ROW SPACING, POPULATION, AND FUNGICIDE EFFECTS ON SOYBEAN YIELD

TRIAL OVERVIEW

- Agronomic practices, such as row spacing and planting population, have varying effects on yield potential. Narrow row spacing and increased planting rates allow for more rapid canopy closure, which may reduce in-season weed competition.

- Depending on growing conditions and management practices, higher planting rates can result in greater yield potential. When growing conditions are conducive to disease development, the application of a fungicide may help protect yield potential.

RESEARCH OBJECTIVE

- This study was conducted to help provide information to growers on the effects of row spacing, planting population, and fungicide application in soybean.

<table>
<thead>
<tr>
<th>Location</th>
<th>Soil</th>
<th>Previous Crop</th>
<th>Tillage Type</th>
<th>Planting Date</th>
<th>Harvest Date</th>
<th>Potential Yield/Acre</th>
<th>Planting Rate/Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thurman, IA</td>
<td>Silt Loam</td>
<td>Corn</td>
<td>Conventional</td>
<td>06/18/2016</td>
<td>10/25/2016</td>
<td>80</td>
<td>120K and 150K</td>
</tr>
</tbody>
</table>

SITE NOTES:

- Management: Application of standard preemergence and postemergence herbicides; broad-spectrum insecticide.
- Products: Six soybean products ranging from 3.0 to 3.6 with Roundup Ready 2 Xtend® soybeans and Genuity® Roundup Ready 2 Yield® soybean trait packages were evaluated.
- Trial Design: Single non-replicated strip trial.
- Treatments:
  -- Crop protection (fungicide (fluxapyroxad plus pyraclostrobin at 4 oz/acre) application at R3 and untreated check)
  -- Seeding rate (120,000 (120K) and 150,000 (150K) seeds/acre)
  -- Row spacing (20 and 30 inches)

UNDERSTANDING THE RESULTS

Figure 1. Average yield response of soybean to row spacing, planting population and fungicide treatment. Yield was adjusted to grain moisture of 13%.

- The fungicide application improved average yield across planting populations and row spacing.
• Average yields were higher for 150K seeds/acre than in 120K seeds/acre across row spacing and fungicide treatments.
• Across fungicide treatments and planting population, average yields were higher in 20-inch rows than in 30-inch rows.

WHAT DOES THIS MEAN FOR YOUR FARM?

• Is there a benefit to fungicide application?
  -- For this study year and location, an average yield benefit of about 8 bu/acre was observed with the application of a fungicide at the R3 growth stage.
  -- Growing conditions favored the development of diseases common to the region. Moderate levels of frogeye leaf spot and Septoria brown spot were observed in untreated plots. Also, monitor for white mold as it can be problematic in high yield environments, narrow row spacing, and high planting populations.
  -- Growers are reminded to pay attention to the economics of fungicide applications as they may not always be justified depending on the weather conditions, crop susceptibility, and several other factors.
• How does row spacing affect yield potential?
  -- In this single-year study, 20-inch row spacing out-yielded 30-inch row spacing by approximately 3 bu/acre.
  -- Equipment availability may affect the decision to plant narrower rows on individual farms.
• Will higher planting populations affect yield potential?
  -- In this single-year study, the planting population of 150K seeds/acre out-performed 120K seeds/acre by approximately 2.5 bu/acre across row spacings and the fungicide application.
  -- It should be noted that final harvest population in soybean fields may be affected by many factors and does not always reflect the intended planting population.
• Results from this trial indicated that yield potential may be improved when soybean are planted in 20-inch rows at a planting population of 150K seeds/acre. This research location has a history of soybean diseases; therefore, a fungicide application increased protection of yield potential.

SOURCES

LEGAL STATEMENT
For additional agronomic information, please contact your local brand representative.

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