

Sunn pest (*Eurygaster integriceps*)

EXOTIC PEST DETECTION & SAMPLING GUIDE



This resource has been developed as part of the collaborative program 'Boosting diagnostic capacity for plant industries'. Funding for this project is from the Rural R&D for Profit Program, Federal Department of Agriculture and Water, and the Grains Research and Development Corporation, with funds from other RDC's – Sugar RDC, Wine Australia, Cotton RDC, Forestry RDC, and Hort Innovation.



Cesar Australia

Background

Sunn pest is a common, collective name given to a specific group of sap feeding bugs from the Order Hemiptera. Of this 'Sunn pest' group, *Eurygaster integriceps* is a serious pest of cereal grain crops overseas. This species is found in Northern Africa, the Middle East, and Eastern Europe. It is an exotic pest and is not present in Australia.

How would I identify Sunn pest?

Identification by morphology

Adults are between 10-14 mm long and 6-7 mm wide. The body is more oval in shape than other shield-bugs, the head is a distinctive triangular shape, and body colour ranges from grey, brown to red. Colour alone is not a reliable indicator of morphological identification due to wide colour variance. Correct identification would require dissection and examination of the male genitalia and, therefore, a trained entomologist is required to assess adult morphology and confirm a detection.

Nymphs are smaller, more oval and paler in appearance than adults, with a brown to black head and thorax. They have two to three paired black dots along the midline of the abdomen. Nymphs can be morphologically cryptic and should be reared to maturation for accurate species identification. Eggs are spherical and approximately 1 mm in diameter, with a light green colouration. Eggs are generally laid in rafts of two even rows. Before hatching, eggs develop into a pink colour with an orange anchor-shaped mark at the apex.

Identification by damage

Overseas, the Sunn pest lifecycle is characterised by two phases: The active period when feeding occurs on cereal hosts and an inactive (non-feeding) period that starts after crop harvest, when the local climate turns hot and dry, at which point adults will find places to hibernate.

Sunn pest feeding damage varies by life stage. Juvenile stages feed on cereals from the booting stage to the end of the dough development stage. Younger nymphs tend to feed on the leaves while the final juvenile stage and adults are more likely to feed directly on grain kernels in order to build up fat reserves for the overwintering period (which lasts 9-10 months overseas). After over-wintering, adults fly back to cereal crops in spring to feed and lay eggs.

Severe infestations can result in dead hearts in cereal plants, characterised by withering of leaves, stem breakage prior to harvest and abnormal flowering, leading to grain abortion and empty heads (whiteheads). Release of salivary enzymes during feeding can further impact on the grain

quality. These enzymes break down gluten in the grain, reducing the baking quality of the flour.

On their own, pine sawyer beetles have limited impact on the host trees they infest and mostly attack trees that are already stressed or recently killed. The biggest risk these beetles pose is their potential to carry and spread exotic species of pine nematode (*Bursaphelenchus* spp.). Pine Wilt Disease caused by these nematodes can lead to rapid death of host trees, often within a few weeks or months.

How do I scout for Sunn pest?

Sunn pest is capable of long-distance flight (up to hundreds of kilometres) and can also spread through human-facilitated movement. Overseas, infestations are most abundant around crop edges, in close proximity to shelterbelts. Noticing unusual damage to cereal heads, reduced yields or reduced flour quality should be followed by in-field investigation.

Visually inspect a random sample of cereal plants in spring through to harvest. Look for evidence of nymphs, adults and feeding. Deploy sticky traps near shelterbelts around crop edges, and check traps frequently. Replace sticky panels every two weeks to avoid the traps being covered by debris and losing effectiveness. Sticky traps should be placed out in spring, when Sunn pest is likely to migrate into crops.

Could it be confused with an endemic species?

There are bugs belonging to the same subfamily (*Eurygastrinae*) in Australia. However, Australia does have established and native shield bugs that are morphologically similar to Sunn pest, including the small brown stink bug (*Caystrus pallidolimbatus*), glossy shield bugs (*Cermatulus* sp.) and the brown shield bug (*Dictyotus caenosus*). These bugs have similar colourings and body shape and could be confused with Sunn pest by the average observer.

However, a Sunn pest infestation would be distinctive for its impact on cereal crops and an attempt at identification should be paired with feeding damage observations.

What should I do if I suspect Sunn pest?

Sunn pest is a priority plant pest that is exotic to Australia. If shield-bugs are found in combination with unusual and severe feeding damage in a cereal crop call the **Exotic Plant Pest hotline on 1800 084 881**. The hotline will divert you to the appropriate state biosecurity agency, which will investigate the suspect detection further. To support an investigation you should take note of:

- The detection location (take a GPS coordinate using your phone);
- The host plant on which the suspect detection has been made;
- Damage symptoms (e.g. aborted grain kernels); and
- A photo of all life stages observed (taking close-up photos of the same specimen from multiple angles is most useful for identification).

Taking a sample

Taking a sample will also assist in a biosecurity investigation. Collect damaged plant parts along with a nymph or adult sample and place in a ziplock bag – double bagging of specimens is ideal. Label the bag with the date and collection location and keep in the fridge in case the sample is needed by the biosecurity agency.

Figure 2. Reporting decision making for Sunn pest (*Eurygaster integriceps*)

You have detected unusual damage in your cereal crops, including dead hearts, abnormal flowering and/or empty grain heads. **Should you report it?**

If you answer yes to the following question, it could be the **exotic Sunn pest** (*Eurygaster integriceps*). Report it!

1 Do you find small brown shield-shaped bugs, less than 2cm long, feeding in the grain heads and sometimes along leaves?

Yes

adults

light patches

banding

nymphs

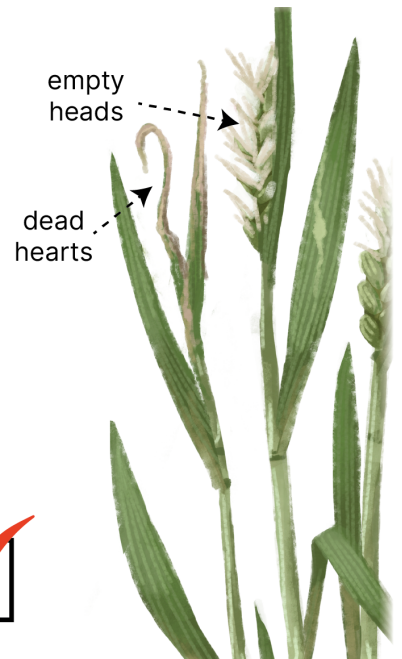
eggs

Adults can be coloured anywhere from light brown to nearly black, but usually always have two light spots near the top of the back, and alternating light and dark banding around the edge of the body.

Nymphs are smaller and show high colour variation and thus cannot be reliably identified.

Additional possible signs

You may also find eggs, about 1 mm in diameter, laid in two even rows along leaves which can be light green to nearly black with an orange anchor shape at the top.



Sunn pest looks similar to several Australian stink bugs such as small brown stink bug, glossy shield bug and brown shield bug, but it cannot be reliably distinguished in the field, so always take a sample and report!

¹ Natasha Wright, Braman Termite & Pest Elimination, Bugwood.org, CC BY 3.0

Figure design and all other illustrated components: Elia Pirtle, eliapirtle.com

More information

[Purdue University, Sunn pest \(*Eurygaster integriceps*\)](#)

