Starter Fertilizer Comparison for Corn

Dennis Baker, Agriculture and Natural Resources Extension Agent

Objective

To compare corn yields using four different starter fertilizers including 6-24-24, urea-based 20-20-20, urea/AS 20-10-10, and Polyon®AG PCU 20-10-10.

Background

Cooperator: Darke County Farm
County: Darke
Nearest Town: Greenville
Soil Types: Miami silt loam
Eldean silt loam
Previous Crop: Wheat
Drainage: Subsurface
Tillage: Spring chisel
Soil Test: pH 7.5, P 24 ppm, K 160 ppm
Fertilizer: Starter= see methods
Starter= see methods
Variety: Pioneer 33Y18
Planted Date: April 29, 2000
Planting Rate: 28,500 seeds/A
Row Width: 30 inches
Harvest Date: October 25, 2000

Methods

Polyon®AG PCU is a polymer-coated fertilizer technology that has been used on golf courses, nurseries, and home lawns. The purpose of this experiment is to field test this slow-release nitrogen form to determine its potential agronomic and/or economic advantage. The field where these plots were planted has been in no-till most years.

There were four replications of four starter-fertilizer treatments in this test. Plots were planted and analyzed in a randomized complete block design. Individual plot sizes were 12 rows (30 ft.) wide and 960 feet long. The field was spring chiseled, then prepared for planting using a field cultivator with a cultipacker. Corn was planted with a Buffalo slot planter into adequate soil moisture and with adequate rainfall to germinate the seeds uniformly. All starter fertilizer materials being tested were applied as a starter fertilizer through the fertilizer box at approximately 180 pounds per acre.
Results

Table 1. Soybean Population and Yield.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield (bu/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyon® coated urea-based 20-10-10</td>
<td>156.2</td>
</tr>
<tr>
<td>Ammonium Sulfate + urea-based 20-10-10</td>
<td>156.7</td>
</tr>
<tr>
<td>Urea-based 20-10-10</td>
<td>157.2</td>
</tr>
<tr>
<td>6-24-24 fertilizer</td>
<td>154.3</td>
</tr>
</tbody>
</table>

Significance P = 0.05. NS
F <1, CV = 7.7%

Summary

There were no significant differences in the yields among the four treatments. There was significant lodging in the plots; however, any influence from lodging effect on yields was likely distributed similarly across all treatments. This experiment was conducted in cooperation with Land O'Lakes Agricultural Services, which was conducting research for Pursell Technologies, Inc.

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