July 18, 2008

SHOULD CORN BE TREATED?

With the hail events that have pounded some of our corn fields in the Milligan and Tobias area, some farmers have questioned whether a foliar fungicide should be applied to protect the remaining injured foliage from infection by pathogens. That is a good question. For that matter in a high yielding potential field, will I get a return on my investment for a foliar fungicide application in corn?

There are several key factors that influence this question. Having more of these factors increases the likelihood of profitability with foliar fungicide applications. These factors are 1) Susceptible hybrid 2) Continuous corn 3) No-till planting 4) Late planting 5) High yield potential 6) Irrigation 7) Early disease activity 8) Field or location has a history of severe disease and 9) Weather is favorable for disease development.

The current price of corn has influenced the economics of spraying fungicides in corn. Most fungicides provide approximately 14-21 days of protection. During recent years, gray leaf spot and southern rust have been our most severe fungal foliar diseases and impacted yield in late July through August. If this trend is repeated in 2008 and if weather conditions persist, then fields may require an additional application(s) of fungicides later in the season when it is most critical for protecting leaf area and yield. So if you only intend to apply once, crop scout information is very important.

Considering that fungicides cost an average of $15-$20/acre, an increase of 2-3 bushels/acre in yield will be necessary to cover the cost of each fungicide application. According to the results from fungicide trials conducted across 12 states in 2007, at today's corn prices, a single fungicide application at tasseling would have led to a profitable yield increase at approximately 60 percent of the 168 locations. With the previous years prices, it was 39 percent of the time.

With corn that has been hailed on, many of the diseases favored by wounding are not controlled with foliar fungicides, such as those caused by bacteria, and common smut and stalk rots. There is no third party data to support the fact that foliar fungicides allow corn to stand up better (reduced stalk rot). Furthermore, foliar diseases that can be managed with foliar fungicides, such as gray leaf spot and southern rust, do NOT require wounds for infection. The development of some of these diseases following a hail event might more likely be attributed to the rain and increased relative humidity that accompanied the storm rather than the hail itself.

A study conducted in Illinois last year at a single location evaluated the effects of fungicide applications in simulated hail-injured corn on gray leaf spot severity and yield. In that study, fungicide applications did not statistically increase yield when applied on tasseling corn that was damaged the previous day to simulate hail injury. There is no strong consensus among plant pathologists regarding this topic due to the limited research data that are currently available, so additional research is needed to better determine the potential for foliar fungicides to protect hail-damaged corn.

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I think the decision boils down to the nine factors I listed above in this article, the yield potential and how much foliage remains to protect. Next week I will talk about the fungicide trials near Western on wheat, a crop that has a higher chance of return as a result of fungicide application.

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