Lecture No. 2. **PESTS OF RICE- BORERS AND DEFOLIATORS**

I. BORERS

1. **Paddy stem borer**, *Scirpophaga incertulas,* Pyraustidae, Lepidoptera

Symptoms of attack: A number of stem borer moths seen dead and floating on the water in the fields. In the vegetative stage, dead hearts seen in the affected tillers and in the reproductive stage, whiteear may be seen.

Nature of damage: The insect may start attacking the plants in the nursery especially long duration varieties. The incidence is mild in the season June to September, but later on gets intensified from October to January and February. The caterpillar enters the stem and feeds on the growing shoot. As a result the central shoot dries up and produces the characteristic **dead heart**. The tillers may get affected at different stages. When they are affected at the time of flowering the earheads become chaffy and are known as **white ear**.

Egg: Eggs are creamy white, flattened, oval and scale like and laid in mass. Each egg mass consists of 15-80 eggs and covered with buff coloured hairs. Before hatching, the eggs darken to a purplish tinge. They are laid mostly near the tip of the leaves.

Larva: The hatched larvae move downward and wander about on the plant for 1 or 2 hours. They may hang down by a sliver thread and get to other plants with the help of the wind. They can also swim over the water and reach other tillers. They enter the leaf sheath and feed upon the green tissues of the stem for 2-3 days. Then they bore into the stem near the node. Deposition of silica in the epidermal layer of the stem and leaf sheath acts as an obstacle to the first instar larvae to chew up a hole. Generally only one caterpillar is seen inside a tiller. It may come out and attack fresh tiller. The full-grown caterpillar measures about 20 mm, white or yellowish white in colour with a conspicuous prothoracic shield.

Pupa: Pupation takes place inside the rice stem, straw or stubble. Before pupation it make a exit hole in the internode and covers it will a thin web for the adult to come out later. The anterior extremity of the cocoon is tubular and attached to the exit hole and to make the cocoon waterproof the larva webs two horizontal septa in this tubular area.

Adult: They exhibit remarkable sexual dimorphism. The female moth is bright yellowish brown with a black spot at the centre of the forewing and a tuft of yellow hairs at the anal region. The male is small in size and brownish.

2. **Paddy gall midge,** *Orseolia oryzae*, Cecidomyiidae, Diptera

Symptom of attack: The central shoot instead of producing leaf produces a long tubular structure. When the gall elongates as an external symptom of damage, the insect will be in pupal stage and ready for emergence.

Nature of damage: The maggot bores into the growing point of the tiller and causes abnormal growth of the leaf sheath, which becomes whitish tubular and ends bluntly. It may be pale green, pink or purplish. Further growth of tiller is arrested. This is called **onion shoot**, **silver shoot** or **anaikomban**. The feeding by the maggot and the larval secretion, which contains an active substance called **cecidogen,** is responsible for cell