Pacific Pests, Pathogens & Weeds - Fact Sheets

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Sugarcane borer (277)

Photo 1. Larva of the sugarcane borer, *Chilo terrenellus*, inside the stem of sugarcane.

Photo 2. Damage by the sugarcane borer, *Chilo terrenellus*, weakens the internodes and makes the stems susceptible to breaking in high winds.

Photo 3. Adult sugarcane borer, *Chilo terrenellus*.

Common Name

Sugarcane borer, sugarcane internode borer

Scientific Name

Chilo terrenellus

Distribution

Narrow. Only recorded from Australia (from Saibai and Dauan islands in the Torres Strait), and Papua New Guinea.

Hosts

Sugarcane (*Saccharum officinale*), *Saccharum robustum*, and lowland pitpit (*Saccharum edule*).

Symptoms & Life Cycle

The larvae feed on sugarcane by tunnelling into the stalks (Photo 1). The larvae cause damage in two ways: (i) tunnelling (Photo 2) into semi-mature and mature stalks results in plants with poor-quality canes: death of the growing point, "dead hearts" (the youngest still unfolded leaves wilt and die), broken stalks and reduced sugar content; and (ii) the tunnels allow other pests to enter the canes and increase the damage.

Eggs are laid in overlapping clusters of 10-100 usually on the undersides of leaves, occasionally on the top surface or on the stems. At first, the larvae feed together on the leaves, and then they separate and bore into the stems or leaf sheaths. The larvae are 20-30 mm long when mature. They pupate within the stems. The forewings of the adults are 12.5-18 mm, whitish, with dark patches (Photo 3). Some adults are dark brown. They live for 1-6 days.

Spread of the moths over long distances is likely in infested cane used for planting.

Impact

In Papua New Guinea, *Chilo terrenellus* is a pest of sugarcane in the Markham and Ramu valleys. Since the late 1980s, the damage to commercial plantations has increased because of severe outbreaks of *Ramu stunt virus* which required a change of varieties. Losses today are about 10%, although they can be greater if wounds made by the larvae are invaded by the red rot fungus, *Colletotrichum falcatum* (**see Fact Sheet no. 221**).

However, damage from the sugarcane borer is not as damaging as that from the pink sugarcane borer (*Sesamia grisescens*), judged the most serious pest at Ramu Agri-Industries Limited in the Ramu Valley (**see Fact Sheet no. 278**). The new varieties bred for tolerance to *Ramu stunt virus* were found to be particularly susceptible to *Sesamia*.

Detection & inspection

Look for eggs on the underside of leaves. Look for tunnels, split the canes and look for the larvae. The larvae do not leave frass inside the stalks as do *Sesamia* larvae.

Management

NATURAL ENEMIES

In the 1980s, two larval parasites, *Apanteles (Cortesia) flavipes* and *Bracon chinensis*, from India were introduced to Papua New Guinea against the stem borer, *Chilo infuscatellis*, a minor pest of sugarcane at Ramu Agri-Industries Limited, propagated and many thousands were released, but failed to establish. The search for additional parasites continues.

An indigenous strain of *Apanteles (Cotesia) flavipes*, which appears to differ from the Indian strain, and the ichneumonid wasp, *Enicospilus terebrus*, are important parasitoids of *Sesamia grisescens* larvae, but parasitism of *Chilo terrenellus* larvae by both of these parasites is low in the field (0-20%).

CULTURAL CONTROL

Before planting:

- Remove volunteer plants to reduce carry over of stem borers from one crop (or growing season) to the next.

During growth:

- Ensure plants have adequate nutrients, nitrogen in particular, but do not add excessive amounts which may increase susceptibility to borers.

After harvest:

- Collect plant debris after harvest, and burn it.
- Practice crop rotation if damage from borers is high; either fallow the land or plant an alternative crop, for instance, a legume food crop or a cover crop, such as *Mucuna* or *Pureraria*.

RESISTANT VARIETIES

Varieties with tolerance to *Chilo terrenellus* have been selected or bred in both Papua New Guinea and Australia. Varieties bred in Australia have been field tested at Ramu Agri-Industries Limited to check their resistance.

CHEMICAL CONTROL

Although insecticides have been used in the past, the main method of control is with tolerant varieties.

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Information from Sallam MS, Allsopp PG (2002) BSS249 Preparedness for border incursion, *Chilo* incursion management plan. Version 1. BSES Publication Project Report PRO2008. Bureau of Sugar Experiment Stations, Queensland, Australia. (http://www.planthealthaustralia.com.au/wp-content/uploads/2013/03/Chilo-species-CP-2002.pdf). Photos 1-3 Carmichael A, *et al.* (2012) Stem borer (*Chilo terrenellus*). PaDIL - (http://www.padil.gov.au).

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