Soybean Seeding Rate Comparison

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Objective

To evaluate 3 soybean seeding rates over yield and profit.

Background

Cooperator: Bob Moser
County: Wood
Nearest Town: Perrysburg
Drainage: Tile, well-drained
Soil type: Hoytville, clay
Tillage: notill
Previous Crop: corn
Variety: GroMor 30R10

Soil test: pH 6.4, P 50 lbs/ac, K 259 lbs/ac
Fertilizer: none
Planting Date: 5-11-11
Planting Rate: see below
Row Width: 15 in.
Herbicides: Roundup 1 qt/ac pre-plant, 2nd application June 15 1 qt/ac
Harvest Date: 10-25-11

Methods

The entries were replicated four times in a randomized complete block design. Plot size- 80 x 1,000 feet each entry. All treatments received the same tillage, herbicide, and pre-season fertilizer applications. GroMor 30R10 is a 3.0 maturity. Seeding rate was drill setting calibrated for population desired, harvest population was actual plant count. Yields were taken from center of each treatment with a full width combine head.

Results

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Seeding Rate Plants/acre</th>
<th>Harvest Population</th>
<th>Yield Bu/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>125,000</td>
<td>145,600</td>
<td>65.92 A</td>
</tr>
<tr>
<td>2</td>
<td>175,000</td>
<td>198,400</td>
<td>64.59 B</td>
</tr>
<tr>
<td>3</td>
<td>225,000</td>
<td>260,000</td>
<td>64.29 B</td>
</tr>
</tbody>
</table>

LSD (.05) 1.04
Seed Cost Table

All calculations on a per acre basis

Seed costs $0.35/1,000 seed

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Seeds</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>145,600</td>
<td>$50.96</td>
</tr>
<tr>
<td>2</td>
<td>198,400</td>
<td>$69.44</td>
</tr>
<tr>
<td>3</td>
<td>260,000</td>
<td>$91.00</td>
</tr>
</tbody>
</table>

Income comparison Soybean market price $11.25/ bushel

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield</th>
<th>Gross Income</th>
<th>Seed Cost</th>
<th>Income Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>65.92</td>
<td>$741.60</td>
<td>$50.96</td>
<td>$690.64</td>
</tr>
<tr>
<td>2</td>
<td>64.59</td>
<td>$726.64</td>
<td>$69.44</td>
<td>$657.20</td>
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<tr>
<td>3</td>
<td>64.29</td>
<td>$723.26</td>
<td>$91.00</td>
<td>$632.26</td>
</tr>
</tbody>
</table>

Summary

Study yields showed the lowest population had significant difference with increased yield. The most profitable treatment was the seeding rate of 145,600 seeds/acre; due to increased seeding cost as populations increased. For each additional 50,000 seeds planted, cost increased $17.50 and requires 1.6 bushel per acre ($11.25 per bushel price) increased yield to cover the additional seed cost. Target seeding rates varied significantly from harvest populations. This illustrates the challenge of correctly adjusting planter settings to deliver the proper seeding rate. As soybean seed size (number of seeds per pound) changes, producers need to recalibrate planters to ensure accurate planting populations.

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