

Effectiveness of Foliar Fungicides by Timing on Northern Leaf Blight on Hybrid Corn in Southeast Iowa

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Introduction

Fungicide use on hybrid corn has increased considerably, primarily due to reports of increased yields, even in the absence of disease and higher corn prices. A number of fungicides are registered for use on corn. The objectives of this project were to 1) assess the effect of timing of application of fungicides on disease, 2) evaluate the yield response of hybrid corn to foliar fungicide application, and 3) discern differences, if any, between fungicide products.

Materials and Methods

The corn hybrid Pioneer P1151AM, with a resistance rating of 5 for northern corn leaf blight (NCLB) (1-9 scale, 9 = outstanding), was planted following soybeans in a minimum tillage system on May 9, 2014. The experimental design was a randomized complete block design with six blocks and each plot was four rows wide (30-in. row spacing) by 63 ft long. All plots were bordered

by four rows on either side. Fungicides were applied at either V5 (June 13), at R1 (July 14), or at both growth stages (Table 1). On August 29 (1/4 milk line), disease severity in the upper canopy (ear leaf and above) of each plot in reps 4 to 6 was assessed. Disease severity was an estimate of percent leaf area diseased. All four rows of each plot were harvested with a small plot combine on October 17. All data were subjected to analysis of variance and means were compared at the 0.1 significance level using Fisher's protected least significant difference (LSD) test.

Results and Discussion

Weather conditions during 2014 were cooler and wetter than normal. Northern leaf blight was present in the trial; approximately 8 percent of the canopy of the non-sprayed checks was blighted. All applications of fungicide reduced northern leaf blight severity except for applications of Priaxor or Stratego YLD at V5, and Aproach at V5 plus Aproach Prima at R1. Greater yields compared with the non-sprayed control occurred with Fortix, Headline AMP, Quilt Xcel, and Stratego YLD, all applied at R1, and with two applications of Stratego YLD made at V5 and R1 ($P < 0.1$).

Table 1. Effect of fungicide and timing of fungicide applications on yield of corn at Crawfordsville, Iowa.

Treatment, rate/A, application timing ^z	Northern leaf		Yield (bu/A) ^y	
	blight severity (%)			
Control 1	7.8	a ^x	213.6	de
Priaxor (3 oz/A) @ V5	7.5	a	212.9	e
Priaxor (3 oz/A) @ V5 + Headline AMP(10 oz/A) @ R1	1.3	e	219.5	abcd
Headline AMP (10 oz/A) @ R1	2.4	de	220.7	ab
Stratego YLD (3 oz/A) @ V5	4.7	b	213.9	cde
Stratego (2 oz/A) @ V5 + Stratego YLD (4 oz/A) @ R1	2.1	e	223.1	a
Stratego YLD (4 oz/A) @ R1	2.5	b-e	221.2	a
Quilt Xcel (10.5 oz/A) @ R1	1.4	e	221.9	a
Aproach (3 oz/A) @ V5+ Aproach (6oz/A) @ V5	2.3	de	218.9	abcd
Aproach (6 oz/A) @ V5	4.5	bcd	215.0	bcde
Fortix (5 oz/A) @ V5	7.3	a	214.2	cde
Fortix (5 oz/A) @ V5 + Fortix (5 oz/A) @ R1	2.5	cde	214.5	cde
Fortix (5 oz/A) @ R1	1.8	e	219.9	abc
Custodia (6 oz/A) @ V5	4.6	bc	212.4	e
Custodia (12.8 oz/A) @ R1	2.5	b-e	214.0	cde
Control 2	8.4	a	212.0	e
Aproach (3 oz/A) @ V5+ Aproach Prima (6.8 oz/A) @ R1	7.8	a	213.6	de
Aproach Prima (6.8 oz/A) @ V5	7.5	a	212.9	e
LSD (0.01)			7.0	
P-value	<0.001		0.0112	

^zV5, 5-leaf stage; R1, silking.^yCorrected to 15.5 percent moisture content.^xNumbers followed by the same letter in the same column are not statistically different at P < 0.1.