

Rice Sheath Blight Disease Management

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Sheath blight

Causal organism

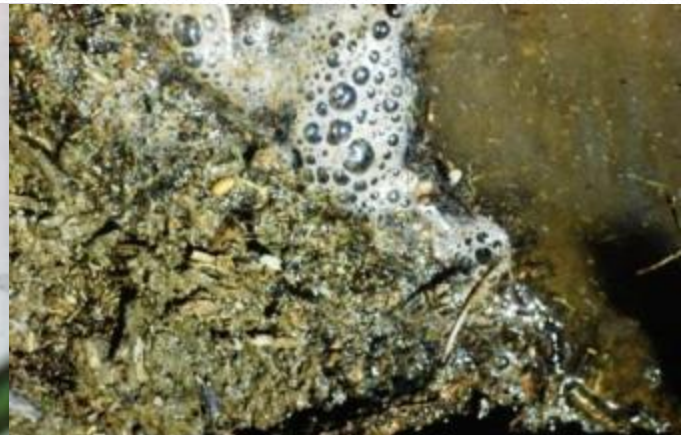
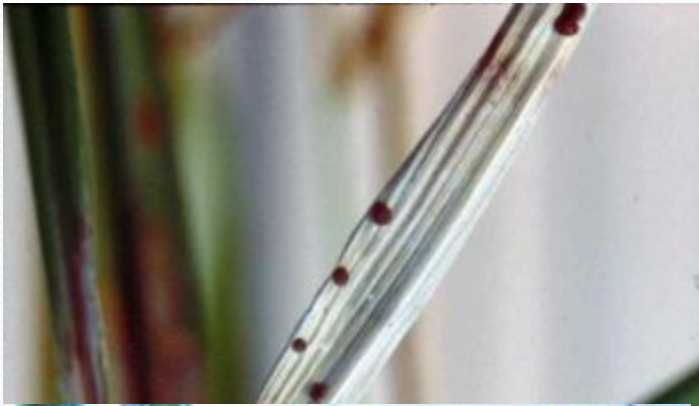
- Perfect stage: *Thanatephorus cucumeris* (A.B. Frank) Donk
- Imperfect stage(anamorph): *Rhizoctonia solani* Kuhn



R. solani can infect rice from the seedling stage to harvest maturity, however in the United States disease usually develops after tillering.



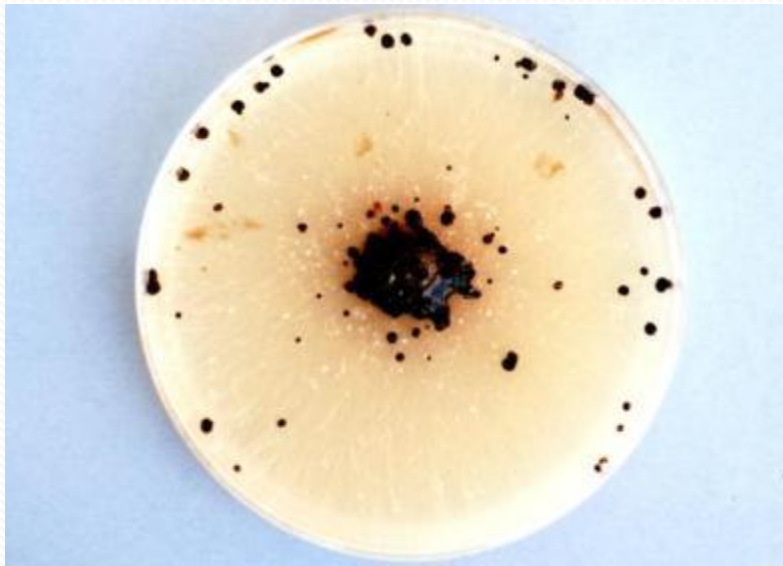
The pathogen overwinters as small seed like structures called sclerotia or as mycelium in infected plant debris. This material floats in the first flood and comes in contact with the rice plants. It tends to accumulate toward one side of the field due to wind.



The initial infection occurs on the stem near the water line and appears as a water soaked oval lesion which often dries and turns tan.



The fungus infects the plant by forming an infection cushion (a clump of fungal cells) on the plant surface and then exerting a hostoria (feeding structure) into the plant cells. Adjacent cells are infected causing cell death.



The fungus moves over resistance mechanisms (Dark bands around the lesion) and from plant to plant by surface or aerial hyphae



Lesions vary in appearance due to wetness, age, host resistance, and fungicide use. Lesions tend to be darker on resistant plants and after fungicide use.



Leaf lesions usually develop the characteristic snake skin like pattern.



All plant parts are susceptible to infection except the roots



Sheath blight tends to develop in circular areas in the field and cause what are called bird nests. The earlier this happens the more damage is done to the rice crop.



Sclerotia are formed on the plant surface and start as white bean like structures that turn dark brown to black. They fall into the flood water and sink. Cells develop air pockets and can then float or they are incorporated into the soil and can survive up to 20 years.



