



The widespread use of foliar fungicides on corn, in Illinois, began in 2007 and has been on the rise according to Dr. Carl Bradley University of Illinois Plant Pathologist who updated information on his research trials.

Dr. Carl Bradley

Foliar Fungicide Management

Guidelines For Profitable Yield Response

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University of Illinois Plant Pathologist, Dr. Carl Bradley updated the gathering on his corn foliar fungicide research trials. The widespread use of foliar fungicides on corn, in Illinois, began in 2007 and has been on the rise. "Since 2008, my research program has had about six or seven locations across the state each year."

Bradley discussed data collected from 2008 to 2010. "This data represents about 20 different environments where we have evaluated foliar fungicides and replicated the studies across Illinois."

In these field research trials, disease severity was evaluated about four weeks after fungicides were applied, and yield responses of the fungicides were evaluated. Products used in the studies included: Headline, Headline AMP, Stratego, Stratego YLD, Quilt, Quilt Xcel and Bumper. During these trials, products were applied sometime between tassel emergence and silking.

"When we had low disease severity, less than 10 percent, disease severity at the end of the season our average yield response was only 0.1 bushels per acre, and only 13 percent of the time we achieved at least a five bushel an acre yield response. When we had more of a moderate level of disease pressure, 10 to 14 percent severity, we saw a 4.8 bushel per acre yield response, and 50 percent of the time, we were able to get at least a five bushel an acre yield response. Finally, when we had greater disease severity of at least 15 percent, we saw that our average yield response was 14.1 bushels per acre, and 100 percent of the time we were able to get at least a five bushel an acre yield response."

The likelihood of obtaining a profitable yield response when applying foliar fungicides needs to be considered according to Bradley. "Sometimes there might be some information out there that might suggest that you're always going to get a profitable yield response when using a foliar fungicide. From our data that's just not the case. We do see very good yield responses and consistent yield responses when we have higher levels of disease pressure, but when we have low levels of disease pressure it's very inconsistent in seeing that profitable type of yield response."

"The difficulty is that you have to make a fungicide decision at a time when you don't know exactly what level of disease severity will develop if you don't spray a fungicide," said Bradley.

Bradley offered some guidelines. "The guidelines that are available are not always 100 percent accurate, but I think they're the best thing that we have at this point and time. I think they will be helpful for you when you're trying to make fungicide application decisions. One of the biggest things that we've seen with foliar fungicides on corn is that the hybrid does make a pretty big difference. Hybrids that are susceptible to foliar disease, but have yield potentials tend to be those that have the highest yield responses to fungicides. For hybrids with moderate levels of disease resistance, disease risk needs to be considered even more. On hybrids with high levels of foliar disease resistance, large yield responses with fungicides are not observed nearly as often."

Bradley's guidelines are divided up into different categories based on hybrid susceptibility to foliar diseases such as gray leaf spot or northern corn leaf blight. "On susceptible or moderately susceptible hybrids, go out prior to tassel, focus on the third leaf below the ear and if you see disease on those leaves or higher in the canopy on 50 percent of the plants, then that might be a good trigger to apply a fungicide. This means that if you continue with the same type of weather pattern on that hybrid then later on in the season you may develop into that 15 to 20 percent severity level. On intermediate hybrids basically it's the same thing. Look at the third leaf below the ear, and if disease is present at that level or higher on 50 percent of the plants or more, consider a fungicide application."

On hybrids with moderate levels of disease resistance, field history is a factor that must also be considered said Bradley. "Think about the history of that field, does that field tend to have a history of a lot of foliar diseases? What is the amount of corn residue on the soil surface? If we're seeing about 35 percent coverage of the soil with corn residue then that may be another thing to help us think about if we need to apply a fungicide."

Residue can harbor trouble. "The fungi that causes these foliar diseases, that's where they overwinter. They overwinter in corn debris. If you have a lot of corn debris on the soil surface, your risk is going to go up," said Bradley.

Bradley encouraged attendees to sign up for the University of Illinois newsletter. "It is an online newsletter that the University of Illinois puts together each week during the growing season." Interested in The Bulletin go to <http://bulletin.ipm.illinois.edu/>.

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