LOUISIANA PLANT PATHOLOGY
DISEASE IDENTIFICATION AND MANAGEMENT SERIES
LSU AgCenter Research & Extension

Blast of Rice

Magnaporthe grisea (Hebert) Barr (anamorph: *Pyricularia grisea* Sacc.)

Blast is the most important disease of rice worldwide and the second most important in Louisiana. Yield losses as high as 75 to 90 percent have been observed in Louisiana due to this disease.

The disease is caused by the fungal pathogen *Pyricularia grisea*. The pathogen is spread by wind- and rain-dispersed spores (See Figure 1).

Blast can be found from the seedling stage to maturity. The leaf blast phase occurs between the seedling and late tillering stages. Leaf spots start as small white, gray or blue-tinged spots. They enlarge quickly under moist conditions to either oval or diamond-shaped spots or linear lesions with pointed ends with gray or white centers and narrow brown borders (See Figure 2).

Leaves and whole plants often are killed under severe conditions. The most important aspect of leaf blast is that it provides inoculum for infecting the panicles. Fungicides are not used for this stage unless there is a threat of stand loss. The best control is to restore or deepen the flood, so all of the soil in the field is covered with water.

Rotten neck symptoms appear at the base of the panicle, starting at the node. The tissue turns brown and shrivels, causing the stem to snap and lodge. If the panicle does not fall off, it may turn white to gray, or the florets that do not fill will turn gray. Panicle branches and stems of florets also have gray-brown lesions at the branch joints (See Figure 3).

The pathogen can also infect stem nodes and leaf collars. When nodes are infected, they become discolored and shriveled, and the plant often lodges (Figure 4). Leaf collars become discolored in a manner similar to neck symptoms, and the leaf blades discolor and die (Figure 5).

Scouting for blast should begin early in the season during the vegetative phase and continue through to heading. Blast is more commonly found in fields where the field has a history of disease, the variety is susceptible, high nitrogen rates are used, the field has sandy soils, the rice was planted late (late-planted rice is more likely to encounter foliar disease problems than early-planted rice) or, most commonly, the rice is growing under upland (no flood) conditions. Leaf blast usually will appear in

Figure 1. Fungal pathogen spores

Figure 2. Leaf blast

Figure 3. Rotten neck blast

high areas of the field where the flood has been lost or is shallow. Areas of heavy nitrogen fertilization and edges of the fields also are potential sites. If leaf blast is in the field or has been reported in the same general area and if the variety is susceptible, fungicide applications are advised to reduce rotten neck blast.

Disease severity can be reduced by integrating several management practices. Resistance is available in some varieties but not all. (See LSU AgCenter publication 2270 "Rice Varieties and Management Tips" for information about current varieties.) Keep in mind that dense stands and excessive use of nitrogen fertilizer both tend to increase disease damage. But the most important management practice is to maintain the flood. Control is enhanced by establishing and maintaining a flood as soon as possible. Planting early to avoid late-season blast pressure and not planting in sandy soils or in tree-lined fields also reduces blast damage.

Losses due to blast are escalating with current practices that require draining fields for insect control, correction of herbicide damage or to prevent straighthead. Farmers often have to depend on fungicides to protect their rice crop from severe blast damage. Fungicides are available for reducing blast. Ask an LSU AgCenter extension agent in your parish for the latest information on fungicides for blast management. Fungicide timing is critical. It should be applied when 50 to 70 percent of the heads have begun to emerge, because fungicide application before or after that growth stage will not provide good control of this disease. Under severe disease pressure, two applications may be necessary – the first at the boot growth stage (2- to 4-inch panicle) followed by an application at heading as described above.

Figure 4. Node blast

Figure 5. Collar blast

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