

Trial 3. Evaluation of fungicide seed treatments for controlling seedling diseases in Mohall, ND - 2025

SOYBEAN (*Glycine max 'PFS 24XF01'*)

G. Dusek, H. R. Becton, and R. W. Webster

The soybean variety PFS24XF01 was planted on May 30, 2025, in Mohall, North Dakota, at a rate of 140,000 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 19 feet long. Treatment evaluations were replicated four times and designed in a randomized complete block and blocks were separated by 6-foot alleys. The previous crop was wheat, and the soil type was Hamlet-Souris loams. Standard practices were used to manage weeds and nutrition. Stand counts were taken on July 1, 2025. Root rot evaluations were conducted on July 1, 2025. Yield was collected from the center two rows on Oct. 9, 2025. The weather over the course of the growing season was conducive to disease development. This trial received a total of 9.18 inches of rainfall 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 $\alpha=0.1$.

Stand counts were recorded by counting the number of emerged soybeans in the center two rows (95 sq feet) and converting to plants per acre. Root rot evaluations were conducted by assessing the roots of 30 soybean plants per plot. Soybeans were pulled from the front and backs of each plot. Assessments were conducted on a 0-5 scale where 0 represented no disease and 5 represented complete plant death due to seedling disease. These assessments were then used to calculate a root rot % ranging from 0-100. There was a moderate level of disease that was observed in this trial with the highest reported root rot % for a single plot being 52%. Statistical analysis indicated there were no significant differences among treatments for stand counts, root rot % or yield. Although there were no significant differences, the non-treated control resulted in the highest reported mean root rot % at 41.2%. Additionally, a combination treatment of C-3023FI at 1.136 fl oz/cwt and Lumiderm at 1.14 fl oz/cwt had the highest reported mean yield at 34 bu/a, which was 1.4 bu/a higher than if no seed treatment was used.

Table 3. Effect of seed treatments on stand counts, root rot severity and yield.

Treatment ^a	Rate	Stand Counts (plants/a) ^b	Root Rot Severity (%) ^c	Yield (bu/a) ^d
Non-Treated	-	113,027	41.2	32.6
Allegiance	1.5 fl oz/cwt	107,640	36.8	31.6
Relenia	0.8 fl oz/cwt	116,810	34.3	30.1
Allegiance	1.5 fl oz/cwt			
Relenia	0.8 fl oz/cwt	109,932	34.8	33.6
Vibrance Trio	1.44 fl oz/cwt	117,039	29.0	30.4
Cruiser Maxx APX	3.9 fl oz/cwt	108,327	30.0	31.8
C-3023FI	1.136 fl oz/cwt			
Lumiderm	1.14 fl oz/cwt	117,727	22.5	34.0
Allegiance	1.5 fl oz/cwt			
Acceleron D281	0.32 fl oz/cwt	109,130	29.3	24.7
Vibrance Trio	1.44 fl oz/cwt			
Cruiser 5FS	1.28 fl oz/cwt	106,952	26.5	33.3
Allegiance	1.5 fl oz/cwt			
Acceleron D281	0.32 fl oz/cwt			
Cruiser 5FS	1.28 fl oz/cwt	113,486	24.7	30.9
P-Value		0.8637	0.2764	0.7562

^a Treatments were applied as standard seed treatments in conjunction with colorant.

^b Stand counts were taken on July 1, 2025. This trial was planted at 140,000 seeds per acre.

^c Root rot severity (%) was calculated based on root rot severity evaluations taken on July 1, 2025.

^d Yield was adjusted to 13% moisture and calculated in bushels per acre (bu/a) and collected on Oct. 9, 2025.