

LOUISIANA PLANT PATHOLOGY

DISEASE IDENTIFICATION AND MANAGEMENT SERIES



Seedling Blight of Rice

Cochliobolus miyabeanus (Ito and Kuribayashi) Drechs. ex Dastur, *Curvularia* spp., *Fusarium* spp., *Rhizoctonia solani* Kuhn, *Sclerotium rolfsii* Sacc. (teleomorph: *Athelia rolfsii* (Curzi) Tu and Kimbrough) and other pathogenic fungi

Seedling blight, or damping off, is a disease complex caused by several seed-borne and soil-borne fungi, including species of *Cochliobolus*, *Curvularia*, *Fusarium*, *Rhizoctonia* and *Sclerotium*. Typically, the rice seedlings are weakened or killed by the fungi (Figure 1).

Environmental conditions are important in disease development. Cold, wet weather is most favorable to disease development.

Seedling blight causes stands of rice to be spotty, irregular and thin. Fungi enter the young seedlings and either kill or injure them. Blighted seedlings that emerge from the soil die soon after emergence. Those that survive generally lack vigor, are yellow or pale green and do not compete well with healthy seedlings (Figure 2).

The severity and incidence of seedling blight depend on three factors: percentage of the seed infested by seed-borne fungi, soil temperature and soil moisture content. Seedling blight is more severe on rice that is seeded early when the soil usually is cold and damp. The disadvantages of early seeding can be partially overcome by seeding at a shallow depth. Conditions that tend to delay seedling emergence favor seedling blight. Some blight fungi that affect rice seedlings at the time of germination can be reduced by treating the seed with fungicides.

Seeds that carry blight fungi frequently have spotted or discolored hulls, but seed can be infected and still appear to be clean. *Cochliobolus miyabeanus*, one of the chief causes of seedling blight, is seed-borne. A seedling attacked by this fungus has dark areas on the basal parts of the first leaf.

The soil-borne seedling blight fungus, *Sclerotium rolfsii*, kills or severely injures large numbers of rice



Figure 1. Blighted rice seedlings

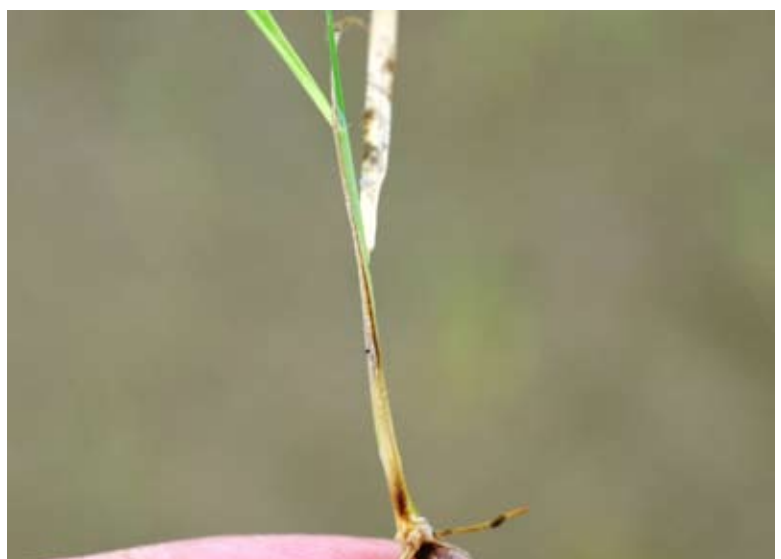


Figure 2. Spots on rice seedling

seedlings after they emerge if the weather at emergence is humid and warm. A cottony white mold develops on the lower parts of affected plants. This type of blight can be controlled by flooding immediately.

Treatment of the seed with a fungicide is recommended to improve or ensure stands. Proper cultural methods for rice production, such as proper planting date or shallow seeding of early-planted rice, will reduce the damage from seedling blight fungi.

Water-borne and soil-borne fungi in the genus *Pythium* attack and kill seedlings from germination to about the three-leaf stage of growth. Infected roots are discolored brown or black, and the shoot suddenly dies and turns straw colored. This disease is most common in water-seeded rice, and the injury often is more visible after the field is drained. It may also occur in drill-seeded rice during prolonged wet, rainy periods.

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. 3117 (online only) 12/10
The LSU AgCenter is a statewide campus of the LSU System and provides equal opportunities in programs and employment.