Effect of Time of Weed Removal on Soybean Yield
(multiple locations)

One pass or two? What would a PRE do?

Jeffrey L. Gunsolus
Extension Weed Science
gunso001@umn.edu
612-625-8130

Weed Emergence Patterns and the Effect of Time of Weed Removal Soybean Yield

- Different weeds emerge at different times during the growing season
- If left uncontrolled, weeds emerging before or with the crop are more competitive than weeds that emerge after crop emergence
- Weed effects on yield will depend upon:
  - Weed species
  - Weed density
  - Environmental conditions
  - Duration of weed/crop competitive period

Question: What effect does time of weed removal have on soybean yield?

Weed Emergence Patterns and the Effect of Time of Weed Removal Soybean Yield

- In 2004, research compared 5 glyphosate timings (1”, 3”, 5”, 7” and 9” weed heights), with and without a ½-rate of a PRE herbicide on crop yield and economic returns
- Studies were conducted six locations for soybean (Lamberton, Morris, Rochester, Waseca, Luverne, and Potsdam)

Major weeds in soybean at each site:
- Lamberton: Yellow foxtail, Common lambsquarters, Redroot pigweed, Wild buckwheat
- Morris: Green foxtail, Common lambsquarters, Powell amaranth, Wild mustard
- Rochester: Giant foxtail, Giant ragweed, Common waterhemp, Common lambsquarters
- Waseca: Giant foxtail, Common ragweed, Common waterhemp, Velvetleaf, Redroot pigweed
- Luverne: Green foxtail, Common lambsquarters, Powell amaranth
- Potsdam: Giant foxtail, Giant ragweed, Common lambsquarters, Velvetleaf
### Trial Treatments and Timing

<table>
<thead>
<tr>
<th>Trt #</th>
<th>Description</th>
<th>Timing</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Boundary / Touchdown Total + AMS</td>
<td>Pre / 1” weeds</td>
</tr>
<tr>
<td>2</td>
<td>Touchdown Total + AMS</td>
<td>1” weeds</td>
</tr>
<tr>
<td>3</td>
<td>Boundary / Touchdown Total + AMS</td>
<td>Pre / 3” weeds</td>
</tr>
<tr>
<td>4</td>
<td>Touchdown Total + AMS</td>
<td>3” weeds</td>
</tr>
<tr>
<td>5</td>
<td>Boundary / Touchdown Total + AMS</td>
<td>Pre / 5” weeds</td>
</tr>
<tr>
<td>6</td>
<td>Touchdown Total + AMS</td>
<td>5” weeds</td>
</tr>
<tr>
<td>7</td>
<td>Boundary / Touchdown Total + AMS</td>
<td>Pre / 7” weeds</td>
</tr>
<tr>
<td>8</td>
<td>Touchdown Total + AMS</td>
<td>7” weeds</td>
</tr>
<tr>
<td>9</td>
<td>Boundary / Touchdown Total + AMS</td>
<td>Pre / 9” weeds</td>
</tr>
<tr>
<td>10</td>
<td>Touchdown Total + AMS</td>
<td>9” weeds</td>
</tr>
<tr>
<td>11</td>
<td>Boundary</td>
<td>Pre</td>
</tr>
<tr>
<td>12</td>
<td>Touchdown Total + AMS / Touchdown Total + AMS</td>
<td>3” weeds / 2-4” regrowth</td>
</tr>
</tbody>
</table>

Boundary at 1.25 pt/A
Touchdown Total at 24 oz/A + AMS at 2.5 lb/A

### Glyphosate Timing and Soybean Yield Across Locations, 2004

![Graph showing returns vs. weed height](image)

Trt 5 – Boundary (1.5 pt./A) / Touchdown Total (24 oz/A) + AMS at 5 inch weeds
Trt 6 – Touchdown Total (24 oz/A) + AMS at 5 inch weeds
Trt 11 – Boundary PRE
Trt 12 – Touchdown Total + AMS / Touchdown Total + AMS at 3”/ 2-4” regrowth

### 2004 Summary over All Locations Under Cool & Wet Conditions:

**Soybean**

One-pass glyphosate (5 inch weeds) could maximize yield and return. (Treatment 6)

The application of glyphosate too early (less than 5 inch weeds) reduced crop yield and economic return.

PRE/POST applications (5 inch weeds or larger) provided good economic returns.

Two pass glyphosate system is very effective and risk efficient.