Pacific Pests, Pathogens and Weeds - Online edition

Rice white stem borer (411)

Summary

- Restricted. Southeast Asia, Oceania. In Australia, Papua New Guinea.
- Severe on rice and wild rice if attack comes at flowering stage.
- Larvae tunnel between stem and leaf sheaths to the growing point, killing it; stems pull out easily ('deadhearts'). Panicles fail to emergence, or emerge with white unfilled grain ('whiteheads').
- Eggs laid up to 100 near leaf tips, covered in hairs. Larvae white to yellowish when mature, 25 mm long. Pupae white. Adults white, wingspans 18-33 mm (males smaller than females). Nocturnal.
- Note, larvae go through resting period (diapause) for several months if conditions unfavourable. Where crops one a year and long-maturing, diapause means many moths emerge at one time.
- Natural enemies: many egg and larval parasitoids and predators.
- Biosecurity: introduction possible on produce contaminated with infested stems of host plants.
- Cultural control: plough land well (IMPORTANT to bury larvae/pupae of previous crop) and direct seed; cut tips of seedling to remove eggs; plant at higher density than normal; rotate, e.g., legumes; synchronise plantings with neighbours; submerge eggs by raising water occasionally; weed; apply split applications N; harvest at ground level to remove larvae; plough in stubble, unharvested plants and weeds; in irrigated rice-rice-fallow systems use medium (135-140 day) varieties so diapause is incomplete when time to replant.
- Chemical control: unlikely to be needed. Use abamectin. Avoid broad-spectrum insecticides to preserve natural enemies.

Photo 1. Adult rice white stem borer, *Scirpophaga innotata*.

Photo 2. Adult rice white stem borer, *Scirpophaga innotata*.

Photo 3. Damage ('deadheart') to rice stem by *Chilo auricilius* (damage to *Scirpophaga innotata* is similar).

Common Name

Rice white stem borer

Scientific Name

Scirpophaga innotata. A moth in the Crambidae.

Photo 4. '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.

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Information (and Photo 4) from Rice Knowledge Bank. IRRI. (http://www.knowledgebank.irri.org/training/fact-sheets/pest-management/insects/item/stem-borer); and CABI (2017) Scirpophaga innotata (white rice stem borer). Crop Protection Compendium. (https://www.cabi.org/cpc/datasheet/55202); and from Pathak MD, Khan ZR (1994) Insect Pests of Rice. IRRI/ICIPE. ((http://books.irri.org/9712200280_content.pdf). Photo 1 Biodiversity India. Rice white stem-borer moth. (https://indiabiodiversity.org/observation/show/370837). Photo 2 11ANIC-04905 CSIRO/BIO Photography Group, Centre for Biodiversity Genomics. (http://v3.boldsystems.org/index.php/Taxbrowser_Taxonpage?taxid=211612). Photo 3 Anderson S, Tran-Nguyen L (2012) Gold-fringed Rice Borer (*Chilo auricilius*). (Source: N. Sallam DAFF Biosecurity.) PaDIL - (http://www.padil.gov.au).

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