Sweet Corn Weed Management

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Sweet corn weed control

Process of limiting weed infestation and minimizing weed competition

– **Goal**: minimal effect of weeds on crop growth and yield

Degree of control is a matter of **economics**, i.e. balance between **cost of control** and **yield loss**
What constitutes an effective weed control program?

- Identify the weed(s)
- Select proper control measure(s)
- Use an integrated approach (use multiple tools)
  - Mechanical control
  - Cultural control
  - Chemical control

Common weed seedlings in sweet corn
Fall panicum (*Panicum dichotomiflorum*)
Goosegrass (*Eleusine indica*)
Fall panicum vs. goosegrass
Fall panicum vs. goosegrass
Fall panicum vs. goosegrass
Crowfootgrass (*Dactylis glomerata*)
Southern crabgrass (*Digitaria ciliaris*)
Goosegrass vs. crowfootgrass
Yellow nutsedge (*Cyperus esculentus*)
Purple nutsedge (*Cyperus rotundus*)
Purple vs. yellow nutsedge
Purple vs. yellow nutsedge
Purple vs. yellow nutsedge

Yellow nutsedge

Purple nutsedge
Common lambsquarters (Chenopodium album)
Spiny amaranth (*Amaranthus spinosus*)
Livid amaranth (*Amaranthus blitum*)
Spiny amaranth

Livid amaranth

Spiny vs. livid amaranth
Common purslane (Portulaca oleracea)
Spiny amaranth vs. common purslane
Common purslane vs. livid & spiny amaranth
American black nightshade (Solanum americanum)
Ragweed parthenium (*Parthenium hysterophorus*)
Common ragweed (*Ambrosia artemisiifolia*)
Mechanical cultivation

- Cultivation is an economical means of suppressing weed growth
- Effective when used alone or in combination with herbicides
- Cultivation when weeds are not present is not recommended
Mechanical cultivation
Mechanical cultivation
Crop rotation

Grass weeds: most problematic
Cultural cultivation

Crop rotation
  - Allows for breaking of life cycles
  - Allows for rotation of herbicides and other control programs

Fertilizer management

Competitive cultivars

Seeding rate
Preemergence herbicides
# Preemergence/preplant herbicides

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Trade name</th>
<th>Timing</th>
<th>Rate</th>
<th>WSSA MOA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atrazine</td>
<td>AAtrex</td>
<td>Preemergence</td>
<td>2-6 pt/A</td>
<td>Group 5</td>
</tr>
<tr>
<td>Mesotrione</td>
<td>Callisto</td>
<td>Preemergence</td>
<td>6-7.7 fl oz/A</td>
<td>Group 27</td>
</tr>
<tr>
<td>S-metolachlor</td>
<td>Dual II Magnum</td>
<td>Preemergence</td>
<td>1-1.67 pt/A</td>
<td>Group 15</td>
</tr>
<tr>
<td>Pendimethalin</td>
<td>Prowl H₂O</td>
<td>Preemergence</td>
<td>2-4 pt/A</td>
<td>Group 3</td>
</tr>
<tr>
<td>Flufenacet</td>
<td>Define</td>
<td>Preemergence</td>
<td>13-18 fl oz/A</td>
<td>Group 15</td>
</tr>
<tr>
<td>Dimethenamid-P</td>
<td>Outlook</td>
<td>Preemergence</td>
<td>12-18 fl oz/A</td>
<td>Group 15</td>
</tr>
<tr>
<td>EPTC</td>
<td>Eradicane</td>
<td>Preemergence</td>
<td>4.75-7.33 pt/A</td>
<td>Group 8</td>
</tr>
<tr>
<td>Simazine</td>
<td>Princep</td>
<td>Preemergence</td>
<td>2 qt/A</td>
<td>Group 5</td>
</tr>
<tr>
<td>Carfentrazone</td>
<td>Aim</td>
<td>Preplant burndown</td>
<td>0.5-1 fl oz/A</td>
<td>Group 14</td>
</tr>
<tr>
<td>Paraquat</td>
<td>Gramoxone</td>
<td>Preplant burndown</td>
<td>2-4 pt/A</td>
<td>Group 22</td>
</tr>
<tr>
<td>Pelargonic acid</td>
<td>Scythe</td>
<td>Preplant burndown</td>
<td>3-10% v/v</td>
<td>Group 26</td>
</tr>
<tr>
<td>Pyraflufen</td>
<td>ET</td>
<td>Preplant burndown</td>
<td>0.5-2 fl oz/A</td>
<td>Group 14</td>
</tr>
<tr>
<td>Glyphosate</td>
<td>Several</td>
<td>Preplant burndown</td>
<td>See label</td>
<td>Group 9</td>
</tr>
</tbody>
</table>
AAtrex 4L (Atrazine)

Rate
- Mineral soil: 2 – 4 pt/A
- Muck soil: 4 – 6 pt/A

Annual broadleaf weed and some grasses

Apply to moist soil after planting

Tank-mix: Dual Magnum (grass control)
Callisto 4 SC (Mesotrionone)

