MARQUIS
MACADAMIAS

25/10/2023

Leptocoris in Macadamias

Key Points

- *Leptocoris* can feed on all nut stages.
- Adult *Leptocoris* secrete enzymes that can penetrate hardened shells, allowing them to feed on mature nuts.
- *Leptocoris* favour dry weather, so pressure will be higher in dry seasons.
- Beta-cyfluthrin (Bulldock®, Cyborg®) will not control *Leptocoris.*
- *Leptocoris* remain in the crop until the food source disappears or a preferred food source emerges.
- Consistent monitoring is critical to understanding *Leptocoris* presence within orchards.

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Introduction

Leptocoris species are found all over Australia. Three of the five known Australian *Leptocoris* species, *L. rufomarginatus, L. tagalicus and L. mitellatus* (Carroll et al., 2005), are found in Australian macadamia growing regions.

Leptocoris belong to the family Rhopalidiae. They are commonly called 'Soapberry bugs' as they feed on seeds of plants in the Soapberry family (Sapindaceae), which includes native and exotic species. Similar to Fruitspotting bugs (FSB), *Leptocoris* bugs are a pest of macadamias.

Identification

Adult *Leptocoris* are generally narrow, approximately 13 -18mm long and red and black. *Leptocoris* have seven life stages, an egg, five nymphal instars, and the winged adult.

Leptocoris are generally unpalatable to potential predators and aggregate on trees, rocks, and man-made structures to sun themselves without fear of predation. This swarming behaviour can make them easier to find than FSB in orchards.

When are Leptocoris bugs present in orchards?

Leptocoris feed on seeds. Known hosts include the native Foam bark tree (*Jagera pseudorhus*) (Figure 1) and the introduced environmental weeds, Golden rain tree (*Koelreuteria elegans*) and Balloon vine (*Cardiospermum grandiflorum*) (Figure 2).

Leptocoris will move into orchards and feed on developing and mature macadamia nuts when their preferred host plants have no fruit. Like FSB, *Leptocoris* can feed through hardened shell and also feed on nuts on the ground. The risk period for *Leptocoris* damage starts at nut set and runs until harvest.

Leptocoris pressure is heavily dependent on weather conditions. High-pressure seasons are typically dry and low-pressure seasons are typically wet, which is the opposite of FSB.

Figure 1. The distinctive furry orange seed capsules of Foam bark (Jagera pseudorhus) (left) and Leptocoris eggs laid inside a Foam bark seed capsule (right) (NSW DPI).

Figure 2. Alternative weed hosts of Leptocoris. Golden rain tree (right) showing the distinctive orange-pink fruits (Phillip's Natural World) and Balloon vine (left) showing the distinctive fruit (John Hosking).

What does Leptocoris damage look like?

Leptocoris feeding damage, similar to that caused Green Vegetable Bug (GVB), is shallower and a more defined white colour that resembles a 'cold burn' (Figure 3, left). In comparison FSB feeding damage is generally seen as sunken brown or translucent lesions in the kernel (Figure 3, right). From a production point of view, the presence of any insect stings will result in the kernel being rejected.

