Roundup Ready Soybean Population Study

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Objective

To evaluate the yield response of Roundup Ready soybeans to different seeding rates in order to reduce seed costs by finding an optimum seeding rate.

Background

Cooperator: Marsh Foundation/
Farm Focus
Fertilizer: 0-0-60 30 lbs/A fall applied
BRNDN: Touchdown 5 (2 pt/A)
AMS (3 lbs/A)
County: Van Wert
Herbicides: POST: Touchdown 5 (2 pt/A)
AMS (3.4 lbs/A)
Nearest Town: Van Wert
Soil Type: Hoytville silty clay loam
Previous Crop: Corn
Variety: Seed Consultants SC9320RR
Drainage: Tile (unknown system)
Planting Date: May 17, 2000
Tillage: No-till
Planting Rate: See Methods
Soil Test: pH 6.4, P 88 ppm, K 166 ppm
Row Width: 7.5 inches
Harvest Date: October 3, 2000

Methods

This study was conducted using three replications of three different seeding rates (110,000, 165,000, and 220,000 seeds per acre) in a complete randomized block design. All plots were planted using a John Deere 750 no-till drill calibrated with the same seed used in the treatments. Plot size was 28.75 feet wide by 1,030 feet long. Population counts were taken at three locations in each plot using a 17.5-feet distance and counting the rows on both sides of the measure. Yields were taken at harvest using a calibrated weigh wagon, with all yields being adjusted to 13% moisture.

Results

<table>
<thead>
<tr>
<th>Planting Rate (seeds/A)</th>
<th>Yield (bu/A)</th>
<th>Harvest Population (plants/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>110,000</td>
<td>61.5</td>
<td>79,900 a</td>
</tr>
<tr>
<td>165,000</td>
<td>63.2 ab</td>
<td>127,000 b</td>
</tr>
<tr>
<td>220,000</td>
<td>65.0 b</td>
<td>145,800 b</td>
</tr>
<tr>
<td>LSD (0.05)</td>
<td>2.4</td>
<td>26,800</td>
</tr>
<tr>
<td>CV</td>
<td>10.1%</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

Means followed by the same letter are not significantly different.
Summary and Notes

The data from this year show that the two higher seeding rate treatments had a statistically significant yield increase over the lowest rate treatment. This is the second year for the study at this location. Results from both years would indicate that higher seeding rates provide a statistically significant yield increase. However, this yield increase may not cover the cost of the additional Roundup Ready seed used at these higher rates.

Even with the drill calibrated for the specific seed used in the experiment, it is evident that large variations in final stand counts will be experienced when using a drill for seeding soybeans. It is also interesting to note the large difference between seeding rates and the harvest population stand counts. This difference was present in almost all of the research plots at Farm Focus this year. This most likely can be attributed to the cool wet conditions in the spring that delayed planting and emergence, and to the reduced seed quality this past year.

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