

Major Pests in Rice and its Defects

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ABSTRACT

Rice is the staple food for almost all parts of the world. Paddy cultivation is followed most of the people. However, most of the paddy farmers face huge economic losses in paddy cultivation due to damage caused by insect pests.

Keywords: Pest; Rice; Armyworm; Aphids

DESCRIPTION

Planthopper (*Nilaparvatalugens*): There are two types of Planthopper species that attack the paddy crop. These are BPH (Brown Plant Hopper, *Nilaparvatalugens* and (White-backed Plant. Hopper), *Sogatellafurcifera*.

Symptoms of identification

- Yellowing of the plants.
- White to brown color nymphs are seen on the leaves
- Sooty moulds are present at the base of the plant

Preventive measures

- Removal of weeds from the surrounding fields
- Avoiding indiscriminate use of chemical insecticides as it leads to destroying of natural enemies.
- Use paddy cultivars resistant to these insect pests
- Avoid exposure of the seedlings on the seedbed completely and flood them with water once in a day so that only tips of the seedlings are exposed
- Spray insecticides formulations like Buprofezin, Prometrozin or other alternative insecticides

Paddy stem borer (*Scirpophaga incertulas*):

Symptom of damage:

- Presence of brown coloured egg mass near leaf tip caterpillar bore into central shoot of paddy seedling and tiller, causes drying of the central shoot known as “dead heart”
- Grown up plant whole panicle becomes dried “white ear”.

Management

- At ATL release egg parasitoid, *Trichogramma japonicum* for the management of the rice yellow stem borer
- Spraying Neem seed kernel extract controls stem borer
- Clip the seedling tips before transplanting to eliminate egg masses and collect and destroy the egg masses in main field

Rice Armyworm (*Spodoptera frugipeda*): Armyworms are the caterpillars that attack paddy. There are around three armyworm species that attacks the paddy crop in Asia. They are rice ear cutting caterpillar, swarming caterpillar and common cutworm.

Symptoms of damage caused by armyworm

- The armyworm caterpillar feeds on paddy leaves and cuts the leaves and young seedlings at the basal region. Armyworm also cut the rice panicles from the bottom.
- Armyworms are nocturnal in habitat and feed on the upper portion of the rice canopy at night
- Construct seedbeds was from the weeds or remove the weeds around the nursery seedbed
- Go for following land ploughing
- Management
- Avoid spraying of chemical insecticides as it leads to the killing of natural enemies like predator wasps and spiders
- Release Wasp parasitoids like *Cotesmarginervis*, *Chelonustexanus* and *Chelonusremus*. Also release predators like Ground beetles, spined soldier bugs and flower
- Spray insecticides like esfenvalerate, chlorpyrifos, lambda-cyhalothrin and malathion in recommended

Rice hispa (*Diuraphis armigera*): Rice hispa scrapes the upper surface of leaf blades leaving only the lower epidermis. It also tunnels through the leaf tissues. When damage is severe, plants

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become less vigorous. The rice hispa is common in rainfed and irrigated wetland environments and is more abundant during the rainy season.

Management principles

A cultural control method that is recommended for the rice hispa is to avoid over fertilizing the field. Close plant spacing results in greater leaf densities that can tolerate higher hispa numbers. To prevent egg laying of the pests, the shoot tips can be cut. Clipping and burying shoots in the mud can reduce grub populations by 75–92%.

Rice gall midge (*Orseolia oryzae* Wood-Mason):

- Maggot feeds at the base of the growing shoot
- Causing formation of a tube like gall that is similar to “onion leaf” or “Silver-shoot”
- Infested tillers produce no panicles
- Management
- ETL: 10% silver shoots
- Release *Platygaster oryzae* parasitised galls at 1/10 m on 10 Days After Transplanting (DAT)
- Early ploughing
- Harvest the crop and plough immediately

Aphids

- Field rotation
- Maintain rapid vigorous plant growth
- Early-planting and fertility
- Avoid water stress
- Control weedy hosts, such as lambsquarter and pigweed, especially in field borders
- Conserve natural enemies (predatory fly and fungus disease in soil) by minimizing soil insecticides

CONCLUSION

The National Research Council charged this committee with providing insight and information on the future of chemical pesticide use in United States agriculture. The committee was charged to:

- Identify the circumstances under which chemical pesticides may be required in future pest management.
- Determine what types of chemical products are the most appropriate tools for ecologically based pest management.
- Recommend an appropriate role for the public sector in research, product development, product testing and registration, implementation of pesticide use strategies, and public education about pesticides.