Trial 16. Evaluation of fungicide seed treatments for controlling Pythium seed and root rot in Fargo, ND - 2025

SOYBEAN (*Glycine max*)

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Soybeans were planted on May 6, 2025, in Fargo, North Dakota, at a rate of 140,000 seeds/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. Each plot in this trial was inoculated with 200g of *Pythium ultimum*-infested and sterilized grain millet. Stand counts were taken on June 3, 2025, and June 18, 2025. Yield was collected from the center two rows on Oct. 3, 2025. The weather over the course of the growing season was conducive to disease development, particularly in the early part of the season. 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. Stands were generally low in this trial, with emergence percentage at the second date of stand count evaluation ranging from 77% to about 89%. The low emergence percentage can likely be attributed to a combination of environmental effects and disease pressure. This trial experienced cool temperatures and significant rainfall within the first two weeks after planting. Additionally, the field in which this trial was conducted has poor drainage, which, in combination with disease inoculations, likely led to high levels of disease pressure. Low levels of phytotoxicity were observed during the trial across treatments, with no differences among treatments. There were statistically significant differences among treatments in stand counts at the first date of evaluation (June 3, 2025) (P=0.0998). The non-treated control had significantly lower stand than all the seed treatment programs evaluated except for Intego Suite Soybeans. The seed treatment program that included Obvius Plus, Poncho Votivo Precise and Stamina resulted in the highest stand count, which was significantly higher than the non-treated and Intego Suite Soybeans. There were no statistically significant differences in stand counts collected at the second date (June 18, 2025); trends suggest a similar ranking in seed treatment programs for these stand counts. The non-treated control had the lowest stand count on June 18, 2025, and the program that included Obvius Plus, Poncho Votivo Precise and Stamina remained the highest stand count across treatments. There were no significant differences among treatments for mean yields; however, similar to stand count trends, the non-treated had the lowest mean yield at 67.5 bu/a, and the seed treatment program that included Obvius Plus, Poncho Votivo Precise and Stamina resulted in the highest mean yield at 72.4 bu/a, which was nearly 5 bu/a higher than the non-treated control. Trends of the other treatments differed slightly from stand count data trends, with the seed treatment of Intego Suite Soybeans managing nearly identical yields to other seed treatments, regardless of its generally lower stand count. The results of this study suggest that some seed treatment programs are capable of protecting emergence for over 16,000 more plants per acre, and yields can reach approximately 5 bu/a higher than programs that do not use a seed treatment. In general, results from this trial indicate that seed treatments evaluated will produce generally higher stand counts and yields than programs that do not use seed treatment.

Table 16. Effect of seed treatments on stand counts and yield when inoculated with *Pythium ultimum.*

Seed Treatment[a]	Rate	Stand count VC (plants/a)[b]	Stand Count V2 (plants/a)[c]	Yield (bu/a)[d]
Non-Treated	-	85,596 c[e]	107,811	67.5
Obvius Plus Poncho Votivo Precise	35 g AI/100 kg seed 0.13 mg AI/seed	99,971 ab	120,335	69.1
Obvius Plus Poncho Votivo Precise Stamina	35 g AI/100 kg seed 0.13 mg AI/seed 5 g AI/100 kg seed	102,040 a	124,255	72.4
Obvius Plus Poncho Votivo Precise Velondis Plus	35 g AI/100 kg seed 0.13 mg AI/seed 6.5 ml/100 kg seed	95,397 ab	113,256	69.5
Cruiser Maxx APX	65.3 g AI/100 kg seed	99,644 ab	116,632	69.8
Intego Suite Soybeans	62.2 g AI/100 kg seed	92,021 bc	112,930	69.5
Mefenoxam Fludioxonil Thiabendazole Thiamethoxam	3.75 g AI/100 kg seed 2.5 g AI/100 kg seed 5 g AI/100 kg seed 0.08 mg AI/seed	98,555 ab	117,395	71.5
P-Value		0.0998	0.2559	0.4142

[a] Treatments were applied as standard seed treatments in conjunction with colorant.
[b] VC stand counts were taken on June 3, 2025.
[c] V2 stand counts were taken on June 18, 2025.
[d] Yield was adjusted to 13% moisture and calculated in bushels per acre (bu/a) and collected on Oct. 3, 2025.
[e] Treatments with different letter groupings differ significantly ($\alpha = 0.1$).