Management of Field Bindweed, Yellow Nutsedge, and Dodder in Processing Tomatoes (just not at the same time)

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Field Bindweed

Deep rooted perennial
Seedling to perennial in ~30 days
POST treatments less effective in the spring or after 10am
Most Effective treatments for Field Bindweed

PRE treatment

• Treflan @ 1.0 lbs/a – Best (higher rates ?)
• Zeus @ 0.10 lbs/a – Fair-good
• Matrix @ 0.0625 oz/a – Fair-good (4 oz/a)

POST treatment

• Matrix 0.03 lb/a – Fair (2 oz/a)
• Shark 0.03 lb/a - Good
# Treatments in 2012

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Timing</th>
<th>Rate (lbs/ac)</th>
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</thead>
<tbody>
<tr>
<td>Prowl H₂O</td>
<td>PRE</td>
<td>1.4</td>
</tr>
<tr>
<td>Matrix</td>
<td>PRE</td>
<td>0.06</td>
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<tr>
<td>Treflan</td>
<td>PRE</td>
<td>1.0</td>
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<tr>
<td>Zeus</td>
<td>PRE</td>
<td>0.1</td>
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<tr>
<td>PRE herbicides + Matrix POST</td>
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<td>0.03</td>
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<tr>
<td>PRE herbicides + Shark POST</td>
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<td>0.03</td>
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<tr>
<td>Matrix POST (20 day interval)</td>
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<tr>
<td>Matrix POST (20 day interval)</td>
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<tr>
<td>Shark POST shielded</td>
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<td>0.03</td>
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<tr>
<td>Shark POST shield</td>
<td></td>
<td>0.03</td>
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<tr>
<td>Untreated</td>
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<td>0.03</td>
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</tbody>
</table>
2012 Bindweed study
Field Bindweed Control (%) on June 11, 2012

- Prowl H2O 1.4 lb
- Matrix 0.06 lb
- Treflan 1.0 lb
- Zeus 0.1 lb
Field Bindweed control (%) on July 13, 2012

PRE herbicides alone or plus Matrix @ 0.03 lb/a POST
Field Bindweed control (%) on July 13, 2012

PRE herbicides alone or plus Shark @ 0.03 lb/a POST-directed
Shark over the top
Field Bindweed control (%) on September 6, 2012

Field Bindweed control (%)

- Prowl
- Matrix
- Treflan
- Zeus
Field Bindweed control (%) on September 6, 2012

PRE herbicides alone or plus Matrix @ 0.03 lb/a POST
Field Bindweed control (%) on September 6, 2012

PRE herbicides alone or plus Shark @ 0.03 lb/a POST-directed
Field Bindweed control (%) on September 6, 2012

Field Bindweed control (%)

POST treatments only

Matrix
Matrix + Matrix
Shark
Shark + Shark
Tomato Yield (tons/acre) on Sept. 6, 2012

- **Prowl**
- **Matrix**
- **Treflan**
- **Zeus**
Tomato Yield (tons/acre) on Sept 6, 2012

Yield (tons/acre)

- Prowl
- Matrix
- Treflan
- Zeus

Legend:
- plus Shark
- Alone
Field bindweed conclusions

- Treflan is best PRE at suppressing established field bindweed, but Zeus and high rate Matrix (4 oz/a of product) also good
- POST treatments improved control in many cases
- Dual Magnum, Prowl H₂O, Matrix and Zeus good at suppressing seedling bindweed
Yellow Nutsedge

* Not very competitive
Yellow Nutsedge
Tubers main source of spread
Seed rarely (if ever) viable
Yellow Nutsedge Control 2011

Nutsedge control (%)

- Dual Magnum 1.25 lbs
- Prowl H2O 1.4 lbs
- Zeus 0.0.75 lbs

20-Jul and 16-Aug
Yellow Nutsedge Control 2012

Nutsedge control (%)

- Zeus 0.10 lbs
- Zeus 0.15 lbs
- Zeus + Dual 0.15 + 1.25
- Zeus + Treflan 0.15 + 1.0
- Zeus + Matrix 0.15 + 0.03

12-Jun
13-Jul
Yellow Nutsedge Control with Sandea

Treated on June 11 (3 to 5 leaf stage of nutsedge), and X2 on July 9. Methylated seed oil (0.5% v/v) added to all treatments.
Yellow Nutsedge Conclusions

• Dual Magnum is the best treatment, with Zeus providing some control.
• Sandea is good for POST control
• Sulfosulfuron (Certainty, Maverick) – NOT Registered in tomatoes, but excellent nutsedge control
Nutsedge control

Certainty 1.25 oz/a - Untreated
“Dodder – It is like a car wreck – a curiosity if you are not involved, but a real hassle if it is your field”      Chuck Rivara
Crop Rotation??

Susceptible crops
- Alfalfa
- Asparagus
- Carrot
- Onion
- Safflower
- Sugarbeet
- Melon

Grass type crops are Resistant
Hand removal

- Hand crews typically miss about 5 to 10% of attached dodder plants
- Follow initial hand cultivation with a second spot treatment about 3 weeks later to catch new or missed infestations
- Plants removed from the field?
Dodder Resistant Tomatoes

- Processing tomato varieties shown to have resistance to dodder: CDX 233, H9492, H9553, H9888, H9992, H9997, H1100, and SVR 024 2 0665

(Probably a few others)
Tomato Variety - Dodder Control

Number of Dodder / 200m row

Variety

- Halley 3155
- Heinz 9492
- Heinz 9553
- Heinz 9992
Field Testing of Tomato Varieties For Dodder Resistance

H9888  Peto 771
Postemergence Herbicide options

- Rimsulfuron
- Halosulfuron
- Sulfosulfuron – Not labeled
Dodder Biomass after Herbicide Treatment

- Sandea (0.047 lb/a)
- Matrix (0.031 lb/a)
- Maverick (0.059 lb/a)
Conclusions

• Crop rotation to grass type crops
• Tolerant varieties reduced dodder attachments and dodder growth
• Matrix (rimsulfuron) and Sandea (halosulfuron) only marginally effective
• Plant late with transplants (May ?)
• Combination of tolerant varieties and Matrix is the most effective option
Thanks to the California Tomato Research Institute for their support.
Questions?