The Effect of T-22 Biological Fungicide Seed Treatment on Corn Yield

Andy Kleinschmidt, AGNR Extension Educator- Van Wert County  
Gary Prill, Extension Associate, Farm Focus/Research Coordinator

Objectives
To evaluate the effects of T-22 biological fungicide on corn yield.

Background

Cooperator: Farm Focus, Inc.  
County: Van Wert  
Soil Type: Hoytville clay, Hoytville silty clay loam  
Drainage: Non-systematic Tile  
Previous Crop: Wheat  
Tillage: Fall disk/ripper; Spring field cultivate(2x)  
Soil Test(2002): pH 6.1, P 45 ppm, K 161 ppm  
Fertilizer: 235 lb/A 8-24-24 2x2 banded at planting; 180 lb/A nitrogen sidedressed as 28% UAN (May 29)  
Herbicide: PREPLANT 3.5 pt/A Guardsman Max + (April 17) 1.75 oz/A Balance Pro  
Insecticide: None applied  
Variety: Corn Belt Hybrids C599  
Row Width: 30 inches  
Planting Rate: 29,120 seeds/A  
Planting Date: April 17, 2004  
Harvest Date: October 11, 2004

Methods
This study was set up with two treatments replicated 17 times in a split-planter design. The treatments consisted of T-22 biological fungicide and an untreated check. During planting, one treatment was assigned to the right three planter boxes and the other treatment assigned to the left three planter boxes of a John Deere 7000 Maxemerge six row planter. Seed was pretreated by the seed company with Captan, Lorsban, and Allegiance. Seed for the T-22 treatment was hand-mixed with T-22 in the planter boxes. The amount of T-22 used was 0.5 ounces per 50 pounds of seed. The study was planted the same day that the corn seed was treated with T-22.

Plot size was 15 feet wide by 1085 feet long. Harvest populations (October 6) were estimated by counting the number of plants in two 17.5- foot-long rows at three different locations in six randomly selected plots (three plots of the untreated check and three plots of the T-22). The average of the number of plants counted per 17.5 feet was converted to plants per acre. Each plot was harvested in one combine pass (6 rows), and recorded as a replicate. Grain weight and moisture was collected using a John Deere 6620 combine equipped with a calibrated AgLeader PF3000 yield monitor. All yields were adjusted to a 15% moisture standard.
**Results**

Table 1. Corn harvest population, moisture, and yield means.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Harvest Population</th>
<th>Moisture</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(plants/A)</td>
<td>(%)</td>
<td>(bu/A)</td>
</tr>
<tr>
<td>T-22 Biological Fungicide</td>
<td>29,100</td>
<td>15.3</td>
<td>175.8</td>
</tr>
<tr>
<td>Untreated check</td>
<td>28,200</td>
<td>15.2</td>
<td>175.9</td>
</tr>
</tbody>
</table>

1Observed t values larger than Expected t values indicate a statistically significant difference between treatments.

Table 2. Yield means by year

<table>
<thead>
<tr>
<th>Treatment</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-22 Biological Fungicide</td>
<td>114.2</td>
<td>175.8</td>
</tr>
<tr>
<td>Untreated Check</td>
<td>118.8</td>
<td>175.9</td>
</tr>
</tbody>
</table>

**Summary**

The results from this year’s study indicate there was no statistical difference between the T-22 biological fungicide and the untreated check for yield, moisture, or harvest population. Because the plots were not randomized, an unpaired t-test was utilized for statistical analysis. Results from this study are consistent with a similar trial conducted at Farm Focus in 2003 that also showed no yield improvement for using T-22 (see Table 2). According to the manufacturer, T-22 works best on a racehorse hybrid. The hybrid used in this year’s trial, C599, is considered by Corn Belt Hybrids to be a racehorse hybrid.

The fungal Trichoderma strain used in T-22 is a living biological inoculant that becomes active and colonizes plant roots as they develop. Applied as a dry powder to seeds in the planter box, T-22 is promoted as a protectant from Pythium, Rhizoctonia and Fusarium. In addition to acting as a root protectant, T-22 also purportedly improves nutrient use efficiency leading to overall healthier roots than those not treated with T-22.

**Acknowledgement**

The authors express appreciation to Advanced Biological Marketing representative, Mike Keysor, for his cooperation with this study. Thanks also to Corn Belt Hybrids for supplying seed, and to BASF and Bayer Cropsciences for supplying the herbicides used in this trial.

For more information, contact:
Andy Kleinschmidt, or Gary Prill
OSU Extension- Van Wert County
1055 South Washington St., Van Wert, OH 45891
(419) 238-1214
kleinschmidt.5@osu.edu, or prill.1@osu.edu