

## Identification of insect pests in different rice ecologies

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The warmth and humidity in rice fields favour the survival and proliferation of a large number of insects, affecting the rice crop at various growth stages. More than hundred insect species have been reported on rice crop from sowing to harvesting out of which a dozen cause substantial loss in yield. For tackling this insect pest problem effectively, it is necessary that one should have a thorough understanding of the cause and spread of insect pests, their seasonal occurrence, their habits and habitat with reference to off-season, nature of damage, range of host plants and the role of weather. Before intelligent decision can be made about management of the rice insect pests, accurate and confident identification of the insect pests is the first step towards successful management of insect pests.

### Rice insect pest based on mode of feeding

#### 1. Defoliators

##### a. Seedling to Vegetative

#### Whorl maggot, *Hydrellia sasakii*

##### Identification

- ♦ Maggot - transparent to very light cream during the first instar but later becomes yellow.
- ♦ Adult - Small dull grey fly.



##### Symptom of damage

- ♦ Maggots feed on unopened leaves and nibbling the inner margins.
- ♦ Conspicuous linear feeding lesions are visible when the central leaf opens.
- ♦ Leaves shrivelled plant stunted and maturity delayed.
- ♦ Small puncture appear in the middle of the flag leaf and its margin get discoloured.

#### Rice case worm, *Nymphula depunctalis*

##### Identification

- ♦ Larva - Pale translucent green with orange head. It has filamentous gills on the sides of the body.
- ♦ Adult: Moth is perfect white with light brown and black spots on the wings



##### Symptom of damage

- ♦ Caterpillars feed on green tissues of the leaves and leave become whitish papery.
- ♦ Tubular cases around the tillers by cutting the apical portion of leaves
- ♦ Floating of tubular cases on the water



## b. General defoliators

### Leaf folder, *Cnaphalocrocis medinalis*

#### Identification

- ♦ Egg - Flat, oval in shape and yellowish white in colour.
- ♦ Larva - Greenish translucent
- ♦ Adult - Moth is brownish with many dark wavy lines in centre and dark band on margin of wings

#### Symptom of damage

- ♦ Leaves fold longitudinally and larvae remain inside.
- ♦ Larva scrapes the green tissues of the leaves and becomes white and dry.
- ♦ During severe infestation the whole field exhibits scorched appearance.



### Rice Thrips, *Stenchaetothrips biformis*

#### Identification

- ♦ Adults are dark brown in colour

#### Symptom of damage

- ♦ Larva and adult lacerate the tender leaves and suck the plant sap
- ♦ Yellow or silvery streaks on the leaves of young seedlings
- ♦ Terminal rolling and drying of leaves from tip to base
- ♦ Pest of nursery and main field



### Rice horned caterpillar, *Melanitis ismene*

#### Identification

- ♦ Adult - dark brown with large wings having a black yellow eye like spot one on each of the fore wings
- ♦ Egg - White eggs singly on the leaves is green,
- ♦ Larva - Lightly flattened with two red horns processes on the head
- ♦ Two yellow processes in the anal end
- ♦ Pupa - Chrysalis, which suspends from the leaf.

#### Symptom of damage

- ♦ Larva feeds on leaf blades of rice.



### Swarming caterpillar, *Spodoptera mauritia*

#### Identification

- ♦ Egg - Laid in masses on leaves and covered with grey hairs
- ♦ Larva - Caterpillar is cylindrical dark to pale green with lateral lines along the body
- ♦ Pupa - Pupates in an earthen cocoon in soil
- ♦ Adult - Moth is medium sized stoutly build.
- ♦ Dark brown with a conspicuous triangular spot on fore wings

#### Symptom of damage

- ♦ Larvae cut the seedlings in large scale
- ♦ Severe infestation - cattle grazing appearance to the field.
- ♦ They feed gregariously and march from field to field.



### Rice skipper, *Pelopidas mathias*

#### Identification

- ♦ Adult: Butterfly with brown coloured wings and curved antenna
- ♦ Larva: Pale green with constructed neck.

