Pre-emergence Herbicides for use in Tomato

Nathan Boyd, GCREC
Peter Dittmar, UF
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3. The addition of a herbicide to a fumigation system enhances nutsedge control. Nutsedge density in problem fields likely to increase in the absence of a herbicide (Jacoby 2012).

4. Pre-emergence herbicides (Dual Magnum, Reflex, and Sandea) can suppress nutsedge but post emergence applications of Sandea are needed for season long control.
OBJECTIVE

• Evaluate a range of pre-emergence herbicides applied under the plastic for efficacy on purple nutsedge and crop tolerance.
METHODS

Jan. 15, 2014
METHODS

275 lbs of Pic-Clor 60
METHODS
METHODS
### Herbsides treatments applied under the plastic on January 15

<table>
<thead>
<tr>
<th>Herbicide Treatment</th>
<th>Rate (per acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated Control</td>
<td>-</td>
</tr>
<tr>
<td>Devrinol DF-XT</td>
<td>4.0 lb</td>
</tr>
<tr>
<td>Dual Magnum</td>
<td>1.0 pt.</td>
</tr>
<tr>
<td>Eptam</td>
<td>3.0 pt.</td>
</tr>
<tr>
<td>Goal</td>
<td>1.0 pt.</td>
</tr>
<tr>
<td>League</td>
<td>4.0 oz</td>
</tr>
<tr>
<td>Matrix</td>
<td>4.0 oz</td>
</tr>
<tr>
<td>Reflex</td>
<td>1.5 pt</td>
</tr>
<tr>
<td>Sandea</td>
<td>1.0 oz</td>
</tr>
<tr>
<td>Sandea + Dual Magnum</td>
<td>1.0 oz + 1.0 pt.</td>
</tr>
<tr>
<td>Matrix + Dual Magnum</td>
<td>4.0 oz + 1.0 pt.</td>
</tr>
<tr>
<td>Eptam + Dual Magnum</td>
<td>3.0 pt + 1.0 pt.</td>
</tr>
<tr>
<td>Reflex + Dual Magnum</td>
<td>1.5 pt + 1.0 pt.</td>
</tr>
<tr>
<td>Devrinol DF-XT + Dual Magnum</td>
<td>4.0 lb + 1.0 pt.</td>
</tr>
<tr>
<td>Eptam + Dual Magnum + Devrinol DF-XT</td>
<td>3.0 pt + 1.0 pt. + 4.0 lb</td>
</tr>
<tr>
<td>Reflex + Dual Magnum + Devrinol DF-XT</td>
<td>1.5 pt + 1.0 pt. + 4.0 lb</td>
</tr>
<tr>
<td>Eptam + Reflex</td>
<td>3.0 pt + 1.5 pt.</td>
</tr>
<tr>
<td>Eptam + Reflex + Dual Magnum</td>
<td>3.0 pt + 1.5 pt. + 1.0 pt.</td>
</tr>
</tbody>
</table>
RESULTS

Tomato (Charger) damage

Damage Ratings

- Untreated Control
- Devrinol DF-XT
- Dual Magnum
- Eptam
- Goal
- League
- Matrix
- Reflex
- Sandea
- Matrix + Dual Magnum
- Eptam + Dual Magnum
- Reflex + Dual Magnum
- Devrinol DF-XT + Devrinol DF-XT
- Eptam + Reflex + Dual Magnum

P<0.0001

Herbicide
RESULTS

Tomato (Florida 47) damage

Damage Ratings

- Untreated Control
- Devrinol DF-XT
- Dual Magnum
- Eptam
- Goal
- League
- Matrix
- Reflex
- Sandea
- Matrix + Dual Magnum
- Sandea + Dual Magnum
- Eptam + Dual Magnum
- Reflex + Dual Magnum
- Devrinol DF-XT + Dual Magnum
- Reflex + Dual Magnum + Devrinol DF-XT
- Eptam + Reflex + Dual Magnum

