21 days after treatment, therefore it is advisable to treat when locusts are in the early hopper stages.

Other Options: Citrus is not a preferred food for locusts, but they will feed on citrus if their preferred diet, summer grasses) is not available. Young trees and new leaf flushes are more likely to be affected by locust feeding. However, large citrus trees have been targeted by locusts in the Longreach area in Queensland. One Sunraysia grower has reported young citrus trees being defoliated from locusts feeding on leaf petioles (see photo). Growing a cover crop between small trees may help keep locusts off young trees. Spraying kaolin clay products also seems to interrupt feeding behaviour, whether this is due to the change in colour of the foliage or the unpalatability of feeding on these leaves, is uncertain.

Growers should be aware that the recent incursion of plague locusts in the Sunraysia area has resulted in large egg beds being laid. A consequence of this is that large bands of plague locust hoppers may emerge in spring and, therefore, control options will need to be instigated before the emerging adults move into citrus orchards to feed. For more information please contact your local agronomist or reseller.