

Soybean Seeding Rate Trial

Wayne Dellinger, Ohio State University Extension Educator, Union County

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Objective

Evaluate the effect of five soybean seeding rates on stand counts and yield. The purpose of this study is to provide research-based information to base seeding rate decisions. This may help improve the overall return per acre.

Background

Crop Year: 2020	Tillage: Vertical till in Fall
Location: 40.1132, -83.3389	Soil Test: None
County/Town: Union County	Planting Date: 4/25/2020
Soil Type: Brookston Silty Clay Loam	Seeding Rate: See Treatments
Drainage: Pattern Tile	Harvest Date: 9/25/2020
Previous Crop: Corn	

Methods

A completely randomized block design was used where five different seeding rates were randomized and replicated four times across 40 acres. Becks 3546FP soybeans were planted on 30-inch rows at seeding rates of 80,000, 110,000, 140,000, 170,000, and 200,000 seeds per acre. Sixty-foot planting passes were made with GPS guidance and then 40-foot harvest passes on one side of each plot were made using the same GPS guidance. Yield was measured by a calibrated yield monitor.

Results

An analysis of variant formula (ANOVA) was used with Fisher's Protected Least Significant Differences (LSD) test at alpha 0.1. There was a slight yield increase in 170,000 seeds per acre over the 80,000 or 110,000 rates. (Table 1). Stand count results trended to a higher percentage on the lower seeding rates.



Table 1 – 2020 Stand Count and Yield Results		
Treatments	Stand Count (plants/ac)	Yield* (Dry bu/ac)
80000	100050	46 b**
110000	117450	46 b
140000	134850	47 ab
170000	160950	48 a
200000	191400	47 ab
LSD:		1.84
CV (%):		3.15

* Dry yield is standardized based on 13% moisture.

**Treatment means with the same letter are not significantly different.

Summary

These results represent one year of this study. In general, no statistical yield differences exist between the treatments other than the 80,000 and 110,000 seeds per acre had the lowest yield at 46 bu/ac and 170,000 seeds per acre had the highest yield at 48 bu/ac. Practically, there were little differences in the resulting stand count and yield data in 2020 within this study. These results suggest there was little impact on the soybean stand and resulting yield for planting between 80,000 and 200,000 seeds per acre. Seed costs on a given year would influence the decision on whether an economic return may be realized with these yield variations.

Constraints

In the process of planting the study, it was noted that the higher seeding rates were somewhat problematic to the planting system used by the cooperating farmer. Planting 30-inch rows at high populations led to clogging of the planter units and ground speed needed to be decreased drastically.

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For more information, contact:

Wayne Dellinger

OSU Extension –Union County

18000 St. Rt. 4, Suite E

Marysville, OH 43040

dellinger.6@osu.edu



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