Research Reports

Seedling Diseases

Trial 1. Evaluation of fungicide seed treatments for controlling seedling diseases in Fargo, ND - 2025

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The soybean variety PFS2003E was planted on May 6, 2025, in Fargo, 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 20 feet long. Treatment evaluations were replicated four times and designed in a randomized complete block, and blocks were separated by 7-foot alleys. The previous crop was wheat, and the soil type was silty clay. Standard practices were used to manage weeds and nutrition. Stand counts were taken on June 3, 2025. Root rot evaluations were conducted on June 23, 2025. Yield was collected from rows one and four on Oct. 24, 2025. The weather over the course of the growing season was conducive to disease development. This trial received a total of 16.24 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 α=0.1.

Stand counts were recorded by counting the number of emerged soybeans in the center two rows (100 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 back 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 low level of disease observed across the majority of this trial, with the highest root rot percentage that was observed in a single plot being 35.3% (data not presented). Statistical analysis indicated there were no significant differences among treatments for stand counts, root rot %, or yield. Although there were no significant differences, a treatment of Cruiser Maxx APX at 3.9 fl oz/cwt had the highest reported mean yield at 68.6 bu/a, which was 5.3 bu/a higher than when no seed treatment was used. The seed treatment Relenya at 0.8 fl oz/cwt had the second-highest reported mean yield at 67.7 bu/a, and a combination treatment of C-3023FI at 1.136 fl oz/cwt and Lumiderm at 1.14 fl oz/cwt had the third-highest reported mean yield at 67 bu/a. The results from this experiment support findings that suggest planting soybeans with a seed treatment will generally result in a higher yield than if no seed treatment were used.

Table 1. 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	-	84,289	24.0	63.3
Allegiance	1.5 fl oz/cwt	85,596	21.5	64.2
Relenya	0.8 fl oz/cwt	84,725	23.2	67.7
Allegiance Relenya	1.5 fl oz/cwt 0.8 fl oz/cwt	82,329	19.8	65.6
Vibrance Trio	1.44 fl oz/cwt	87,338	16.0	64.3
Cruiser Maxx APX	3.9 fl oz/cwt	83,091	16.7	68.6
C-3023FI Lumiderm	1.136 fl oz/cwt 1.14 fl oz/cwt	87,992	22.5	67.0
Allegiance Acceleron D281	1.5 fl oz/cwt 0.32 fl oz/cwt	91,912	17.7	65.3
Vibrance Trio Cruiser 5FS	1.44 fl oz/cwt 1.28 fl oz/cwt	85,923	18.2	63.7
Allegiance Acceleron D281 Cruiser 5FS	1.5 fl oz/cwt 0.32 fl oz/cwt 1.28 fl oz/cwt	89,843	15.0	59.0
P-Value		0.5583	0.1041	0.1989

[a] Treatments were applied as standard seed treatments in conjunction with colorant.
[b] Stand counts were taken on June 4, 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 June 12, 2025.
[d] Yield was adjusted to 13% moisture and calculated in bushels per acre (bu/a) and collected on Oct. 1, 2025.