Soybean Population Study, Darke County

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Objective

To determine the effects of soybean seeding rate on soybean yields to provide data to determine best management practices for soybean seeding rates and provide data points to determine variable rates for soybean seeding.

Background

Crop Year: 2018
Location: Monroe Township
County/Town: Darke/Gordon
Soil Type: Crosby Silt Loam
Brookston Silty Clay Loam
Drainage: Systematic Pattern
Previous Crop: Corn
Tillage: No-Till
Soil Test: pH 6.5, P 30 ppm BP1, K 144 ppm
Planting Date: May 11, 2018
Nitrogen: None
Seeding Rate: Varied
Harvest Date: October 18, 2018
Rainfall: 18.17 inches, April - August

Methods

Six soybean populations were replicated three times in a randomized complete block design. The variable rate was based on soil organic matter. Treatments were planted with a 16 row Kinze planter with 30 inch row spacings, field length (1.7 acres). All treatments received the same tillage and herbicide applications. The variety used was Channel 3617 R2X. Stand counts were taken at V4 by obtaining two counts using 1/1,000th of an acre 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 were obtained from cocorahs.org and recorded daily.

Results

No.	Target Planting Population	V4 Stand Count	Treatment Average (bu./acre)	Return above See ($/ac)
1	80,000	71,500	68 a	551
2	120,000	109,125	68 a	533
3	160,000	144,350	68 a	516
4	200,000	178,938	68 a	499
5	240,000	216,813	68 a	482
6	Variable Rate	123,750	72 a	N/A

LSD: Not Significant CV % 2.64

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 in a year when the soybeans were planted mid-May and we had ideal growing conditions throughout the summer.

Acknowledgement

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