Corn Population Study

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

Background
Crop Year: 2014
Location: Adams Township
County/Town: Darke/Bradford
Soil Type: Celina Silt Loam
Drainage: Systematic with 40 foot Laterals
Previous Crop: Soybeans
Tillage: No-Till
Soil Test: pH 6.5, P 32 ppm M III, K 182 ppm
Planting Date: May 7, 2014
Nitrogen: 200 pounds/acre
Seeding Rate: Varied
Harvest Date: October 11, 2014

Methods
Five corn populations were replicated three times in a randomized complete block design. Treatments were planted with a 12 row Kinze planter. All treatments received the same tillage, fertilizer and herbicide applications. Seed used was Dekalb 6116. Stand counts were taken at V6 by obtaining 2 counts per treatment and calculating the simple average. Plots were harvested with a commercial combine equipped with a 6 row corn head. Yields and moistures were obtained by using a calibrated yield monitor. Yields were verified using a scaled grain cart. Yields were adjusted to 15.5% moisture. Precipitation data can be obtained from cocorahs.org.

Results

<table>
<thead>
<tr>
<th>No.</th>
<th>Plant Population</th>
<th>Wet Moisture (%)</th>
<th>Treatment Average (bu./acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>23,000</td>
<td>24.5</td>
<td>218.3</td>
</tr>
<tr>
<td>2</td>
<td>28,000</td>
<td>24.3</td>
<td>226.3</td>
</tr>
<tr>
<td>3</td>
<td>33,000</td>
<td>23.4</td>
<td>223.6</td>
</tr>
<tr>
<td>4</td>
<td>38,000</td>
<td>23.1</td>
<td>220.7</td>
</tr>
<tr>
<td>5</td>
<td>43,000</td>
<td>22.9</td>
<td>225.3</td>
</tr>
</tbody>
</table>

LSD = 9.24 (p<.57); CV 2.8; No significant difference.
Summary
Corn yield was not significantly affected by planted population. There was no significant lodging with any of the treatments. An economic comparison between the planting populations of 23,000 and 43,000 revealed a $54.00 per acre advantage over seed costs. Assumptions were soybean seed cost $300 per 80,000 units and cash corn was $3.00/bushel.

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