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Note for fall soybean diseases

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Abstract
It is well established that outbreaks of plant diseases are associated with extreme weather. This year's extreme weather created favorable conditions for several soybean diseases. **Sudden death syndrome**(SDS) was severe in southern Iowa, and severe outbreaks of white mold occurred in eastern Iowa. The two diseases also occurred in other parts of Iowa, and an article will address the management of the two diseases later this year. Besides these two diseases, several other diseases are prevalent in fall causing early defoliation, such as brown spot, Cercospora leaf blight, and brown stem rot. In this article, we will discuss other diseases prevalent in Iowa this fall.

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INTEGRATED CROP MANAGEMENT

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Cercospora leaf blight was highly prevalent this year in Iowa. In many soybean fields, soybean leaves have a leathery appearance and turned a mottled purple-to-orange color on the upper surface. Expression of these symptoms varies with plant variety. The disease has been misidentified as "sunburn" by some of us. This summer has been one of the coolest summers we have experienced in Iowa, which is not good for a wide spread of sunburn. The reason that the disease is identified as sunburn is because the fungus cannot be seen on infected leaves. Identifying this disease requires experience in taking free-hand sections to observe the fungus under a microscope. All samples from Iowa that we examined had *Cercospora kikuchii*, the causal fungus of this disease. Sunburn symptoms should appear on the lower leaf surface.

Cercospora leaf blight.

Enlarge [1]

Cercospora leaf blight.

Enlarge [2]

Cercospora leaf blight.

Enlarge [3]

In recent years, the incidence of Cercospora has been increasing. This season has had the highest prevalence we have experienced in Iowa. Kevin Black in Illinois sent us a picture of a severely damaged soybean field by this disease. So far, no destructive damage has been observed in Iowa except for premature defoliation in September. The severity of this disease in the north, however, is no comparison with what occurs in regions where the climate makes this disease endemic. Some isolates of *C. kikuchii* can cause purple discoloration of seed coat, resulting in purple seed stain. Seed infection may cause poor seed vigor and reduced germination.

If the Cercospora leaf blight is severe, check seed quality of soybeans for seed bean and change to a non-susceptible variety in future plantings. Keep in mind that this disease is different from **frogeye leaf spot**, which occurred in southeast and south-central Iowa this year.

Frogeye leaf spot.

Enlarge [4]

Brown stem rot (BSR) also causes premature defoliation. This disease returned after many years and was more prevalent than normal. Like some other diseases, patches of the disease appear as uneven maturity in fields. A recent study by Iowa State University showed that BSR fungus can be grouped into two races (used to be called two types). One race can cause foliar symptoms similar to SDS. It is important when scouting this fall to correctly differentiate BSR from SDS because management measures for these two diseases are different.

Brown stem rot.

Enlarge [5]

This fall we have not observed fields with severe infestation of BSR because Iowa has been in dry seasons several years in a row. Consequently, the level of pathogens has been low. Return of the disease this season helps build-up of the pathogen and increase future risk. If you find the disease, consider using tillage and resistant varieties to manage it.

Powdery mildew is prevalent this year for the first time in our experience. The disease is caused by a fungus called *Microsphaera diffusa*; normally only a greenhouse problem in early spring.

Powdery mildew on soybean.

Enlarge [6]

This disease is a cool temperature disease and temperatures higher than 30 °C stop the development of this disease. We have seen a lot of this disease this year because of very cool weather throughout this season. Damage from this disease will be minimum this year. The disease should not be a concern next growing season unless we experience another year of cooler than normal temperatures.

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