

1-1-2015

Effectiveness of Foliar Fungicides by Timing on Northern Leaf Blight and Common Rust on Hybrid Corn

Alison Robertson

Iowa State University, alisonr@iastate.edu

Josh Sievers

Iowa State University, sieversj@iastate.edu

Chad Huffman

Iowa State University, chuffman@iastate.edu

Follow this and additional works at: http://lib.dr.iastate.edu/farms_reports



Part of the [Agricultural Science Commons](#), [Agriculture Commons](#), [Agronomy and Crop Sciences Commons](#), [Fungi Commons](#), and the [Natural Resources and Conservation Commons](#)

Recommended Citation

Robertson, Alison; Sievers, Josh; and Huffman, Chad, "Effectiveness of Foliar Fungicides by Timing on Northern Leaf Blight and Common Rust on Hybrid Corn" (2015). *Iowa State Research Farm Progress Reports*. 2223.

http://lib.dr.iastate.edu/farms_reports/2223

This report is brought to you for free and open access by Iowa State University Digital Repository. It has been accepted for inclusion in Iowa State Research Farm Progress Reports by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.

Effectiveness of Foliar Fungicides by Timing on Northern Leaf Blight and Common Rust on Hybrid Corn

Abstract

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.

Keywords

Plant Pathology and Microbiology

Disciplines

Agricultural Science | Agriculture | Agronomy and Crop Sciences | Fungi | Natural Resources and Conservation

Effectiveness of Foliar Fungicides by Timing on Northern Leaf Blight and Common Rust on Hybrid Corn

RFR-A1444

Alison Robertson, associate professor
Department of Plant Pathology and
Microbiology
Josh Sievers, farm superintendent
Chad Huffman, ag specialist

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 Agrigold A6252 VT3 PRIB, with a resistance rating of 7 for northern corn leaf blight (NCLB) (1–10 scale, 1 = best), was planted into a Sac silty clay loam following soybeans in a minimum tillage system on May 9, 2014. The experimental design was a randomized complete block design and each plot was 4 rows wide (30-in. row spacing) by 44 ft long. All plots were bordered by four rows on either side, and 6-ft alleys were cut between replications at V4. Fungicides were applied at either V6 (June 24), R1 (July 25), or at both growth stages (Table 1) using a sprayer fitted with Tee Jet flat fan spray nozzle XR8002VS spaced 20-in. apart and

delivering 15.5 gal/acre at 40 psi. On September 8 (1/4 milk line), disease severity in the upper canopy (ear leaf and above) of each plot 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 21. 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

The 2014 growing season was predominantly cool and wet with above average rainfall in June, August, and September. Common rust and NCLB were observed in the trial. Disease severity in the two non-sprayed controls was 8.4 and 7.8 percent. Although an application of Priaxor at V6 did not reduce northern corn leaf blight severity compared with the non-sprayed controls ($P < 0.1$), applications of Custodia, Fortix, or Stratego YLD at V6 did reduce disease. Applications of Fortix, Priaxor, and Stratego YLD at V6 reduced common rust severity compared with the non-sprayed controls, but Custodia did not ($P < 0.1$). All treatments that included an application of fungicide at R1 reduced both northern corn leaf blight and common rust severity ($P < 0.1$), however applications at V6 followed by R1 were not different from application at R1 only. In general, treatments applied at R1 resulted in greater yields than the untreated check and V6 applications alone ($P < 0.1$).

Table 1. Effect of fungicide and timing of fungicide applications on northern corn leaf blight and common rust severity, yield and harvest moisture of corn at Sutherland, Iowa in 2014.

Treatment, rate/A, application timing^z	Northern corn leaf blight severity (%)^y	Common rust severity (%)	Yield (bu/A)^x	Grain moisture at harvest (%)
Non-treated control 1	10.5	10.8	205.7	19.7
Custodia, 6 fl oz, V6	5.8	9.5	209.7	19.8
Fortix, 5 fl oz, V6	6.0	7.8	207.6	20.0
Priaxor, 3 fl oz, V6	7.8	8.0	202.8	19.9
Stratego YLD, 2 fl oz, V6	6.5	7.8	210.8	19.7
Aproach, 6 fl oz, R1	3.0	8.5	210.2	19.8
Custodia, 12.8 fl oz, R1	1.9	4.0	219.2	20.0
Fortix, 5 fl oz, R1	0.8	7.3	223.3	19.9
Headline Amp, 10 fl oz, R1	2.3	6.0	219.8	19.8
Quilt Xcel, 10.5 fl oz, R1	1.8	3.3	217.2	19.8
Stratego 4 YLD, 4 fl oz, R1	5.5	4.0	219.4	19.8
Aproach, 3 + 6 fl oz, V6 + R1	3.5	6.3	207.0	19.8
Fortix, 5 + 5 fl oz, V6 + R1	0.5	3.3	216.7	19.8
Priaxor, 3 fl oz, V6; Headline AMP, 10 fl oz, R1	2.3	3.3	218.4	19.7
Stratego YLD, 2 + 4 fl oz, V6 + R1	3.0	2.8	222.8	20.0
Non-sprayed control 2	9.3	11.3	197.3	19.8
Aproach, 3 + Aproach Prima, 6.8, V6 + R1	0.9	2.3	212.1	19.8
Aproach Prima, 6.8, R1	1.8	3.0	216.4	19.9
LSD (0.01)	1.8	2.7	7.6	0.2
CV (%)	38.25	37.40	2.99	0.82
P-value	< 0.0001	< 0.0001	< 0.0001	< 0.0001

^zV6, 6-leaf stage; R1, silking.

^yPercent upper canopy (ear leaf and above) diseased at ¼ milk line (Sept. 8).

^xCorrected to 15.5 percent moisture content.