Integrated weed management for *Brassica carinata*

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Outline

• Cultural practices

• Herbicide tolerance

• Future weed control tools
Cultural Practices

• Row spacing: 7-14”

• Seeding rate: >4 lbs/a

• Carinata forms a competitive canopy against winter weeds

• Fertilization timing and amount
36 inch row spacing
14 inch row spacing
7 inch row spacing
Herbicide tolerance

- Preemergence (PRE)
- Postemergence (POST)
- Timing
- Summer and winter trials
  - 14”-rows
  - 6 row plots
  - RCBD
  - 4 replications
PRE herbicides – Carinata establishment
Spring 2015
PRE herbicides – Carinata establishment  
**Fall 2015**
Ethotron (ethofumesate)
PRE herbicides – Weed control 4 WAT
Spring 2015

Weed control (%)

UTC  Prowl 2 pt/a PPI  Prowl 2 pt/a PRE  Dual 1.3 pt/a PRE  Valor 2 oz/a PRE

0  20  40  60  80  100
PRE herbicides – Weed control 12 WAT
Fall 2015

Weed control (%)
POST herbicides – Carinata injury 4 WAT
Fall 2014

Carinata injury (%)

0 20 40 60 80 100

Stinger 8 fl oz/a
Ultra Blazer 1.5 pt/a
Basagran 1.5 pt/a
Aim 1 fl oz/a
Select Max 16 fl oz/a

Prowl 2 pt/a PRE
Dual 1.33 pt/a PRE
POST herbicides – Carinata injury 4 WAT
Spring 2015

Carinata injury (%)

- Prowl 2 pt/a PRE
- Dual 1.33 pt/a PRE

- Ultra Blazer 1.5 pt/a
- Basagran 1.5 pt/a
- Aim 1 fl oz/a
- Select Max 16 fl oz/a

Stinger 8 fl oz/a

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Weed Science
POST herbicides – Carinata injury 4 WAT

Fall 2015

Carinata injury (%)

0 20 40 60 80 100

Stinger 8 fl oz/a       Ultra Blazer 1.5 pt/a       Basagran 1.5 pt/a     Aim 1 fl oz/a       Select Max 16 fl oz/a

Prowl 2 pt/a PRE
Dual 1.33 pt/a PRE
Dual Magnum Timing – Carinata establishment

Spring 2015

Plants per 10 ft row

UTC  Dual 0.65 pt/a  Dual 1.33 pt/a  Dual 2.6 pt/a

At planting  2-6 leaf
Dual Magnum Timing – Carinata establishment

Fall 2015

Plants per 10 ft row

UTC  | Dual 0.65 pt/a | Dual 1 pt/a | Dual 1.33 pt/a | Dual 2.6 pt/a

At planting | 3-6 DAP | 2-6 leaf

Fall 2015

19
Dual Magnum Timing – Weed control 12 WAP
Fall 2015

Weed control (%)

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<tr>
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<th>Dual 0.65 pt/a</th>
<th>Dual 1 pt/a</th>
<th>Dual 1.33 pt/a</th>
<th>Dual 2.6 pt/a</th>
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<tbody>
<tr>
<td>At planting</td>
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<td>3-6 DAP</td>
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<td>2-6 leaf</td>
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Dual Magnum Timing – Weed control at various timings and dual rates.
Carinata Injury with Stinger (clopyralid) 3 WAT
Fall 2016

Injury (%)

12-16 fl oz/a recommended rate
Carinata treated with Dual Magnum (1.3 pt/a 3 DAP) and Stinger (12 fl oz/A at 2-4 If)
Future Weed Control Tools

• Dicamba resistant varieties
  – More effective POST broadleaf weed control

• ALS resistant varieties
  – Many PRE and POST herbicides
  – No imazapic carry-over issues
Carinata surviving an 8X rate of dicamba (4.48 g ai ha\(^{-1}\))
Carinata surviving an 8X rate of dicamba (4.48 g ai ha$^{-1}$)

Partial resistance

Full resistance
Conclusions

• Carinata is a competitive crop once the canopy closes

• We have commercially available herbicides that allow adequate winter weed control (except wild radish) while causing minimal to no injury to carinata

• New dicamba and ALS-resistant varieties will make weed control more flexible and help reduce rotational intervals
Questions?