Weed Management in Pumpkins

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Weed Identification

How to Identify Grass Weeds
- Growth pattern
  - Prostrate
  - Erect
- Roots
  - Fibrous
  - Rhizomatic
- Ligules
  - No ligule
  - Fringe of hairs
  - Membranous
- Auricle
  - Present or not

How to Identify Grass Weeds - cont.
- Leaf surface
  - pubescent (hairy)
  - concentrated hairs
  - glabrous (smooth or not hairy)
- Inflorescence (seed head)
  - digitate
  - spike
  - panicle - open to dense
- Leaf/bud position
  - folded
  - rolled

How to Identify Broadleaf Weeds
- Growth characteristics
  - Herbaceous
  - Woody
  - Vines
- Leaf characteristics
  - Cotyledon
    - Shape
    - Size
- True Leaf
  - Compound or simple
  - Shape
  - Size
  - Venation
  - Leaf surface: glabrous vs. pubescent

How to Identify Broadleaf Weeds cont.
- Leaf position
  - Alternate vs. opposite
- Root characteristics
  - Fibrous vs. taproots
  - Rhizomes vs. adventitious
- Nodes and Internodes
  - Length
  - Bud shape and size
- Flowers, fruits, and seeds
My Favorite Weed ID Sites

- Virginia Tech Weed ID guide:
  http://www.ppws.vt.edu/weedindex.htm
- University of Missouri Weed ID guide:
  http://weedid.missouri.edu/
- University of Tennessee Weed ID guide:
  http://turfweeds.utk.edu/weeddb/default.asp

* Most of the photos in this presentation are attributed to one of these sites

Preemergence Herbicide Options

Curbit® 3 lb EC

- Common name: Ethalfluralin
- Mode of action: Mitotic inhibitor
- Manufacturer: Loveland Products
- Weeds controlled: Grasses and some small seeded broadleaf weeds
- Applications:
  - PRE: 3 to 4 ½ pints/acre
    - No later than 2 days after seeding
    - Do not soil incorporate
    - May apply POST over top of transplants
    - Course soils: 3 pints/acre
    - Medium soils: 3 to 4 pints/acre
    - Fine soils: 4 to 4 ½ pints/acre

Curbit® 3 lb EC - Grass Weeds Controlled

- Broadleaf signalgrass
- Crabgrass
- Large smooth
- Goosegrass
- Foxtail millet
- Johnsongrass (seedling)
- Fall panicum
- Texas panicum

Curbit® 3 lb EC - Broadleaf Weeds Controlled

- Carpetweed
- Lambsquarters
- Pigweed
  - Prostrate, redroot, smooth, spiny
- Purslane
- Florida pusley

Other Crops Where You can Use Curbit® 3 lb EC

- Cucumbers
- Melons
- Summer squash
- Winter squash
- Watermelons
- Consult label for specific rates, timings, and restrictions.
**Dual Magnum® 7.62 lb EC**
- **Common name:** s-metolachlor
- **Mode of action:** LCFA biosynthesis inhibitor
- **Manufacturer:** Syngenta
- **Weeds controlled:** Grasses, yellow nutsedge, and some small seeded broadleaf weeds
- **Applications:**
  - PRE: 1 to 1.33 pints/acre
    - Inter-row or inter-hill application
    - DO NOT APPLY to 1 foot band around the row

**Grasses and Sedges Controlled by Dual Magnum® 7.62 lb EC**
- Controls all the grasses controlled by Curbit® 3 EC, except Texas panicum, plus the following:
  - Barnyardgrass
  - Foxtails (green, giant, yellow, and bristly)
  - Crowsfootgrass
  - Witchgrass
  - Yellow nutsedge

**Broadleaf Weeds Controlled by Dual Magnum® 7.62 lb EC**
- Controls all the broadleaf weeds controlled by Curbit® 3 EC, except lambsquarters, plus the following:
  - Additional Amaranthus spp.
    - Waterhemp (common, tall)
    - Powell amaranth
    - Palmer Amaranth
    - Tropical spiderwort

**Other Crops Where You can Use Dual Magnum® 7.62 lb EC**
- Corn
- Cotton
- Grasses grown for seed
- Rhubarb
- Sunflower
- Sorghum (grain or forage)
- Soybean
- Tomato
- Consult label for specific rates, timings, and restrictions.

