

## AUSTRALIAN BUG

*Icerya purchasi* Maskell

### 1 PEST PROFILE

#### 1.1 Distribution and status

The Australian bug (also known as cottony cushion scale) occurs on citrus in all areas. It also has a wide range of other host plants. The pest status of this insect is usually minor as a result of effective biological control. Population outbreaks sporadically occur as repercussions in association with the use of IGRs, in particular Nemesis. This usually occurs in orchards near to those sprayed with Nemesis. Outbreaks seldom occur in Nemesis-sprayed orchards because Nemesis also suppresses Australian bug if application coincides with the presence of the young life stages.

#### 1.2 Description

These insects can be easily identified by the white, approximately 8 mm long, fluted egg sac secreted by the adult female. Adult males are dark red with grey wings but are rare. The adult females often settle on older wood and can reproduce without mating. Eggs in the egg sac are bright red and give rise to red nymphs with black legs and antennae. These crawlers settle along leaf veins and young wood. Second and third instar nymphs secrete a yellow-white wax covering. Immature stages produce copious amounts of honeydew resulting in sooty mould (see SOFT SCALES for more information on honeydew and related problems).

#### 1.3 Infestation sites on tree

The Australian bug is primarily a pest of the tree framework. Heaviest infestations are likely to occur on the twigs and branches in the foliage canopy. It occurs less frequently on leaves and seldom on fruit.

#### 1.4 Damage

##### 1.4.1 Symptoms

The large white egg sacs, together with sooty mould deposits on foliage and twigs in their

immediate vicinity, are usually the primary indicators of infestation.

Malformed leaves with the midrib bent to one side can also be indicators of Australian bug presence, although this type of damage is also caused by mealybugs. Ant presence in the tree is usually associated with infestations of Australian bug or other honeydew-producing insects.

Heavy infestations of this pest can cause leaf and fruit drop and general loss of tree vitality.

##### 1.4.2 Seasonal occurrence

The tree framework provides a permanent base for the Australian bug. The pest has three to four generations per year and is likely to reach peak seasonal density from mid-summer to autumn. In the absence of biocontrol, population levels will usually remain stable during winter in the milder climatic regions and may decrease in colder regions, before again increasing in spring. The degree of infestation is usually related to the extent that ants and/or insecticide treatments have reduced the presence of its major natural enemy, the vedalia beetle, *Rodolia cardinalis* Muls. and other *Rodolia* spp. Damage to young leaves is most likely to occur on growth flushes produced during spring and autumn.

## 2 MANAGEMENT ASPECTS

### 2.1 Infestation/Damage assessment

#### 2.1.1 Inspection

The tree framework and young leaves of new growth flushes should be inspected at monthly intervals.

#### 2.1.2 Treatment threshold

When regular inspection indicates an increase in Australian bug, ensure that ant control is adequate in infested trees. In addition, surveys should be conducted to ascertain whether the vedalia beetle is preying on the population. The combination of ant control and beetles is likely to ensure commercial control of the pest. If beetles are absent and a noticeable increase in pest presence is recorded with a resulting increase in sooty mould, then chemical treatment can be

resorted to.

precautions when using oil.

## 2.2 Control options

Although narrow range oil sprays are registered for the control of this pest, experimental evidence has shown that they are not effective. Two other OPs registered for the control of other citrus pests have been found to be effective in controlling Australian bug. These are Curacron at 75 ml/hl and Ultracide at 100 ml/hl, both with the addition of a wetting agent.

### 2.2.1 Biological

In the latter part of the last century the Australian bug became a major international citrus pest. The discovery of its predator from Australia, the vedalia beetle, *R. cardinalis*, and its introduction into affected plantings resulted in remarkable control of the pest insect. The dramatic turn-around in the international pest status of the Australian bug was of primary importance in focusing attention on the economic role that can be played by natural enemies of pests.

The adult vedalia beetle is 4 to 5 mm in length and has irregular orange-red and black markings on its wings. Both adults and larvae feed on all stages of the Australian bug.

### 2.2.2 Cultural

There are no direct cultural options for the control of this pest. Where ant control is implemented by means of trunk treatments, then trees will need to be skirted, and weed growth suppressed to maintain the integrity of the trunk treatments.

### 2.2.3 Plant protection products

The use of these products should only be necessary in extreme cases where biological control does not occur. If possible, apply spot sprays to infested areas. The following OPs are registered for the control of Australian bug, but for most markets should not be applied to fruit.

Products	Dosage/100 ℓ water
Folimat + narrow range oil*	50 ml + 1.0 - 1.5 ℓ
Malathion EC	300 ml
Malathion WP	500 g
Parathion EC	125 ml
Parathion WP	300 g

\* See RED SCALE in Chapter 3 for