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It May Be a Good Year for a Fungicide Application

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It May Be a Good Year for a Fungicide Application

Abstract

Delayed planting coupled with the wet spring may mean this is a good year for a fungicide application on corn. Wet conditions have favored the development of some foliar diseases within the canopy, and many fields are delayed developmentally due to later planting. In the past two growing seasons, most of the corn in Iowa has been flowering by mid-July. This year, it will be another 10 days or more before widespread tasseling occurs in the state. When diseases start during early grain fill, this increases the risk of reduced yield.

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It May Be a Good Year for a Fungicide Application

By Alison Robertson, Department of Plant Pathology and Microbiology

Delayed planting coupled with the wet spring may mean this is a good year for a fungicide application on corn. [Wet conditions have favored the development of some foliar diseases within the canopy](#), and many fields are delayed developmentally due to later planting. In the past two growing seasons, most of the corn in Iowa has been flowering by mid-July. This year, it will be another 10 days or more before widespread tasseling occurs in the state. When diseases start during early grain fill, this increases the risk of reduced yield.

Research has shown that greater yield responses due to a fungicide application consistently occur in the presence of disease. In Iowa, [mean yield response](#) was greatest when disease severity in a field at R5 was high. If disease severity on the ear leaf at R5 was <5 percent, mean yield response was 4.83 bu/A; however, when disease severity on the ear leaf at R5 was >5 percent, the mean yield response was 9.46 bu/A. Therefore, to increase the chance of a return on investment of a fungicide application, farmers should target fields that are at high risk for disease development during grain fill.

To identify fields that are at an increased risk for disease, and consequently an increased chance they will benefit from a fungicide application, consider the following three factors:

1. **Hybrid:** Hybrids vary in their tolerance to various diseases. "Race horse" type hybrids are often susceptible to one or more diseases. Fields planted to susceptible hybrids may require a fungicide application to protect yield.
2. **Presence of disease:** Gray leaf spot (Figure 1) and northern leaf blight often develop in the lower canopy and then move up the plant. Common and southern rust are more often found in the mid to upper canopy. Presence of leaf spots in the canopy means the weather has been favorable for disease development and inoculum is present in the field.
3. **Weather conditions during grainfill:** For disease to happen, or continue to develop, certain environmental conditions need to occur (Table 1).

Table 1. Conditions that favor foliar disease development in corn

	Temperature	Leaf wetness	Other
Gray leaf spot	75 – 90 F	> 13 h	High (>90%) humidity
Northern leaf blight	65 – 80 F	6 – 18 h	
Eyespot	70s	several	Frequent precipitation
Common rust	61 – 77 F	> 6 h	
Southern rust	77 – 82 F	> 6 h	High RH



Figure 1. Early symptoms of gray leaf spot are small tan spots that are bordered by leaf veins and occur in the lower canopy.

There are several fungicides registered for use on corn, and new products continue to be introduced. The Corn Disease Working Group, corn pathologists from across the United States, developed a Fungicide Efficacy Table that is available [here](#). The pre-harvest interval (PHI) of the products ranges from 7 to 45 days so always remember to check the label and consider days to harvest before applying a product.

Pre-tassel applications of fungicides may result in [arrested ear syndrome](#). Research at Purdue University showed spray additives (NIS surfactants and crop oil) to pesticides applied between V10 and VT increased the risk of this disorder. Wet spring conditions across Iowa have resulted in uneven stands that range widely in crop growth stage. Try to wait to apply a fungicide until the field has completely tasseled. Some fungicides do not require the addition of a surfactant – check the label, however when fungicides are applied aerially, crop oil is used to ensure the fungicide product does not evaporate and is deposited within the canopy.

Alison Robertson is an associate professor of plant pathology and microbiology and extension and research responsibilities. She can be reached at alisonr@iastate.edu or 515-294-6708.

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