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Eyespot and Gray Leaf Spot Severity Continue to Increase in Iowa

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Abstract

Gray leaf spot (GLS) has reached threshold levels in some corn fields in southwestern Iowa and a fungicide application should be considered for these fields. As many as 5-20 gray leaf spot lesions are present on the ear leaf and, in some fields GLS lesions are also present on the leaf above the ear leaf. Approximately one in two plants are infected, and corn is at growth stage VT/R1. A couple of weeks ago, I summarized data from Greg Shaner at Purdue University, that showed [fungicide applications can be profitable when disease pressure is high](#) and the infected hybrid is susceptible to gray leaf spot.

Keywords

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Eyespot and Gray Leaf Spot Severity Continue to Increase in Iowa

By Alison Robertson, Department of Plant Pathology

Gray Leaf Spot at Threshold Levels

Gray leaf spot (GLS) has reached threshold levels in some corn fields in southwestern Iowa and a fungicide application should be considered for these fields. As many as 5-20 gray leaf spot lesions are present on the ear leaf and, in some fields GLS lesions are also present on the leaf above the ear leaf. Approximately one in two plants are infected, and corn is at growth stage VT/R1. A couple of weeks ago, I summarized data from Greg Shaner at Purdue University, that showed [fungicide applications can be profitable when disease pressure is high](#) and the infected hybrid is susceptible to gray leaf spot.

The disease threshold developed for GLS in the mid 1990s was 'lesions on the third leaf below the ear leaf or higher on 50 percent of the plants at tasseling'. The threshold was based on observations and results from fungicide trials. Since hybrids have changed and new fungicide products have become available, research to re-evaluate this threshold is in progress. However for now, this threshold stands. Scouting corn fields in southwest Iowa and throughout the state is highly recommended. Disease pressure does vary considerably from field to field, and most fields are not at threshold for fungicide application. High risk fields included continuous corn fields, particularly those with high surface residue, and river bottom areas. Hybrid ratings for GLS resistance should also be taken into account.

Risk of stalk rot increased

Severe infections of GLS may reduce grain fill by up to 50 percent. Furthermore, severe infections of GLS increase the risk of stalk rot, which may result in standability issues at harvest. Thus managing GLS with a fungicide may also help with stalk quality (See article by Carl Bradley, Extension Pathologist at the University of Illinois, ["Effects of Foliar Fungicides on Corn Stalk Quality."](#))

Eyespot

Further north, eyespot continues to make its presence known in some fields. In some fields disease severity is 1-2 percent (Figure 1) on the 2nd and 3rd leaf below the ear leaf, with scattered lesions occurring further up the plant. I know of no disease threshold for eyespot; however, scouting is encouraged in fields where the disease is present to keep an eye on disease progress. A fungicide application may be necessary to reduce eyespot severity and risk of stalk rot.

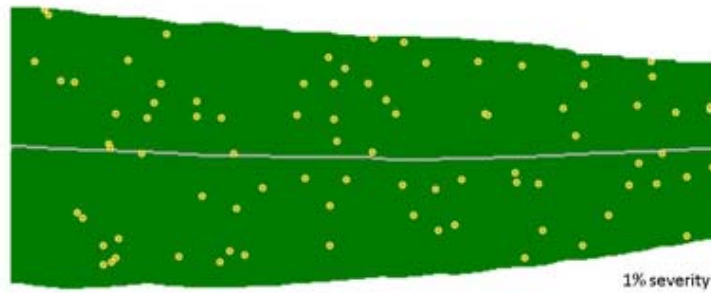


Figure 1. Image of eyespot of corn created using Severity.Pro software representing 1 percent disease severity.

Other diseases occurring across the state include:

Goss's wilt has been reported in Carroll, Sac, Audubon and Guthrie counties. Large gray to reddish or yellow lesions that extend down the leaf veins are characteristic of this disease (Figure 2). Dark green to black "freckles," evident within the lesions are diagnostic. Goss's wilt was reported across Iowa last growing season (see [Goss's Wilt Prevalent in Western Iowa](#) for more detailed information).



Figure 2. Large grey to reddish or yellow lesions that extend down the leaf veins resulting in extensive leaf blight are characteristic of Goss's wilt.

Physoderma leaf spot has again been found in southwest and southeast Iowa. Symptoms of the disease are numerous very small (approximately 1/4" in diameter) round to oval spots that are yellowish to brown in color and usually occur in broad bands across the leaf (Figure 3). Dark purplish to black oval spots also occur on the midrib of the leaf. Physoderma brown spot is often misdiagnosed as eyespot or southern rust. Eyespot lesions have a light, almost translucent center while Physoderma do not. Pustules of southern rust produce thousands of orange spores that can be wiped off the upper leaf surface with your finger. Although there some fungicides are registered for Physoderma management, in the Midwest, this disease rarely impacts yield.



Figure 3. Bands of numerous small yellow to orange-brown spots across the leaf lamina and dark purplish spots on the midrib are characteristic symptoms of Physoderma brown spot.

Common rust is occurring across the state, particularly in southeast Iowa. Also northern corn leaf blight (large, tan, cigar-shaped lesions) and crazy top have also been found in southeast Iowa. Both of these diseases are present at very low levels and do not currently require management.

Alison Robertson is an assistant professor of plant pathology with research and extension responsibilities in field crop diseases. She may be contacted at (515) 294-6708, alisonr@iastate.edu.

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