Soybean growers are planting earlier in the spring to maximize yield potential. Earlier planting dates may reduce the ability of soybean to compete with weeds, because colder soil and air temperatures in early spring conditions may favor weed growth.

Evaluate weed control and soybean yield as influenced by residual herbicide use and postemergence (POST) glyphosate application timing following three different planting dates.

A field study was conducted near Arlington, WI in 2012. Plots were 3 m wide by 15 m long, and treatments were replicated four times. Trial area was cultivated on April 5, 0.87 kg a.e. ha⁻¹ glyphosate was applied prior to each planting date. Soybeans were planted at 296,400 seeds ha⁻¹ in rows 76 cm wide.

Main Plots were blocked by the Planting Date (PD)
- Early – April 24
- Mid – May 10
- Late – June 4

Subplots were a 2x4 Factorial arranged as a RCB:
- [2] With or without PRE residual herbicide (RH) application
  - RH = 0.26 + 0.03 kg a.i. ha⁻¹ sulfentrazone + cloransulam-methyl
- [4] POST glyphosate timing (GT): V1, V2, V4, R1
  - Glyphosate = 0.87 kg a.e. ha⁻¹

Weeds were counted prior to each POST GT
- Soybean yield was adjusted to 13% moisture

Introduction

Table 1. Total weed density at POST glyphosate timing as influenced by planting date (PD), residual herbicide (RH) and glyphosate application timing (GT). The highest order interaction of PD x RH x GT was not significant (P=0.6044). The PD x RH and PD x GT interactions were significant at P < 0.0001 and P = 0.0187, respectively. Densities with the same letters are not significantly different (P ≤ 0.05).

<table>
<thead>
<tr>
<th>Factors</th>
<th>Planting date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24 April</td>
</tr>
<tr>
<td>Residual herbicide</td>
<td></td>
</tr>
<tr>
<td>sulfentrazone + cloransulam</td>
<td>15.6 c</td>
</tr>
<tr>
<td>No PRE residual</td>
<td>66.9 a</td>
</tr>
<tr>
<td>Glyphosate timing</td>
<td></td>
</tr>
<tr>
<td>V1</td>
<td>46.0 a</td>
</tr>
<tr>
<td>V2</td>
<td>40.0 ab</td>
</tr>
<tr>
<td>V4</td>
<td>30.9 bc</td>
</tr>
<tr>
<td>R1</td>
<td>48.1 a</td>
</tr>
</tbody>
</table>

*Predominant weed species in the trial were common ragweed (*Ambrosia artemisiifolia* L.), common lambsquarters (*Chenopodium album* L.), and giant foxtail (*Setaria faberi* Herrm.).

Materials and Methods

- A field study was conducted near Arlington, WI in 2012.
- Plots were 3 m wide by 15 m long, and treatments were replicated four times.
- Trial area was cultivated on April 5, 0.87 kg a.e. ha⁻¹ glyphosate was applied prior to each planting date.
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- Soybean yield was adjusted to 13% moisture

Objective

- Evaluate weed control and soybean yield as influenced by residual herbicide use and postemergence (POST) glyphosate application timing following three different planting dates.

Results

Figure 1. Influence of residual herbicide use and glyphosate application timing on soybean yield. Yield means with the same letters within planting date are not significantly different (P < 0.05).

Figure 2. Pictures were taken at the R1 glyphosate application timing.

Conclusions

- **Planting Date:**
  - Total in-crop weed density declined as planting was delayed.
  - Mid and late planting dates yielded more than the early planting date.
- **PRE Residual Herbicide:**
  - Total weed density was significantly less at the early and mid planting dates in plots with a residual herbicide.
  - A significant reduction in yield occurred in plots without a residual herbicide at the early planting date only.
- **Glyphosate Timing:**
  - When a residual herbicide was used, there was no significant difference in soybean yield among the different glyphosate application timings regardless of planting date.
  - At the early planting date when no residual herbicide was used, soybean yield was maximized when glyphosate was applied at the V1 or V2 soybean growth stages.
  - There were no significant differences in yield observed between application timings in the absence of a residual at the mid and late planting dates.

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