- Rate: 6 – 7.7 fl oz/A
- Annual broadleaf weed control
- Rainfall needed within 7 days before or after application
- Tank-mix: Dual Magnum (grass control)
Dual Magnum 7.62 EC (S-metolachlor)

- Rate: 1 – 1.67 pt/A
- Annual grass and some broadleaf weed control, suppression of sedges
- Weed control increased with 0.5- to 1.0-inch rainfall/irrigation
- Tank-mix: Atrazine or Callisto (broadleaf weed control)
Preemergence

- Untreated control
- Atrazine (4 pt/A)
- Dual Magnum (1.67 pt/A)
- Dual Magnum (1.67 pt/A) + Atrazine (4 pt/A)
# Postemergence herbicides

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Trade name</th>
<th>Timing</th>
<th>Rate</th>
<th>WSSA MOA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atrazine</td>
<td>AATrex</td>
<td>&lt;1.5 inch weed &lt;12 inch corn</td>
<td>2-6 pt/A</td>
<td>Group 5</td>
</tr>
<tr>
<td>Mesotrione</td>
<td>Callisto</td>
<td>30 inch corn/V8</td>
<td>3 fl oz/A</td>
<td>Group 27</td>
</tr>
<tr>
<td>Bentazon</td>
<td>Basagran</td>
<td>Weed size</td>
<td>1.5-2 pt/A</td>
<td>Group 5</td>
</tr>
<tr>
<td>Halosulfuron</td>
<td>Sandea</td>
<td>Over-the-top Spike to layby</td>
<td>0.6-1 oz/A</td>
<td>Group 2</td>
</tr>
<tr>
<td>Carfentrazone</td>
<td>Aim</td>
<td>≥V14 &gt;V8 - direct spray</td>
<td>0.5-1 fl oz/A</td>
<td>Group 14</td>
</tr>
<tr>
<td>Tembotrione</td>
<td>Laudis</td>
<td>Emergence to V7</td>
<td>3 fl oz/A</td>
<td>Group 27</td>
</tr>
<tr>
<td>Topramezone</td>
<td>Armezon</td>
<td>Weed size</td>
<td>0.75-1 fl oz/A</td>
<td>Group 27</td>
</tr>
<tr>
<td>S-metolachlor</td>
<td>Dual II Magnum</td>
<td>≥40 inch corn</td>
<td>Up to 2 pt/A</td>
<td>Group 15</td>
</tr>
<tr>
<td>Pendimethalin</td>
<td>Prowl H₂O</td>
<td>&gt;4 inch to V8</td>
<td>2-4 pt/A</td>
<td>Group 3</td>
</tr>
</tbody>
</table>
Postemergence herbicides
AAtrex 4L (Atrazine)

- **Rate**
  - Mineral soil: 2 – 4 pt/A
  - Muck soil: 4 – 6 pt/A

- **Annual broadleaf weed control and some annual grasses**

- **Apply to weeds <1.5 inches tall before corn >12 inches tall**

- **Tank-mixes:** Callisto, Laudis, Armezon
Basagran 4L (Bentazon)

- Rate: 1.5 – 2 pt/A
- Annual broadleaf and sedge weeds control
- Two applications for sedge control
- Tank-mix: Armezon
Callisto 4 SC (Mesotrione)

- Rate: 3 fl oz/A
- Annual broadleaf control
- Include a COC or NIS
- Slight bleaching may occur
- Tank-mix: AAtrex
Armezon 2.8 SC (Topramezone)

- Rate: 0.75 – 1 fl oz/A
- Annual broadleaf and grass control
- Include a COC or MSO and a nitrogen fertilizer (UAN at 1.5 qt/A or AMS at 8.5 lb/100 gal) Slight bleaching may occur
- Tank-mix: AAtrex
Laudis 3.5 EC (Tembotrione)

- Rate: 3 fl oz/A
- Annual broadleaf and grass control
- Include a COC or MSO and a nitrogen fertilizer (UAN at 1.5 qt/A or AMS at 8.5 lb/100 gal)
- Slight bleaching may occur
- Tank-mix: AAtrex
Sandea 75 DF (Halosulfuron)

- Rate: 0.6 – 1 oz/A
- Sedge and broadleaf weed control
- Apply from spike to layby stage
- Avoid the plant whorl with sequential application
- Include NIS
Untreated control

Callisto (3 fl oz/A)

Callisto (3 fl oz/A) + Atrazine (1 pt/A)

Callisto (3 fl oz/A) + Atrazine (4 pt/A)

Postemergence
Untreated control

Armezon (1 fl oz/A)

Armezon (1 fl oz/A) + Atrazine (1 pt/A)

Armezon (1 fl oz/A) + Atrazine (4 pt/A)

Postemergence
Untreated control

Armezon (1 fl oz/A)

Armezon (1 fl oz/A) + Basagran (2 pt/A)

Laudis (3 fl oz/A)

Postemergence
Remember for chemical weed control

- **Do it right**
  - Proper herbicide(s)
  - Proper herbicide rate(s)
  - Proper placement of material
  - Proper time of application
  - Proper manner of application

- **READ THE HERBICIDE LABEL, IT’S THE LAW**