Field Bindweed Management in Processing Tomatoes

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Early Attempts at Understanding and Managing Field Bindweed

- Timing of Field Bindweed removal
- Evaluation of Carotenoid Biosynthesis inhibitors
- Evaluation of miscellaneous herbicides
Tomato yield as influenced by the Field Bindweed exclusion period

Lanini and Miyao 1988
Tomato brix (%) as influenced by the Field Bindweed exclusion period

Lanini and Miyao 1988
Tomato Yield in relation to weeks with Field Bindweed competition

Lanini and Miyao 1988
Field Bindweed conclusions

• Early removal is need to avoid mechanical injury
• Early competition reduced yield and brix
Command 0.40 lb + Matrix 0.03 lb/acre PRE
Callisto (mesotrione) 0.22 lb/ac PRE
Balance (isoxaflutole) 0.067 lb PRE
Staple – 0.0625 lb/ac
Mustard Meal – 400 lbs per acre PRE
Two Bindweed studies in 2010

- **Site 1** – treated 3 X in the spring with glyphosate + Shark using a WeedSeeker
  - subsurface drip irrigated

- **Site 2** – Oat cover crop - chopped and removed in late spring and beds prepared
  - sprinkler irrigation used after transplanting and furrow irrigation used remainder of season
## Treatments at Site 1 in 2010

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Timing</th>
<th>Rate (lbs/ac)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual Magnum</td>
<td>PRE</td>
<td>1.6</td>
</tr>
<tr>
<td>Sandea</td>
<td>PRE</td>
<td>0.047</td>
</tr>
<tr>
<td>Prowl H2O</td>
<td>PRE</td>
<td>1.4</td>
</tr>
<tr>
<td>Matrix</td>
<td>PRE</td>
<td>0.03</td>
</tr>
<tr>
<td>Treflan</td>
<td>PRE</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>+ or – Shark or Matrix POST</td>
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</tr>
<tr>
<td>Shark</td>
<td>POST shielded</td>
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Site on May 11, after mechanical incorporation
Field Bindweed Cover (%) on June 23, 2010

- Dual Magnum 1.6 lb ai
- Prowl H2O 1.4 lbs ai
- Matrix 0.03 lbs ai
- Treflan 1.0 lbs ai
- Sandea 0.047 lbs ai

Untreated = 13% cover
Field Bindweed Cover (%) on June 23, 2010

- Matrix 0.03 POST
- Matr + Matr 0.03 + 0.03 POST
- Shark 0.031 POST
- Shark + Shark 0.031 + 0.031 POST

Untreated = 13% cover
Field Bindweed Cover (%) at Harvest

- Dual Magnum 1.6 lb ai
- Prowl H2O 1.4 lbs ai
- Matrix 0.03 lbs ai
- Treflan 1.0 lbs ai
- Sandea 0.047 lbs ai

Untreated = 46% cover
Field Bindweed Cover (%) At Harvest

Untreated = 46% cover
Matrix 0.03 lb/a  - POST
Prowl H2O PRE @ 1.4 lbs/ac
Tomato Yield (tons/acre) relative to treatment

Untreated = 58.1 tons/ac
## Treatments at Site 2 in 2010

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Field Bindweed Seedling Control (%) on June 23, 2010

* = Zeus used at 0.20 lb ai
Dual Magnum @ 1.6 lbs/ac
Matrix PRE @ 0.03 lb/ac
Prowl H2O PRE @ 1.4 lbs/ac
Field Bindweed Cover (%)  
At Harvest

<table>
<thead>
<tr>
<th>Herbicide</th>
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<th>Field Bindweed Cover (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual Magnum</td>
<td>1.6 lb</td>
<td>55% alone, 60% + Shark, 50% + Matrix</td>
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<tr>
<td>Prowl H2O</td>
<td>1.4 lb</td>
<td>55% alone, 60% + Shark, 50% + Matrix</td>
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* = Zeus used at 0.20 lb ai  
Untreated = 57.5% cover
Tomato Yield (tons/acre) in relation to treatment

* = Zeus used at 0.20 lb ai

Untreated = 21.3 tons/ac
Field bindweed conclusions from 2010 studies

• Treflan and Prowl H2O were best at suppressing established field bindweed
• POST Shark treatments improved control in most cases (tomato injury???)
• Matrix and Zeus good at suppressing seedling bindweed, but less effective against established bindweed
• Field bindweed can have a large root biomass, relative to top growth
• Treatments rarely 100% effective
• Repeated treatments are needed for best suppression
• Rotation with corn or wheat will allow selective herbicide use
Drift, Carryover, or ???
Auxin acid herbicide injury
*Drift most likely
Milestone “movement”
Treflan injury
Commonly occurs when growth slowed by cool weather
Treflan / Prowl H₂O

- Good dodder and field bindweed suppression
- Require some form of incorporation
- Place herbicides in top two inches of soil and make certain roots of the transplant are below the treated soil.
Questions?