

CONDITIONS FAVORABLE FOR DISEASE INFESTATION IN RICE

- High nitrogen application.
- Aerobic or in wetlands conditions where intermittent drought stress occurs. (ideal for blast multiplication)
- Long duration of leaf wetness due to drizzle or dew, increase blast sporulation.
- Night temperature of 17°C to 23°C .
- No wind at night, creates the condition for blast.
- High relative humidity of more than 90%
- High plant density and dense crop growth.
- Temperatures from 20°C to 28°C at heading to maturity stage.
- Plant residues and seeds which serves as host for inoculums that can cause infection.
- Alternative host in field, e.g.. Red rice.

CONTROL MEASURES

- Use of resistant varieties.
- Sow in recommended period.
- Avoid water stress.
- Avoid excess use of Nitrogen.
- Correct planting density (160—215plts/m²).
- Control of alternative host. (red rice etc.)
- A balance nutrient in the soil will help to prevent brown spot.
- Chemical seed treatment has proven effective in reducing seedling disease caused by *Bipolaris oryzae*.
- Some strains of *Pseudomonas flourescens* have been reported to suppress Sheath rot.

CHEMICAL CONTROL

- **Fugl**—one @ 500—750mls/ha Or 200—300 mls/acre.
- **Kitazin** @ 500—750mls/ha Or 200—300 mls/acre.



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GUYANA RICE DEVELOPMENT BOARD

BURMA RICE RESEARCH STATION DISEASE MANAGEMENT IN RICE RICE BLAST



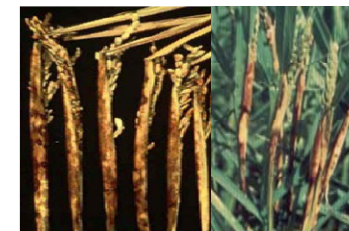
BROWN SPOTS

FALSE SMUT



SHEATH ROT

SHEATH BLIGHT



SHEATH BLIGHT

CAUSAL AGENT: Fungus (*Rhizoctonia solani*).

INTRODUCTION

Sheath Blight affects rice cultivation under the irrigated or wetland system of production. It's a soil borne disease and pathogen can spread rapidly through irrigation water and the movement of soil during land preparation.

SYMPTOMS

- Appear when plant is in late tillering stage and prevalent on leaf sheath near the water line.
- Water soaked spot appear on leaf sheath, 3 inches above water line. Lesions have a grayish – white centre.

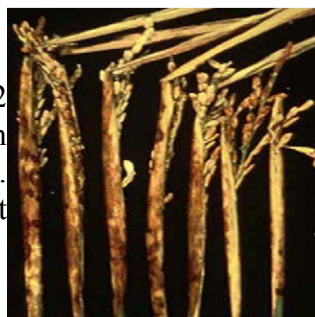


SHEATH ROT

CAUSAL AGENT: (*Sarocladium oryzae*).

INTRODUCTION

Sheath rot was first described in 1992 by Sawada in Taiwan. This disease can cause losses from 20% to 85%. However, in Guyana the losses are not huge.

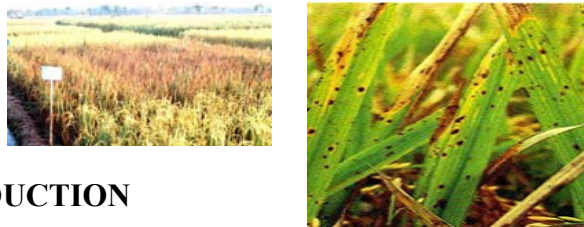


SYMPTOMS.

- Lesions appear on upper sheath leaf (flag leaf).
- Lesions are oblong (5—15mm) with grey brown centers.
- Panicle fail to emerge in case of severe infection and are red brownish to dark brown in color.

BROWN SPOT

CAUSAL AGENT: Fungus. (*Helminthosporium oryzae*)



INTRODUCTION

Brown spot occurs on upland and wetland rice in all major rice growing regions of the world. Although it's a minor disease, there is evident where brown spot caused great destructiveness to upland rice.

SYMPTOMS.

- Brown spots may be manifested as seedling blight or as a foliar and glume disease of mature plants.
- On seedlings, the fungus produces small, circular, brown lesions, which may girdle the coleoptiles and cause distortion of the primary and secondary leaves.
- In some cases, the fungus may also infect and cause a discoloration of the roots.
- Infected seedlings are stunted or killed.
- On the leaves of older plants, the fungus produces circular to oval lesions that have a light brown to gray center surrounded by a reddish brown margin.
- On moderately susceptible cultivars, the lesions are 1 – 4 mm long, whereas on highly susceptible cultivars, the lesions are 5 – 14 mm long.
- On resistant cultivars, the fungus produces tiny dark specks. When infection is severe, the lesions may coalesce, killing large areas of affected leaves.
- The fungus also may infect the glumes, causing dark brown to black oval spots, and also may infect the grain, causing a black discoloration.

RICE BLAST

CAUSAL AGENT: Fungus *Pyricularia oryzae* (*P. Grisea*)

INTRODUCTION

Rice blast is considered to be the most important disease in rice cultivation because of its wide distribution and great destructiveness cause to the plant, under favorable weather conditions, blast can cause severe yield losses of up to 100% in a crop.

SYMPTOMS

LEAF BLAST

- Elliptical lesions with extremes pointed 1- 1.5cm
- Early lesions: grey-green with dark green border.
- Older lesions: grey spot in center with necrotic border.



NODE BLAST

- Nodes have dark brown-blackish lesions.
- When node is infected, sheath tissue rots and the stem above the point of infection often break over.



PANICLE BLAST

- Base of the panicle has a dark brown— blackish lesions which induce necrosis, result in no grain formation.
- If panicle is attack early, grains at the lower portion of the panicle may be blank giving the head a whitish color termed “blasted head or rice blast”.

