Soybean Population Study

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

Background
Crop Year: 2016
Location: Adams Township
County/Town: Darke/Bradford
Tillage: No-Till
Soil Type: Celina Silt Loam
Brookston Silty Loam
Planting Date: May 16, 2016
Soil Test: pH 6.3, P 24 ppm BP1, K 129 ppm
Nitrogen: None
Seeding Rate: Varied
Previous Crop: Corn
Harvest Date: October 18, 2016

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) 500 feet in length. All treatments received the same tillage and herbicide applications. Variety used was Asgrow 3832. Stand counts were taken at V4 and R7 by obtaining 2 counts using 1/1000th 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 can be viewed at cocorahs.org.

Results

<table>
<thead>
<tr>
<th>No.</th>
<th>Target Planting Population (bu./acre)</th>
<th>V4 Stand Count</th>
<th>R7 Stand Count</th>
<th>Treatment Average (bu./acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60,000</td>
<td>46,000</td>
<td>43,666</td>
<td>57.4</td>
</tr>
<tr>
<td>2</td>
<td>95,000</td>
<td>50,833</td>
<td>51,000</td>
<td>59.5</td>
</tr>
<tr>
<td>3</td>
<td>130,000</td>
<td>68,166</td>
<td>69,666</td>
<td>59.2</td>
</tr>
<tr>
<td>4</td>
<td>165,000</td>
<td>98,666</td>
<td>88,000</td>
<td>61.2</td>
</tr>
<tr>
<td>5</td>
<td>200,000</td>
<td>122,500</td>
<td>106,000</td>
<td>64.1</td>
</tr>
<tr>
<td>6</td>
<td>235,000</td>
<td>145,166</td>
<td>140,000</td>
<td>65.1</td>
</tr>
</tbody>
</table>

CV % 6.84; Not significant
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.

Acknowledgement
The author expresses appreciation to on-farm collaborators Overholser Farms for the land use, planting and harvesting of this plot.

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