

Sugarcane stem borer (*Chilo terrenellus*)

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.



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Background

The Sugarcane stem borer is a major threat to Australia's sugarcane industry. Currently this moth species only occurs in New Guinea and on some islands of the Torres Strait. It is not present in mainland Australia. They are particularly difficult to control because their feeding strategy enables them to evade both pesticides and natural enemies. The most likely way this species could be introduced to Australia is through illegal importation of infested plant material.

How would I identify Sugarcane stem borer?

Identification by morphology

Adults are small to medium-sized moths. Their wingspan is around 25 to 36 mm across, pale yellow-brown in colour with a few indistinct motley brown spots near the ends of the wings (Figure 1).

Eggs are laid in clusters of 10 to 100 on either side of sugarcane leaves, or sometimes on the stems. When the eggs hatch, the caterpillars feed on the top leaf sheaths and then tunnel into the sheaths or plant stems. Caterpillars reach 20 to 30 mm long when fully grown. They have dark brown heads and creamy-white bodies with strips of dark brown hairs along the sides.

Identification by damage

When larvae tunnel into semi-mature and mature sugarcane stalks they often kill the plant growing point and cause 'dead hearts' whereby the youngest unfolding leaves wilt and die. Tunnelling larvae also cause damage to sugarcane stalks can then be easily broken in high winds, and yield reduced sugar content. Tunnels made inside the stems render cane plants far more susceptible to fungal and other diseases, and to feeding from other pests, including Sugarcane weevil borer. The sugarcane stem borer is generally restricted to sugarcane and is not known to feed on other grasses or to attack other crops.

How do I scout for Sugarcane stem borer?

There are currently no major moth borer pests of sugarcane established in Australia, so growers should be on the lookout for any unusual moths within cane plantations, and any unusual damage to growing cane plants, including exit holes left by emerging moths. Adults may be difficult to observe as they are relatively short-lived and are usually only active at night.

To check for the presence of developing larvae, cane plants can be sampled by slicing stems horizontally and visually inspecting for tunnelling damage. Discriminating Sugarcane stem borer larvae from those of other pest moth borer species is difficult and expert advice should always be sought.

Could it be confused with an endemic species?

Feeding symptoms caused by Sugarcane stem borer caterpillars, where mature stalks are tunnelled, resemble those caused by the Sugarcane weevil borer that occurs in almost all cane-growing areas of Queensland. However, weevil borer larvae have the general shape and appearance of beetle grubs rather than caterpillars. Any initial damage to cane plants caused by stem borer caterpillars is liable to also attract weevil borers.

Figure 1. Sugarcane stem borer (*Chilo terrenellus*) adult and larvae



This guide covers the **Sugarcane stem borer** (*Chilo terrenellus*). Check the additional exotic guides for specific information for the other two possible exotic sugar cane borers.

What should I do if I suspect Sugarcane stem borer?

Sugarcane borer is exotic to Australia. If you have made a suspect detection 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 2. Reporting decision making for Sugarcane stem borer (*Chilo terrenellus*)

If you answer yes to EITHER of the following questions, it could be one of three **exotic sugarcane borer moths**. Report it!

1 Do you see clusters of 10 to 300 eggs on the tops or bottoms of leaves?

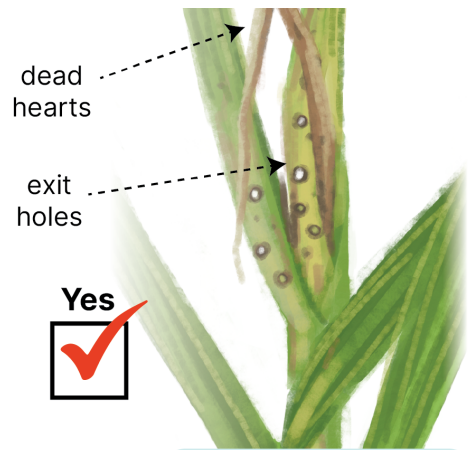
2 When you crack open a stem, do you find white, cream or pink coloured grubs with **visible legs** behind the head and along the body? (you might also see pupae inside stems)

Additional possible signs

At night time, you might see white, cream or brown coloured adult moths, 2 to 4 cm long.

S. excerptalis *S. griseocens* *C. terrenellus*

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But if the grubs have **NO visible legs**, it is likely the already established sugar cane weevil.

But if you see adult beetles, it is likely the already established sugar cane weevil.

More information

[NSW Department of Primary Industries, Sugarcane stem borer](#)

References

A. Carmichael, S. Anderson & L. Tran Nguyen (2005) Stem borer (*Chilo terrenellus*) Updated on 11/30/2021 [Available online: PaDIL](#)
 Grimshaw JF and Donaldson JF 2007. Records of two sugarcane pests *Eumetopina flavipes* Muir (Hemiptera : Delphacidae) and *Chilo terrenellus* Pagenstecher (Lepidoptera : Pyralidae) from Torres Strait and far north Queensland. *Australian Journal of Entomology* 46:35-39.