

Brown Spot (*Cochliobolus Miyabeanus*)

Causal agent: Fungus



Fig 1. A spore of *C. meyabeanus*
Source: Martin-Felix *et al.*, 2017

Favourable conditions for disease development

- The optimum conditions are: a temperature range of 16°C-36°C and a high relative humidity ranging 86-100% .
- For infection to occur, the leaves must be wet for 8–24 hours.
- The disease is more common in fields have water and nutrient deficiencies.
- Besides rice, the fungus attacks several grasses, including rice, wild rice, cutgrass and maize.
- The fungus can survive in the seed for more than four years.
- The fungus can also survive in volunteer rice, infected rice debris and weeds.
- In a season with favourable conditions, the inoculum is spread by wind, water splashes or via seed.

Geographical Distribution

- This disease can occur in all rice growing areas of East Africa (refer to Rice Production Areas Factsheet)
- ### Crop damage and associated loss
- Infection by this fungus causes a serious damage on the leaves of both young and adult rice plants, hence reducing the photosynthetic area
 - Damaged seedlings have small, circular, yellow brown or brown lesions that may girdle the coleoptile and distort primary and secondary leaves.
 - Lesions on leaf sheaths are similar to those on the leaves. Infected glumes and panicle branches have dark brown to black oval spots.
 - The brown spot lesions on leaves can be mistaken for foliar rice blast disease. The major characteristic of brown spot is the circular brownish spots which have a gray center.
 - If spikelets are infected, grain filling is disrupted and the damage leads to partial or complete loss of the crop.
 - Generally, if the disease is unmanaged, it can lead to 50% yield loss in all rice growing regions.



Fig 3. Brown lesions on rice leaf
Source: Dr Lusike Wasilwa



Wasilwa

Management Strategies

1. Cultural control

- Water stress can be prevented by application of alternative wetting-drying technique of irrigation.
- Soil nutrient stress can be avoided by application of fertiliser at the appropriate rates (see Water and Nutrient Management Factsheet).
- Inoculum reservoir can be destroyed by removing and/or burning of left-over debris and any infected rice from the field.
- General crop health can be maintained by reducing rice-weed competition using timely removal of weeds in the field.
- Get rid of seedborne inoculum by using hot water treatment method of seeds at 53-54°C for 10- 12 minutes.

2. Resistant cultivars

- Use resistant varieties such as MWUR 2 and MWUR 4 (available KALRO MWEA)

3. Chemical Control

- Seeds can be dressed using Seed Plus 30 WS (Imidaclopid 10%; Metalaxyl 10%; Carbendazim 10%) at a rate between 2.5-5.0 kg/ton of seed.