

Comparing Standard Soybean Seed Treatment to a Biological Seed Treatment

Study ID: 1408143202439

County: Polk

Soil Type: Hastings silt loam

Planting Date: 5/27/24

Harvest Date: 10/02/24

Population: 133,000

Row Spacing (in): 30

Variety: Golden Harvest® GH2313XF

Reps: 4

Previous Crop: Corn

Tillage: No-till

Herbicides: *Pre:* 8 oz/ac dicamba + 6 oz/ac Zidua® Pro

Post: 43 oz/ac glufosinate + 1.8 oz/ac Warrant® + 15.7 oz/ac clethodim; Respray 43 oz/ac Liberty®

Seed Treatment: Variable

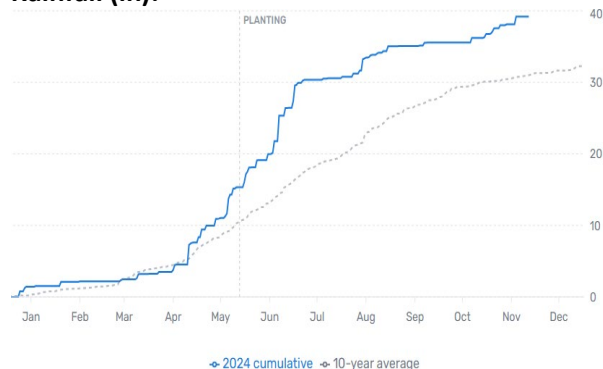
Foliar Insecticides: None

Foliar Fungicides: 12.2 oz/ac Viatude® on 8/10/24

Fertilizer: NPSZ 12-45-5S-1ZN

Irrigation: Pivot 2.75"

Rainfall (in):



Introduction: Some growers are interested in alternative methods of protecting seeds and emerging crops from insects and plant disease beyond the typical seed treatments provided by traditional seed companies. Consideration of alternative methods may be due to treatment costs, implications to beneficial insects, impacts on the local environment, or human safety along with interests in disease incidence from white mold and sudden death syndrome. This study contrasted standard soybean treatments against biological seed treatments in areas with a field history of plant disease. The seed treatments were as follows:

Standard Seed Treatment: Redstar's full seed treatment. Standard seed treatment was applied by the seed dealer.

Biological Seed Treatment: Blend of 2 oz PhycoTerra® ST, 1 oz Heads Up®, 1 oz N-Gage Ultra ST, 0.75 oz Bio ST VPH in 100 gal solution. In a second tank, 2 oz of Exceed SAR Soybean Inoculant was used per 100 gal. This seed treatment was applied by a local on-farm research cooperator.



Replication 1	Full Treatment (48 rows)
	Biological (48 rows)
Replication 2	Biological (48 rows)
	Full Treatment (48 rows)
Replication 3	Biological (48 rows)
	Full Treatment (48 rows)
Replication 4	Full treatment (48 rows)
	Biological (48 rows)

Each treatment was seeded for a width of 120' using a 12 row planter and 30" row spacing with four replications. Rains impacted this field getting planted as early as the producer desired. The grower recorded nearly 19" from June 1, 2024, through September 30, 2024 (Figure 1), which led to portions of the field having soybeans drowned out or in standing water for periods of time. The most damaged areas of the field were excluded from the harvest data listed below. Late season stand counts were taken across three replications. Soybean lodging was observed due to late season environmental conditions. Moisture, grain yield, and marginal net return were evaluated.

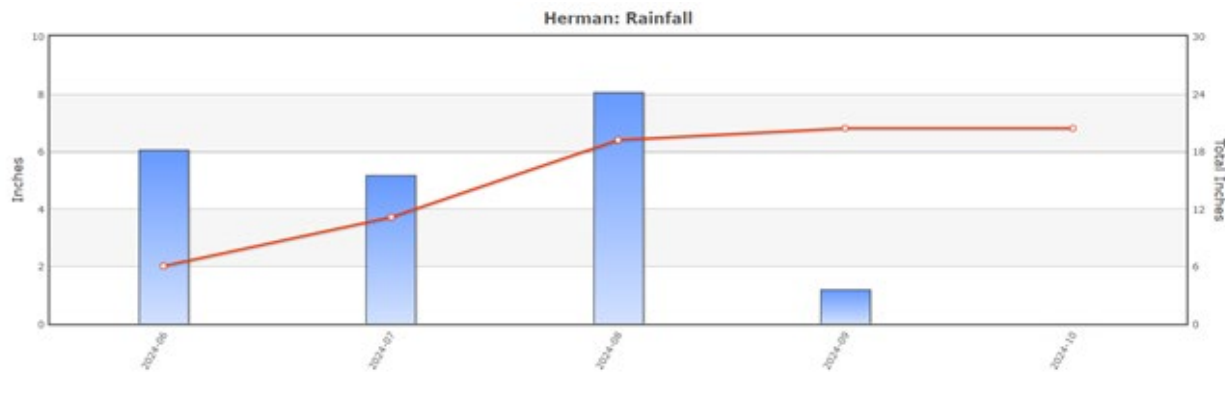


Figure 1. Rain bucket data shared by the grower for this field between June 1, 2024, through September 30, 2024.

Results:

	Stand Count (plants/ac)	Moisture (%)	Yield (bu/ac)†	Marginal Net Return‡ (\$/ac)
Redstar™ Full Seed Treatment	103,750 A*	8.9 A	77 A	825 A
Biological Seed Treatment	103,875 A	9.3 A	75 A	815 A
P-Value:	0.91	0.39 A	0.34	0.58

*Values with the same letter are not significantly different at a 90% confidence level.

†Bushels per acre corrected to 13% moisture.

‡Marginal net return based on \$11/bu soybeans, \$17.10/ac for Redstar™ Full and \$9.22/ac for biological seed treatment.

Summary:

- There were no significant differences in stand count, moisture, yield, or marginal net return between the treatments.
- Seed treatment efficacy may vary with disease pressure in the given growing season. Different results may be seen with earlier planting as the soybeans were planted in late May due to rain.