**Strategy® 2.1 lb EC**
- **Common name:** Ethalfluralin (Curbit) 1.6 lbs ai/gal + Clomazone (Command) 0.5 lbs ai/gal
- **Mode of action:** Mitotic inhibitor + Carotenoid inhibitor
- **Manufacturer:** Loveland Products
- **Weeds controlled:** Grasses and some small seeded broadleaf weeds
- **Applications:**
  - PRE: 2 to 6 pints/acre
    - No later than 2 days after seeding
    - Do not soil incorporate
    - Do not apply postemergence over transplants
    - Do not use over or under plastic mulch
    - Course soils: 2 to 3 pints/acre
    - Medium soils: 3 to 4 pints/acre
    - Fine soils: 4 to 6 pints/acre

**Weeds controlled by Strategy® over Curbit®**
- Controls all the weeds controlled by Curbit® 3 EC plus the following:
  - Prickly sida
  - Spurred anoda
  - Velvetleaf
  - Venice Mallow
  - Cocklebur*
  - Common ragweed*
  - Smartweed*

* Suppression only
Other Crops Where You can Use Strategy® 2.1 lb EC

- Cucumbers
- Squash
- Melons
- Watermelons
- Consult label for specific rates, timings, and restrictions.

Postemergence Herbicide Options

Sandea® 75%DF

- Common name: Halosulfuron
- Mode of action: ALS-inhibitor
- Manufacturer: Gowan
- Weeds controlled: Broadleaf and sedge
- Applications:
  - PRE: ½ to ¾ oz/acre
  - POST over-the-top: ½ to ¾ oz/acre
  - POST directed or row middle: ½ to 1 oz/acre
  - Maximum of 2 applications totaling 2 oz/acre
  - Must include 0.25% NIS

Sandea® 75%DF - Weeds Controlled
- Cocklebur (PRE, POST)
- Common Ragweed (PRE, POST)
- Giant Ragweed (POST)
- Eclipta (PRE, POST)
- Groundsel (PRE)
- Hemp sesbania (POST)
- Hairy galinsoga (PRE, POST)
- Pockweed (POST)
- Pigweed (PRE, POST)
- Prickly sida (POST)
- Purslane (PRE, POST*)
- Smartweed/ladythumbs (PRE, POST*)
- Velvetleaf (PRE, POST)
- Wild mustard (PRE, POST)
- Wild radish (PRE, POST)
- Yellow Nutsedge (PRE, POST*)
- Purple Nutsedge (PRE, POST*)

Which Nutsedge is Which?

Yellow nutsedge (Cyperus esculentus)
Purple nutsedge (Cyperus rotundus)

Comparing the Postemergence Applied Grass Killers

<table>
<thead>
<tr>
<th>Grass</th>
<th>OrthoTriX</th>
<th>Sethoxydim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade name</td>
<td>Select Max®</td>
<td>Poast®</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Valent</td>
<td>BASF</td>
</tr>
<tr>
<td>Use rate</td>
<td>16-16 fl oz/acre annual grasses</td>
<td>*1.5 pints/acre</td>
</tr>
<tr>
<td>Days needed after transplant before application</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Preharvest interval (days)</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Adjuvants</td>
<td>0.25% NIS</td>
<td>1% COC</td>
</tr>
<tr>
<td>Grasses controlled</td>
<td>All annuals except goosegrass; excellent on perennial grasses</td>
<td>Excellent on annual grasses and most perennials</td>
</tr>
</tbody>
</table>

*suppression only  ^ Best control may require highest rates/multiple applications
POST Grass Herbicides (Graminicides)

Larry Burrill and Jerry Hill at Oregon State University found at http://www.wssa.net

Gramoxone Inteon® 75% DF
- Common name: Paraquat
- Mode of action: PSI inhibitor
- Manufacturer: Syngenta
- Weeds controlled: Broadleaf and small grasses
- Applications:
  - POST directed or hooded application 1.9 to 2.4 pt/acre
  - For weed control or harvest aid
  - Do not contact foliage of desirable crop
  - Maximum of 3 applications
  - Must include 0.25% NIS

Contact Herbicides with No Residual Activity

Building a Weed Management Program in Pumpkin
- Preemergence herbicides are important
  - Yield impacts are greatest within 3 to 5 weeks after crop emergence
- Postemergence tank mix compatibility
  - Do not mix Sandea with POST grass killer
- Space broadleaf and grass herbicide applications 3 to 5 days apart
- Know your weeds to reduce costs!!!!!!

Building a Weed Management- Weed Scenarios
- Johnsongrass (or other perennial grasses)
  - PRE herbicides to Select Max or Apache
- Morning glory or Field Bindweed
  - PRE herbicide to hooded application to the row middles with paraquat
- Yellow Nutsedge
  - PRE Dual Magnum and/or POST Sandea
- Malvaceae weeds
  - velvetleaf, spurred anoda, prickly sida, mallow spp.
  - PRE Strategy and/or POST Sandea (velvetleaf, prickly sida)
- Eastern black nightshade
  - PRE Dual Magnum
- Pigweed spp.
  - PRE herbicide and/or POST Sandea (weak on spiny and prostate pigweed)
- Common lambsquarters
  - PRE Curbit or Strategy