

# Mealybugs in southern citrus

# Fact sheet

Mealybugs (family Pseudococcidae)

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Table 1. Risk and monitoring period for mealybug activity.

Flowering			Fruit drop		Golf ball			Colour break	Maturation		
Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul

## Description

Mealybugs are oval-shaped, soft-bodied insects that are 3–4 mm long and covered with white, mealy wax. They are often found between touching fruit, under the calyx (Figure 1) or in the 'navels' of oranges (Figure 2). There are several species of mealybugs. The long-tailed mealybug (*Pseudococcus longispinus*) is the predominant species in the Riverland, Sunraysia and Riverina regions. The citrophilus mealybug (*Pseudococcus calceolariae*) is mainly found in the Riverland and Sunraysia regions.

Other mealybugs include the citrus mealybug, spherical mealybug, and Rastrococcus mealybug. The latter 2 are currently found in Queensland and costal NSW only. Cottony cushion scale also looks superficially similar to mealybugs.

The tail filaments of the long-tailed mealybug are as long as or longer than the body (Figure 3). When squashed, the body fluid is pale yellow. The tail filaments of the citrophilus mealybug are much shorter and thicker than long-tailed mealybug (Figure 4) and the body fluid is claret-red.

## Life cycle

There are 3 to 4 generations a year. Long-tailed mealybug females produce around 200 live crawlers over 3 weeks that they deposit under their body. Crawlers are pink and less than 1 mm in size.

Citrophilus mealybug lays up to 500 eggs in a cottony egg sac. These hatch in a few days to become crawlers.

## Damage

Mealybugs feed on sap and excrete honeydew, which encourages the growth of sooty mould (Figure 5) and other fungi. Sooty mould spoils the appearance of fruit. Other fungi can grow on the honeydew and cause fruit rot. Mealybugs are a quarantine pest of concern for some countries.

**Risk period:** November to April (Table 1).

## Monitoring

Use a 10x hand lens to check fruit for mealybugs fortnightly from November. After December, monitor monthly until fruit maturation. Examine under the calyx and in autumn also check the navel end of navel.

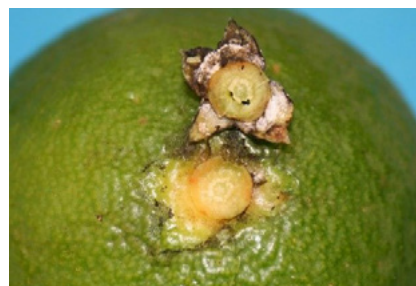


Figure 1. Long-tailed mealybug under the calyx.



Figure 2. Long-tailed mealybug inside an orange navel.



Figure 3. Long-tailed mealybug adult. Photo: Baker and Huynh (2016).



Figure 4. Citrophilus mealybug adult. Photo: Baker and Huynh (2016).



Figure 5. Sooty mould caused by mealybug infestation.

## IPDM for the citrus industry



This project has been funded by Hort Innovation using the citrus research and development funds from the Australian Government. For more information on the fund and the strategic levy investment, visit [horticulture.com.au](http://horticulture.com.au)

oranges. It is important to monitor and detect early stages before fruit are heavily infested or marked with sooty mould.

## Management and control

**Cultural:** implement alternate row slashing to enhance beneficial insect numbers. Manage ant colonies, as ants will actively defend pests from natural predators. It is important to understand the habit of the ant species causing the problems before choosing an ant management strategy.

**Biological:** mealybugs can be managed by natural predators such as lacewing larvae, the cryptolaemus lady beetle, and the tiny two-spotted lady beetle (Figure 6). They are also attacked by several parasitoid species. Natural predators are very effective as they can get inside the tree canopy and tight places where mealybugs live. Lacewing larvae and the cryptolaemus lady beetle are commercially available. *Cryptolaemus montrouzieri* is an Australian native and a very effective biocontrol agent (Figure 7 and Figure 8).

**Chemical:** mealybugs are difficult insects to manage using pesticides alone. Consult your pest control specialist for registered chemical control options. Make considered chemical choices to protect natural predators.

## More information

Baker G and Huynh M. 2016. Identifying mealybugs on inland Australian citrus. South Australian Research and Development Institute factsheet, [https://www.pir.sa.gov.au/\\_\\_data/assets/pdf\\_file/0007/285532/Identifying\\_Mealybugs\\_on\\_Inland\\_Australian\\_Citrus\\_Fact\\_Sheet.pdf](https://www.pir.sa.gov.au/__data/assets/pdf_file/0007/285532/Identifying_Mealybugs_on_Inland_Australian_Citrus_Fact_Sheet.pdf)



Smith D, Beattie GA and Broadley R. 1997. Citrus pests and their natural enemies: integrated pest management in Australia. Queensland Department of Primary Industries, <http://hdl.handle.net/10462/pdf/9446>

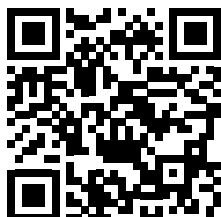


Figure 6. Two-spotted lady beetles are mealybug predators.



Figure 7. *Cryptolaemus montrouzieri* adults.



Figure 8. *Cryptolaemus montrouzieri* larvae.

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