

Wheat stem sawflies (*Cephus cinctus* & *Cephus pygmeus*)

EXOTIC PEST DETECTION & SAMPLING GUIDE



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Background

The Wheat stem sawfly (*Cephus cinctus*) and the closely related European wheat stem sawfly (*Cephus pygmeus*) are wasp-like insects. Their larvae attack a wide range of cereal crops and other large-stemmed grasses. Neither species is present in Australia, but both of these pests cause significant damage and loss of yield to wheat, barley, oats and other grain crops in Europe and North America. There are no effective chemical control methods for these pests because they are very effectively shielded inside plant stems for most of their life cycle.

How would I identify Wheat stem sawfly?

Identification by morphology

Wheat stem sawfly adults are very similar in appearance to wasps. The head and body is shiny black with broad, bright yellow stripes on the abdomen, and the legs are mostly yellow. The more commonly seen females are up to 12 mm long (Figure 1). European wheat stem sawflies tend to be a little smaller. Females are generally up to 10mm long and the yellow stripes on the abdomen are thinner than the black stripes (Figure 2). The two species are difficult to tell apart accurately. For both species the males are smaller than females but are quite short-lived so are less likely to be observed.

The larvae are caterpillar-like in appearance with off white or very pale yellow bodies, tan coloured heads, and noticeably darker mouth parts. The larvae reach up to 15 mm long. Wheat stem sawflies have just one generation per year and overwinter underground within plant stems.

Identification by damage

Adults lay their eggs within plant stems. After hatching, the larvae remain and feed within stems and fill them with frass. This damages the plant by reducing nutrient flow so there may be noticeably reduced yield from significant infestations. Discolouration of infested stems may also be

visible externally. Mature larvae can neatly cut the stem of mature host plants near the plant base, causing lodging. The larvae will then seal themselves inside the cut stem until emerging as adults the following spring.

How do I scout for Wheat stem sawfly?

Adult wheat stem sawflies are likely to only be present for a few weeks each year so they may not be evident. To actively check for the presence of infested plants, several stems should be sliced open length-wise. This should reveal feeding damage and sawdust-like frass left behind by larvae. Eggs or the larvae themselves may also be present if the infestation is still current, although these may not be as obvious initially.

Could it be confused with an endemic species?

No species of wheat stem sawfly are currently present in Australia, and Australia does not have any wasps or other insects of similar appearance that are known to attack cereal crops. However, these exotic species do have a superficial resemblance to various types of wasps, both native and introduced. It may therefore require at least a reasonable level of expertise to identify the exotic pest species with accuracy.

Figure 1. Wheat stem sawfly (*Cephus cinctus*)

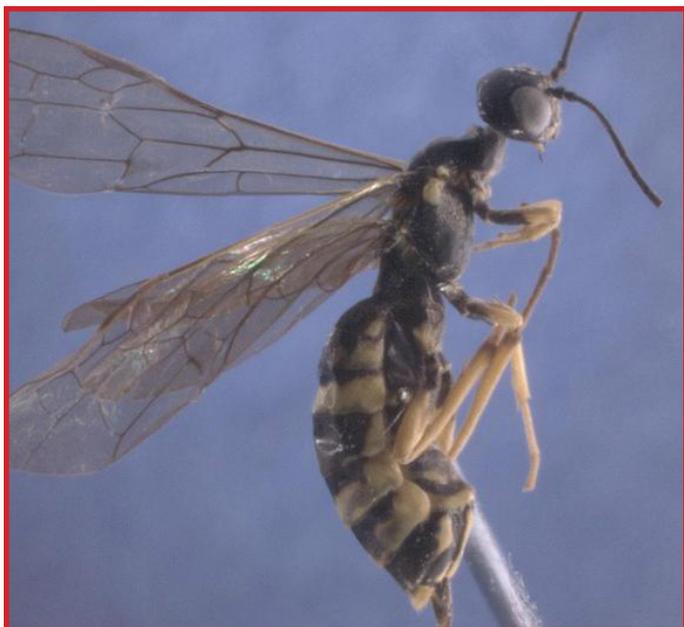


Figure 2. European wheat stem sawfly (*Cephus pygmeus*) abdomen



What should I do if I suspect Wheat stem sawfly?

Wheat stem sawfly species are priority plant pests, exotic to Australia. If you find any larvae similar to what is shown in Figure 3, which appear to have been feeding within the stem of a grain or other grass plant, 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. tunnelling in mature stems); 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. After slicing a sub-sample of stems to find evidence of larvae collect the larval infested stems by placing them in a ziplock bag – double bagging of specimens is ideal. Label the bag with the date and collection location and keep the stems in the fridge in case a larval sample is needed by the biosecurity agency. If suspect adult moths are found in any pest monitoring traps on the property, extract the moth and place it in a jar or vial with 80-95% isopropyl alcohol (rubbing alcohol) or methylated spirit.

Figure 3. Reporting decision making for Wheat stem sawflies (*Cephus cinctus* & *Cephus pygmeus*)

You have detected lopped off or discoloured stems, or noticeable yield reduction in your cereal crop. **Should you report it?**

If you answer yes to the following question, it could be one of the exotic **wheat stem sawflies** (*Cephus* spp.). Report it!

1 When you slice open wheat lengthwise, do you find feeding damage and sawdust-like frass? **Yes**

Additional possible signs

- You may see eggs and larvae, though these are sometime hard to spot and not always still present once the damage is noticed.
- You also may see adult wasps resting on stems.

Adult

Egg **Larva**

Australia has many wasps that may look outwardly similar as adults, but none are known to attack cereal crops. Any sign of feeding inside stems should be reported!

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

