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: Adams Township
County/Town: Darke/Bradford
Soil Type: Crosby Silt Loam
       Celina Silt Loam
       Brookston Silty Clay Loam
Drainage: Systematic Pattern
Previous Crop: Corn

Tillage: No-Till
Soil Test: pH 6.3, P 24 ppm BP1, K 129 ppm
Planting Date: May 7, 2018
Nitrogen: None
Seeding Rate: Varied
Harvest Date: October 22, 2018
Rainfall: 14.25 inches, April - August

Methods

Five 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) 500 feet in length. All treatments received the same tillage and herbicide applications. The variety used was Asgrow 3832. Stand counts were taken at V4 by obtaining two counts using $1/1,000^{th}$ 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	88,000	80,500	67 a	539
2	132,000	122,333	68 a	528
3	174,000	164,667	71 a	536
4	220,000	194,667	70 a	508
5	264,000	244,333	71 a	498

LSD: Not Significant CV % 2.56

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 this early-May panting with ideal growing conditions throughout the growing season.

Acknowledgement

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