

Corn Yield Response to Seeding Rate

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Objective

To determine effects of corn seeding rate on grain yield and profit.

Background

Crop Year: 2014

Location: Delta, OH

County: Fulton

Soil Type: Granby-Tedrow

Drainage: Systematic-40 ft laterals

Previous Crop: Soybeans

Tillage: Conservation

Soil Test: pH 6.2, P 92 ppm*, K 164 ppm

Planting Date: May 6, 2014

Nitrogen: 200 lbs at split at plant and sidedress

Harvest Date: October 25, 2014

Rainfall April-Sept: 14.64"

*Reported as Bray P1

Methods

This trial was designed with three treatments replicated four times in a randomized complete block design. Treatment plots were field length (at least 1,000 feet) by 20 feet wide. An 8-row White 6100 planter was used to plant the plot. Pioneer 0636 was the seed variety planted in all plots. All treatments received the same starter fertilizer, herbicide and sidedress nitrogen. Stand counts were taken prior to harvest by obtaining 8 counts per treatment and calculating the simple average. Plots were harvested with commercial combine. Yield was measured by using a calibrated Ag Leader yield monitor. Yields were shrunk to 15% moisture. Precipitation data was downloaded from weather.com.

Treatments:

1. 28,400 seeds per acre
2. 33,400 spa
3. 38,800 spa

Results

Table 1. Corn Yield (bu/ac) Response to Seeding Rate

<u>Treatment</u>	<u>Harvest Stand</u>	<u>Dry Yield</u>
28,400 seeds/ac	28,100 plants/acre	179.9 a
33,400 spa	32,600 ppa	166.5 b
38,800 spa	35,900 ppa	162.6 b

LSD 11.98 (p<.05), CV 4.1 – Yes significant difference among treatments



Summary

Seeding rate (x1,000)	Yield Bu/acre	Gross Revenue per acre	Seed Cost per acre	Net Revenue per acre
28.4	179.9	\$719.60	\$97.41	\$622.19
33.4	166.5	\$666.00	\$114.56	\$551.44
38.8	162.6	\$650.40	\$133.08	\$517.32

Economics: Gross income= yield x \$4.00/bu; Seed cost= \$3.43 per 1,000 seeds x seeding rate;
Net revenue= Gross revenue – seed cost.

Discussion:

The results of this plot show a statistically significant difference of at least +13.4 bushel per acre in treatment 1 (28,400 seeds per acre) over treatments 2 and 3. Based on one year of data, a planted population of 28,400 seeds per acre resulted in the greatest returns per acre. Further data in the form of multi-year replications will add to the validity of these results. Conducting site specific seeding rate trials is the best way for a producer to optimize seeding rates.

Acknowledgement

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