GRAIN SORGHUM WEED CONTROL:  
START CLEAN, STAY CLEAN

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Some key weed species

Back to the basics

• Use integrated practices
• Make timely applications
### Potential carryover

- Accent
- Python
- Varro
- Classic
- FirstRate
- Pursuit
- Reflex
- Raptor
- Scepter

### Start clean

- Burndown or tillage
- Atrazine
- Group 15
- Group 27 + atrazine

### Start clean

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>SOA group</th>
<th>Activation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atrazine</td>
<td>5</td>
<td>NA</td>
</tr>
<tr>
<td>Acetochlor</td>
<td>15</td>
<td>1/4-3/4&quot;</td>
</tr>
<tr>
<td>S-metolachlor</td>
<td>15</td>
<td>1/2-1&quot;</td>
</tr>
<tr>
<td>Dimethenamid-P</td>
<td>15</td>
<td>NA</td>
</tr>
<tr>
<td>Mesotrione</td>
<td>27</td>
<td>1/4&quot;</td>
</tr>
</tbody>
</table>

### Active Ingredient

<table>
<thead>
<tr>
<th>Active ingredient</th>
<th>Trade name</th>
<th>Sorghum Timing</th>
<th>Palmer timing</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-D</td>
<td>several</td>
<td>5-15&quot;</td>
<td>&quot;small&quot;</td>
<td>later application with drop nozzles, injury</td>
</tr>
<tr>
<td>Atrazine</td>
<td>several</td>
<td>&lt;12&quot;</td>
<td>1.5&quot;</td>
<td>&gt; 6&quot; in western KS</td>
</tr>
<tr>
<td>Bromoxynil</td>
<td>several</td>
<td>3 if – boot</td>
<td>2&quot;</td>
<td></td>
</tr>
<tr>
<td>Dicamba</td>
<td>several</td>
<td>V3 – 12&quot;</td>
<td>3&quot;</td>
<td></td>
</tr>
<tr>
<td>Fluroxypyr</td>
<td>Starane Ultra, others</td>
<td>3 if – 7 if</td>
<td>NA</td>
<td>later application with drop nozzles</td>
</tr>
<tr>
<td>Quinclorac</td>
<td>Facet, others</td>
<td>12&quot;</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Fluroxypyr + bromoxynil</td>
<td>Starane WGT, others</td>
<td>V4 – V7/8</td>
<td>NA</td>
<td>later application with drop nozzles</td>
</tr>
<tr>
<td>Pyrasulfotole + bromoxynil</td>
<td>Huskie</td>
<td>3 if – 30&quot;</td>
<td>4&quot;</td>
<td></td>
</tr>
<tr>
<td>Acetochlor</td>
<td>Warrant</td>
<td>11&quot;</td>
<td>NA</td>
<td>safened seed</td>
</tr>
<tr>
<td>Dimethenamid -P</td>
<td>Outlook</td>
<td>12&quot;</td>
<td>NA</td>
<td>safened seed</td>
</tr>
<tr>
<td>S-Metolachlor</td>
<td>Several</td>
<td>75 d PHI</td>
<td>NA</td>
<td>safened seed</td>
</tr>
</tbody>
</table>
Herbicide-resistant grain sorghum

- **Inzen**
- **ADVANTA/UPL**
- **Zest Herbicide**
  - nicosulfuron
- **POST**
- **First Act**
- **Sorghum Partners/ADAMA**
- **Pilot launch in 2021**
- **Waiting for herbicide registration, Canadian export approval**

Some varieties available in 2021?

- **iGrowth**
- **ADVANTA/UPL**
- **Imiflex Herbicide**
  - imazamox
- **PRE or POST**
- **Launch in 2021**

- **Double Team**
- **Sorghum Partners/ADAMA**
- **First Act**
- **Pilot launch in 2021**

- **Waiting for herbicide registration, Canadian export approval**

Green foxtail control

**PRE - Hays**

- **Green foxtail control**

**2020 Trials**

- **Fallow fields**
- **PRE**
  - imazamox (Imiflex)
  - Group 15 herbicides
- **POST**
  - imazamox (Imiflex), nicosulfuron (Zest) and quizalofop
  - 2 rates
  - 2 growth stages

Green foxtail control

**PRE - Hays**
### Large crabgrass control
**PRE - Garden City**

![Graph showing % Control for different treatments at 29, 58, and 78 DAT](image)

- **29 DAT**: Imiflex 6 oz, Imiflex 9 oz, Dual 24 oz, Warrant 64 oz, Outlook 18 oz
- **58 DAT**: Imiflex 6 oz, Imiflex 9 oz, Dual 24 oz, Warrant 64 oz, Outlook 18 oz
- **78 DAT**: Imiflex 6 oz, Imiflex 9 oz, Dual 24 oz, Warrant 64 oz, Outlook 18 oz

### Garden City -28 DAT

- **Nontreated**
- **Imiflex 6 oz**
- **Warrant 64 oz**

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### Green foxtail control
**EPOST - Hays**

![Graph showing % Control for different treatments at 28 and 42 DAT](image)

- **28 DAT**: Imiflex 6 oz, Imiflex 9 oz, Quizalofop 6 oz, Quizalofop 10 oz, Zest 0.68 oz, Zest 1.02 oz
- **42 DAT**: Imiflex 6 oz, Imiflex 9 oz, Quizalofop 6 oz, Quizalofop 10 oz, Zest 0.68 oz, Zest 1.02 oz

### Hays -28 DAT

- **Imiflex 9 oz**
- **Quizalofop 10 oz**
- **Zest 1.02 oz**
Large crabgrass control
EPOST - Garden City

Green foxtail control
LPOST - Hays

Rotational Restrictions

<table>
<thead>
<tr>
<th>Product</th>
<th>Corn (Field)</th>
<th>Soybeans</th>
<th>Wheat (winter)</th>
<th>Cotton</th>
<th>Canola</th>
<th>Sorghum</th>
<th>Sunflower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zest</td>
<td>--</td>
<td>15 d</td>
<td>4 mos</td>
<td>10 mos</td>
<td>10-18 mos</td>
<td>18 mos</td>
<td>10-18 mos</td>
</tr>
<tr>
<td>IMIFLEX</td>
<td>8.5 mos</td>
<td>--</td>
<td>3 mos</td>
<td>9 mos</td>
<td>18-26 mos</td>
<td>18 mos</td>
<td>9 mos</td>
</tr>
<tr>
<td>Quizalofop</td>
<td>120 d</td>
<td>120 d</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>120 d</td>
<td>--</td>
</tr>
</tbody>
</table>

*Except Clearfield varieties
**Based on Assure II label
Stewardship

- Manage to slow the development of herbicide resistant weeds
  - One (IMIFLEX) or two (Zest) applications per year
  - Do not plant sorghum in the same field two consecutive years
  - Do not plant where ALS-resistant shattercane or johnsongrass occur

- Avoid outcrossing to shattercane and johnsongrass
  - Control escapes and grass along field edges
    - Ensure shattercane and johnsongrass are not flowering same time as sorghum

ALS-resistance in shattercane

ALS-resistance in johnsongrass

Which herbicide-resistant grain sorghum trait are you most interested in?

- Inzen
- Imiflex
- Double Team
- None of them
Atrazine registration review

- Interim decision released Sept 2020
- Two more assessments
- Endangered species assessment (deadline 9/28/21)
- Endocrine disruptor screening
- Changes most likely to affect Kansas farmers
- 15 MPH weed speed restriction
- 5-foot buffer from edge of streams/rivers and endangered species habitat
- Medium-sized droplets or larger

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