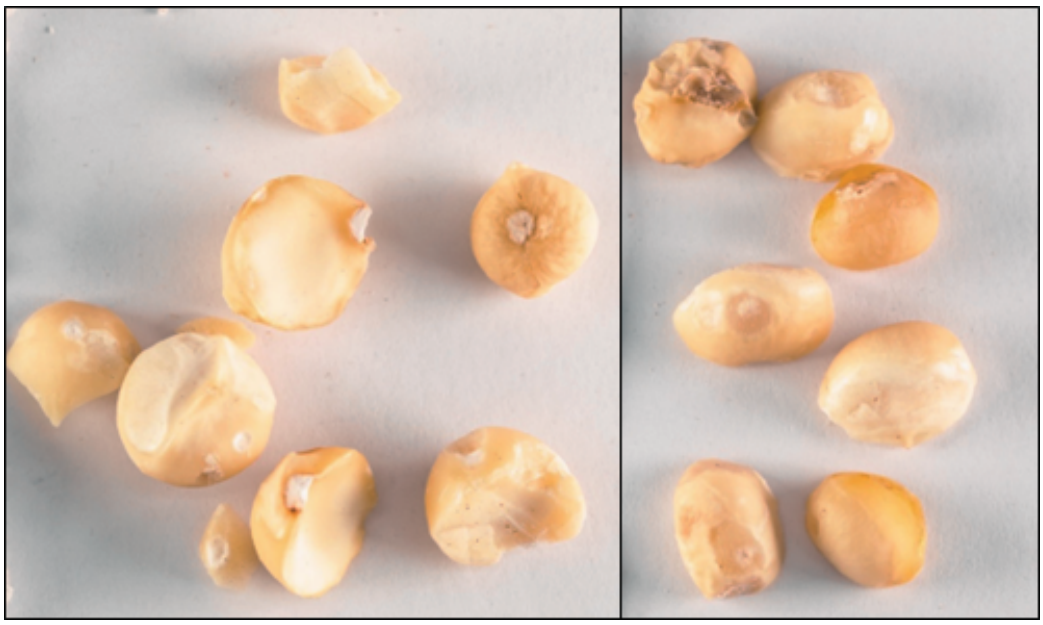

Figure 3. Leptocoris damage on mature kernel (left) and Fruitspotting bug damage (right). Both bug species were caged on mature nuts on the tree, by NSW DPI (Dallas Knock).

Monitoring

Consistent monitoring is critical to understanding *Leptocoris* presence and populations in orchards. Drop sheets are an effective tool for monitoring *Leptocoris* pressure. An informative article on drop-sheeting can be found on page 26 of the 2023-24 Macadamia Plant Protection Guide .

Experienced pest consultants are a valuable source of information and will be able to provide tailored management options.

Control options

Cultural control

Cultural control is the practice of modifying your orchard environment to reduce pest and disease pressure. Several cultural control options can make orchards less suitable for pests.

Canopy management options aim to encourage light and air and allow more effective spray coverage and penetration. Strategies include, reducing tree height, reducing canopy density by selective limb removal and reducing tree density by row removal. Orchards with open canopies and good groundcover in the interrow, tend to have less early season insect damage, more beneficial species in trees and on the orchard floor and higher nut yield. Dark orchards, those with closed canopies and no inter-row groundcovers, have significantly higher late season insect damage and lower nut yield.

Also, look to identify and possibly remove any host plants from within or around your orchard, especially weedy species. Common host plants include the native Foam bark tree and the exotic Balloon vine and Golden rain trees. A more complete list of host plants can be found at: Recommendations for native vegetation selection in consideration of major horticultural pests

Biological control

No known effective biological controls have been found for *Leptocoris.* The NSW DPI Entomology team have identified a fly that parasitises *Leptocoris*, suggesting that with further research an effective biological control may be found.

Chemical control

There are currently no chemicals registered to control *Leptocoris.* Chemicals and timing of sprays targeting FSB can provide off-target control for *Leptocoris*. Beta-cyfluthrin (Bulldock®, Cyborg®) will not control *Leptocoris.*

It is critical to know what pests are present in the orchard, so the most effective control measures are used. Consistently monitoring the orchard throughout the growing season is the only way to achieve this.

Information on FSB and its control can be found in the Marquis Macadamias Factsheet: Fruitspotting Bugs in Macadamias.

It is important that growers and contractors check the APVMA website for registered and permitted permits chemicals to ensure any sprays they intend to apply are approved for use on macadamias, that all agricultural chemicals users have the certification required by state legislation and all applications are made in accordance with label directions.

Disclaimer

For chemical recommendations, always check the label and product information prior to use. If the information you need is not on the label, either contact the reseller or manufacturer for the information or conduct a jar compatibility test. Remember that physical compatibility does not equal chemical compatibility. Ensure only registered and permitted products are used and the appropriate personal protective equipment is worn when mixing. All products listed are correct at the time of publishing.

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