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Effectiveness of Foliar Fungicides on Hybrid Corn in Iowa, 2008

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Abstract
Fungicide use on hybrid corn has increased considerably in the past two growing seasons primarily due to reports of increased yields, even in the absence of disease and higher corn prices. The objectives of this project were to 1) assess the effect of foliar fungicide application on foliar disease development on hybrid corn, 2) assess the effect of foliar fungicide application on stalk rot, and 3) to evaluate the yield response of hybrid corn to foliar fungicide application.

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Introduction

Fungicide use on hybrid corn has increased considerably in the past two growing seasons primarily due to reports of increased yields, even in the absence of disease and higher corn prices. The objectives of this project were to 1) assess the effect of foliar fungicide application on foliar disease development on hybrid corn, 2) assess the effect of foliar fungicide application on stalk rot, and 3) to evaluate the yield response of hybrid corn to foliar fungicide application.

Materials and Methods

Three fungicide treatments (Headline [6 oz/acre], Quilt [14 oz/acre], and Stratego [10 oz/acre]) were applied to corn hybrid DKC-6018, which is relatively susceptible to GLS (GLS resistance = 7) and has good resistance to anthracnose stalk rot (Anthracnose stalk rot = 5). The experimental design was a randomized plot design. Each plot was 16 rows wide (30 in. row spacing) by 94 ft long. Corn was planted with a 7000 series John Deere 8 row planter, calibrated to plant 35,600 seeds/acre on a corn following corn tilled field on May 5. Fungicides were applied with a John Deere 6000 high clearance sprayer on August 1. Spray solutions were applied in a volume of 15 gallon/acre. Foliar disease assessments were done August 20. Disease severity was assessed as the percent ear leaf diseased. At R6 (October 9), stalk rot severity was assessed by splitting the stalks of five plants and scoring the amount of rot on a 0 to 5 scale. The middle four rows of each plot were harvested with a MF 540 combine on October 16.

Results and Discussion

An application error occurred in the application of Stratego and therefore data from these plots has not been included in this report. Foliar disease pressure during the 2008 growing season was extremely low (Table 1). No differences were detected between products for foliar disease and stalk rot control. Furthermore, no statistical differences were detected between products in the yield response of corn.

Studies on the efficacy of foliar fungicides for disease management and yield response are expected to continue in 2009.

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Table 1. Comparison of fungicide products for effect on foliar disease severity, stalk rot severity, and yield at Sutherland, IA.

Product	Foliar severity[a, d]	Stalk rot severity[b, d]	Yield[c, d]	Yield response
Check	0.42	0.95	188.70	-
Headline	0.19	0.45	191.13	+2.4
Quilt	0.31	0.45	198.50	+9.8
	NS	NS	NS	

[a]Severity (%) (percent of ear leaf with disease).
[b]Severity (0 = healthy and 5 = lodging due to stalk rot [R. Hines, University of Illinois stalk rot scale]).
[c]Bushels/acre at 15% moisture.
[d]Means with the same letter in the same column are not significantly different ($P < 0.05$) using Tukey's test.