Effect of T-22 Biological Fungicide Treatment on Two Soil Management Systems

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Objective

To evaluate the effect of T-22 biological fungicide seed treatment on corn yields on two different soil management systems.

Background

Cooperator: Tom Weiler
Fertilizer: N (see Tables), 114 lb/A
County: Morrow
P₂O₅, 120 lb/ A K₂O
Nearest town: Chesterville
Herbicide: PRE 2 lb/A Atrazine,
Drainage: Systematically tiled
1.5 pt/A Dual,
Soil Type: See Tables
2 oz/A Balance Pro
Tillage: Conventional till
Row Width: 30-inch
Previous Crop: Soybeans
Planting Date: May 20, 2002
Soil Test: pH 6.0, P 49 ppm,
K 253 ppm
Planting Rate: 40,000 seeds/A
Harvest Date: October 22, 2002

Methods

The study was set up as a split-planter design. Three units of the six-row planter had T-22 applied to them. The treatments were six rows wide and approximately 600 feet long. The entire plot area was harvested and weighed using a weigh wagon. The amount of T-22 used was 3 ounces per 100 pounds of seed. Five replications were used in this study.

Results

Table 1. Corn Yield on Sloan Silty Clay Loam and 246 lb/A N as Anhydrous Ammonia.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield (bu/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-22</td>
<td>159.2 a</td>
</tr>
<tr>
<td>No T-22</td>
<td>175.4 b</td>
</tr>
<tr>
<td>LSD (0.05)</td>
<td>7.1</td>
</tr>
<tr>
<td>F test</td>
<td>34.3</td>
</tr>
</tbody>
</table>

*Significantly different letters indicate statistical significance at the 0.05 level.
Table 2. Corn Yield on Chili Loam and 172 lb/A N as Anhydrous Ammonia.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield (bu/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-22</td>
<td>52.8 a</td>
</tr>
<tr>
<td>No T-22</td>
<td>59.8 b</td>
</tr>
<tr>
<td>LSD (0.05)</td>
<td>3.4</td>
</tr>
<tr>
<td>F test</td>
<td>32.2</td>
</tr>
</tbody>
</table>

Summary

T-22, produced by BioWorks, Inc., is a biological fungicide that is applied as a dry powder to seeds in the planter box. The rate used is 3 ounces per 100 pounds of seed. T-22 is promoted to protect roots from soil-borne pathogens such as Pythium, Fusarium, and Rhizoctonia. Healthier roots are thought to better utilize nitrogen and withstand drought.

The 2002 growing season was very dry. These plots received a total of 1.1 inches of rain in July and 2.0 inches in June. The results obtained this year do not support the improvement in yield with the use of T-22 as found in a similar study in 2001. The 2002 growing season included excessive soil moisture at planting, soil compaction, high temperatures, flea beetles, and drought-caused stresses that can undermine the value of test plot data. More studies with T-22 need to be completed.

Acknowledgment

The author would like to thank LG Seeds and Golden Harvest for donating the seed and Mark Matthews (Advanced Biological Marketing) for donating the T-22 fungicide. Also, thanks are extended to the cooperator, Tom Weiler.

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