

Rice yellow stem borer (533)

Summary

- Moderately widespread – not in Americas or Caribbean. In Australia, PNG.
- Rice, cultivated and wild. Major pest of lowland and deep-water rice.
- Eggs (groups of 80) on upper half of seedling leaves, covered in scales; larvae white at first, bore into stems causing deadhearts (vegetative stage) or whiteheads (panicle stage), pale yellow to yellowish-green, brownish head; up to 20mm. Pupate in silken cocoons in base of stems or below ground in stubble, remaining dormant during adverse conditions (e.g., droughts). Female pale-yellow or light-brown forewings with single black spot; wingspan 32mm. Males, two rows of spots at tips of forewings.
- Spread: eggs on seedling; larvae blown in the wind on silken threads; as pupae in harvested stems, and on machinery; as adults on the wing.
- Biosecurity: risks associated with produce contaminated with rice stems (straw) containing larvae and/or pupae.
- Biocontrol: parasitoids – *Telenomus*, *Tetrastichus*, *Trichogramma* species; predators – long-horned grasshoppers, spiders.
- Cultural control: prepare land well (destroy pupae from previous crop); use short, early-maturing varieties; before transplanting, hand-pick eggs, or cut upper parts of leaves; avoid over-lapping crops; raise irrigation level periodically; weed; remove deadhearts and kill larvae; apply split N applications; harvest at ground-level; plough in stubble; if possible, irrigate field.
- Chemical control: economic threshold: i) count egg masses on 20 hills diagonally across field; ii) collect eggs iii) incubate; v) spray, if more parasitoids emerge than larvae. Avoid broad-spectrum insecticides; use bt; abamectin, or spinosad.

Common Name

Yellow stem borer. It is also known as the paddy stem borer, yellow rice borer.

Scientific Name

Scirpophaga incertulas; previously known as *Chilo incertulas*. There are other *Scirpophaga* species on rice (see **Fact Sheets nos. 408, 411, 412**), and there has been confusion in the past in the identification of *Scirpophaga incertulas*, with males and females thought to be different species. A member of the Crambidae (snout moths).



Photo 4. Larvae of rice yellow stem borer, *Scirpophaga incertulas*. Note, the black head. At maturity the larvae are about 20 mm long.



Photo 6. As in Photo 5, but darker, rice yellow stem borer, *Scirpophaga incertulas*.



Photo 1. Damage ('deadheart') to rice stem by *Chilo auricilius* (damage by *Scirpophaga incertulas* is similar).



Photo 2. 'Whitehead' - a symptom caused by stem borers: the base of the panicle is damaged preventing it from emerging or, if already emerged, the grain is unfilled and white.



Photo 3. Similar to Photo 2 - 'Whitehead' - a symptom caused by stem borers: the base of the panicle is damaged preventing it from emerging or, if already emerged, the grain is unfilled and white.



Photo 5. Adult rice yellow stem borer, *Scirpophaga incertulas*, light-brown with single black spot on each forewing.

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Information from Stem borer Rice Doctor IRRI (https://keyserver.lucidcentral.org/key-server/data/0e090d01-0209-460e-810c-0d060708030c/media/Html/Stem_borer.htm); CABI (2021) *Scirpophaga incertulas* (yellow stem borer). Crop Protection Compendium. (<https://www.cabi.org/cpc/datasheet/49009>); and *Scirpophaga incertulas* (2021) Wikipedia. (https://en.wikipedia.org/wiki/Scirpophaga_incertulas); and Rice stem borers in the Philippines (1999) Department of Agriculture, Philippines Rice Research Institute. Rice Technical Bulletin No. 20. Maligaya, Philippines. (<https://www.pinoyrice.com/wp-content/uploads/rice-stem-borers-in-the-philippines.pdf>); and from Cohen MB, et al. (2000) Dispersal by larvae of the stem borers *Scirpophaga incertulas* (Lepidoptera: Pyralidae) and *Chilo suppressalis* (Lepidoptera: Crambidae) in plots of transplanted rice. Environmental Entomology 29(5): 958–971. Photo 4 Yellow stemborer: *Scirpophaga incertulas*. Part of the image collection of the International Rice Research Institute (IRRI). (<https://www.flickr.com/photos/ricephotos/368501400/in/gallery-43285328@N08-72157622553615840/>). Photo 5 Shino Jacob Koottanad *Scirpophaga incertulas*, rice yellow stem borer. (https://commons.wikimedia.org/wiki/File:Scirpophaga_incertulas_-_moth.jpg). Photo 6 *Scirpophaga incertulas* Walker, 1863. Observed in India by Subhadra Devi. (<https://www.gbif.org/occurrence/3112620985>).

Produced with support from the Australian Centre for International Agricultural Research under project HORT/2016/185: *Responding to emerging pest and disease threats to horticulture in the Pacific islands*, implemented by the University of Queensland, in association with the Pacific Community.

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