Reduced Rates of Herbicides in Normal Soybeans

Jeff Stachler, AGNR Extension Educator- Auglaize County
Dr. Mark Loux, OSU Professor- Weed Management

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: John Shawhan
County/Town: Greene/ Selma
Drainage: N/A
Major Soil Type: Celina Silt Loam
Previous Crop: Corn
Tillage: None

Soil Test: N/A
Fertilizer Applied: N/A
Herbicide: See Methods
Variety: Settlemyre 3795
Planting Rate: 240,000 seeds/A
Planting Date: April 26, 1997
Harvest Date: October 15, 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 four days prior to planting. The 1X Canopy rate was 6.0 oz/A and 1X Squadron rate was 3.0 pt/A. For treatments 1 and 4, only Select + Prime Oil (COC) at 2.0 oz/A + 1.0%v/v was applied as no broadleaf weeds were present. 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 floz/A + 1.0%v/v + 2.5%v/v and was applied at the listed rate to treatments 2, 3, 5, 6, and 8.
Results

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Product and Rate¹</th>
<th>Treatment Timing</th>
<th>Weed Control</th>
<th>Soybean Yield</th>
<th>Treatment Cost²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Height (in.)</td>
<td>DAP</td>
<td>An. Gr.</td>
</tr>
<tr>
<td>1</td>
<td>Canopy (EPP) 1/2X (POST) 1/4X</td>
<td>&lt;1</td>
<td>-4</td>
<td>32</td>
<td>64</td>
</tr>
<tr>
<td>2</td>
<td>Canopy (EPP) 1/2X (POST) 1/2X</td>
<td>&lt;2</td>
<td>-4</td>
<td>55</td>
<td>78</td>
</tr>
<tr>
<td>3</td>
<td>Canopy (EPP) 1/2X (POST) 1X</td>
<td>3-5</td>
<td>-4</td>
<td>72</td>
<td>98</td>
</tr>
<tr>
<td>4</td>
<td>Squadron (EPP) 1/2X (POST) 1/4X</td>
<td>&lt;1</td>
<td>-4</td>
<td>32</td>
<td>75</td>
</tr>
<tr>
<td>5</td>
<td>Squadron (EPP) 1/2X (POST) 1/2X</td>
<td>&lt;2</td>
<td>-4</td>
<td>55</td>
<td>77</td>
</tr>
<tr>
<td>6</td>
<td>Squadron (EPP) 1/2X (POST) 1X</td>
<td>3-5</td>
<td>-4</td>
<td>72</td>
<td>96</td>
</tr>
<tr>
<td>7</td>
<td>Squadron (EPP) 1X</td>
<td>-4</td>
<td>76</td>
<td>0</td>
<td>63</td>
</tr>
<tr>
<td>8</td>
<td>Roundup (POST) 1X</td>
<td>3-5</td>
<td>59</td>
<td>83</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>LSD (0.05%)</td>
<td></td>
<td>10</td>
<td>15</td>
<td>NS</td>
</tr>
</tbody>
</table>

1. Abbreviations: Height = annual grass height, DAP = days after planting, An. Gr. = annual grass (giant foxtail), H. Milk. = honeyvine milkweed, 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 nearly non-existent. Only treatments 3, 6, and 8 provided greater than 82% annual grass control on July 24, but all treatments except treatment 1 provided greater than 82% annual grass control on September 29 (data not shown). This improvement in control over time was apparently due to effects of disease on the small grasses, promoted by large amounts of rain in July and August. This may explain why there was no significant difference in yield, despite the poor control recorded in July.

For additional information, contact: Jeff Stachler and Dr. Mark Loux
The Ohio State University
stachler.1@osu.edu or loux.1@osu.edu