

Trial 8. Evaluation of fungicide seed treatments with cereal rye cover crops for controlling seedling diseases in Gardner, ND - 2025SOYBEAN (*Glycine max 'PFS 2003E'*)

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Cereal rye was planted over half of the space, in Gardner, North Dakota, used for this trial on Sept. 19, 2024. Burndown application was made on May 14, 2025, using glyphosate. 'PFS 2003E' soybean was planted May 27, 2025, at a rate of 140,000 seeds/a and depth of 1.5 inches in bedded single rows spaced 14 inches apart in Gardner, North Dakota. Plots were four rows by 25 feet. Treatments included seed treatments and the incorporation of a cover crop; each was replicated four times and designed in a split-plot design. Blocks were separated by 7-foot alleys. The field was rainfed, and standard practices were used to manage weeds and fertility. Root rot ratings were taken in July. Yield was collected from the center rows on Oct. 14, 2025. Rainfall during the period totaled approximately 12.8 inches, and weather conditions were only moderately conducive to disease development. 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 $\alpha=0.05$.

No significant differences were observed among seed treatments or plots with a cover crop with respect to root rot severity or yield.

Table 8. Effect of integrating seed treatments in a cereal rye cover crop system on stand counts, root rot severity and yield.

Treatment	Rate	Cover crop	Stand Counts (plant/a) ^a	Root Rot Severity (%) ^b	Yield (bu/a) ^c
Non-Treated	-	Cereal Rye	62,182	18.5	30.1
Allegiance	1.5 fl oz/cwt	Cereal Rye	56,846	18.9	32.1
Allegiance	1.5 fl oz/cwt				
Relenia	0.8 fl oz/cwt	Cereal Rye	60,984	17.3	34.4
Allegiance	1.5 fl oz/cwt				
Relenia	0.8 fl oz/cwt				
Acceleron D-281	0.3 fl oz/cwt	Cereal Rye	55,648	15.5	29.0
Allegiance	1.5 fl oz/cwt				
Relenia	0.8 fl oz/cwt				
Acceleron D-281	0.3 fl oz/cwt				
Cruiser 5FS	9.0 fl oz/cwt	Cereal Rye	58,697	18.3	31.9
Non-Treated	-	No Cover	68,063	22.5	34.0
Allegiance	1.5 fl oz/cwt	No Cover	59,786	14.0	34.9
Allegiance	1.5 fl oz/cwt				
Relenia	0.8 fl oz/cwt	No Cover	60,766	19.3	35.1
Allegiance	1.5 fl oz/cwt				
Relenia	0.8 fl oz/cwt				
Acceleron D-281	0.3 fl oz/cwt	No Cover	64,578	17.5	30.0
Allegiance	1.5 fl oz/cwt				
Relenia	0.8 fl oz/cwt				
Acceleron D-281	0.3 fl oz/cwt				
Cruiser 5FS	9.0 fl oz/cwt	No Cover	50,312	19.0	36.3
P-Value					
		Cover*Treatment	0.66	0.64	0.34
		Treatment	0.83	0.50	0.73
		Cover	0.63	0.50	0.99

^a Stand counts were recorded at VC growth stage.^b Weighted calculation based using severity scale ratings based on root rot ratings collected at the V3 growth stage.^c Yield was adjusted to 13% moisture and calculated in bushels per acre (bu/a) and collected on Oct. 14, 2025.