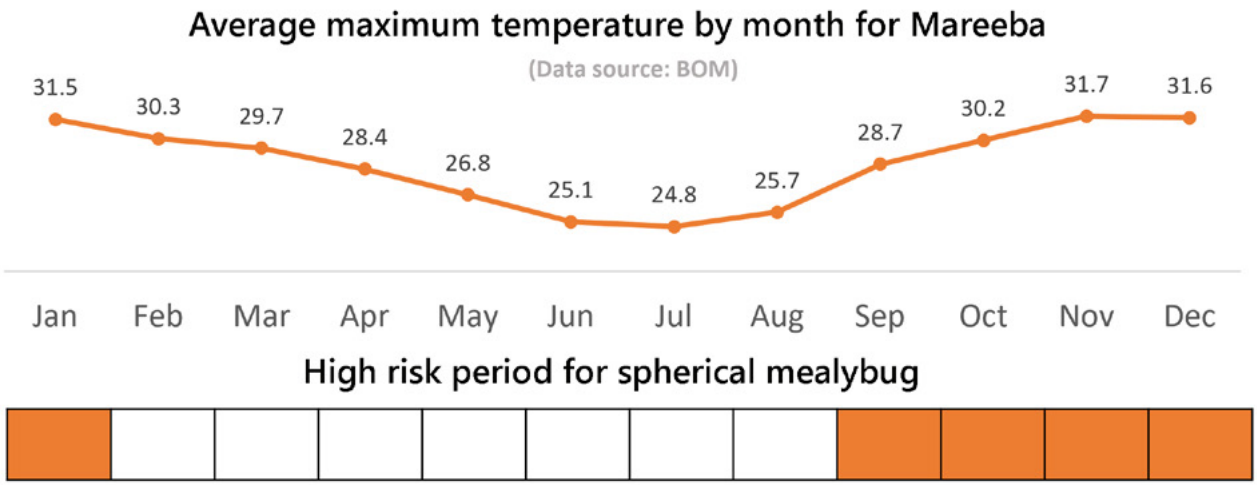
Spherical mealybug

Nipaecoccus viridis

Factsheet

Emily Pattison, QDAF, 2022



Description

Distribution: spherical mealybug is only considered to be a major issue in the north Queensland citrus production region (Figure 1), where it increases in population with higher temperatures in late spring.

General appearance: adult female spherical mealybugs are 2.5–4.0 mm long, oval, slightly flattened and covered with a thick layer of creamy wax. Under the wax, the body is purplish or dark brown. The eggs are deposited in a white, striated hemispherical egg sac, which covers the female, giving the mealybug its distinct spherical shape. The eggs and crawlers are purple.

Habit: spherical mealybugs often 'clump' together in high populations (Figure 2 and Figure 3). At low populations, they are usually found around the calyx or wedged into grooves. Young stages produced by females overwintering in tree limbs move onto young shoots and fruit in spring, and infestations are often found inside trees.

Figure 1. Distribution of spherical mealybug in Australia.

Figure 2. Clusters of spherical mealybug on fruit.

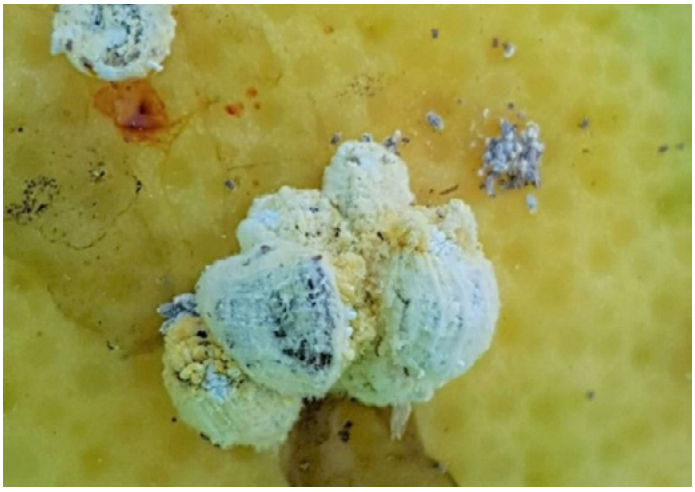


Figure 3. A magnified image of spherical mealybug.

IPDM for the citrus industry

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Similar pests

Spherical mealybug is similar to citrus mealybug, which can also be found in the region. However, the spherical mealybug has a distinct half-sphere, whereas the citrus mealybug is longer, appearing more ovular.

Life cycle

The female spherical mealybug lays batches of eggs into an egg sac she has secreted a few days before the start of egg laying. Each female lays 500 eggs. Female mealybugs pass through 3 moults before reaching adulthood. Male mealybugs pass through 4 moults before emerging as fragile-winged adults. The complete life cycle takes about 3 weeks.

Damage

Spherical mealybugs produce lots of honeydew, which can cause sooty mould (Figure 4), downgrade fruit marketability and reduce the leaves' photosynthetic capacity. They can also move onto young flush and fruit, which causes a severe reaction, resulting in a twisted or puckered appearance (Figure 5).

Thresholds: low thresholds are recommended from September and into December.

Monitoring

Early detection is key to being able to control populations. Look inside citrus trees, monitoring for the distinct distortion of flush, which is generally the first sign of mealybug presence. Ants will often be present, feeding on the honeydew. Further into spring, they are more likely to move to the outside of trees, where they can be found in clusters or hiding in wedges, such as the calyx.

Management and control

Biological: a well-executed biological control program is often more effective than chemical options. Ant control is one of the main considerations because spherical mealybugs form a symbiotic relationship with ants, exchanging honeydew for protection. Ant control should proceed any beneficial insect releases. Additionally, as spherical mealybug are adapted to high temperatures, beneficial insect releases should begin in early spring so they can establish before the temperatures rise. If spherical mealybug has been in the block previously, beneficial insect releases can begin before any detection.

Cryptolaemus montrouzieri is a commercially available lady beetle known for being very effective against mealybugs. They are often present naturally in low numbers, however, augmenting their populations in the field can be a powerful tool for mealybug control. *Cryptolaemus* larvae are similar in appearance to mealybugs, however, the white filaments of the *Cryptolaemus* larvae are much longer (Figure 6).

Chemical: there are currently no registered chemicals for use on spherical mealybugs.

Figure 4. Sooty mould and wax residue left on fruit from a spherical mealybug infestation.

Figure 5. Contortion of the flush caused by spherical mealybug.

Figure 6. *Cryptolaemus* larva (top) and spherical mealybug (middle).

More information

Bugs for Bugs

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