

Non-irrigated Soybean Planting Population

Study ID: 0820037201901

County: Colfax

Soil Type: Belfore silty clay loam 0-2% slope;

Moody silty clay loam 2-6% slopes

Planting Date: 5/15/19

Harvest Date: 10/18/19

Row Spacing (in): 15

Variety: Pioneer® P27A17X

Reps: 4

Previous Crop: Corn

Tillage: No-Till

Herbicides: *Post:* 22 oz/ac XtendiMax®, 54 oz/ac Roundup®, and 21 oz/ac Charger Max® on 6/7/19

Seed Treatment: LumiGEN™

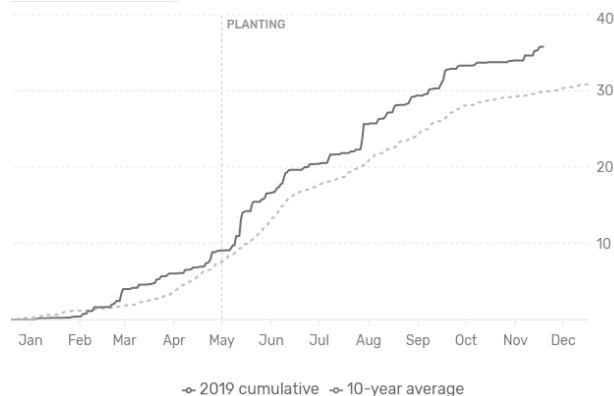
Foliar Insecticides: 10 oz/ac Tundra® Supreme on 8/1/19

Foliar Fungicides: 6.0 oz/ac Aproach® Prima on 8/1/19

Fertilizer: 1.8 tons/ac ag lime on 12/12/18; field had 25 ton/ac of cattle feedlot manure spread in the spring of 2017

Irrigation: None

Rainfall (in):



Soil Tests (January 2018 – average of study area):

OM %	CEC	pH	BpH	Nitrate	Phosphorus P1	Phosphorus P2	K	Mg	Ca	S	Zn	Mn	Fe	Cu	B	Na
ppm																
2.9	23.4	6.0	6.6	9	55	73	354	608	2752	24	3.0	8	52	1.4	0.5	44

Introduction: Previous on-farm research has demonstrated that soybean planting rates of 80,000 to 120,000 seeds/ac resulted in the highest profitability. The purpose of this study was to evaluate three seeding rates to determine the seeding rate that maximized yield and profit. The target seeding rates were 120,000, 140,000, and 160,000 seeds/ac; treatment seeding rates listed were the closest planter population settings available. Stand counts were taken on June 25, 2019 and October 16, 2019. The soybeans were planted into a cereal rye cover crop that was drilled November 20, 2018 at 45 lb/acre. The rye was in boot stage at termination. There was some thistle caterpillar feeding, so an insecticide with a residual was applied to prevent additional damage.

Results:

Treatment (seeds/ac)	Early Season Stand Count (plants/ac)	Harvest Stand Count (plants/ac)	% of Planted Seeds Present at Harvest	Moisture (%)	Yield (bu/ac)†	Marginal Net Return‡ (\$/ac)
120,000	108,250 C*	107,750 C	90 A	10.2 A	74 A	517.03 A
140,500	128,063 B	129,125 B	92 A	10.1 A	73 A	501.06 A
158,500	143,625 A	145,125 A	92 A	10.1 A	75 A	508.40 A
P-Value	<0.0001	0.001	0.758	0.559	0.152	0.192

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

†Bushels per acre adjusted to 13% moisture.

‡Marginal net return based on \$8.10/bu soybean and \$72/unit of soybean seed (\$61.71/ac for 120,000 seeds/ac; \$72.26/ac for 140,500 seeds/ac; \$81.51/ac for 158,500 seeds/ac).

Summary:

- Final plant stands at harvest ranged from 90 to 92% of the planting rate.
- There was no difference in grain moisture or yield between the seeding rates tested.
- There was no significant difference in marginal net return between the three seeding rates evaluated.

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