

Management of the Australian Plague Locust in citrus orchards in NSW: Frequently asked questions.

Will locusts feed on citrus trees?

Locusts have a preference for green grass or herbage – but if none is available they will feed on anything green including citrus trees. On rare occasions, citrus have been attacked by adult locusts. Although locust nymphs (wingless immature stage) can attack citrus, they can usually be observed developing or moving on the ground into the orchard, allowing control measures to be implemented before they cause too much damage. Chemical control is most effective in the 'banding' stage which occurs at the 2nd to 3rd instar stage, about 7-10 days after hatching.

What to look for and where?

Adult locusts prefer to lay eggs on compacted undisturbed ground and bare earth areas such as unsealed roads, nature strips, road sides and unploughed paddocks. It is important to actively monitor your property and neighbouring areas throughout the season for any signs of locust activity. When nymph locusts first emerge they are translucent, wingless and very difficult to see. After 1-2 days in the sun they turn darker and become more noticeable. They are usually about 3-4mm long. Around the 2/3rd instar stage of development they begin to congregate in a band. These bands are generally 1-2m in width and can vary in length from a few metres to 1-2 kilometres. Nymphs, after 5 instar stages of growth, then fledge and develop into adult locusts. Adult locusts have fully developed wings and can swarm and migrate to other areas.

When will they appear?

In 2010, in southern NSW the first hatching is expected to commence mid to late September, depending on temperature and weather conditions. Hatching will occur a few weeks earlier (end of August) in northern NSW and southern Queensland. Swarms that develop in the northern parts of the State can migrate to southern areas under favourable conditions.

How fast can locusts move?

Nymphal locusts can move up to a few hundred metres per day looking for fresh green herbage. However, adult locusts can move hundreds of kilometres in a day, usually on weather fronts that move through the State.

What to do when you see locusts?

There is a requirement to report all locust activity. **For the NSW Sunraysia region if locust activity is seen on horticultural properties please report this to the Dareton Department of Industry & Investment NSW (I&I NSW) office.** For locust activity in NSW broadacre and pasture properties report this to the local Livestock Health and Pest Authority (LHPA). It is vital that everyone plays their part and reports any locust activity. Your report will be assessed and prioritised for inspection.

How do I control nymph locusts?

The control of locusts is **most effective when undertaken at the nymphal 'banding' stage.** When locusts are in these dense bands they are congregated together and this reduces the need for broad-acre spraying. **All NSW property owners are legally obliged to report and control locusts** on their property under the *Rural Land Protection Act 1998*. If the locusts meet a certain density criteria then the LHPA can supply landholders with insecticides such as fenitrothion, or chlorpyrifos at no charge. The landholder is responsible for applying the insecticide and the person conducting the spraying must have chemical accreditation (AQF 3). The biological control agent metarhizium, will be strategically issued for use in

sensitive areas such as organically accredited farms. The only insecticides/biological agent that can be used for locust control in **citrus orchards are metarhizium which is registered, or maldison and chlorpyrifos** which are both covered by an APVMA permit (Permit 11843, expiry date 30/10/11).

Metarhizium is a biological control agent (fungus) which takes between 7-21 days to take effect. Metarhizium will only be supplied in special circumstances (e.g. near sensitive areas, organic farms). Maldison and chlorpyrifos are the main control options for citrus orchards. Chlorpyrifos can be supplied by the LHPA (via the Department of I&I NSW in Sunraysia) if locust densities meet certain criteria. Maldison is not supplied by the LHPA. If you purchase maldison or any other insecticide there is no rebate or subsidy. You are able to control locusts prior to an inspection using your own chemicals at your own cost. Maldison and chlorpyrifos are contact insecticides with stomach (ingestion) and respiratory properties. Follow all label and permit directions, comments and recommendations carefully, including withholding periods to meet maximum residue limits in fruit and re-application periods. Be aware that maldison and chlorpyrifos are toxic to bees and other beneficial insects and can interfere with integrated pest management programs.

The **best time for insecticide control is when the locusts are ‘banding’**. Apply insecticides using a boom or boomless jet. For best results, spray the locust band as well as the area directly in front of the moving band (i.e. at least 5-10m ahead). Not all locusts will be hit with the spray but should be controlled when they eat the foliage in front of them and make contact with each other. Sprayed locusts can take 1 to 2 days to die. To avoid spray drift onto non-target areas/crops, use the boom as per label instructions and use appropriate nozzles (please refer to the Department’s Spray Drift Agnote available at www.dpi.nsw.gov.au). Since the locusts favour grass, there should be no need to spray the actual citrus trees. It is a requirement under the pesticides Act to keep spray records.

Can I control adult locusts?

Citrus foliage is not the ideal food for locusts and they will only feed on citrus if all other favoured food sources are exhausted. Adult locusts could be in the orchard, but may only be moving through as a swarm causing minimal or no damage. Citrus trees can remain productive with up to one third of the foliage removed. The spraying of adult locusts once they have swarmed and are mobile is considered to be ineffective and raises safety concerns. Mobile swarms are extremely difficult to target with the pesticide spray and it is also hard to implement effective spray buffers to avoid spray drift onto sensitive areas. The locusts will generally fly away from the spray and even if some insects are hit and die, many more will soon return. Most organophosphate insecticides (i.e. maldison and chlorpyrifos) have low residual activity. Please refer to the label for further details. In high risk situations (i.e. young trees) contact your local Department of I&I NSW Citrus Extension Officer for information on strategies.

Where do I get more information?

More detailed information on plague locusts is available from the Department of Industry and Investment NSW website at www.dpi.nsw.gov.au. Information includes:

- Drift management for spraying plague locusts;
- Situation reports, hatching dates, the biology of plague locusts & how to identify them;
- Land holder chemical control strategy brochure and chemical permit information;
- Frequently asked questions (FAQ).

Contact numbers

- Reporting locust activity in Sunraysia horticultural orchards. **Department of Industry & Investment NSW Sunraysia region:** 035019800.
- **Livestock Health and Pest Authority** – Reporting locust activity and control information in Riverina and Sunraysia pasture and non-crop areas. **Sunraysia:** 03 5027 3064 **Riverina:** 02 69593077
- For further information on control of locusts in citrus – I&I NSW. **Sunraysia:** Steven Falivene- P:0350198405, M: 0427208611. **Riverina:** Andrew Creek- P: 02 6960 1312, M: 0428 429 765.