Sweet Corn Hybrid Tolerance to Herbicides

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Potential Sweet Corn Herbicides

Mesotrione – Callisto, Camix, Lumax

Foramsulfuron – Option

Dicamba + diflufenzopyr – Distinct
Hybrid tolerance to mesotrione

Treatments

PRE
- Dual II Magnum + atrazine 2 pt/a + 1.5 pt/a
- Lumax 3 qt
- Lumax 6 qt

POST
- Dual II Magnum + atrazine 2 pt/a + 1.5 pt/a
- Followed by
  - Callisto + atrazine + COC 3 oz/a + 8 oz/a + 1%
  - Callisto + atrazine + COC 6 oz/a + 8 oz/a + 1%

Hybrids
- Max, Suregold, SS Jubilee Plus, Zenith, HMX 0393, FMX516
Chlorosis 5 days after post Callisto + atrazine + COC

Chlorosis (%)

- 3 oz/a
- 6 oz/a

Max
Suregold
SS Jubilee Plus
Zenith
HMX 0393
FMX515
Chlorosis 18 days after post Callisto + atrazine + COC

- Max
- Suregold
- SS Jubilee Plus
- Zenith
- HMX 0393
- FMX515

Chlorosis (%)

3 oz/a

6 oz/a

Max
Suregold
SS Jubilee Plus
Zenith
HMX 0393
FMX515
Sweet corn yields after mesotrione treatments

<table>
<thead>
<tr>
<th></th>
<th>Max</th>
<th>Suregold</th>
<th>SS Jubilee Plus</th>
<th>Zenith</th>
<th>HMX 0393</th>
<th>FMX515</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield (t/a)</td>
<td>7.5</td>
<td>6.8</td>
<td>6.2</td>
<td>7.0</td>
<td>6.8</td>
<td>7.0</td>
</tr>
</tbody>
</table>

Legend:
- **Check**
- **Lumax 1x**
- **Lumax 2x**
- **Callisto 1x**
- **Callisto 2x**
Effect of adjuvants on sweet corn tolerance to post Callisto Treatments

Callisto + 1% COC  3, 6, 9 oz/a
Callisto + 1% COC + 2.5% UAN  3, 6, 9 oz/a

Applied at V2 stage

6 hybrids
- 3 tolerant
- 3 sensitive

3 planting dates
Chlorosis of sweet corn hybrids at 4 to 6 days after V2-applications (3 experiments)
Mesotrione Summary

- Preemergence Lumax did not cause injury
- Differential Callisto tolerance occurred among hybrids
- UAN significantly increased postemergence injury
- Postemergence injury did not reduce yield
Tolerance of sweet corn to Option

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Hybrids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option</td>
<td>Legacy</td>
</tr>
<tr>
<td>+ Permit</td>
<td>SS Jubilee</td>
</tr>
<tr>
<td>+ Callisto</td>
<td></td>
</tr>
<tr>
<td>+ Distinct</td>
<td></td>
</tr>
<tr>
<td>Permit</td>
<td>0.67 oz/a</td>
</tr>
<tr>
<td>Callisto</td>
<td>3 oz/a</td>
</tr>
<tr>
<td>Distinct</td>
<td>2 oz/a</td>
</tr>
</tbody>
</table>

All treatments included 1.5 pt/a MSO + 2 qt/a UAN
Legacy stunting 5 days after application

<table>
<thead>
<tr>
<th>Option</th>
<th>Permit</th>
<th>Callisto</th>
<th>Distinct</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Option</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Option</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SS Jubilee stunting 5 days after application

- Option
+ Option

Option
Permit
Callisto
Distinct
Sweet corn yields following Option treatments

* Significantly less than highest yield for the hybrid
Option Summary

- Option caused significant stunting
- Stunting to SS Jubilee was greater than to Legacy
- Adding Permit, Callisto, or Distinct did not increase stunting at 5 days
- Option’s safener may be reducing stunting from Permit and Distinct
Tolerance of sweet corn to Distinct

**Treatments**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distinct + NIS</td>
<td>2 oz/a + 0.25%</td>
</tr>
<tr>
<td>Distinct + atrazine + NIS</td>
<td>2 oz/a + 1.5 pt/a + 0.25%</td>
</tr>
<tr>
<td>Distinct + NIS + AMS</td>
<td>2 oz/a + 0.25% + 1 lb/a</td>
</tr>
<tr>
<td>Distinct + atrazine + NIS + AMS</td>
<td>+ 0.25% + 1 lb/a</td>
</tr>
<tr>
<td>Distinct + NIS + AMS</td>
<td>4 oz/a + 0.25% + 1 lb/a</td>
</tr>
</tbody>
</table>

**Hybrids:** Legacy and SS Jubilee
Epinasty 5 days after treatment with Distinct

- Check
- 2 oz Distinct+NIS
- 2 oz Distinct+atra+NIS
- 2 oz Distinct+NIS+AMS
- 4 oz Distinct+NIS+AMS

Legend:
- Legacy
- SS Jubilee

* Significant injury
Leaf wrap 22 days after treatment with Distinct

Leaf wrap (%)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Legacy</th>
<th>SS Jubilee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2 oz Distinct+NIS</td>
<td>25</td>
<td>75</td>
</tr>
<tr>
<td>2 oz Distinct+atra+NIS</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>2 oz Distinct+NIS+AMS</td>
<td>75</td>
<td>100</td>
</tr>
<tr>
<td>4 oz Distinct+NIS+AMS</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

* Significant injury
Distinct Summary

- 4 oz/a Distinct caused significant injury to two hybrids
- Most Distinct treatments at 2 oz/a did not significantly injury Legacy, but many injured SS Jubilee
- Postemergence injury did not reduce yield