P<0.0001
RESULTS

Tomato (Charger) Yield

P<0.0816
RESULTS

Tomato (Charger) Yield

![Bar chart showing tomato yield (metric ton/ha) for different treatments.](chart.png)

P<0.0816
RESULTS

Tomato yield (metric ton/ha)

Table showing tomato yield for different treatments:
- Untreated Control
- Devrinol DF-XT
- Dual Magnum
- Eptam
- Goal
- League
- Matrix
- Reflex
- Sandea + Dual Magnum
- Matrix + Dual Magnum
- Eptam + Dual Magnum
- Reflex + Dual Magnum + Devrinol DF-XT
- Eptam + Reflex + Dual Magnum
- Eptam + Reflex + Dual Magnum + Devrinol DF-XT

Significance level: P<0.0001
RESULTS

Nutsedge Counts in Tomato (Charger)

Counts (#/square meter)

- Untreated Control
- Devrinol DF-XT
- Dual Magnum
- Eplam
- Goal
- League
- Matrix
- Reflex
- Sandea
- Sandea + Dual Magnum
- Matrix + Dual Magnum
- Eptam + Dual Magnum
- Reflex + Dual Magnum
- Reflex + Dual Magnum + Devrinol DF-XT
- Eptam + Reflex + Dual Magnum + Devrinol DF-XT
- Eptam + Reflex
- Eptam + Reflex + Dual Magnum

P<0.0001
RESULTS

Nutsedge Counts in Tomato (Florida 47)

Counts (#/square meter)

- Untreated Control
- Devrinol DF-XT
- Dual Magnum
- Eplam
- Goal
- League
- Matrix
- Reflex
- Sandea
- Sandea + Dual Magnum
- Matrix + Dual Magnum
- Eptam + Dual Magnum
- Reflex + Dual Magnum
- Devrinol DF-XT + Devrinol DF-XT
- Eptam + Reflex + Dual Magnum

P = 0.01368
## SUMMARY

### Crop Tolerance

<table>
<thead>
<tr>
<th></th>
<th>Devrinol</th>
<th>Dual</th>
<th>Eptam</th>
<th>Goal</th>
<th>Matrix</th>
<th>Reflex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandea</td>
<td>League</td>
<td>Sandea + Dual</td>
<td>Matrix + Dual</td>
<td>Eptam + Dual</td>
<td>Reflex + Dual</td>
<td></td>
</tr>
<tr>
<td>Devrinol + Dual</td>
<td>Eptam + Dual+ Devrinol</td>
<td>Reflex + Dual+ Devrinol</td>
<td>Eptam + Reflex</td>
<td>Eptam + Reflex + Dual</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SUMMARY

• REDUCTION IN NUTSEdge
  – A lot of variability in the data
    • Due to population patchiness
    • Some of it I cannot explain
    • We need large scale plots
<table>
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<tr>
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<td>Reflex + Dual</td>
<td></td>
</tr>
<tr>
<td>Devrinol</td>
<td>Eptam + Dual + Devrinol</td>
<td>Reflex + Dual + Devrinol</td>
<td>Eptam + Reflex</td>
<td>Eptam + Reflex + Dual</td>
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### SUMMARY

**Reduction in Nutsedge Density**

<table>
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<td>Eptam + Dual</td>
<td>Reflex + Dual</td>
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- 70% suppression of purple nutsedge
Summary

- Reflex has a 24(c) local indemnified label and a waiver of liability must be signed for use. The label can be located at www.farmassist.com
- Dual Magnum has a supplemental label for use in tomato
- A Reflex/Dual Magnum tank mix may be used to suppress purple nutsedge and prevent puncture of the plastic mulch. It also provides an alternative mode of action to Sandea
Acknowledgments

- Research was funded by the Southern IPM Center.
- Research would not have been possible without the assistance of Michael Sweat, Amy Hays, and Julie Franklin.
- Thank you