

News Column for Use Week of 08/17/2020
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Corn Fungicide

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We are entering the time window in Kansas where corn producers should be scouting fields and assessing the need for a foliar fungicide application.

Years of fungicide application research demonstrates that the single best time to apply a fungicide to corn for gray leaf spot control is from VT to R1. A single application at V7 – V8 will not hold up against late-season pressure. Those who choose to put a fungicide down with their last herbicide treatment will most likely have to apply a second cover at VT – R1 if there is any gray leaf spot pressure at all. A VT – R1 application may also provide some suppression of southern rust, should it arrive early enough to cause yield loss.

University fungicide trials also reveal that final disease severity plays a critical role in the magnitude and consistency of yield response to a foliar fungicide application. The tricky part is being able to predict before the VT to R1 stages what the disease pressure will be several weeks later. To make such a prediction, you need to consider “disease risk factors” and to scout for the disease.

Disease risk factors include:

- *Susceptibility level of corn hybrid.* Seed companies typically provide information on the susceptibility of their hybrids to gray leaf spot in their catalogs. In general, hybrids that are more susceptible to fungal foliar diseases will have a greater response to a foliar fungicide (if disease pressure is high enough).
- *Previous crop.* Because gray leaf spot survives in corn residue, the risk of disease increases when corn is planted back into a field that was corn the previous year.
- *Weather.* Rainy and/or humid weather generally is most favorable to gray leaf spot. In growing seasons when these conditions prevail, the risk for disease development increases.
- *Field history.* Some field locations may have a history of high foliar disease severity. Fields in river bottoms or low areas or surrounded by trees may be more prone to having gray leaf spot.

Begin scouting for gray leaf spot in corn about two weeks before expected tassel emergence. Gray leaf spot is characterized by rectangular lesions that are 1-2 inches in length and cover the entire area between the leaf veins. Early lesions are small, necrotic spots with yellow halos that gradually expand to full-sized lesions. Lesions are usually tan in color but may turn gray during foggy or rainy conditions. The key diagnostic feature is that the lesions are usually very rectangular.

Current disease management guidelines suggest the following criteria for considering an application of foliar fungicide:

- For susceptible hybrids (those with the lowest rating within a company’s lineup): Fungicide applications should be considered if disease symptoms are present on the third leaf below the ear or higher on 50 percent of the plants examined.

- For intermediate hybrids (those with an average rating within a company's lineup): Fungicide applications should be considered if disease symptoms are present on the third leaf below the ear or higher on 50 percent of the plants examined, if the field is in an area with a history of foliar disease problems, if the previous crop was corn, if there is 35 percent or more surface residue, and if the weather is warm and humid.
- For resistant hybrids (those with the best rating within a company's lineup): Fungicide applications generally are not recommended.

According to the data from Illinois corn fungicide trials, if at least five percent of the ear leaf area is affected by the disease at the end of the season, a foliar fungicide applied between VT and R1 would likely have been beneficial. Using the disease risk factors and scouting observations collected just before tassel emergence will help you predict how severe disease may be several weeks after the VT to R1 stages, and help you decide whether to apply a foliar fungicide.

If no disease is present or pressure is low, I recommend holding off on the R1 application since efficacy will begin to wane in three to four weeks, just as late-season pressure may begin to develop. Data exists that would suggest that if the pressure begins to develop later, an R2 application can be economical and will provide protection later into the grain fill period. This later application could also protect against any late-season southern rust pressure.

Distinguishing between gray leaf spot and bacterial streak:

- Bacterial streak, identified as a new corn disease in the U.S. in 2016, is now active in most of western Kansas. We have received reports of bacterial leaf streak earlier than usual this year. While yield loss potential for this disease remains unknown, we do know that it can be misidentified as a gray leaf spot, resulting in unwarranted fungicide applications. Fungicides will not have any effect on a bacterial streak.
- Keep in mind that a gray leaf spot typically has very sharp edges defined by the leaf veins, whereas bacterial streak will have a wavy edge that can cross the leaf vein. Also, when backlit with light, gray leaf spot lesions will have an opaque appearance while bacterial streak lesions are more translucent.

If you are unsure about symptoms, please contact the K-State plant disease diagnostic clinic via email at clinic@ksu.edu.

If you have questions about your crops, contact River Valley District Crop Production Agent at 785-243-8185 or by emailing zrebecca@ksu.edu.