Weed Control in Tomatoes and other Warm Season Crops

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UCCE Merced County

VC3 2016
<table>
<thead>
<tr>
<th>Warm Season Crops</th>
<th>Warm Season Weeds</th>
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</thead>
<tbody>
<tr>
<td>Tomatoes</td>
<td><em>field bindweed</em>, nightshades, lambsquarters, annual and P. grasses, nutsedge, dodder</td>
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<tr>
<td>Cucurbits</td>
<td>purslane, junglerice, <strong>barnyardgrass</strong>, nutsedge, <em>field bindweed</em></td>
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<tr>
<td>Peppers</td>
<td>Bermudagrass, Johnsongrass, <em>field bindweed</em>, cheeseweed, nightshades, nutsedge</td>
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<tr>
<td>Sweetpotatoes</td>
<td>redroot pigweed, lambsquarters, puncturevine, <strong>barnyardgrass</strong></td>
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<tr>
<td>Beans</td>
<td><strong>bindweed</strong>, nightshades, nutsedge</td>
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<tr>
<td>Sweet Corn</td>
<td><strong>barnyardgrass</strong>, Johnsongrass, nutsedge, pigweed, <em>field bindweed</em>, purslane</td>
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</tbody>
</table>
Perennial weeds

Yellow nutsedge *Cyperus esculentus*

Johnsongrass *Sorghum halepense*

Field Bindweed *Convolvulus arvensis*
Annual weeds

Wright groundcherry
*Physalis acutifolia*

Redroot pigweed
*Amaranthus spp*

Barnyardgrass
*Echinochloa spp*
Amaranthus spp.

> 100,000 seeds per plant.
Field Bindweed

Root System >10 ft underground horizontal stems (rhizomes)
Herbicide Development in Vegetables

- Limited. Trickle down from other crops
  - Dual Magnum (metolachlor)
  - Sandea (halosulfuron)
  - Matrix (rimsulfuron)
  - clethodim
  - Zeus (sulfentrazone)

- Know the rotation and residual cautions
Fluridone in sweetpotatoes

- Brake herbicide in cotton for glyphosate resistant Palmer amaranth.
- Aquatic weed control label Sonar One.
- IR-4 test, crop safety and efficacy
Sweetpotato Fluridone Herbicide Trial 2016

- UTC weed free
- Fluridone 9.6 oz/A broadcast
- Fluridone 19.2 oz
- Fluridone 38.4 fl oz
- Devrinol 4 lbs/A PPI
- Dual Magnum 1 pt/A 10 days post inc
- UTC weedy
- Fluridone 19.2 oz/A layby inc
- Devrinol 4 lbs/A layby inc

Rating (0 - 5)

- Phyto
- Weeds
Response

- Tank mixes and programs
- Pre & Post-crop weed control
- Sprinklers and covers
- Tillage equipment
Herbicide Trials

- Pre & post application of Sandea and Matrix
- PPI Sprinkle incorporated
- Fresh Market and processing tomatoes
Conclusions

- Matrix + Dual Magnum provided good control for both spp.
- Matrix + Sandea:
  - Excellent weed control
  - Significant yield increase
  - Better with NIS
- Sandea did not cause crop phytotoxicity in this variety
Field Bindweed Management for Processing Tomatoes

Scott Stoddard, UCCE Merced and Madera Counties

Tom Lanini, UC Davis, Emeritus
Lynn Sosnoskie, UCD
2007 Processing tomato variety trial
Putting it all together

Only 6 treatment combinations > 40% control
Tomato Herbicide Trial 2013

- Dual Mag 1.5 pts/A + Treflan 2 pts/A PPI + Matrix POST 2X
- Zeus 6.0 fl oz PPI + Matrix 2 oz/A POST 2X
- Zeus 6.0 fl oz + Treflan 2 pts/A PPI
- Zeus 4.5 fl oz + Treflan 2 pts/A PPI
- Zeus 6.0 fl oz + Dual Magnum 1.5 pts/A PPI
- Zeus 4.5 fl oz + Dual Mag 1.5 pts/A PPI
- Zeus 6.0 fl oz/A PPI
- Zeus 4.5 fl oz/A PPI
- UTC

weed pressure (0-10) July 12
Treflan PPI fb Matrix POST 2 apps fb clethodim POST + COC

NOTE: plantback > 10 months for many crops after Matrix
OUT-OF-CROP HERBICIDES

• Pre-plant applications of glyphosate, paraquat, carfentrazone, 2,4-D, etc., to burn down emerged weeds.

• Post crop glyphosate to weeds when at flowering stage in the fall.

• Rotation with other crops, especially Roundup Ready cultivars.

• Cultivation.
MOVING
PAST
40%

Lynn Sosnoskie, UCD
Field Bindweed control
preplant fumigation: shanking metam potassium
Sprinklers and Covers

- Mechanical or water incorporation of herbicides to increase effectiveness
- Shielded sprayers.
- Plastic and organic mulches
An excellent method to incorporate herbicides .... that’s going away.
Prowl + Dual not inc.  with incorporation
Dual Magnum 1 pt/A on sweetpotatoes, incorporated by hand before transplanting.

No control except press wheels.
Dual magnum (metalochlor) mechanical incorporation
Shielded sprayer with glyphosate
MULCHES

- white and black plastic
- solarization
Equipment

- GPS
- Precision tillage
- Robotics
Summary

New a.i.s for vegetables move slowly. Mixed herbicide programs combined with good cultural management can be an effective method of weed control.