Reduced Rates of Herbicides in Normal Soybeans

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Objective

To determine if reduced rates of herbicides can provide adequate weed control and show no yield loss in no-tillage soybean utilizing pre-emergence and post-emergence herbicide applications.

Background

Crop Year: 1997
Cooperator: Bob Swetland
County/Town: Morrow/Sparta
Drainage: N/A
Major Soil Type: Bennington Silt Loam
Previous Crop: Corn
Tillage: None

Soil Test: N/A
Fertilizer Applied: N/A
Herbicide: See Methods
Variety: Pioneer 9393
Planting Rate: 223,000 seeds/A
Planting Date: May 13, 1997
Harvest Date: October 11, 1997

Materials and Methods

The plot size for this study was 20 feet wide and 300 feet in length. Each treatment was replicated three times. 2,4-D ester at 1.0 pt/A plus Prime Oil (COC) was added to treatments 1-7 and applied alone to treatment 8 to control existing weeds 22 days prior to planting. The 1X Canopy rate was 6.0 oz/A and 1X Squadron rate was 3.0 pt/A. The post-emergence application of Basagran + Flexstar + Select + Priority MSO + 28% Nitrogen at the 1X rate was 1.0 pt/A + 1.0 pt/A + 8.0 foz/A + 1.0%v/v + 2.5%v/v and applied based on broadleaf weed height as listed in the table. Annual grass height was 1.25" for 1/4X rate, 3.0" for 1/2X rate, and 6.0" for 1X rate.
### Results

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Product and Rate¹</th>
<th>Treatment Timing</th>
<th>Weed Control (% on August 6, 1997)</th>
<th>Soybean Yield (bu/A)</th>
<th>Treatment Cost² ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Canopy (EPP) 1/2X (POST) 1/4X</td>
<td>&lt;1</td>
<td>-22</td>
<td>99</td>
<td>97</td>
</tr>
<tr>
<td>2</td>
<td>Canopy (EPP) 1/2X (POST) 1/2X</td>
<td>&lt;2</td>
<td>-22</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>Canopy (EPP) 1/2X (POST) 1X</td>
<td>3-5</td>
<td>-22</td>
<td>99</td>
<td>99</td>
</tr>
<tr>
<td>4</td>
<td>Squadron (EPP) 1/2X (POST) 1/4X</td>
<td>&lt;1</td>
<td>-22</td>
<td>90</td>
<td>82</td>
</tr>
<tr>
<td>5</td>
<td>Squadron (EPP) 1/2X (POST) 1/2X</td>
<td>&lt;2</td>
<td>-22</td>
<td>96</td>
<td>92</td>
</tr>
<tr>
<td>6</td>
<td>Squadron (EPP) 1/2X (POST) 1X</td>
<td>3-5</td>
<td>-22</td>
<td>100</td>
<td>93</td>
</tr>
<tr>
<td>7</td>
<td>Squadron (EPP) 1X</td>
<td>-22</td>
<td>71</td>
<td>80</td>
<td>55</td>
</tr>
<tr>
<td>8</td>
<td>Roundup (POST) 1X</td>
<td>3-5</td>
<td>48</td>
<td>99</td>
<td>95</td>
</tr>
</tbody>
</table>

LSD (0.05%) 5.6 8 NS

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1. Abbreviations: Height = annual broadleaf height, DAP = days after planting, An. Gr. = annual grass (giant foxtail and fall panicum), An. Br.. = annual broadleaf weeds, bu/A = bushels per acre, EPP = early pre-plant application, POST = post-emergence application, LSD = least significant difference, NS = no significant difference

2. Treatment cost = cost of all herbicides and additives (including burndown) and application cost at $2.00/A/application

### Summary and Notes

The annual grass pressure was moderate to heavy and the annual broadleaf pressure was light to moderate. All treatments provided greater than 91% control of weeds except for treatments 4 and 7. Despite this lower control, there was no significant yield reduction. There was great variability in soybean stand caused by Phytophthora root rot, which is why there was no significant yield reduction where weed control was reduced.

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