

Soybean Yield Response to Plant Populations

Chris Zoller, Ohio State University Extension Educator, Tuscarawas County

Objective

To determine the effects of seeding rate on soybean yield.

Background

Crop Year: 2017

Location: Tuscarawas, OH

County/Town: Tuscarawas

Soil Type: Silt Loam Tioga

Drainage: None

Previous Crop: Corn

Tillage: No-till

Soil Test: pH 6.1, P 44ppm (M3), K 229ppm

Planting Date: June 1, 2017

Nitrogen: None

Seeding Rate: Varied

Harvest Date: October 31, 2017

Methods

Four soybean seeding rates were tested using a randomized complete block design with three replications. The seeding rates included: 80,000; 100,000; 130,000; and 160,000 seeds per acre. The strip plots were planted using a John Deere 1790 planter and harvested with a Caterpillar combine equipped with an Ag Leader Integra yield monitor. All tillage, fertilizer and pesticide applications were consistently applied across the treatments.

Results

Treatment (seeds/ac.)	Average Emergence (plants/ac.)	Yield (bu/ac.)	Fixed Cash Price/bu.	Gross Revenue
80,000	76,533	51 a	\$9.12	\$468.76
100,000	94,667	52 a	\$9.12	\$476.97
130,000	124,800	51 a	\$9.12	\$466.03
160,000	153,066	51 a	\$9.12	\$465.12

(Note: CV% 2.24. No statistically significant yield difference among treatments at 90% confidence level. Seed cost is \$56 per bag)

Summary

The results of this on-farm study are similar to other findings with respect to seeding rate and final yield. This study demonstrated that farmers growing soybeans may be able to save money by planting less seeds per acre. In this study, planting 100,000 seeds per acre resulted in the greatest yield and achieved the highest gross revenue of all treatments.



Acknowledgement

The author expresses appreciation to Matt Durbin, Durbin Farms LLC, for cooperating to provide land use, planting, and harvesting this plot. This was part of a Multi-State North Central Region Soybean Research Project.



THE OHIO STATE UNIVERSITY

For more information, contact:

Chris Zoller

OSU Extension –Tuscarawas County

419 16th St. SW

New Philadelphia, OH 44663

zoller.1@osu.edu



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

agcrops.osu.edu

CFAES provides research and related educational programs to clientele on a nondiscriminatory basis. For more information: go.osu.edu/cfaesdiversity.