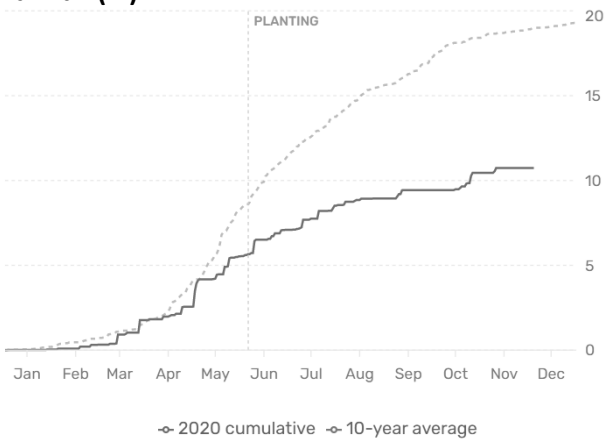
Impact of Verdesian N-Charge® Inoculant on Dry Edible Beans

Study ID: 0152013202001
County: Box Butte
Soil Type: Alliance-Rosebud loam 3-6% slopes; Keith loam 1-3% slope; Keith loam 3-6% slopes
Planting Date: 6/5/20
Harvest Date: 9/22/20
Population: 102,880
Row Spacing (in): 15
Variety: Torreon pinto beans
Reps: 6
Previous Crop: Corn
Tillage: Double disked and rolled before planting
Herbicides: ***Pre:*** 30 oz/ac Prowl®, 15 oz/ac Outlook®, 64 oz/ac Roundup® on 5/29/20 ***Post:*** 4 oz/ac Raptor®, 30 oz/ac Basagran®, 10 oz/ac Select® on 6/8/20
Seed Treatment: Apron XL®, Maxim®, Rancona®, Vibrance®, Cruiser®

Foliar Insecticides: None
Foliar Fungicides: None
Irrigation: Pivot, Total: 12"
Rainfall (in):



Soil Samples (September 2020)

						DPTA (ppm)				Ammonium Acetate (ppm)				CEC	% Base Saturation				
pH	OM %	Nitrate – N lb/ac (0-8")	Nitrate – N lb/ac (8-36")	Bicarb P ppm	Sulfate-S ppm S	Zn	Fe	Mn	Cu	K	Ca	Mg	Na	me/100g	H	K	Ca	Mg	Na
8.2	1.3	17	39	11	10	3	4.4	2.3	0.3	507	2440	268	49	15.9	0	8	77	14	1

Introduction: This study evaluated Verdesian N-Charge® inoculant on dry edible bean production. The active ingredient is *Rhizobium leguminosarum* biovar *phaseoli.* The dry inoculant was thoroughly blended with seed in the planter box before planting at a rate of 2.5 oz per 50 lb of seed. The field experienced a serious hail event on July 9 resulting in 50% leaf loss. The dry edible beans were direct harvested on September 22 at a temperature of 85°F and 26% relative humidity.

Results:

	Stand Count (plants/ac)	Pods > 2" Above Ground (%)	Harvest Loss (bu/ac)	Small (%)	Moisture (%)	Density (lb/bu)	Seeds per lb	Yield (bu/ac)†	Marginal Net Return‡ ($/ac)
No inoculant	102,880 A*	82 A	4.9 A	3 A	10.8 A	61.1 A	1,308 A	38.2 A	550.38 A
Verdesian N-Charge® Inoculant	91,191 B	82 A	4.8 A	3 A	10.8 A	60.6 A	1,282 A	37.8 A	541.65 A
P-Value	0.011	0.597	0.924	0.346	0.928	0.293	0.653	0.603	0.515

*Values with the same letter are not significantly different at a 90% confidence level.
†Bushels per acre corrected to 14% moisture and adjusted for clean yield (% splits, % small, and % foreign material removed).
‡Marginal net return based on $24/cwt ($14.40/bu at 60lb/bu) and inoculant cost of $2.13/ac.

Summary:

- Beans with inoculant had a lower stand count of 91,181 plants/ac compared to 102,880 plants/ac for the non-treated beans.
- The use of the inoculant treatment did not result in statistically significant differences in harvest loss, percent of pods greater than 2" above the ground, percent small beans, moisture, density, seeds per lb, yield, or marginal net return.

Sponsored by: University of Nebraska Lincoln

In Partnership with: Nebraska Corn Board, Nebraska Soybean Checkoff, Nebraska Corn Growers Association, Nebraska Dry Bean Commission