

Trial 5. Evaluation of fungicide seed treatments for controlling seedling diseases in Williston, ND - 2025

SOYBEAN (*Glycine max* 'PFS 2003E')

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The soybean variety PFS2003E was planted on May 12, 2025, in Williston, North Dakota, at a rate of 140,000 seed/a in bedded single rows spaced 7 inches apart and a planting depth of 1.5 inches. Experiment plots were 4 feet and 10 in wide by 20 feet long. Treatment evaluations were replicated five times and designed in a randomized complete block, and blocks were separated by 5-foot alleys. This trial was planted where the previous crop was flax and soybeans had not been planted for a minimum of five years, and the soil type was Williams-Bowbells loams. Standard practices were used to manage weeds and nutrition. Stand counts were taken on June 25, 2025. Root rot evaluations were collected on June 25, 2025. Yield was collected from seven rows on Sept. 29, 2025. The weather over the course of the growing season was conducive to disease development. This trial received a total of 11.3 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 three rows (35 sq feet) and converting to plants per acre. Root rot evaluations were conducted by assessing the roots of 15 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. This trial had moderate levels of disease development, with the highest recorded root rot % in a single plot being 44%. There were no significant differences among treatments for stand counts, root rot % or yield. This trial also had very low yields, with the highest recorded treatment mean yield being 8.4 bu/a, which can likely be attributed to low levels of rainfall over the course of the growing season. Additionally, these yields are generally within the range of what is expected for this region of North Dakota.

Table 5. 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	-	66,709	32.3	7.2
Allegiance	1.5 fl oz/cwt	63,723	34.1	6.8
Relenya	0.8 fl oz/cwt	63,723	29.9	7.5
Allegiance	1.5 fl oz/cwt			
Relenya	0.8 fl oz/cwt	66,212	29.1	8.4
Vibrance Trio	1.44 fl oz/cwt	64,469	26.4	7.3
Cruiser Maxx APX	3.9 fl oz/cwt	71,190	29.3	6.9
C-3023FI	1.136 fl oz/cwt			
Lumiderm	1.14 fl oz/cwt	63,225	34.4	8.1
Allegiance	1.5 fl oz/cwt			
Acceleron D281	0.32 fl oz/cwt	70,194	26.7	7.8
Vibrance Trio	1.44 fl oz/cwt			
Cruiser 5FS	1.28 fl oz/cwt	67,207	30.1	7.9
Allegiance	1.5 fl oz/cwt			
Acceleron D281	0.32 fl oz/cwt			
Cruiser 5FS	1.28 fl oz/cwt	63,723	28.5	7.2
P-Value		0.5141	0.216	0.4393

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

^b Stand counts were taken on June 25, 2025. This trial was planted at 140,000 seeds per acre.

^c Root rot % was calculated based on root rot severity evaluations taken on June 25, 2025.

^d Yield was adjusted to 13% moisture and calculated in bushels per acre (bu/a) and collected on Sept. 29, 2025.