Starter Fertilizer Response in Corn Study

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Objective
To determine the effects of nitrogen rates on corn yields and provide data for nitrogen response curves.

Background
Crop Year: 2016
Location: Allen Township
County/Town: Darke/Bradford
Soil Type: Celina Silt Loam
Drainage: Not patterned
Previous Crop: Soybeans
Tillage: No-Till

Soil Test: pH 6.6, P 23 ppm M III, K 141 ppm
Planting Date: April 27, 2016
Nitrogen: 200 Pounds per acre
Seeding Rate: 33,000
Harvest Date: September 23, 2016

Methods
Five starter fertilizer treatments 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 and herbicide applications. Seed used was Dekalb 6067. Treatments were made at planting included with a 2x2 application. Nitrogen levels were balanced at sidedress with appropriate rates of 28% to equal 200 units per acre. 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 grain cart. Yields were adjusted to 15.5% moisture. Precipitation data was obtained from cocorahs.org and recorded daily.

Treatments:
1. 28% only – 43# Actual N/acre
2. Starter fertilizer (10-34-0 and 28%) 43# N, 23# P2O5/acre
3. Starter fertilizer (10-34-0 and 28%) with 2 gallons sulfur per acre
4. Starter fertilizer (10-34-0 and 28%) with Sulfur and 1 quart Zinc per acre
5. No starter fertilizer
Results

<table>
<thead>
<tr>
<th>Treatment #</th>
<th>Wet Moisture %</th>
<th>Treatment Average Yield (Bu.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>19.66</td>
<td>166.87</td>
</tr>
<tr>
<td>2</td>
<td>19.94</td>
<td>174</td>
</tr>
<tr>
<td>3</td>
<td>18.83</td>
<td>165.76</td>
</tr>
<tr>
<td>4</td>
<td>18.73</td>
<td>162.63</td>
</tr>
<tr>
<td>5</td>
<td>20.39</td>
<td>166.77</td>
</tr>
</tbody>
</table>

CV 3.80; No Significant Difference in yield.

Summary
Corn yield was not influenced by the addition of any form of starter fertilizer including 10-34-0, sulfur and zinc. There was no significant difference in yield of the corn as affected by the addition of starter.

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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