Value of Pop Up Fertilizer on Corn

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Objective

To evaluate the benefits of applying 9-19-9 fertilizer directly to the seeds as a pop-up fertilization program in corn. This was measured by comparison of initial stand and yield at harvest.

Background

Cooperator: David Hiltbrand
County: Butler
Soil test: pH 7.0, P 99 ppm, K 244 ppm, CEC 19 meq/100g
Township: St. Clair
Fertilizer: See Methods
Drainage: Moderately well drained
Soil type: Tippecanoe silt loam
Planting Date: May 28, 2002
Row width: 30 inch
Planting Rate: 27,700 seeds/A
Herbicide: Bicep II Magnum 1 qt/A, AAtrex90 1 lb/A, Distinct 4 oz/ A
Previous crop: Wheat
Harvest date: October 3 and 4
Variety: Pioneer 34M94

Methods

Plots either received pop-up application of 5.5 gallons of 9-19-9 (4.5-10.5-4.5 lb/ A) applied directly on the seed or they received no starter fertilizer. All plots received 185 lb/ A of anhydrous ammonia.

The stand counts were evaluated by counting plants within 1/ 196 of an acre in three locations within each plot. The yield was determined by weighing all the corn from each 0.57 acre plot. Each plot was 30 feet wide.

The experiment design is a completely randomized block design with four replications.

Results

Table 1. Corn Plant Population and Yield.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Initial Population (plants/A)</th>
<th>Yield (bu/A)</th>
<th>Moisture (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No pop up</td>
<td>26,166</td>
<td>92</td>
<td>16.4</td>
</tr>
<tr>
<td>Pop up</td>
<td>26,083</td>
<td>95.2</td>
<td>16.4</td>
</tr>
<tr>
<td>LSD (0.05)</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>F test</td>
<td>&lt;1</td>
<td>1.6</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>
Summary

The cost of the pop-up treatment was $13.20/ A. While there was measured increase in yield for the pop-up treatment, the difference between the two treatments was not significant. This year yields were lower than expected. We may see a difference between treatments in a normal or better yielding year.

The difference in stand also was not statistically significant. This is noteworthy since the pop-up programs sometimes reduce stands. The rates were within the guidelines of the Tri-State Fertilizer Recommendations (Extension Bulletin E-2567).

Acknowledgments

The author wishes to thank Adam Smith, Pioneer Seeds, for his help in harvesting the plots; Kevin Fall, OSU Extension Summer Intern; and David Hiltbrand for their cooperation. Special recognition to Phil Rzewnicki, OSU Extension, Program Specialist, Horticulture and Crop Science, for providing statistical analysis of the data.

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