

(progress report)

HERBAGREEN®, effect on rice blast disease



INTRODUCTION:

Magnaporthe grisea, also known as **rice blast fungus** is a plant-pathogenic fungus that causes an important disease affecting rice.

Rice blast causes economically significant crop losses annually. Each year it is estimated to destroy enough rice to feed more than 60 million people!

The fungus is known to occur in 85 countries worldwide.



Lesions on rice leaves

Hosts and symptoms



Spores of *M. grisea*

M. grisea is a fungus, extremely effective by infecting aerial tissues and also can infect root tissues.

Symptoms can be identified as seen in above pictures. Affected areas may enlarge and kill the entire leaf. Symptoms are observed on all above-ground parts of the plant. It also affects to yield loss by producing fewer seeds. This is caused by the disease preventing maturation of the actual grain.

A single cycle can be completed in about a week under favorable conditions where one infection spot can generate up to thousands of spores in a single night. With the ability to continue to produce the spores for over 20 days.

In terms of control, excessive use of nitrogen fertilization as well as drought stress increase rice infection as the plant is placed in a weakened state and its defenses are low. Extended drain periods also favor infection as they aerate the soil, converting ammonium to nitrate and thus causing stress to rice crops.

The fungus has been able to establish resistance to both chemical treatments and genetic resistance in some types of rice developed by plant breeders.

Rice blast is the most important disease concerning to rice crop in the world. Since rice is an important food source for much of the world, its effects have a broad range. Although there are some resistant strains of rice, the disease persists wherever rice is grown. The disease has never been eradicated from a region.

Effects - from leaf to pinnacle -



3. Kernels effected by blast disease

2. Young rice

1. Leaf effected with blast disease

Damage in pinnacles, loss in yield



5, Pinnacle with **all empty seeds!**

4. Maturing Pinnacle with **developed and undeveloped seeds**

Rice field effected by **blast disease**



- Location: Chiang Rack, near Bangkok; Farmer, Mr. Aor Tel.: 083 995 0642
- Rice plants: 60 days of age, infestation started 3-4 days ago only
- First spraying of **HERBAGREEN®** 18th December 2010
- Objective: stimulate health of rice plants and outgrow damaged leafs with new and healthy ones.
- Observation of recovery until harvest

First signs of recovery after using **HERBAGREEN®**



18th December 2010

Leafs effected by blast disease fungus



21st December 2010

Fast growth of clean and healthy new leaves

Effected and recovered farm in Nong Khai



- Location Nong Kai / November 2010
- Farmer called for help in solving “burned leaf” problem
- **Farm has been effected by Rice Blast Disease**
- Field recovered after 1 time **HERBAGREEN®** application
- Damaged plants fought back with fresh new and healthy leaves

