Rice blast (*Magnaporthe oryzae*)

Factsheets for Rice Production, East Africa

Causal agent: Fungus

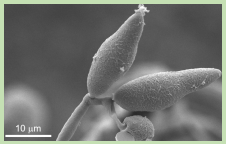

Fig 1. Conidia of *Magnaporthe oryzae*
Source: Prof Nick Talbot, TSL

Favourable conditions for disease development

- The disease occurs under long periods of free moisture which leads to continuous leaf wetness (>10 hours) and a high relative humidity (RH>90%). The optimum temperature range for infection is 25-28°C.
- Under favorable conditions, the infection process starts when fungal spores land on the leaf surface. The fungus penetrates into plant cells and multiplies by drawing nutrients from the plant.
- After about a week, the fungus has fully colonized the plant cells and produces aerial spores to enable it initiate a new cycle of infection. The spores are spread by water or wind splashes to the neighbouring plants and starts a new cycle of infection.
- The fungus remain in rice straw and stubble becomes source of inoculum in the subsequent seasons.
- Disease occurrence is also favoured by high planting density and poor drainage in paddy rice.
- Excessive use of nitrogenous fertilisers increases the plants susceptibility to the disease.

Geographical Distribution

- In all the rice growing regions in East Africa.

Crop losses and associated damage

- Yield losses of 70-100% have been reported under epidemic conditions.
- Symptoms differ based on the infected plant infected as follows:

Leaf blast: Diamond or spindle-shaped lesions with gray centers surrounded by a red or brown margin Lesions may enlarge and coalesce.
Neck blast: Black or brown rot on the neck of the panicle. The panicles above are unfilled and turn white.
Node blast: Black-brown lesions on the node. This causes the culm to break leading to death of the plant.
Collar blast: Brown rot at the junction of the leaf blade and sheath.
Panicle blast: The panicle turn brown-white.

Fig 2. Leaf blast
Source: Prof. Nick Talbot , TSL

Fig 3. Neck blast
Source:Lanoiselet, *et al.* (2015) , NDP14V2

Fig 4. Node blast (Left) and Panicle blast (Right)
Source:Lanoiselet, *et al.* (2015) , NDP14V2

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