

Soybean Population Study

Samuel G. Custer, Ohio State University Extension Educator, Darke County

Objective

To determine the effects of soybean seeding rate on soybean yields and provide data for soybean population response curves.

Background

Crop Year:	2015	Tillage:	No-Till
Location:	Adams Township	Soil Test:	pH 6.3, P 24 ppm BP1, K 129 ppm
County/Town:	Darke/Bradford	Planting Date:	May 23, 2015
Soil Type:	Celina Silt Loam Brookston Silty Loam	Nitrogen:	None
Drainage:	Not patterned	Seeding Rate:	Varied
Previous Crop:	Corn	Harvest Date:	October 8, 2015

Methods

Six soybean populations were replicated three times in a randomized complete block design. Treatments were planted with a 12 row Kinze planter with split row units (resulting in 15 inch row spacing) 300 feet in length. All treatments received the same tillage and herbicide applications. Variety used was Asgrow 3634. Stand counts were taken at V4 and R7 by obtaining 2 counts per treatment and calculating the simple average. Plots were harvested with a commercial combine equipped with a 30 foot grain header. Yields and moistures were obtained by using a calibrated yield monitor. Yields were verified using a grain cart. Yields were adjusted to 13% moisture. Precipitation data can be viewed at cocorahs.org.

Results

No.	Population Planted	V4 Stand Count	R7 Stand Count	Wet Moisture	Treatment Average (bu./acre)
1	60,000	57,000	62,000	13.7	51.0
2	95,000	70,000	68,000	14.0	57.4
3	130,000	105,000	104,000	14.0	57.7
4	165,000	117,000	128,000	14.2	58.2
5	200,000	173,000	145,000	14.2	57.8
6	235,000	158,000	157,000	14.1	60.1

LSD = 7.50 ($p < .22$); CV 7.23; Significant difference.



Summary

As expected from previous research which has shown that the soybean is adaptive in relation to planted population, soybean yield was not influenced by planting population on populations between 95,000 and 200,000 but there was a significant difference with the populations of 60,000 and 235,000. An economic comparison between the planting populations of 60,000 and 235,000 revealed a \$5.51 per acre advantage for the 60,000 treatment over seed costs. Assumptions were soybean seed cost \$ 0.41/1000 and cash beans cost \$8.49/bushel.

Acknowledgement

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THE OHIO STATE UNIVERSITY

For more information, contact:
Sam Custer
OSU Extension, Darke County
603 Wagner Avenue
Greenville, Ohio 45331
custer.2@osu.edu

