

Rice Expert system

Stem borers:

Rice stem borers are a key group of insect pests damaging rice crop. There are five species of stem borers distributed throughout India. Among these, yellow stem borer (YSB), *Scirpophaga incertulas* (Walker), is the most widespread, dominant and destructive. The other borers are, pink stem borer, *Sesamia inferens* (Walker) occurring mostly in rice-wheat cropping systems of north-west, white borer, *Scirpophaga innotata* (Walker) common in southern regions particularly in Kerala, dark headed stem borer, *Chilo polychrysus* (Meyrick) and striped stem borer, *Chilo suppressalis* (Meyrick) in eastern and north eastern states of West Bengal and Assam, respectively.



The stem borers cause damage to rice crop throughout the growth period. Affected plants show characteristic symptoms of 'dead hearts' or 'white ears' depending on the stage of the crop. At tillering stage, the stem borer larvae emerge from the egg masses laid on leaves by adult moths and enter the tiller to feed inside. This results in the characteristic damage of 'dead heart' where in the central leaf whorl does not unfold, turns brownish and dries out although the lower leaves remain green and healthy. The affected tillers do not bear panicles. At reproductive stages, the damage is characterized by whitish empty panicles which are very conspicuous in field and are called 'white ears'. Infestation results in partial chaffiness of the glumes and ill-filled grains.



Apart from yellow stem borer (YSB), *Scirpophaga incertulas* (Walker), white stem borer (WSB), *Scirpophaga spp*, dark headed stem borer (DSB), *Chilo polychrysus* (Meyrick), pink stem borer (PSB), *Sesamia inferens*, striped stem borer (SSB), *Chilo suppressalis* (Walker), gold-fringed rice borer (GFB) *Chilo auricilius* (Dudgeon), and spotted stem borer (SSB), *Chilo partellus* (Walker) are reported as pests of rice from India.

Description:

The forewing is brownish ochreous with a raised dark metallic spot in the cell, a series of small black dots covered with golden scales. Female is paler with all metallic spots. Hindwings are whitish to dirty cream. Young larvae are greyish-white, with a distinctive black head and prothoracic shield. Fully grown final-instar larvae are 21- 25 mm long, creamy-white with five purplish-brown stripes (3 dorsal and 2 lateral) along the body. The head and prothoracic plate are dark-brown to black. It is similar to *C. auricilius*.

Biology:

Eggs are flat, scale like and laid in clusters overlapping each other on the lower or upper leaf surface in longitudinal overlapping rows, each cluster containing up to 80 eggs. Fecundity is around 488 eggs. Ovipositional period is 3 days. Egg period is 6 days in Kerala. Larvae feed for 23-36 days and there are 6 instars. Pupal period is 4 days. It pupates in the larval tunnel. No dormancy or diapause has been reported.

Host plants:

Maize and sugarcane are the cultivated hosts apart from 33 other species being reported as alternate hosts.