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Sheath blight (*Rhizoctonia solani*)

Factsheet for Rice Diseases in East Africa

Causal agent: Fungus

Fig. 1 Old mycelia of *Rhizoctonia solani* in culture media showing sclerotia (survival reproductive structures): source: <https://www.lsuagcenter.com>



Favourable conditions for disease development

- The fungus infects using sclerotia (survival structures) and mycelia. It does not form asexual spores.
- The disease is mainly soilborne and can survive in debris in the soil for more than 2 years.
- The pathogen infects susceptible hosts under high temperature (28–32°C) and relative humidity (85–100%).
- Infection is also favored by application of excessive nitrogenous fertiliser the soil.
- The disease is more prevalent during rains because the fungal mycelia and/or sclerotia can only germinate on wet plant surface.
- Above optimal planting rate leads to high relative humidity and a higher likelihood of disease development.
- The fungus has a wide host range, including cultivated plants (such as rice, soybean, bean, sorghum, maize, sugarcane and weeds such as barnyard grass).

Geographical Distribution

- It has been reported in Mwea, Ahero, Kilifi, Msambweni, Lamu, Taita and Tana river.

Crop damage and associated loss

- The fungus infects and spreads as white interwoven mycelia on leaf surface.
- Infected plants are characterised by irregular lesions on the leaf sheaths (initially water-soaked to greenish gray) and later appear whitish in the center with dark-brown borders.



Fig. 2 Sclerotia of *R. solani* on the sheath
Source: Uppala and Zhou 2018: DOI: 10.1094/PHI-I-2018-0403-01

- The disease symptoms could be confused with stem rot and stem borer damage. However, sheath blight is characterised by lesions with whitish center and brownish sclerotia above the water line for lowland rice.
- Under favourable conditions, the disease can cause 50% yield loss.

Management Strategies

Cultural control

- Reduce inoculum through timely eradication of infected rice residues, weeds and practising crop rotation with non-host plants.
- To achieve a RH that is not favourable for the disease, adopt the recommended seeding rates (plant density; see Crop Establishment Factsheet)



Fig. 3 *R. solani* infects rice leaves forming a network of white mycelia (A) and on the sheaths at the base of culms, producing gray-brown, water-soaked lesions (B)
Source: Uppala and Zhou 2018: DOI: 10.1094/PHI-I-2018-0403-01



- Apply the recommended rate of nitrogenous fertiliser.

Chemical control

- If signs and symptoms are observed, apply foliar fungicides at manufacturers recommended rates (such as carbendazim, 1 liter/ha at 20 ml in 20 liters of water).
- In areas where disease is suspected, seeds can be dressed with Seed Plus 30WS (Imidacloprid 10%; Metalaxyl 10%; carbendazim 10%) at 2.5-5 kg/1 ton of seeds

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