

Early Season Fungicide Applications On Corn



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With respect to fungicides on corn, research at land-grant universities typically supports two conclusions, discussed below.

The most sensible use of fungicides is in fields with the highest disease risk.

Fungicides sometimes improve crop productivity, and sometimes not. Independent research pretty commonly shows that the best predictor of benefit is, how much is the risk of foliar fungal diseases like gray leaf spot? I've discussed this in numerous articles previously, as have other university-based corn pathologists.

If using a fungicide, the greatest benefit usually comes from a single application at

tion.

The table top right provides selected example data from a much larger trial conducted by Kiersten Wise, Purdue University (published in *Plant Disease Management Reports*, 4:FC092).

Overall results for numerous university trials throughout the Corn Belt in 2010 are presented in the table bottom right (summary data provided by Kiersten Wise).

It is very clear from these data that, if you must use a fungicide, an early application is not as good as at VT/R1. Fungicide application in the V4-V8 window often results in a loss of disease control, compared to fungicide application at VT/R1. This makes sense, because diseases like gray leaf spot accelerate during grain fill, and a V6 application can "run out of gas" by the time the disease really gets going. Furthermore, research indicates that dual applications may often be uneconomical.

Treatment	Timing ¹	% foliage damage from disease	Yield (bu/A)	Test weight (t/bu)
Untreated	---	18.4	212	59.7
Headline [®] 6 fl oz	V6	14.3	201	59.6
Headline [®] 6 fl oz	VT	6.1	202	59.2
LSD (0.05)	---	2.9	NS ²	NS

¹V6 application applied with Roundup[®] herbicide. VT application includes nonionic surfactant.

²NS=no significant difference.

Growth stage at application	Number of trial entries	Average reduction in disease ¹	Average yield increase (bu/A) ²
V4-V8	28	1.2	3.5
R1	30	4.1	4.8
R2	13	0.1	1.2
V4-V8 plus R1	23	3.8	6.8

¹Average difference in percent foliar damage, calculated as % damage in untreated minus % damage in treated.

²Average difference in yield, calculated as yield of treated minus yield of untreated.

tasseling (VT) through silking (R1). In the past couple of years, there have been marketing efforts promoting the use of fungicides on early-stage corn (V4 to V8). The advantage of applying fungicide this early is that it may be tank-mixed with herbicide. This eliminates the extra application cost of a fungicide application at VT/R1. The problem with the early applications is that, in general, they don't provide as much benefit, compared to a VT/R1 applica-

Bottom line: The public research thus far doesn't provide a good reason to make an early season application of fungicide to corn. If you are considering using a fungicide,

1. Direct it to fields with greatest risk of gray leaf spot and other leaf diseases.

2. Apply it between tasseling and the time when silks begin to turn brown. Δ

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