

Rice Disease Newsletter Number 13, June 20, 2013

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The disease season is well underway with sheath blight active in many but not all fields. Blast has been detected in several varieties including CL151, CL152, Jupiter and Mermentau but is significantly lighter than last year with only a few leaf lesions detected. Fungicide applications are actively being applied in commercial fields for sheath blight and blast. As the crop approaches heading, several diseases will start to develop including bacterial panicle blight, kernel smut and false smut. Information on these diseases is provided below. Propiconazole-containing fungicides, which have activity against *Cercospora*, also have activity against the grain smuts if applied at booting.

Bacterial Panicle Blight: Earlier, panicle blighting was attributed to abiotic factors including high temperatures, water stress or toxic chemicals near the root zone, but in 1996-97, the cause of panicle blighting in the southern United States was identified as the bacterial plant pathogen *Burkholderia glumae*. The term bacterial panicle blight has been designated as the name of this disease. The symptoms of bacterial panicle blight include seedling blighting, sheath rot and panicle blighting with significant yield losses. The panicle may have one to all of the florets blighted with grains not filling or aborted. Florets are initially white or light gray on the basal third with a reddish-brown margin separating this area from the rest of the floret, which becomes straw-colored (Fig. 1). The florets eventually become gray with growth of saprophytic fungi on the surface. Floret stems (panicle branches) stay green after the unaffected grain matures. This disease can cause severe disease under conditions of extended high temperatures, especially night-time temperatures 80 and above and is ranked with sheath blight and rice blast for its potential to cause loss.

The bacterium is seed-borne, and rice crops planted with infected seeds can suffer severe losses. The pathogen has also been detected from the soil, but the importance to disease development is not known. **No pesticides are currently recommended for control of this disease in the U.S.** Several varieties have partial resistance.



Figure 1. Bacterial panicle blight.

Kernel smut: This fungal disease is caused by *Neovossia barclayana*. Symptoms are observed at or shortly before maturity. A black mass of smut spores replaces all or part of the endosperm of the grain. The disease is easily observed in the morning when dew is absorbed by the smut spores. The spore mass expands and pushes out of the hull, where it is visible as a black mass (Fig. 2). When this spore mass dries, it is powdery and comes off easily on fingers. Rain washes the black spores over adjacent parts of the panicle. Affected grains are a lighter, slightly grayish color compared with normal grain.

Usually only a few florets may be affected in a panicle, but fields have been observed in Louisiana and Texas with 20 percent to 40 percent of the florets affected on 10 percent or more of the panicles in a field. Smutted grains produce kernels with black streaks or dark areas. Milled rice has a dull or grayish appearance when smutted grains are present in the sample. Because fewer kernels break when parboiled rice is milled, kernel smut can be a severe problem in processed rice. Growers are docked in price for grain with a high incidence of smut. This disease is usually minor in most states, but it can become epidemic in local areas. Some varieties are more susceptible and should be avoided where smut is a problem. Spores of the fungus are carried on affected seeds and overwinter in the soil of affected fields. The pathogen attacks immature, developing grain and is more severe when rains are frequent during flowering. **Propiconazole containing fungicides applied at the boot growth stage have good activity against this disease.**

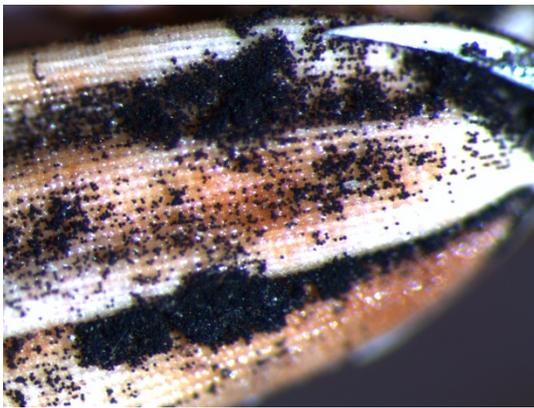


Figure 2. Kernel smut.

False smut: False smut, caused by the fungus *Ustilaginoidea virens*, is a minor disease in the United States and is sometimes epidemic in certain areas. The disease is characterized by large orange to brown-green fruiting structures on one or more grains of the mature panicle (Fig. 3). When the orange covering ruptures, a mass of greenish-black spores is exposed. The grain is replaced by one or more sclerotia. Most varieties appear to have a high level of resistance, and disease control measures generally are not required. **Propiconazole-containing fungicides applied at the boot growth stage have some activity against this disease.**



Figure 3. False smut.