White Mold

Trial 24. Evaluation of foliar fungicides for controlling white mold of soybean in Oakes, ND - 2025

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This trial was planted on May 9, 2025, in Oakes, North Dakota, at a rate of 160,000 seeds/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 four 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 20 gal/A at 40 psi using four XR TeeJet 8002VS flat-fan nozzles spaced at 20 inches apart. Mixing compatibility issues and phytotoxicity were not observed during the trial. White mold 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.

White mold disease index percentages (WM DIX%) are calculated using disease incidence, which is recorded as a percentage of diseased soybeans in a plot, and disease severity, which is rated on a scale that considers the number of diseased soybeans and severity of disease on each soybean. There were moderate levels of white mold that developed in this trial. The highest WM DIX% in a single plot that was observed was 32.8% (data not presented), while the highest mean WM DIX% on a treatment was 15.6%. Regardless, there were no statistical differences in WM DIX% among treatments for both dates of data collection. Even though there were no statistical differences among treatments, most fungicide programs included in this experiment resulted in less disease development than if no fungicide was applied. Additionally, trends in the data suggest that fungicide programs that include an application of SAUS70, an experimental product that has not been commercially released, at 4 fl oz/a had better success for suppressing disease development when applied at the V4/V5 growth stage compared to the R2 growth stage. There were no statistical differences observed among treatments for mean yield. Mean yield values ranged from 71.4 bu/a to 76.5 bu/a and single plot yield values ranging from 57.3 bu/a to 91 bu/a (data not presented). The treatment with the highest mean yield value was an application of SAUS70 at 4 fl oz/a at the V4/V5 growth stage followed by an application of Reveg HBX at 8.5 fl oz/a at the R2 growth stage, resulting in a mean yield of 76.5 bu/a. This was 4.4 bu/a higher than if no fungicide was applied. The treatment with the second-highest yield value was an application of Endura at 8 oz/a at the R2 growth stage, resulting in a mean yield of 74.5 bu/a. This was 2.4 bu/a higher than if no fungicide was applied. The results of this experiment provide support for suggestions that applying a fungicide for control of white mold under a moderate level of disease pressure can result in lower disease development and higher yields than if no fungicide were to be applied.

Table 24. Effect of foliar fungicides on white mold disease values and yield.

Treatment[a]	Rate	Growth Stage	WM DIX1 (%)[b]	WM DIX2 (%)[c]	Yield (bu/a)[d]
Non-Treated	-	-	3.5	9.7	72.1
SAUS70[e]	4 fl oz/a	V4/V5	3.2	7.2	71.7
Regev HBX	8.5 fl oz/a	R2	5.2	8.7	73.4
SAUS70	4 fl oz/a	V4/V5			
Reveg HBX	8.5 fl oz/a	R2	3.4	5.8	76.5
SAUS70	4 fl oz/a	R2			
Reveg HBX	8.5 fl oz/a	R2	7.4	15.6	71.4
Endura	8 oz/a	R2	2.5	5.0	74.5
P-Value			0.1736	0.1708	0.8596

[a] Treatments were applied on July 14 (V4/V5 growth stage) and July 24 (R2 growth stage), 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] WM DIX1 (%) = white mold disease index percentage collected on Aug. 22, 2025.
[c] WM DIX2 (%) = white mold disease index percentage collected on Sept. 3, 2025.
[d] Yield was adjusted to 13% moisture and calculated in bushels per acre (bu/a) and collected on Oct. 3, 2025.
[e] SAUS70 is an experimental product that has not been commercially released.