

LOUISIANA PLANT PATHOLOGY

DISEASE IDENTIFICATION AND MANAGEMENT SERIES

LSU
AgCenter
Research & Extension

Kernel Smut of Rice

Tilletia barclayana (Bref.) Sacc. and Syd. in Sacc.

Neovossia horrida (Takah.) Padwick and A. Khan

Kernel smut of rice normally is a minor disease in Louisiana but can become epidemic in local areas especially the farther north the rice is grown.

Damage is caused by the endosperm of the rice grain being replaced by masses of black fungal spores (Figure 1). This causes poor milling, gray colored milled grain and significant discoloration during the parboiling process. Rice lots can be docked for kernel smut when they are sold.

The disease is caused by the fungus *Neovossia horrida*. The fungus over-winters in the soil and seed as spores. The pathogen is spread by windborne spores that are produced from the over-wintering teliospores (Figure 2). Germinating spores infect immature developing grain and replace the endosperm with dark black spores. Signs of the fungus appear just before maturity as a black mass of spores oozing from the seam between the hulls (Figure 3).

The spores are easiest to see in the morning when dew is present, and these spores can contaminate adjacent grain and plants (Figure 4). Usually, only a few florets in each panicle are affected, but much higher percentages have been observed. During harvest, black clouds of spores can be released into the air and cover combines.

The disease favors high nitrogen rates. Some rice varieties are more resistant than others to kernel smut, and applications of propiconazole-containing fungicides at the boot growth stage can reduce the amount of infection. Ask an LSU Ag Center extension agent in your parish for the latest information on fungicides and other control practices for kernel smut.



Figure 1. Kernel smut infected and uninfected brown rice

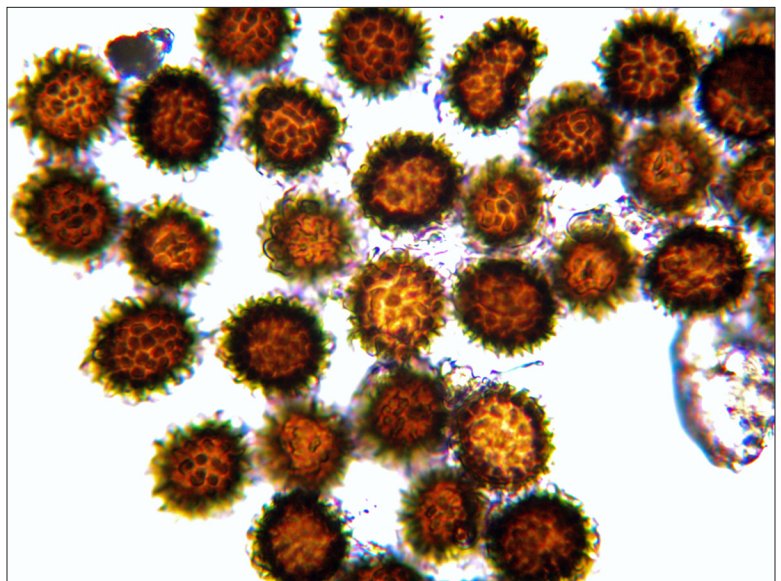


Figure 2. *Neovossia horrida* teliospores

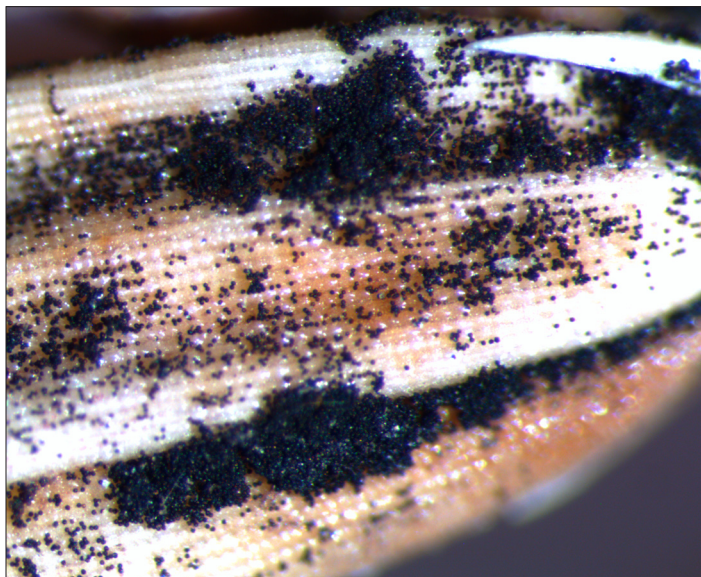


Figure 3. Kernel smut spores oozing out from between rice hulls



Figure 4. Field view of kernel smut infection of rice grain and contamination of adjacent grain

Visit our website: www.lsuagcenter.com

Authors

Don Groth, Ph.D., Professor
Rice Research Station

Clayton Hollier, Ph.D., Professor
Department of Plant Pathology and
Crop Physiology

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

Pub. 3113 (online only) 12/10
The LSU AgCenter is a statewide campus of the LSU System and provides equal opportunities in programs and employment.