Key Weeds, Current Management Strategies, and Research Needs

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Key Weeds
Grasses

🌟 Can be difficult to control, especially in young vineyards

🌟 Grass-specific herbicides are limited:
- Fusilade (fluazifop-p) – non-bearing only
- Select (clethodim) – non-bearing only
- Poast (sethoxydim)
Bermudagrass
Sandbur
Crabgrass
Johnsongrass
Goosegrass
Downy Brome
Broadleaves

Many herbicide options; however grapevine also a broadleaf plant

Multiple approach best
- Preemergence
- Postemergence
- Contact
- Systemic
Curly Dock
Field Bindweed
Sedges

- Limited effective herbicide options
- Solicam (norflurazon)

Issues:
- Must be watered in
- Can cause vine damage in sandy soils
- Amount restricted based on soil type
- Cannot use in vines younger than 2 years old
- 60 day PHI
Yellow Nutsedge
Management Strategies
Current Management Strategies

- **Minimal input** (i.e. do nothing or infrequent sprays)

- **Moderate input** (i.e. spray when convenient)

- **High input** (i.e. spray based on timing of weed appearance, match efficacy of material vs. weed species, use of multiple methods for control)
Weed Management

- Anything not a grapevine is considered a weed

- Row middles must be managed to reduce erosion

- Typical management eliminates weed competition under the vines

- Where do we need to go from here?
Research Needs
Research Needs

✦ New herbicide options, especially grasses
✦ Alternative (already existing) herbicide options
✦ Low environmental impact herbicides
✦ Evaluation of herbicide impact on soil, water, vine, etc.
✦ Weed management without herbicide use (tilling, mulches, flaming, etc.)
✦ Management of weeds under vines to reduce vigor
✦ http://www.ag.purdue.edu/hla/Hort/Pages/sfg_sprayguide.aspx -- Midwest Small Fruit and Grape Spray Guide 2010
Current Research

- New preemergence herbicide options
  - Sandea (halosulfuron)
  - Callisto (mesotrione)
  - Spartan (sulfentrazone)
- Funded by USDA, IR-4 Project
- Dr. Lynn Brandenberger
- Bixby Research Station
- ‘Chambourcin’, 101-14
# 2009 Results

Table 1. 2009 Grapes Herbicide trial, Bixby, OK.

<table>
<thead>
<tr>
<th>Treatment/ acre</th>
<th>% Injury</th>
<th>% Control on 8/4/09</th>
<th>Palmer amaranth</th>
<th>Carpet weed</th>
<th>Goose grass</th>
<th>Crab grass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6/2/09</td>
<td>8/4/09</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>glyphosate check</td>
<td>1 a²</td>
<td>0 a</td>
<td>0 d</td>
<td>0 d</td>
<td>0 c</td>
<td>0 a</td>
</tr>
<tr>
<td>Callisto 0.12 pre</td>
<td>1 a</td>
<td>0 a</td>
<td>46 c</td>
<td>47 b</td>
<td>25 bc</td>
<td>32 a</td>
</tr>
<tr>
<td>Callisto 0.24 pre</td>
<td>6 a</td>
<td>0 a</td>
<td>77 ab</td>
<td>93 a</td>
<td>69 a</td>
<td>48 a</td>
</tr>
<tr>
<td>Sandea 0.024 pre</td>
<td>2 a</td>
<td>4 a</td>
<td>54 bc</td>
<td>20 c</td>
<td>43 ab</td>
<td>34 a</td>
</tr>
<tr>
<td>Sandea 0.048 pre</td>
<td>6 a</td>
<td>0 a</td>
<td>65 bc</td>
<td>37 bc</td>
<td>58 ab</td>
<td>38 a</td>
</tr>
<tr>
<td>Spartan 0.1875 pre</td>
<td>6 a</td>
<td>0 a</td>
<td>99 a</td>
<td>87 a</td>
<td>75 a</td>
<td>51 a</td>
</tr>
<tr>
<td>Spartan 0.375 pre</td>
<td>7 a</td>
<td>0 a</td>
<td>100 a</td>
<td>99 a</td>
<td>58 ab</td>
<td>46 a</td>
</tr>
</tbody>
</table>

²Numbers in a column followed by the same letter exhibited no significant differences based on Duncan’s Multiple Range Test where P=0.05.