#### Symptom of damage

- ♦ Edges of the leaves are fastened with webbing.
- ♦ Backward rolling of leaves,
- ♦ caterpillar feeds from margin to inwards



### Grasshopper, *Hieroglyphus banian*;

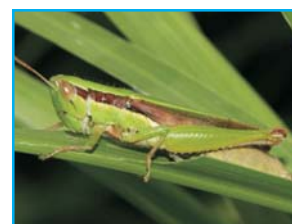
### Short horned grasshopper, *Oxya nitidula*

#### Identification

- ♦ Adult: Green, larger with transverse black lines on pronotum

#### Symptom of damage

- ♦ Irregular feeding on seedlings and leaf blade
- ♦ Cutting of stem at panicle stage
- ♦ Completely defoliate the plants leaving only the mid ribs



### Rice hispa, *Dicladispa armigera*

#### Identification

- ♦ Larva - Grub is minute, flat and yellow
- ♦ Adult - Blue - black shiny beetle with spines on the thorax and elytra

#### Symptom of damage

- ♦ Adults feed on chlorophyll by scraping and causing
- ♦ Whitish leaf tips of young leaves giving dried up appearance
- ♦ Grubs mine into the leaves and make blister near leaf tips



## 2. Sap-Feeders

### a. Plant Sap-Feeders

### Brown plant hopper, *Nilaparvata lugens*

#### Identification

- ♦ Adult is light to dark brown in colour having chestnut brown eyes.
- ♦ Two forms viz., macropterous (long winged) and brachypterous (short winged).
- ♦ Male is distinctly smaller than the female.

#### Symptom of damage

- ♦ Nymphs and adults congregate at the base of the plant above the water level
- ♦ Adults and nymphs suck plant sap and block vascular bundles by feeding sheaths
- ♦ Affected plant dries up and gives a scorched appearance called "hopper burn".





- ♦ Circular patches of drying and lodging of matured plant
- ♦ It is vector of grassy stunt, ragged stunt and wilted stunt diseases

### White backed plant hopper, *Sogatella furcifera*

#### Identification

- ♦ Nymph - White in colour and pronotum is pale yellow.
- ♦ Adult - Possess a diamond like marking on the thorax and ovipositional site is black streaks.

#### Symptom of damage

- ♦ Suck the sap and cause stunted growth.
- ♦ "Hopper burn" is caused in irregular patches.



### Green leafhopper, *Nephotettix virescens*

#### Identification

- ♦ Adult - are green with black spot and black patch on wings

#### Symptom of damage

- ♦ Yellowing of leaves from tip to downwards.
- ♦ Vector for the diseases viz., Rice tungro virus, rice yellow & transitory yellowing



### Rice Mealy bug, *Brevinnia rehi*

#### Identification

- ♦ Adult - Small reddish white, soft bodied, wingless insect covered with filamentous materials

#### Symptom of damage

- ♦ Adults and nymphs suck plant sap resulting stunted growth and yellowish curved leaves
- ♦ White waxy fluffs in leaf sheaths



### b. Grain Sap-Feeders

#### Rice gundhi bug, *Leptocorisa acuta*

#### Identification

- ♦ Eggs: Dark, reddish brown and laid in rows of 10-15 on the leaves (or) panicles
- ♦ Nymphs: Green to brown.
- ♦ Adults: Slender with long legs and antennae. They are brownish green in colour, while disturbing it emits stink odour

#### Symptom of damage

- ♦ Sucking the sap from individual grains during milky stage of rice.
- ♦ Individual grains become chaffy
- ♦ Black spots on the grains at the site of feeding puncture.
- ♦ Buggy odour in rice field during milky stage





### 3. Rice Borers

#### Yellow stem borer, *Scirpophaga incertulas*

##### Identification

- ♦ Egg - Laid in a mass and covered with buff coloured hairs.
- ♦ Larva - Pale yellow with dark brown head.
- ♦ Pupa - White silken cocoon.
- ♦ Adult
- ❖ Female moth - bright yellowish brown fore wings with a black spot possess a tuft of yellow hairs.
- ❖ Male moth - Smaller with pale yellow forewings without black spot.



##### Symptom of damage

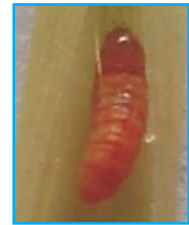
- ♦ Presence of brown coloured egg mass near leaf tip.
- ♦ Caterpillar bore into central shoot of rice seedling and tiller
- ♦ Causes drying of the central shoot known as 'dead heart'
- ♦ Grown up plant whole panicle becomes dried 'white ear'.



#### Gall midge, *Orseolia oryzae*

##### Identification

- ♦ Egg : reddish, elongate, tubular eggs just near the ligule of the leaf blade
- ♦ Larva : pale to red colour feeds inside the gall.
- ♦ Pupa : pupates at the base of the gall and moves to tip of the gall
- ♦ Adult : orange coloured mosquito like fly



##### Symptom of damage

- ♦ Maggot feeds at the base of the growing shoot
- ♦ Formation of a tube like gall similar to 'onion leaf' or 'Silver-shoot'.
- ♦ Infested tillers produce no panicles.



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