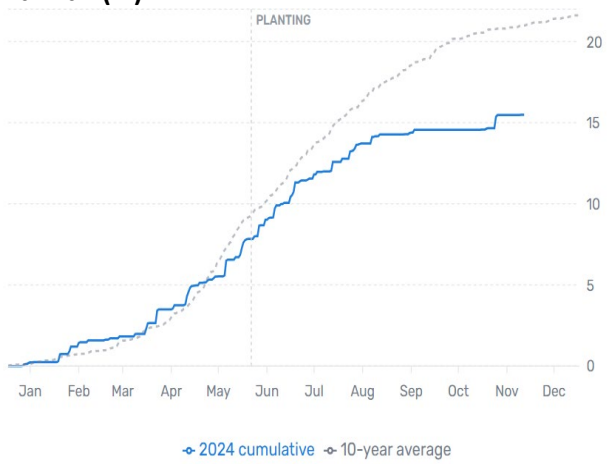
Great Northern Dry Edible Bean Inoculant Study

Study ID: 0152013202401
County: Box Butte
Soil Type: Valentine sandy loam
Planting Date: 6/5/24
Harvest Date: 9/18/24
Population: 107,000
Row Spacing (in): 15”
Variety: Eiger Great Northern
Reps: 6
Previous Crop: Corn
Tillage: 2 passes with Landoll® VT disk, rolled then planted
Herbicides: ***Pre:*** 30 oz/ac Prowl® H20 + 15 oz/ac Outlook® + 32 oz/ac Roundup PowerMAX® ***Post:*** 4 oz/ac Raptor® +30 oz/ac Basagran® + 15 oz/ac SelectMax®
Seed Treatment: Apron® XL, Maxim®, Rancona®, Vibrance®, Cruiser®

Foliar Fungicides: 5.7 oz/ac Proline® 480 SC
Fertilizer: 20 lb N/ac, 25 lb P/ac, 15lb S/ac, 1 lb ZN/ac, dry spread
Note: Temp at harvest: 75 degrees, 27% RH
Irrigation: Pivot, Total: 12"
Rainfall (in):



Introduction: This study evaluated Exceed® Superior Legume Inoculant on dry edible bean production. The active ingredient is *rhizobium leguminorsarum biovar phaseoli*. The dry inoculant was throughly blended with seed in the planter box before planting at a rate of 82.5 oz per 1500 lbs of seed. The dry edible beans were direct harvested on September 18, 2024, at a temperature of 75° F and 26% relative humidity. Samples from each plot were analyzed for bean quality parameters. Harvest loss estimates were determined by taking counts in one-square-foot frames randomly chosen in the harvested area, but equally representing the left, center, and right side of the header area behind the combine. Total available N in the top 36” of soil was 53 lbs per acre. 100 lb N/ac is recommended for top bean yields but in situations where N is lower, the inoculant may help increase yield.

Results:

	Stand Count (plants/ac)	Small (%)	Foreign Material (%)	Moisture (%)	Harvest Loss (%)	Yield (bu/ac)†	Marginal Net Return‡ ($/ac)
No inoculant	97,792 A*	1.58 B	1.35 A	9.9 A	1.35 A	35 B	866 B
Exceed ® Superior Legume Inoculant	98,083 A	0.90 A	1.32 A	9.8 A	1.32 A	38 A	936 A
P-Value	0.959	0.098	0.903	0.272	0.90	0.027	0.029

*Values with the same letter are not significantly different at a 90% confidence level.
†Bushels per acre corrected to 14% moisture.
‡Marginal net return based on $24.60/bu at 60 lb/bu and $2.14/ac for Exceed® Superior Legume Inoculant.

Summary:

- There were no significant differences in stand count, foreign material, moisture, or harvest loss.
- There were significant differences in percent small, yield, and marginal net return. The addition of Exceed ® Superior Legume Inoculant yielded significantly higher (38 bu/ac) when compared against no inoculant (35 bu/ac). Furthermore, marginal net return was higher with the addition of inoculant ($936/ac) when compared against no inoculant ($866/ac).