



## **BROWN PLANT HOPPER (BPH)**

A sucking insect that, under heavy infestations, can cause wilting and complete drying of rice plants known as **'hopperburn'**.

Both adults and nymphs do damage to crops. They use their piercing mouthparts and insert them into the leaf blades and leaf sheaths of rice plants to suck the sap.

After harvest, the planthoppers migrate to grasses or spread to new crops of rice. They live up to 20 days.



### **HOSTS:**

Rice and other grasses

### **SYMPTOMS:**

- Injury from feeding and egg-laying, which allows entry by fungi and bacteria, as well as blackening of stems by sooty molds.
- severe infestations cause plants in the 'milk' or 'dough' stages to gradually turn yellow from the tip, brown, dry out, and collapse.

### **MOST SUSCEPTIBLE STAGES:**

Tillering to flowering stages

### **DAMAGE:**

The high population of planthoppers causes leaves to initially turn orange-yellow before becoming brown and dry resulting in the plant dying. BPH can also transmit rice ragged stunt and rice grassy diseases; neither disease can be cured.

IRRI estimates that farmers lose nearly 40% of their rice crops to pests, and BPH is one of the most serious.

# MANAGING BPH

Avoid overuse of insecticides for this is the main cause of BPH outbreaks. When insecticides are used, the predators and parasites are killed, and the BPH's population resurge.

More so, the overuse of nitrogen fertilizer encourages BPH development.



Rice plants infested with BPH.

## MONITORING:

Check your field daily or weekly for the presence of BPH by looking at the plant's base where it is shady and high in humidity. Look for the sooty mold fungi that often accompany a large number of insects.

The presence of more than 3-5 insects per tiller is considered **HIGH** and need more intensive observation and possibly insecticide treatment. Watch out for the sudden increase of BPH.



## A. BIOLOGICAL CONTROL

This is the use of natural enemies. The risk of hopperburn is low if natural enemies outnumber BPH. Natural enemies of BPH include:

- Spiders
- Coccinellid beetles (ladybird beetles)
- Dragonflies
- Damselflies
- Mirid bugs
- Wasp parasitoids that attack eggs
- Fungal pathogens (*Beauveria bassiana* and *Metarhizium anisopliae*)



Parasitic wasp



Mirid bug



Coccinellid beetles

## B. CULTURAL CONTROL

### Before planting:

- Select BPH-resistance varieties.
- Practice synchronized planting. Avoid staggered planting to prevent planthoppers into transferring from the older to younger crops in even greater numbers.
- Rotate crops with other crops if possible.

### During growth:

- Apply split applications (3 times) of nitrogen fertilizer. Do not apply it all at once.
- Allow plants (weeds) on the bunds and between fields to flower in order to attract natural enemies.
- Flood the seedbed for a day so that only the tips of seedlings are exposed. This will control the development of BPH.

### After harvest:

- Do not ratoon the crop, i.e. do not allow it to resprout and continue growing after harvest.
- Plough the field after harvest to remove the stubble and prevent the BPH from breeding.



## C. CHEMICAL CONTROL

- The use of appropriate chemical is always the last resort during Integrated Pest Management (IPM).
- Apply insecticides for BPH to the seedbed only if all the following conditions were met:
  1. there are more than one planthopper per stem on the average;
  2. there are more planthoppers than the natural enemies on average, and
  3. flooding the seedbed is not an option.
- Conduct follow-up application if needed or when a high number of nymphs were observed after applying insecticide.
- Do not apply insecticides on young crops and fields with low BPH and hopper-burned crops.



- At least three (3) different active ingredients with different modes of action are recommended to prevent pest development of resistance.

<b>Pesticide</b>	<b>Mode of Action</b>
Thiametoxam/ Midaclopropid	4A
Acephate	1B
Fenobucarb	1A
Bufrofezin	16
Triflumezopyrim	4E
Cartap Hydrochloride	14
Cypermethrin + Chlorpyrifos	3A+1B

### **When & where does BPH thrive?**

- rainfed and in irrigated wetland environments.
- areas with continuous submerged conditions in the field, high shade, and humidity.
- closed canopy of the rice plants
- densely seeded crops
- excessive use of nitrogen
- early season insecticide spraying also favors insect development



#### **For more information, you may contact:**

Department of Agriculture-Regional Field Office  
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#### **REGIONAL CROP PROTECTION CENTER (RCPC)**

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*\*All photos were lifted from the internet*