Comparison of Soybean Traits and Herbicide Programs for the Control of Multiple-Resistant Waterhemp and Other Common Weed Species

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Introduction

- Recent introduction of new synthetic auxin traits = more options for soybean producers
- Multiple herbicide resistance in weeds like waterhemp brings new challenges for soybean producers
- **Objective**: To compare weed control and yield across 5 different soybean systems (traits) and 3 herbicide programs
Materials and Methods

Soybean Systems:
- Glyphosate-resistant (MorSoy 42X21)
- Dicamba-resistant (MorSoy 4242RXT)
- Glufosinate-resistant (MorSoy 4222LL)
- 2,4-D-resistant (41e16v8)

Herbicide Programs:
- PRE fb POST
- PRE fb POST w/residual
- PRE fb POST conventional
## Comparison of Soybean Traits

### Herbicide Program

<table>
<thead>
<tr>
<th>Soybean System</th>
<th>PRE* fb POST</th>
<th>PRE* fb POST w/ Residual**</th>
<th>PRE* fb POST Conventional**</th>
</tr>
</thead>
<tbody>
<tr>
<td>RR2Y</td>
<td>28 oz/a Roundup + 12 oz/a Cobra</td>
<td>POST program + 16 oz/a Dual II Magnum</td>
<td>16 oz/a Select Max + 12 oz/a Cobra + 16 oz/a Dual II Magnum</td>
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<tr>
<td>Xtend</td>
<td>28 oz/a Engenia 28 oz/a Roundup</td>
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<tr>
<td>LL Soy</td>
<td>29 oz/a Liberty</td>
<td></td>
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<tr>
<td>Enlist + gly</td>
<td>75 oz/a Enlist Duo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enlist + glu</td>
<td>32 oz/a 2,4-D + 29 oz/a Liberty</td>
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</tbody>
</table>

*PRE herbicide applied in all treatments: 5 oz/A Sonic

All adjuvants added at recommended label rate
Influence of Soybean Systems and Herbicide Programs on Multiple-resistant Waterhemp Control (Renick, MO)

*Bars followed by the same letter are not significantly different, P > 0.05*
Influence of Soybean Systems and Herbicide Programs on Multiple-resistant Waterhemp Density (Renick, MO)

*Bars followed by the same letter are not significantly different, P > 0.05*
Influence of Weed Management Programs on Multiple Resistant Waterhemp (Renick, MO)

*Bars followed by the same letter are not significantly different, P > 0.05*
Influence of Soybean Systems on Multiple Resistant Waterhemp Control (Renick, MO)

*Bars followed by the same letter are not significantly different, P>0.05
**Non-treated and conventional treatments removed in comparison
Influence of Soybean Systems and Herbicide Programs on Giant Foxtail Control (Columbia, MO)

*Bars followed by the same letter are not significantly different, P > 0.05*
Influence of Soybean Systems and Herbicide Programs on Morningglory Control (Columbia, MO)

*Bars followed by the same letter are not significantly different, P > 0.05*
Influence of Soybean Systems and Herbicide Programs on Soybean Yield (Renick, MO)

*Bars followed by the same letter are not significantly different, P > 0.05*
Influence of Soybean Systems and Herbicide Programs on Soybean Yield (Columbia, MO)

*Bars followed by the same letter are not significantly different, P > 0.05*
Yield Across Soybean Systems

*Bars followed by the same letter are not significantly different, P > 0.05*
Conclusions

• Similar control of multiple-resistant waterhemp was achieved with 2,4-D- and dicamba-based herbicide programs.

• Glyphosate and conventional programs proved to be ineffective at controlling multiple-resistant waterhemp.

• Glufosinate-containing programs provided lower control of giant foxtail than other treatments.

• In Renick, similar yield among all soybean systems except glyphosate and conventional programs.

• In Columbia, glyphosate- and dicamba-resistant soybean systems yielded similar and highest.