

Effect of Xyway® LFR® Fungicide on Corn Yield and Disease Severity

Published: May 2025

Stephanie Karhoff, Field Specialist, Agronomic Systems, Ohio State University Extension
Beth Scheckelhoff, Extension Educator, Agriculture & Natural Resources, Ohio State University
Extension Putnam County

Objective

Determine yield response to an at-plant soil application of Xyway® LFR® fungicide in corn and evaluate its effect on foliar disease severity at the R5 (dent) growth stage.

Background

Northern corn leaf blight, gray leaf spot, and tar spot caused an estimated loss of over \$100 per acre for Ohio corn producers in 2021 (Crop Protection Network, 2024). These significant losses prompted grower interest in the use of an at-plant soil application of Xyway® LFR® fungicide to either replace or supplement a foliar application at tasseling and/or flowering (VT/R1 growth stages). The active ingredient of Xyway® LFR® is flutriafol, a FRAC Group 3 demethylation inhibitor (DMI). It is marketed as a systemic soil applied fungicide that is absorbed by the roots and then translocated through the vascular system in the plant. In field corn, it is labelled for control of gray leaf spot, southern corn leaf blight, northern corn leaf blight, and common rust; and for suppression of anthracnose stalk rot, fusarium stalk and crown rot, physoderma brown spot, head smut, and tar spot.

Methods

After soybean (2021), corn was planted on May 14, 2022, near Pandora, Ohio (Blanchard Township) in Putnam County. Hybrid Beck's 6374V2P was planted following a spring conventional tillage pass with a seeding rate of 34,000 seeds/ac. At planting, Xyway® LFR® was applied at a rate of 15.2 oz/ac to all treated plots using a 2x2 placement system. All plots also received starter fertilizer consisting of 10-34-0 (6.75 gal/ac); 28% UAN (6.75 gal/ac); Thio-Sul (12-0-0-26); and Trigger (8-11-26 at 1.5 quarts/ac) at planting. Additionally, all plots received anhydrous ammonia (82-0-0) side-dressed at the V3 growth stage at a rate of 160 lbs. of nitrogen.

A randomized complete block design was used with four replications. Treatments consisted of 1) an untreated control and 2) Xyway® LFR® treatment as previously described. No foliar fungicide was applied in this study. Treatment width was 30 feet and plot length exceeded 500 feet to ensure accurate yield monitor data. Disease ratings were conducted at the R5 or dent growth stage on the ear leaf of five plants per plot to assess percent severity of northern corn leaf blight, gray leaf spot, and tar spot (Figure 1). Final stand was taken prior to harvest by counting the number of plants in 1/1000th of an acre per plot. All plots were harvested on October 8, 2022, and yield data was collected using a calibrated yield monitor and adjusted to



15.5% grain moisture. Differences between treatments for disease severity, final stand, and yield were measured using an ANOVA and Fisher’s Protected LSD. Return analysis was calculated using a corn commodity price of \$6.00/bu and Xyway® LFR® cost of \$20/ac. Commodity price was determined by the Chicago price at planting in 2022 and adjusted with a historical basis to represent an Ohio price.



Figure 1. Disease severity was measured as percent of leaf area covered by disease in five ear leaves per plot.

Results

A significant difference in tar spot severity was observed between treated and untreated plots at R5 stage (P<0.1), but there was no significant difference in northern corn leaf blight or gray leaf spot severity (Table 1).

Table 1. Average disease severity of tar spot, northern corn leaf blight, and gray leaf spot per treatment.			
Treatment	Tar Spot	Northern Corn Leaf Blight	Gray Leaf Spot
Untreated Control	9.7%	<1%	<1%
Xyway® LFR®	5.2%	<1%	<1%
	P = 0.07* LSD (0.1) 3.72	P>0.1 LSD (0.1) .3	P>0.1 LSD (0.1) .7

*P<0.10, Fisher’s Protected LSD

There was no significant difference in final stand or yield between treatments, though plots treated with Xyway® LFR® did numerically outyield the untreated control by 2 bu/ac (Table 2). However, the untreated control had a higher economic return than the Xyway® LFR®

treatment. Based on 2022 pricing, the untreated control had a return of \$1,344 per acre compared to \$1,336/ac for treated plots, a difference of \$8 per acre.

Treatment	Final Stand (plants/ac)	Moisture (%)	Yield (bu/ac)
Untreated Control	31,726	19.6	224
Xyway® LFR®	31,218	20.0	226
	P>0.1 LSD(0.1) 1,728	Not tested	P>0.1 LSD (0.1) 3

Summary

Disease pressure was overall lower in 2022 compared to the 2021 growing season. Drier conditions in June of 2022 likely delayed disease development, as diseases such as tar spot and gray leaf spot are favored by wet conditions. In this trial, tar spot, northern corn leaf blight, and gray leaf spot symptoms and/or signs were first observed on August 11, 2022, in both treated and untreated plots after wetter conditions in July and August. There was a high incidence of tar spot across all plots, but with low to moderate severity. There was a low incidence and severity of both gray leaf spot and northern corn leaf blight.

Xyway® LFR® potentially offers cost savings by eliminating the need for an additional field pass to apply a foliar fungicide at or after tasseling. Yet, this on-farm trial did not find a high enough yield benefit to justify the product cost, despite it resulting in lower tar spot severity compared to the untreated control. Further testing should be completed to better understand its effect on corn yield under higher disease levels and which environments a return on investment is most likely to occur. Additional treatments of 1.) a foliar fungicide application at tasseling; and 2.) Xyway® LFR® followed by a supplemental foliar fungicide application at tasseling would also provide more insight into which corn fungicide program is most effective in managing disease and preserving yield, especially in more problematic years.

Acknowledgements

The author expresses appreciation to Schulte Put-Han Farms for hosting the trial.

References

Crop Protection Network. 2024. Estimates of crop yield losses due to diseases and invertebrate pests: an online tool. <https://loss.cropprotectionnetwork.org/>. doi.org/10.31274/cpn-20191121-0

For more information, contact:

Stephanie Karhoff
1206 East Second Street
Ottawa, OH 45875
karhoff.41@osu.edu