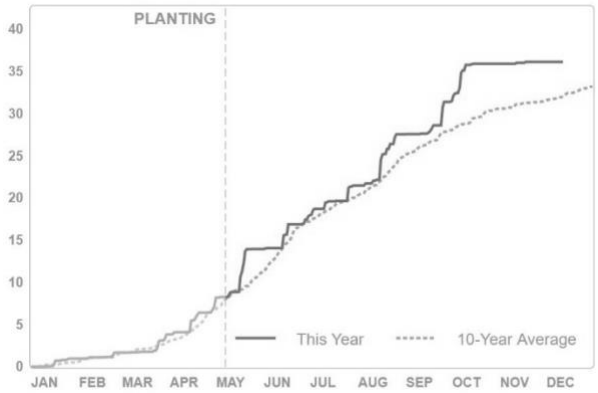
Non-Irrigated Soybean Population Study

Study ID: 610177201701
County: Washington
Soil Type: Belfore silty clay loam 0-2% slope
Planting Date: 5/7/17
Harvest Date: 10/17/17
Row Spacing (in): 15
Variety: Asgrow 2733
Reps: 4
Previous Crop: Corn
Tillage: No-Till, stalks baled
Herbicides: ***Pre:*** 6 oz/ac Zidua® Pro, 32 oz/ac Roundup PowerMAX®, and 6 oz/ac Metro™ 2,4-D on 4/23/17 ***Post:*** Flexstar® GT
Seed Treatment: Acceleron®
Foliar Insecticides: None
Foliar Fungicides: 4 oz/ac Stratego® YLD on 7/31/17

Fertilizer: Dairy manure applied (rate of nutrient applied unknown)
Irrigation: None
Rainfall (in):



Introduction: Previous on-farm research has demonstrated that planting rates of 80,000 to 120,000 seeds/acre resulted in the highest profitability. Most of this research was conducted in irrigated conditions with 30" row spacing. The purpose of this study was to determine the optimal planting rate in non-irrigated conditions with 15" row spacing. Actual seeding rates were 90,449 seeds/ac (90,000 seeds/ac treatment), 119,263 seeds/ac (120,000 seeds/ac treatment), 149,955 seeds/ac (150,000 seeds/ac treatment), and 180,338 seeds/ac (180,000 seeds/ac treatment). Aerial imagery was collected throughout the summer to observe differences in total vegetation and canopy closure for each of the row spacings. Imagery from September 20 is presented in *Figure 1*.

Results:

	Early Season Stand Count	Moisture (%)	Yield (bu/acre)†	Marginal Net Return‡ ($/ac)
90,000 seeds/acre	84,750 D*	11.7 A	94 A	795.76 A
120,000 seeds/acre	110,583 C	11.7 A	95 A	789.93 A
150,000 seeds/acre	137,833 B	11.6 A	96 A	787.77 A
180,000 seeds/acre	167,833 A	11.6 A	96 A	775.21 A
P-Value	<0.0001	0.171	0.365	0.376

*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 $8.90/bu soybean and $60.01/unit of soybean seed.

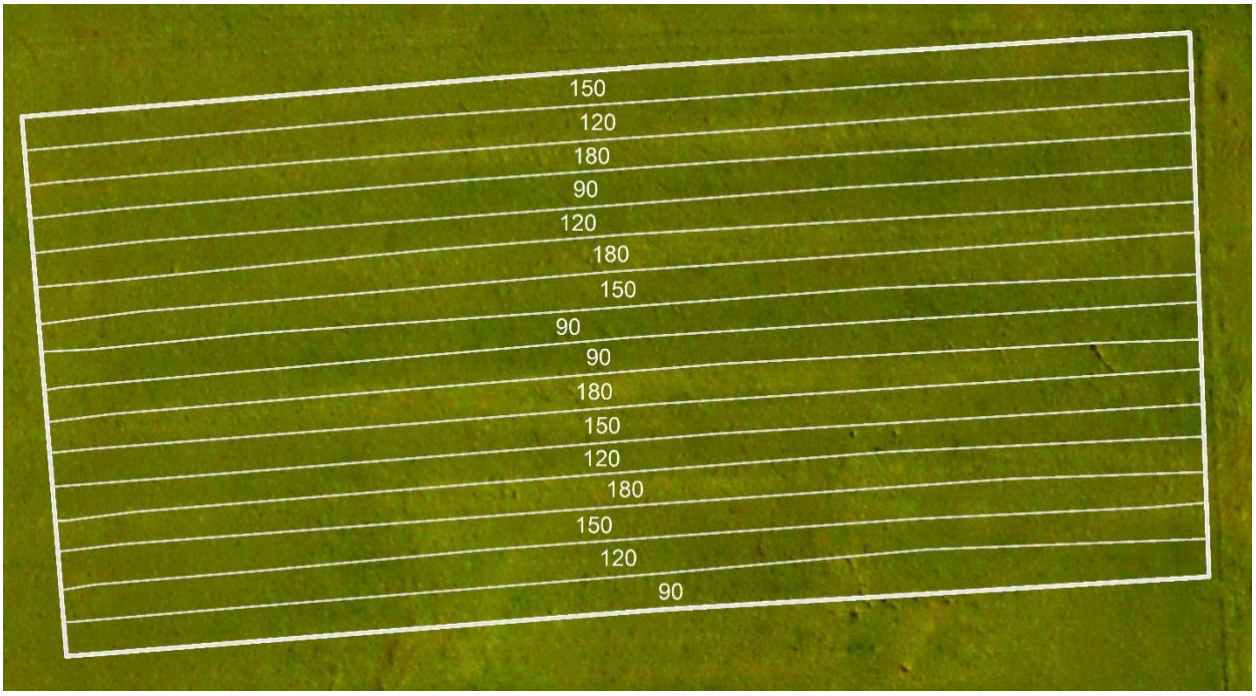


Figure 1. True color (red-green-blue) imagery from September 20, 2017.

Summary: It was observed that higher seeding rates senesced earlier than the lower seeding rates. This is evident in *Figure 1*. This is the second year this producer conducted this study. There was no yield difference between the four seeding rates tested in 2016. Results in 2017 were consistent with previous findings. There were no yield differences between the seeding rates tested, indicating the lowest seeding rate of 90,000 seeds/ac was enough to maximize yields.

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