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Will Foliar Diseases be a Problem on Corn This Year?

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Abstract

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Will Foliar Diseases be a Problem on Corn This Year?

By Alison Robertson, Department of Plant Pathology

Should I consider spraying a fungicide to protect yield?

Beginning this time last year the droning of airplanes could be heard in Iowa as acre upon acre of corn was sprayed with fungicides. Today the skies are quiet. Why? The corn crop is two to three weeks behind in crop development compared with last year, a result of the cool and very wet start to the growing season. Across most of Iowa we will be lucky if the corn really is "knee high by the 4th July." Last year corn was starting to tassel across the state; this year tasseling will likely occur sometime in mid-July.

So what does this mean in terms of foliar disease? Common rust is usually the first disease to appear on corn in Iowa. We usually start to see symptoms around the beginning of July. I have yet to see or hear of common rust so far this season. Gray leaf spot and Northern corn leaf blight usually start to appear towards the end of July when the weather becomes become favorable for infection and disease development (high humidity and very warm temperatures (greater than 85 degrees F)). During this period, spore levels of the gray leaf spot fungus also start to increase exponentially so inoculum pressure is greater.

Research has shown that the earlier in the grain-fill process that disease develops, the greater the impact on grain yield. This year, because tasseling and silking are delayed, grain filling will occur in late July through August, and may coincide with increased disease pressure assuming we have "typical Iowa State Fair weather" – hot and humid with blankets of fog hanging over corn fields late into the morning. Thus the impact of foliar diseases on corn yields may be greater this year, since disease could become a problem earlier in grain fill.

Fungicides can be used to manage foliar diseases of corn and protect yield. With the volatile markets and with yield potential already taking a knock from the floods, the use of a fungicide to protect every bushel might sound even more appealing, and indeed this year could be a good year to spray a fungicide—but there are several factors that need to be considered before pulling the trigger.

Carl Bradley at the University of Illinois discussed all of those factors in [an article posted on July 3, 2008](#), but I would like to highlight a few of factors that are particularly important for Iowa producers to consider this year:

1. What's lost is lost: Because of the weather we have already lost yield potential in many fields. No fungicide application can recover that yield. If producers are to spray, it would be best to target those fields that have the highest yield potential.

2. Growth stage of the crop: Uneven plant stand is evident in the majority of corn fields across Iowa. Growth stages in a single field can range between 2 and 4 leaf stages. Last year, applications of fungicide prior to VT were implicated in deformed ears and reduced yield. This may or may not be a factor this year, as temperatures at the time of application directly affect phytotoxicity of many fungicides.
3. Fungicide effective period: Most of the fungicide products registered for corn are only effective for 14-21 days. Since the [grain fill period](#) ranges from 55-65 days, timing of fungicide applications will be crucial to ensure maximum effectiveness of the product and thereby maximize yield protection.
4. Hybrid susceptibility and disease pressure: In Iowa, fungicide applications are not recommended on hybrids that have good resistance to foliar disease. Fungicide applications to intermediate hybrids and susceptible hybrids should be based on disease pressure, forecasted weather conditions and previous crop history.

This growing season, scouting will be crucial to determine if a fungicide should be applied or not and when it should be applied. Fields should be scouted to ensure that all plants are at least at VT (tasseling) before a fungicide is applied. The level of disease in the field also needs to be determined starting a VT, and then one to two-weeks later if necessary. If disease is present on the 3rd leaf below the ear leaf or higher, and a susceptible hybrid is being grown, a fungicide application may be warranted. On intermediate hybrids, if the forecast is for hot and muggy weather, the previous crop is corn, or the field has a history of disease, a fungicide application may help protect yield.

A final note on applying fungicides to hail damaged corn--unfortunately there is very little data to support the use of fungicides on hail damaged corn. In [Carl Bradley's article](#) he discusses a simulated hail-fungicide trial he conducted at Urbana, III.

Alison Robertson is an assistant professor of plant pathology with research and extension responsibilities in field crop diseases.

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