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Effectiveness of Foliar Fungicides by Timing on Hybrid Corn in Iowa

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Effectiveness of Foliar Fungicides by Timing on Hybrid Corn in Iowa

Abstract

Fungicide use on hybrid corn has increased considerably in the past four growing seasons 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 1) to assess the effect of timing of application of fungicides on standability, 2) to evaluate the yield response of hybrid corn to foliar fungicide application, and 3) to discern differences, if any, between fungicide products.

Keywords

RFR A1091, Plant Pathology and Microbiology

Disciplines

Agricultural Science | Agriculture | Plant Pathology

Effectiveness of Foliar Fungicides by Timing on Hybrid Corn in Iowa

RFR-A1091

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Introduction

Fungicide use on hybrid corn has increased considerably in the past four growing seasons 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 1) to assess the effect of timing of application of fungicides on standability, 2) to evaluate the yield response of hybrid corn to foliar fungicide application, and 3) to discern differences, if any, between fungicide products.

Materials and Methods

Headline (6 oz/A), Headline AMP (10 oz/A), Quilt Xcel(14 oz/A), and Stratego YLD (4 oz/A) were each applied to hybrid corn DKC52-59RR at either one of three growth stages: V6, R1, and R2 (blister) or at V6 followed by a second application at R1. The experimental design was a randomized plot design. Each plot was 4 rows wide (30-in. row spacing) by 63 ft long. Corn was planted April 21 with a 2000 series Kinze 6-row planter calibrated to plant @ 35,077 seeds/acre on corn following corn. Fungicides were applied with either a 10-ft

hand boom at 20 gpa at V6 on June 15 or a Hagie high clearance sprayer at 15 gpa on July 20 (R1) and August 3 (R2). At R6 (September 20), stalk rot severity was assessed by splitting the stalks of five plants. The University of Illinois Stalk Rot Scale was used where 0 = no disease and 5 = lodging due to stalk rot. All four rows of each plot were harvested with a John Deere 9450 combine on September 22.

Results and Discussion

Stalk rot severity ranged from a high of 2.42 (Check 2) to a low of 0.83. Quilt Xcel applied at either R1 or R2, and Stratego YLD applied at V6 and R1, significantly reduced stalk rot severity compared with the checks. All other treatments did not significantly reduce stalk rot compared with the checks. The highest yielding treatment was Quilt Xcel applied at V6 (212.23 bu/acre), however, it and the yields of all other treatments were not significantly different from the checks. Moisture levels ranged from a low of 19.8 percent to a high of 21.1 percent with no significant difference detected between treatments.

Studies on the efficacy of foliar fungicide timing for disease management and yield response are expected to continue in 2011.

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Table 1. Effect of fungicide and timing of fungicide applications on stalk rot severity, yield, and harvest moisture of corn at the ISU Northeast Research Farm, Nashua, IA in 2010.

Treatments	Stalk Rot ^{a, c}	Yield ^{b, c}	Harvest moisture % ^c
Check 1	1.92abc	202.5a	20.60a
Headline 6 oz V6	1.5abcde	211.4a	19.83a
Headline AMP 10 oz R1	1.25bcde	210.5a	20.10a
Headline 6 oz V6 + Headline AMP 10 oz R1	1.08cde	209.2a	19.75a
Headline AMP 10 oz R2	1.33abcde	209.5a	20.93a
Stratego YLD 4 oz V6	1.75abcde	203.0a	20.65a
Stratego YLD 4 oz R1	1.83abcde	200.5a	19.83a
Stratego YLD 4 oz V6 + Stratego YLD 4 oz R1	0.92de	204.1a	20.45a
Stratego YLD 4 oz R2	1.67abcde	206.7a	20.63a
Quilt Xcel 14 oz V6	2.08ab	212.2a	20.55a
Quilt Xcel 14 oz R1	0.83e	203.2a	21.08a
Quilt Xcel 14 oz V6 + Quilt Xcel 14 oz R1	1.58abcde	206.3a	20.33a
Quilt Xcel 14 oz R2	0.83e	203.6a	21.13a
Check 2	2.42a	206.6a	20.00a
LSD _{0.05}	0.988	12.7	1.53

^aSeverity at R6 (where 0 = healthy and 5 = lodging due to stalk rot–R. Hines, University of Illinois stalk rot scale).

^bBushels/acre at 15 percent moisture.

^cMeans with the same letter in the same column are not significantly different ($P < 0.05$) using Tukey's test.