

Trial 7. Evaluation of fungicide seed treatments, seeding rates, and planting date for control of seedling diseases in Carrington, ND – 2025SOYBEAN (*Glycine max 'PFS 2003E'*)

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The soybean variety PFS 2003E was planted in Carrington, North Dakota, at two planting dates, which were considered part of the treatments evaluated in this study. The early planting date was May 14, 2025, and the late planting date was May 29, 2025. Seeding rates were planted at two rates, 130,000 (low) and 170,000 (high) seeds/a at a depth of 1.5 inches in bedded single rows spaced 28 inches apart. There was an error made at planting, where only the low seeding rate was planted at the first planting date, and only the high seeding rate was planted at the second planting date. Plots were four rows by 90 feet. There were 10 individual treatments evaluated (seed treatment x seeding rate), with each replicated 12 times and organized as two randomized complete block designs. The field was rainfed, and the previous crop was spring wheat. Soil type was silty clay. Standard practices were used to manage weeds and fertility. Mixing compatibility issues and phytotoxicity were not observed during the trial. Root rot ratings were taken at the VC and V3 growth stages for each planting date. Yield was collected from the center two rows on Nov. 2, 2025. Rainfall during the period totaled 18.5 inches, and weather conditions were conducive to disease development. Analysis was conducted using SAS 9.4 PROC GLIMMIX to determine the effects of seed treatments at varying seeding rates and planting dates on disease ratings and yield. Means separations followed Fisher's Protected LSD at $\alpha=0.05$.

Because of the planting error, these data were analyzed as two separate studies. Root rot severity ratings were not significant among treatments for either experiment. There were significant differences with respect to yield, though. For both studies, the seed treatment containing Allegiance+Relenya+Acceleron D-281+Cruiser 5FS was the best at preserving yields compared to other treatments and the non-treated.

Table 7. Effect of integration of seed treatments, seeding rate and planting date on stand counts, root rot severity and yield.

| Treatment | Rate | Seeding Rate (seeds/a) | Planting Date ^a | Stand Counts (plants/a) ^b | Root Rot Severity (%) ^c | Yield (bu/a) ^d |
|-----------------|----------------|------------------------|----------------------------|--------------------------------------|------------------------------------|---------------------------|
| Non-treated | - | 130,000 | Early | 65,807 ab ^e | 58.6 | 48.6 bc |
| Allegiance | 1.5 fl oz/cwt | 130,000 | Early | 63,732 b | 63.1 | 47.8 c |
| Allegiance | 1.5 fl oz/cwt | | | | | |
| Relenya | 0.8 fl oz/cwt | 130,000 | Early | 70,215 ab | 61.0 | 49.8 ab |
| Allegiance | 1.5 fl oz/cwt | | | | | |
| Relenya | 0.8 fl oz/cwt | | | | | |
| Acceleron D-281 | 0.32 fl oz/cwt | 130,000 | Early | 64,044 ab | 51.9 | 49.4 ac |
| Allegiance | 1.5 fl oz/cwt | | | | | |
| Relenya | 0.8 fl oz/cwt | | | | | |
| Acceleron D-281 | 0.32 fl oz/cwt | | | | | |
| Cruiser 5FS | 1.28 fl oz/cwt | 130,000 | Early | 75,815 a | 59.4 | 50.9 a |
| P-Value | | | | 0.04 | 0.24 | 0.01 |
| Non-treated | - | 170,000 | Late | 92,358 b | 58.9 | 48.5 b |
| Allegiance | 1.5 fl oz/cwt | | | | | 48.6 b |
| Allegiance | 1.5 fl oz/cwt | 170,000 | Late | 90,750 b | 57.7 | |
| Relenya | 0.8 fl oz/cwt | 170,000 | Late | 92,150 b | 54.6 | 49.3 b |
| Allegiance | 1.5 fl oz/cwt | | | | | |
| Relenya | 0.8 fl oz/cwt | | | | | |
| Acceleron D-281 | 0.32 fl oz/cwt | 170,000 | Late | 92,271 b | 52.9 | 48.4 b |
| Allegiance | 1.5 fl oz/cwt | | | | | |
| Relenya | 0.8 fl oz/cwt | | | | | |
| Acceleron D-281 | 0.32 fl oz/cwt | | | | | |
| Cruiser 5FS | 1.28 fl oz/cwt | 170,000 | Late | 112,219 a | 49.5 | 50.3 a |
| P-Value | | | | 0.002 | 0.25 | <0.001 |

^a Early planting date was May 14, 2025, and the late planting date was May 29, 2025.^b Stand counts were recorded at VC growth stage.^c Weighted calculation based using severity scale ratings based on root rot ratings collected at the V3 growth stage.^d Yield was adjusted to 13% moisture and calculated in bushels per acre (bu/a) and collected on Nov. 2, 2025.^e Means followed by different letters are significantly different following Fisher's Protected LSD at $\alpha=0.05$.