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Decision for Fungicide Applications on Corn Looming

Alison E. Robertson

Iowa State University, alisonr@iastate.edu

Daren S. Mueller

Iowa State University, dsmuelle@iastate.edu

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Decision for Fungicide Applications on Corn Looming

Abstract

Even after two full years of multiple trials, applying fungicides to corn is still not a clear-cut decision for growers. Many growers have experienced yield increases; some have not seen yield increases and even have seen yield losses from fungicides. At a cost of \$24 an acre, this is not a decision to take lightly.

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Decision for Fungicide Applications on Corn Looming

By Alison Robertson and Daren Mueller, Department of Plant Pathology

Even after two full years of multiple trials, applying fungicides to corn is still not a clear-cut decision for growers. Many growers have experienced yield increases; some have not seen yield increases and even have seen yield losses from fungicides. At a cost of \$24 an acre, this is not a decision to take lightly.

What the research shows

Yield responses of hybrid corn to foliar fungicide application vary widely. In Iowa in 2008, the mean yield response in small plot trials was 3.5 bu/acre (Robertson et al, 2008). Similarly, the mean yield response of [replicated strip on-farm trials](#) conducted by Iowa Soybean Association On-Farm Network was 3.5 bu/acre. Greg Shaner at Purdue University compiled data from 13 universities in 2008 across the U.S. and reported a mean yield response of 3.6 bu/acre. However, an average yield increase of 7.4 bu/acre was reported by Pioneer (Jeschke, 2009) in their evaluation trials across the country and [industry has reported 12-16 bu/acre yield increases](#).

While university and industry reports differ in the magnitude of yield responses, one thing we agree on is that yield response is greater when significant disease pressure is present (Table 1).

Table 1.
Yield response of corn to a foliar application of a strobilurin fungicide at VT-R1 (Shaner, 2008)

Disease severity (%)	Yield response (bu/acre)
< 5%	1.2
>5 %	7.5
>10%	11.5

Therefore, scouting corn fields prior to an application of a foliar fungicide application can be a worthwhile investment. Fields should be scouted near or at tasseling. A minimum of 100 leaves should be examined per field. At several places within the field, examine the ear leaf and leaves below of several plants to determine if disease is present. If foliar disease is present on the majority of these leaves, a foliar fungicide application may be warranted.

Factors that may affect disease development, and thus the decision to apply a fungicide, include hybrid susceptibility to disease, current and predicted weather conditions during grain fill, disease history of the field and previous crop.

Some basic economics that should be considered before applying fungicides are:

- cost of the fungicide, plus application
- price of corn
- drying costs (corn sprayed with a fungicide often is wetter at harvest)
- harvestability (corn sprayed with a fungicide may have better standability than unsprayed corn)

All these factors affect the economics of a fungicide application.

Other considerations

Field guides - Two new resources are available for identifying corn diseases. The most common foliar diseases in Iowa are gray leaf spot, common rust and eyespot. Other diseases include Northern corn leaf blight and southern rust. [A Corn Field Guide](#) (CSI 001), which includes all diseases, insects and disorders, and a pocket card titled '[Scouting for corn diseases](#)' (CSI 0002) are now available from ISU extension.

Application timing - One thing we have consistently seen over the past few years in several of our on-farm and small plot research treatments is a negative yield response from a portion of the trials. While we have not identified any specific reason for these negative responses, one possible cause this past year may have been the uneven crop caused by flooding. Applications prior to tasseling may affect ear development, specifically when an NIS or crop oil is used (Nafzinger, 2008; Nielsen et al, 2008). This season, many fields once again have uneven corn, so if a fungicide is to be applied, we advise waiting until the whole field has tasseled.

Next year's crop - Lastly, many growers are considering no-till soybeans after corn. We have heard reports from the field that residue of corn to which a fungicide has been applied takes longer to breakdown. This has made planting soybean difficult the following year.

Jeschke, M. 2009. Foliar fungicide effects on corn yield. *Crop Insights* 18:1-5

Shaner, G. 2008. Regional Corn Fungicide Trials – 2008. Presented at the 2008 Corn Disease Management Working Group Meeting, Chicago, IL.

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Alison Robertson is an assistant professor of plant pathology with research and extension responsibilities in field crop diseases. Daren Mueller is an extension specialist with responsibilities in the Corn and Soybean Initiative. Robertson may be contacted at (515)294-6708 or by emailing alisonr@iastate.edu. Mueller may be contacted at (515) 460-8000 or by emailing dsmuelle@iastate.edu

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