Starter Fertilizer Response in Corn Study

Samuel G. Custer, Ohio State University Extension Educator, Darke County

Objective
To determine the effects of starter fertilizer, sulfur and zinc on corn yields and provide data for nitrogen and phosphorous response curves.

Background
Crop Year: 2017
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 M3, K 141 ppm
Planting Date: April 21, 2017
Nitrogen: 200 pounds per acre
Seeding Rate: 33,000 seeds per acre
Harvest Date: October 21, 2017
Rainfall: 26.66 in. - 4/15-9/15

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 6188. Treatments were made at planting as a 2x2 fertilizer application. Nitrogen levels were balanced at sidedress with appropriate rates of 28% to equal 200 pounds per acre total N applied. 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 lbs actual N/acre
2. Starter fertilizer (10-34-0 and 28%) 43 lbs 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 2 gallons 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>19.49</td>
<td>201.9</td>
</tr>
<tr>
<td>2</td>
<td>19.43</td>
<td>194.83</td>
</tr>
<tr>
<td>3</td>
<td>18.84</td>
<td>183.10</td>
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<tr>
<td>4</td>
<td>19.02</td>
<td>202.63</td>
</tr>
<tr>
<td>5</td>
<td>20.09</td>
<td>203.03</td>
</tr>
</tbody>
</table>

LSD (0.10)CV 4.53; 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.

For more information, contact:
Sam Custer
OSU Extension, Darke County
603 Wagner Avenue
Greenville, Ohio 45331
custer.2@osu.edu