Trial 35. Evaluation of foliar fungicides for controlling foliar soybean diseases and white mold in Oakes, ND - 2025

SOYBEAN (*Glycine max 'XO 1095E'*)

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The soybean variety XO1095E was planted on May 9, 2025, in Oakes, North Dakota, at a rate of 160,000 seed/a in bedded single rows spaced 30 inches apart and a planting depth of 1.5 inches. Experiment plots were four rows (10 feet) wide by 20 feet long. Treatment evaluations were replicated six times and designed in a randomized complete block, and blocks were separated by 5-foot alleys. The previous crop was soybean, and the soil type was Embden fine sandy loam. Standard practices were used to manage weeds and nutrition. Fungicides were applied at 15 gal/A at 40 psi using four XR TeeJet 110015VS flat-fan nozzles spaced at 20 inches apart. There were no mixing compatibility or phytotoxicity issues observed during the trial. Frogeye leaf spot (FLS) evaluations were conducted on Aug. 22, 2025. White mold (WM) incidence and severity ratings were taken on Aug. 22, 2025, and Sept. 3, 2025. Yield was collected from the first two rows on Oct. 3, 2025. The weather over the course of the growing season was conducive to disease development. This trial received a total of 17.2 inches of rainfall and 6.75 inches of irrigation for a total water input of 23.95 inches over the course of the growing season. Analysis was conducted using SAS 9.4 PROC GLIMMIX to determine the effects of treatments on disease and yield. Means separations followed Fisher's Protected LSD at α=0.05.

Frogeye leaf spot disease index percentages (FLS DIX%) are calculated using disease incidence, which is recorded as a percentage of soybeans in a plot with FLS symptoms, and disease severity, which is recorded as the percentage of leaf area infected on symptomatic soybeans. White mold disease index percentages (WM DIX%) are calculated using disease incidence, which is recorded as a percentage of WM diseased soybeans in a plot, and disease severity, which is rated on a scale that considers the number of WM diseased soybeans and severity of disease on each soybean. This trial had low-moderate levels of both FLS and WM that developed, and there were statistically significant differences among treatments for FLS DIX% (P=<.0001) and WM DIX% that were recorded on Sept. 3, 2025 (P=0.0111). Statistical tests showed that a treatment with Viatude fungicide resulted in significantly higher FLS DIX% than other fungicide treatments; however, the percentage of FLS that developed was essentially 0% for both a Viatude fungicide treatment and all other fungicide treatments. There were minimal levels of WM that had developed during the first date for data collection (Aug. 22, 2025); there were no differences among treatments for WM DIX% detected at this date. However, WM disease evaluations that were conducted later in the season (Sept. 3, 2025) detected significant differences among treatments. Veltyma resulted in the highest level of WM DIX% at 10.3%, which was statistically higher than all other treatments except for Miravis Top. There were no significant differences detected among treatments for yield. However, although a treatment of Veltyma resulted in the highest level of WM DIX% that developed, the yield after a Veltyma treatment trended towards the higher end of treatments evaluated in this study. A treatment of Revytek and Zorina resulted in the highest mean yields across treatments at 73.1 bu/a and 72.4 bu/a, respectively; this was 4.3 bu/a and 3.6 bu/a higher than the non-treated.

Table 35. Effect of foliar fungicides on frogeye leaf spot development, white mold development and yield.

Treatment[a]	Rate	Growth Stage	FLS DIX (%)[b]	WM DIX1 (%)[c]	WM DIX2 (%) [d]	Yield (bu/a)[e]
Non-Treated	-	R3	9.80 a[f]	0.8	2.2 c	68.8
Revytek	8.0 fl oz/a	R3	0.00 c	2.0	3.4 c	73.1
Revylok	5.5 fl oz/a	R3	0.00 c	2.3	4.7 bc	69.3
Veltyma	7.0 fl oz/a	R3	0.00 c	3.6	10.3 a	70.4
Delaro Complete	8.0 fl oz/a	R3	0.00 c	1.1	3.4 c	68.0
Miravis Neo	13.7 fl oz/a	R3	0.01 bc	3.2	5.3 bc	68.5
Miravis Top	13.7 fl oz/a	R3	0.00 c	4.5	9.0 ab	66.1
Viatude	10.0 fl oz/a	R3	0.04 b	1.7	2.3 c	69.2
Zorina	18.5 fl oz/a	R3	0.00 c	1.1	3.0 c	72.4
P-Value			<.0001	0.1863	0.0111	0.1138

[a] Treatments were applied on July 24, 2025, all treatments were applied with all treatments were applied in conjunction with a non-ionic surfactant at a rate of 0.25% V/V.
[b] FLS DIX (%) = frogeye leaf spot disease index percentage collected on Aug. 22, 2025.
[c] WM DIX1 (%) = white mold disease index percentage collected on Aug. 22, 2025.
[d] WM DIX2 (%) = white mold disease index percentage collected on Sept. 3, 2025.
[e] Yield was adjusted to 13% moisture and calculated in bushels per acre (bu/a) and collected on Oct. 3, 2025.
[f] Treatments with different letter groupings differ significantly ($\alpha = 0.05$).