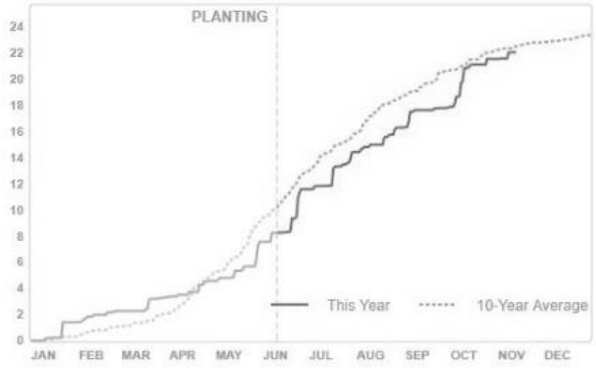
Pinto Bean Planting Population

Study ID: 0190087201801
County: Hitchcock
Soil Type: Blackwood loam 0-1% slope
Planting Date: 6/10/18
Harvest Date: 9/17/18
Row Spacing (in): 30
Hybrid: La Paz pinto bean
Reps: 2
Previous Crop: Popcorn
Tillage: Chisel, then vertical tilled twice
Herbicides: ***Pre:*** Dual® and Prowl® on 6/14/18 ***Post:*** Varisto™, Basagran®, and Outlook® on 7/3/18; 3.5 pt/ac Eptam® through pivot on 7/15/18
Seed Treatment: Cruiser® 250
Foliar Fungicides: Copper fungicide on 7/8/18, 4 oz/ac SaniDate® on 8/1/18 and 8/10/18

Fertilizer: 100 lb/ac 12-40-0-7-1 on 6/1/18, 5 gal/ac 32% UAN on 6/12/18 through pivot, 6.5 gal/ac 32% UAN on 6/15/18 with herbicide, 8 gal/ac 32% UAN on 7/24/18 through pivot, and 4 gal/ac 32% UAN on 8/2/18 through pivot
Irrigation: Pivot, Total: 7”
Rainfall (in):



Introduction: The purpose of this study was to compare several planting rates of dry edible beans (La Paz variety pinto) planted in 30" row spacing. Target populations were 75,000, 90,000, and 105,000 plants/ac, however the planting equipment used resulted in seeding rates which differed from the intended rate. Actual populations based on early-season stand counts were 74,415, 89,879, and 103,019 plants/ac; therefore, planting populations were approximately 10% greater at 81,400, 99,000, and 113,300 seeds/ac, assuming all treatments had similar emergence and germination. The plots were harvested on September 17. These plots were swathed and windrowed then combined. Direct harvest was not possible due to weed pressure. Additionally, due to weed pressure, data from two of the four replications could not be used. Yield was evaluated using the combine yield monitor. Samples from each plot were analyzed for bean quality parameters. Harvest loss estimates were determined by taking counts in 12 one-square-foot frames randomly chosen in the harvested area but equally representing the left side of header, center of header, and right side of header area behind the combine.

Results:

Treatment (seeds/ac)	Stand Count (plants/ac)	Harvest Loss (bu/ac)	Small (%)	Split (%)	Foreign Matter (%)	Moisture (%)	Test Weight (lb/bu)	Seeds per lb	Yield† (bu/ac)	Marginal Net Return‡ ($/ac)
75,000	74,415 C*	5.5 A	0.7 B	2.3 A	0.4 A	12.6 A	60 A	1,280 A	35 A	397.34 A
90,000	89,879 B	3.5 A	1.1 A	2.1 A	0.3 A	12.7 A	60 A	1,259 A	36 A	392.71 A
105,000	103,019 A	4.1 A	0.8 AB	3.9 A	0.7 A	13.1 A	60 A	1,259 A	35 A	376.56 A
P-Value	0.008	0.793	0.091	0.285	0.796	0.544	0.310	0.5	0.671	0.245

*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 $22/cwt ($13.20/bu at 60 lb/bu). Seed cost for the treated pinto bean seed was $79/100,000 seeds. Seed costs for each treatment were: $64.31/ac for 81,400 seeds/ac, $78.21/ac for 99,000 seeds/ac, and $89.51/ac for 113,300 seeds/ac.

Summary:

- Due to issues with weeds, data from only two of the four planted replications were used in this study.
- Actual stand counts were close to the targeted populations for all three treatments.
- There was no significant difference in the harvest loss, percent splits, percent foreign material, moisture, test weight, seeds per lb, yield, or net return among the three seeding rates tested.
- There were differences in percent small beans between the treatments with the 75,000 seeds/ac treatment having a lower number of percent smalls than the 90,000 seeds/ac treatment.

Sponsored by: University of Nebraska Lincoln

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