



# Effectiveness of Fungicides Applied In-Furrow, at V12 or R1, and Nitrogen on Foliar Diseases and Yield of Hybrid Corn

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Foliar diseases of corn occur annually in Iowa and may reduce yield. Foliar applied fungicides often reduce yield. Recently, a new fungicide product from FMC that is applied in-furrow at planting has demonstrated efficacy against gray leaf spot and northern corn leaf blight in the southeastern US. Inadequate nitrogen may affect yield of corn.

The objectives of this project were to compare fungicides applied in-furrow at planting with foliar applications for yield response of hybrid corn, discern differences, if any, between fungicide products, and investigate the effect of nitrogen on fungicide yield response.

## Materials and Methods

The corn hybrid Pioneer 1108Q, with a resistance rating of 5 for grey leaf spot (GLS) (1-9 scale, 9=outstanding), was planted following soybean in a minimum tillage system May 31, 2021. A randomized complete block design with six replications was used. Each plot was four rows wide (30 inch row spacing) by 35 ft. long. All plots were bordered by two rows on either side. All plots received 170 lbs. per acre of NH<sub>3</sub> April 19. Due to excessive precipitation in May, additional nitrogen (50 lbs. per acre) was applied to treatments 1 through 7 (Table 1) and treatments 8 through 10 (100 lbs. per acre) as 32% UAN as a side dressing June 15. Fungicides were applied at either V10 (July 7) or at R1 (August 3), Table 1. A CO<sub>2</sub> pressurized 10 ft. hand boom was used to spray the plots, fitted with Tee Jet flat fan sprayer nozzles (XR11003VS), spaced 20 in. apart and delivering 20 gallons per acre at 24 psi. On October 27, all four rows of each plot were harvested with a John Deere 9450 combine fitted with an Avery Weigh-Tronix weigh scale and Shivvers 5010 moisture meter. 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

Above normal precipitation during May delayed planting. Yields of the non-treated control with standard nitrogen and an extra 50 lbs. per acre of nitrogen were 237.6 and 230.5 bushels per acre, respectively. Yields of the fungicide treatments ranged from 220.4 to 232.0. No effect of fungicide on yield was detected (P=0.7582).

**Table 1. Effect of fungicide, timing of fungicide applications and nitrogen on yield of corn.**

Fungicide product, rate/ac. application timing <sup>z</sup>	N application rate/ac. timing	Yield (bu./a.) <sup>y</sup>
Non-treated	170 lbs. preplant +50 lbs. V6	237.6
Xyway LFR IF, 15.2 fl. oz. at planting	170 lbs. preplant +50 lbs. V6	224.4
Xyway LFR IF, 10.5 fl. oz. at planting + TopguardEQ, 5 fl oz, R1	170 lbs. preplant +50 lbs. V6	233.0
Topguard EQ, 5 fl. oz. R1	170 lbs. preplant +50 lbs. V6	224.7
Veltyma, 7 fl. oz. R1	170 lbs. preplant +50 lbs. V6	226.2
Trivapro, 13.7 fl. oz. V10	170 lbs. preplant +50 lbs. V6	220.4
Trivapro 13.7 fl. oz. R1	170 lbs. preplant +50 lbs. V6	225.4
Non-treated	170 lbs. preplant +100 lbs. V6	230.5
Trivapro, 13.7 fl. oz., V10	170 lbs. preplant +100 lbs. V6	232.0
Trivapro, 13.7 fl. oz. R1	170 lbs. preplant +100 lbs. V6	230.4
P value		0.7582

<sup>z</sup>V6=6-leaf stage, V10=10-leaf stage, R1=silking.

<sup>y</sup>Corrected to 15.0% moisture content.