

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

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Introduction

Fungicide use on hybrid corn continues to be of interest to many farmers in Iowa. The number of fungicides registered for use on corn continues to increase, especially with the introduction of various generics. The objectives of this project were to assess the effect of timing of application of fungicides on disease, evaluate the yield response of hybrid corn to foliar fungicide application, and discern differences, if any, between fungicide products.

Materials and Methods

The corn hybrid Channel 203-44 STX RIB, with a resistance rating of 3 for northern corn leaf blight (NCLB) (1-9 scale, 1 = excellent, 9 = poor), was planted following soybeans in a minimum tillage system on April 28, 2015. 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 4), or at R1 (July 23), or at both growth stages (Table 1). On

September 3 (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 28. 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 2015 were slightly cooler than normal but precipitation was similar to the 30-yr average. Northern leaf corn blight (NCLB) and southern rust were prevalent in the trial. Approximately 9.3 and 4.0 percent of the canopy above the ear leaf was blighted due to NCLB or southern rust, respectively, in the non-sprayed checks (Table 1). Fungicide applications made at V5 did not reduce NCLB or southern rust severity observed at R5 ($P > 0.1$). Applications of fungicides at R1 or V5 plus R1 reduced NCLB severity, although the reduction in disease was not always statistically significant ($P < 0.1$). Similarly, fungicide applications at R1 or V5 plus R1 reduced southern rust severity, although the reduction in disease was only significant for Quilt Xcel (10.5 fl oz/acre) applied at V5 plus R1. No treatment effects were detected on yield ($P > 0.1$) (Table 1).

Table 1. Effect of fungicide and timing of fungicide applications on yield of corn at Kanawha, Iowa in 2015.

| Treatment, rate/A, application timing ^z | Northern corn | | Yield (bu/A) ^x |
|--|---------------------------------------|----------------------------|---------------------------|
| | leaf blight severity (%) ^y | Southern rust severity (%) | |
| Non-sprayed control No. 1 | 9.3 | 4.0 | 216.8 |
| Priaxor, 3 fl oz, V5 | 7.3 | 9.3 | 216.9 |
| Priaxor, 3 fl oz, V5 + Headline Amp, 10 fl oz, R1 | 6.8 | 0.4 | 214.8 |
| Headline Amp, 10 fl oz, R1 | 11.5 | 0.4 | 228.2 |
| Stratego YLD, 2 fl oz, V5 | 8.3 | 3.1 | 217.4 |
| Stratego YLD, 2 fl oz, V5 + Stratego YLD, 4 fl oz, R1 | 11.0 | 0.2 | 222.9 |
| Stratego 4 YLD, 4 fl oz, R1 | 8.0 | 0.4 | 217.0 |
| Quilt Xcel, 10.5 fl oz, R1 | 5.5 | 0.2 | 219.7 |
| Aproach, 3 + Aproach Prima, 6.8, V6 + R1 | 3.8 | 1.0 | 217.3 |
| Aproach Prima, 6.8, R1 | 3.8 | 0.3 | 224.0 |
| Fortix, 5 fl oz, V5 | 8.3 | 3.8 | 220.1 |
| Fortix, 5 + 5 fl oz, V6 + R1 | 5.0 | 2.3 | 218.4 |
| Fortix, 5 fl oz, R1 | 3.8 | 0.9 | 222.7 |
| Trivapro Co-pack, 4.1 fl oz, R1 | 3.3 | 0.2 | 224.9 |
| Non-sprayed control No. 2 | 12.5 | 3.0 | 213.1 |
| Quilt Xcel, 10.5 fl oz, V5 | 9.5 | 4.0 | 216.4 |
| Aproach, 3 fl oz, V5 | 8.5 | 9.5 | 216.3 |
| Headline, 3 fl oz, V5 | 6.3 | 6.8 | 221.9 |
| Quilt Xcel, 10.5 fl oz, V5 + Trivapro Co-Pack, 4.1 fl oz, R1 | 5.5 | 0.0 | 223.6 |
| Quilt Xcel, 10.5 fl oz, V5 + Quilt Xcel, 10.5 fl oz, R1 | 6.8 | 2.2 | 228.5 |
| LSD (0.1) | 4.2 | 3.5 | NA ^w |
| CV (%) | 49.2 | 115.2 | 3.5 |
| P-value | <0.1 | <0.1 | 0.24 |

^zV5, 5-leaf stage; R1, silking.

^yPercent leaf tissue diseased in the upper canopy (ear leaf and above) at dent (growth stage R5)

^xCorrected to 15.5% moisture content.

^wNot applicable (P > 0.1).