White ear/white head symptoms at reproductive stage

Integrated management of Rice yellow stem borer

- **Avoid monocropping**
- **Ploughing and irrigating the fallow rice paddy in early spring to kill overwintering larva and pupae**
- **Close planting and continuous water stagnation at the early stage should be avoided**
- **Raise level of irrigation water periodically to submerge the eggs deposited on the lower parts of the plant**
- **Using light trap for controlling adults**
- **Installation of pheromone traps @ 16-20 traps/ha for trapping the adult male of yellow stem borer**
- **Collection and destruction of egg masses**
- **Clipping leaf tips to eliminate egg masses**
- **Collection and destruction of dead heart**
- **Growing of flowering plants**
- **Harvesting crop near to ground level will eradicate insect pest noticed in the internodes/stubbles**
- **Bio-control strategies to prevent stem borer: 30 days after transplanting, 6–8 releases of Trichogramma japonicum at 50,000/ha/week result in a considerable effective control of rice stem borer (30–60% parasitization).**
- Augmentation of predators (lady bird beetle, tiger beetle, spider, year wig, microvelia etc) and parasitoids (Telenomus, Tetrastichus etc).
- Kamdhenu (mixture of cow urine and neem leaf extract) @ 1 L/250 L of water/ha against insects like caseworm, stem borer, leaf folder and plant hopper
- Spraying of neem oil @ 3 ml/L at 10 Days After Transplanting (DAT) followed by second spray after 20 DAT interval
- Apply Bacillus thuringiensis kurstaki or Beauveria bassiana or Metarhizium anisopliae @ 5gm/lit. reduce the infestation of yellow stem borer

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Integrated Pests Management of Rice Yellow Stem Borer

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Introduction

Rice is the primary food crop and is widely cultivated in valleys, terraces, uplands, hills, and jhum fields of North East Hill (NEH) region. The NEH region experiences high rainfall and humidity, along with diverse topography and altitudes, making it a center of rich plant and crop diversity. In the NEH region, the rice crop is affected by numerous insect species, some of which cause significant economic damage, leading to yield losses of up to 20% and, in severe cases, complete crop failure during outbreaks. Among different insect pests attacking on rice crop, yellow stem borer is the major pests causing significant yield loss to the crop.

Reasons for higher incidence of yellow stem borer (YSB)

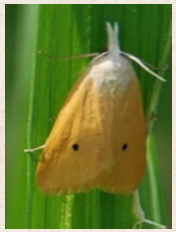
- **Monoculture**
- **Favorable microclimatic condition**
- **Late sowing during kharif season**
- **Non removal of previous crop residue**
- **Continuous water stagnation**

Biology/life cycle of YSB

Eggs are laid in the masses at the tip of under surface of leaf in small clusters covered with buff-colored hairs and eggs were white, oval and flat in shape. Each egg mass contains 150 eggs. The mean incubation period is 5-10 days. Larvae are creamy white in color with brown to black head and consist of five larval instars. Total larval period ranges from 28 to 32 days depending on climatic conditions. Pupa is dark brown in color and pupal period ranges from 8-9 days. It undergoes pupation within the stem at the base of plant. Adults are medium sized moth with dirty white in color and tuft of hairs at the end of abdomen in female. Black spot on each of the forewing in male and adult longevity ranges from 2-3 days.

Egg masses

Larvae



Female

Male

Nature of damage and symptoms

Newly hatched caterpillars climb down through a silken thread and then enter into the leaf sheath. After a few days the caterpillars bore into the stem and feed on internal soft tissues until they reach to the node. Then they feed tissues around the node. Two parts of the stem detached and finally the central leaf dried out which is called “Dead heart”. This damage occurs at the vegetative and tillering stage of the rice. When the larvae attack at the booting stage of rice plant, the panicles become dry and looks white. This symptom is called “White head” or “White ear” symptom.

Dead heart symptoms at vegetative stage