Sheath blight development is favored by thick stands and high nitrogen rates which increase canopy thickness resulting in higher moisture levels. Rice following rice or soybeans is more likely to be affected.



Resistance to sheath blight is available but resistance tends to be associated with taller and later maturing plant types. Rice breeders are actively trying to find and incorporate resistance into current varieties.



Sheath Blight Reactions

Very Susceptible

CL131

CL161

CL171

Cocodrie

Cypress

Trenasse

Susceptible

Cheniere

CL151

Catahoula

Moderately Susceptible

Bengal

Wells

Spring

Moderately Resistant

Banks

Jupiter

Pirogue

Yield loss estimates

- Newer varieties tend to be less susceptible to sheath blight and tolerant to damage

Variety (year released)	Lemont (1983)	Cocodrie (1998)	Cheniere (2003)	CL151 (2008)	Bengal (1992)	Jupiter (2008)
SB rating	8.5	8.0	7.5	7.0	6.5	5.1
Yield Loss	35%	24%	17%	12%	12%	5%



A number of other rice diseases can be confused with sheath blight.



Losses due to sheath blight include reductions in yield, milling, harvestability, and the cost of applying fungicides in both the first and second crop.

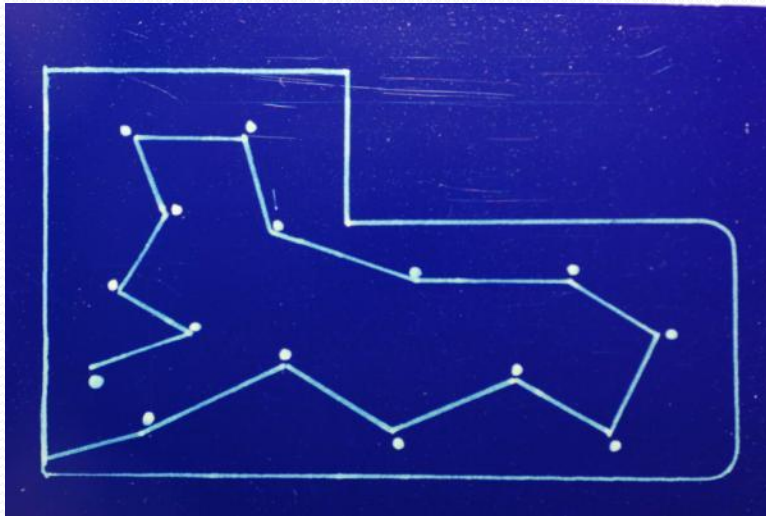


Fungicides are available to control sheath blight. Fungicide applications are typically applied from panicle differentiation to heading. The boot (2-4 inch panicle in the flag leaf sheath) is the most effective timing. Fungicide must be applied no later than 50-70% heads emerging to be effective.



Scouting or Determining Need

- Scout fields from internode elongation until heading. The field should be sampled at several locations (10-40) to determine the percentage of tillers infected or presence or absence (percent positive stops) of sheath blight.



Levels of sheath blight infestations needed to justify a fungicide application.

Variety Susceptibility	% tillers infected	% positive stops	Typical yield losses
Very Susceptible	5-10%	30%	15-25%
Susceptible	5-10%	30%	10-20%
Moderately Susceptible	10-15%	50%	< 10%
Moderately resistant	10-15%	50%	5-10%

Labeled Rice Fungicide

Propiconazole	Propiconazole + Strobilin	Strobilin	Flutolanil
Tilt	Quilt	Quadris	Moncut
PropiMax	Stratego	Gem	
Bumper	Tank Mix		

Fungicide Sheath Blight Activity

None	Fair	Good	Best
	Tilt 6-10 oz/A	Gem 8-9.6 oz/A	Quadris 9-12 oz/A
	PropiMax 6-10 oz/A	Stratego/Quilt 14-19 oz/A 28-34.5 oz/A	
	Bumper 6-10 oz/A	Moncut 0.7-1.4 lb/A	

Management Practices

- Plant varieties less susceptible to sheath blight.
- Plant as early as possible within the recommended planting period. Avoid late planting.
- Avoid excessive plant stands
- Do not over fertilize with nitrogen.
- Apply a fungicide if necessary.

Suggested additional sources of additional information

- Rice Varieties and Management Tips, LSU AgCenter Pub. 2270
- Rice Disease Fact Sheet, LSU AgCenter Pub. 3084
- Louisiana Rice Production Handbook, LSU AgCenter Pub. 2321
- www.lsuagcenter.com
- Contact your local cooperative extension agent

Louisiana State University Agricultural Center, William B. Richardson, Chancellor
Louisiana Agricultural Experiment Station, David J. Boethel, Vice Chancellor and Director
Louisiana Cooperative Extension Service, Paul D. Coreil, Vice Chancellor and Director
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