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# Effect of Foliar Fungicides on Corn Yields in Iowa in 2012

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# Effect of Foliar Fungicides on Corn Yields in Iowa in 2012

## **Abstract**

Every year we evaluate foliar fungicides on corn at several locations across Iowa for disease management and yield response. In 2012, we tested foliar fungicides at six Iowa State University Research and Demonstration Farms: southwest (Lewis), southeast (Crawfordsville), north (Kanawha), northwest (Sutherland), northeast (Nashua) and the agronomy farm (Ames). Fungicides were applied at either growth stage V5, R1, R2 or both V5 and R1.

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## Effect of Foliar Fungicides on Corn Yields in Iowa in 2012

By Alison Robertson and John Shriver, Department of Plant Pathology and Microbiology

Every year we evaluate foliar fungicides on corn at several locations across Iowa for disease management and yield response. In 2012, we tested foliar fungicides at six Iowa State University Research and Demonstration Farms: southwest (Lewis), southeast (Crawfordsville), north (Kanawha), northwest (Sutherland), northeast (Nashua) and the agronomy farm (Ames). Fungicides were applied at either growth stage V5, R1, R2 or both V5 and R1. Table 1 lists the fungicide products and treatments evaluated at each location.

Table 1. Fungicide treatments evaluated at six locations in Iowa in 2012.

	Agron <sup>2</sup>	NERF	NRF	NWRF	SERF	SWRF
Unsprayed check	X	X	X	X	X	X
Headline (6 oz/acre) @ V5	X	X	X	X	X	X
Headline AMP (10 oz/acre) @ R1	X	X	X	X	X	X
Headline (6 oz/acre) @ V5 with herbicide plus Headline AMP (10 oz/acre) @ R1	X	X	X	X	X	X
Headline AMP (10 oz/acre) @ R2	X	X	X	X	X	X
StrategoYLD (4 oz/acre) @ V5	X	X	X	X	X	X
StrategoYLD (4 oz/acre) @ R1	X	X	X	X	X	X
StrategoYLD (2 oz/acre) @ V5 plus StrategoYLD (4 oz/acre) @ R1	X	X	X	X	X	X
StrategoYLD (4 oz/acre) @ R2	X	X	X	X	X	X
Quadris (6 oz/acre) @ V5	X	X	X	X	X	X
Quilt Xcel (10.5 oz/acre) @ R1	X	X	X	X	X	X
Quadris (6 oz/acre) @ V5 plus Quilt Xcel (10.5 oz/acre) @ R1	X	X	X	X	X	X
Quilt Xcel (10.5 oz/acre) @ R2	X	X	X	X	X	X
Domark (4 oz/A) @ R1	X	X	X	X	X	X
Domark (4 oz/A) at R2	X	X	X	X	X	X
Priaxor (4 oz/acre) @ V5	X	X	X	X	X	X
Priaxor (4 oz/acre) @ V5 plus Headline AMP (10 oz/acre) @ R1	X	X	X	X	X	X
Proline (5oz/acre) @R1	X	X	X	X	X	X
Evito (2oz/ac) @ V5	X	X	X	X	X	NT <sup>2</sup>
Evito-T (5 oz/ac) @ R1	X	X	X	X	X	NT

<sup>1</sup> Agron = Agronomy Farm, Ames; NERF = Northeast Research Farm; NRF = Northern Research Farm; NWRF = Northwest Research Farm; SERF = Southeast Research Farm; SWRF = Southwest Research Farm

<sup>2</sup>NT = not tested

The 2012 growing season was characterized by extremely hot and dry conditions. Very low foliar disease occurred in all trials and consequently disease severity was not assessed. A windstorm caused severe lodging at the northern and northeastern research farms. Standability and ear rot severity (percent ear with mold) were assessed within 48 hours of harvest at each location. Standability was assessed as the percent of plants lodged in a section of row in the middle of the plot. Ear rot severity was negligible to low (southwest research farm). There were no effects ( $P < 0.1$ ) of fungicide on standability or ear rot.

The mean yield response of corn to a fungicide application across all locations was 5.7 bu/A and 54 percent of the treatments yielded more than 4 bu/acre compared to the untreated control, although no statistical differences in yield between the untreated control and a fungicide application were detected ( $P < 0.1$ ) for any treatment at any location. Fungicide responses varied widely among and within locations. Mean yield response for each treatment timing at each location is shown in Table 2.

**Table 2. Mean yield response of corn to a foliar fungicide application applied at either V5, R1, R2 or both V5 and R1 at six locations in Iowa in 2012.**

	Agronomy <sup>1</sup>	NERF	NRF	NWRF	SERF	SWRF	Overall
V5	18.4 (5)	17.2 (5)	10.4 (5)	-2.9 (5)	-6.5 (5)	-10.0 (4)	4.9 (29)
R1	16.8 (6)	13.3 (6)	4.9 (6)	10.4 (6)	-7.1 (6)	-6.1 (5)	5.5 (35)
V5+R1	8.9 (4)	14.9 (4)	13.1 (4)	11.2 (4)	-5.6 (4)	-7.1 (4)	6.2 (24)
R2	25.9 (4)	10.9 (4)	4.2 (4)	4.5 (4)	-1.6 (4)	-6.9 (4)	6.2 (24)

<sup>1</sup> Agronomy = Agronomy Farm, Ames; NERF = Northeast Research Farm; NRF = Northern Research Farm; NWRF = Northwest Research Farm; SERF = Southeast Research Farm; SWRF = Southwest Research Farm

<sup>2</sup> Yield response in bu/A

<sup>3</sup> Number of treatments

<sup>4</sup> Not tested

In general, fungicides resulted in more of a positive effect on yield at the northern locations than the southern locations. The mean yield response of an application of fungicide at V5 (4.9 bu/A) was lower than that of an application during the reproductive growth stages (5.5 and 6.2 bu/A for R1 and R2 applications, respectively). A double application of fungicide at V5 and R1 resulted in a similar yield response across all locations to one application at growth stage R2 (both 6.2 bu/A).

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