Nutsedge Control in Onions

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Herbicide Timing

- Metam
- Paraquat
- Roundup
- Shark
- Scythe
- Dacthal
- Prefar
- Nortron
- preemergence to weeds

1st true leaf:
- Goal Tender
- Loop
- Prowl H2O

2nd true leaf:
- Nortron
- Outlook
- Select Max
- Poast
- Fusilade
- Dual Magnum
- (4th True Leaf)
- October, 2008

2007 and 2008 Registrations
Rhizomes Grow 8-14” deep

Tuber (nutlet)

Background Nutsedge
Tuber forming at end of rhizome
• Once the plant has developed more than 5 leaves it begins to form tubers (nutlets)
• Nutsedge cannot tolerate shade
• Unfortunately onions do not provide sufficient shade to inhibit the growth of nutsedge
Background

• Both Outlook and Dual Magnum are chloroacetamides (mitosis inhibitors)
• They need to be applied prior to the emergence of nutsedge as it has no postemergence activity
• They can delay tuber sprouting and kill shoots of yellow nutsedge
• They can cause tuber mortality
Timing of Nutsedge Control

• In 2006, 2\textsuperscript{nd} true leaf applications of Outlook and Dual Magnum were effective in Monterey County.

• However, in both 2007 and 2008, nutsedge emerged prior to the 2\textsuperscript{nd} true leaf stage which did not allow Outlook to be applied prior to nutsedge emergence.

• Both of these materials need to be applied prior to the emergence of nutsedge to be effective.
2007 Nutsedge Trials

- In 2007 Outlook (Dimethenamid-p) was registered in California for use on dry bulb onions
2007 Nutsedge Trials

• Yellow nutsedge was emerged by the 2\textsuperscript{nd} true leaf stage in 2007

• We needed to find a way to make Outlook work

• Three strategies tested:
  – 1) 1\textsuperscript{st} true leaf applications
  – 2) Burn back nutsedge with acid fertilizer then apply Outlook
  – 3) Basagran evaluations
• At the 2\textsuperscript{nd} true leaf stage nutsedge was well developed
### Heavily Infested Site

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Material/A</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-7-0-7 Fb Outlook 6.0</td>
<td>35 gallons</td>
<td>Post 1 t. leaf</td>
</tr>
<tr>
<td></td>
<td>7.0 oz</td>
<td>14 days later</td>
</tr>
<tr>
<td></td>
<td>7.0 oz</td>
<td></td>
</tr>
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</tr>
<tr>
<td></td>
<td>14.0 oz</td>
<td></td>
</tr>
<tr>
<td>7-7-0-7 Fb Outlook 6.0</td>
<td>35 gallons</td>
<td>Post 2 t. leaf</td>
</tr>
<tr>
<td></td>
<td>7.0 oz</td>
<td>14 days later</td>
</tr>
<tr>
<td></td>
<td>7.0 oz</td>
<td></td>
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<tr>
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</tr>
<tr>
<td></td>
<td>14.0 oz</td>
<td></td>
</tr>
<tr>
<td>Untreated</td>
<td>----</td>
<td>----</td>
</tr>
</tbody>
</table>
Post Acid Fertilizer Application
7-7-0-7
Outlook 7.0 + 7.0
1st true leaf

May 8, 2007
Untreated

Outlook 14.0 oz
1st true leaf
after 7-7-0-7
Weed Rating
Outlook After Acid Fertilizer
April 23; May 4; June 1; and August 9

<table>
<thead>
<tr>
<th>Outlook</th>
<th>April 23</th>
<th>May 4</th>
<th>June 1</th>
<th>August 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0+7.0 oz</td>
<td>7.0</td>
<td>7.0</td>
<td>7.0</td>
<td>7.0</td>
</tr>
<tr>
<td>1st true</td>
<td>1st true</td>
<td>1st true</td>
<td>1st true</td>
<td>1st true</td>
</tr>
<tr>
<td>14.0 oz</td>
<td>14.0</td>
<td>14.0</td>
<td>14.0</td>
<td>14.0</td>
</tr>
<tr>
<td>2nd true</td>
<td>2nd true</td>
<td>2nd true</td>
<td>2nd true</td>
<td>2nd true</td>
</tr>
<tr>
<td>untreated</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Nutsedge tubers in the soil of the Outlook plots
Nutsedge Tubers Per 1000 cm³ of Soil

- Outlook 7.0+7.0 oz 1st true
- Outlook 14.0 oz 1st true
- Outlook 7.0+7.0 oz 2nd true
- Outlook 14.0 oz 2nd true
- untreated
Onion Trial Heavy Infestation
With 7-7-0-7
Yield – Tons/A

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield (Tons/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st true 7.0+7.0 oz</td>
<td>45</td>
</tr>
<tr>
<td>1st true 14.0 oz</td>
<td>45</td>
</tr>
<tr>
<td>2nd true 7.0+7.0 oz</td>
<td>40</td>
</tr>
<tr>
<td>2nd true 14.0 oz</td>
<td>40</td>
</tr>
<tr>
<td>untreated</td>
<td>35</td>
</tr>
</tbody>
</table>
2008 Nutsedge Control Trial
Dehydrator Onions
Untreated 7-7-0-7+Outlook Goal Tender 1st true leaf
7-7-0-7 + Outlook 7+7
1\textsuperscript{st} true leaf

7-7-0-7 + Outlook 7+7
2\textsuperscript{nd} true leaf
Nutsedge Weed Control Rating

[Bar chart showing control ratings for different outlooks and dates]

- Outlook 7+7 1st
- Outlook 14 1st
- Outlook 7+7 2nd
- Outlook 14 2nd
- Outlook 14+Goal
- Untreated

Legend:
- 25-Apr
- 14-May
- 5-Jun
- 29-Jul
Yield of Onions
T/A

![Bar chart showing yield of onions for different outlooks and treatments.](image)
### Comparison of Light vs Heavy Yield – Mean Head Wt (lbs)

<table>
<thead>
<tr>
<th></th>
<th>7.0+7.0 oz</th>
<th>14.0 oz</th>
<th>7.0+7.0 oz</th>
<th>14.0 oz</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st true</td>
<td>7.0 oz</td>
<td>14.0 oz</td>
<td>7.0 oz</td>
<td>14.0 oz</td>
</tr>
<tr>
<td>2nd true</td>
<td>7.0 oz</td>
<td>14.0 oz</td>
<td>7.0 oz</td>
<td>14.0 oz</td>
</tr>
</tbody>
</table>

![Bar Chart](image)
Ventura Trials
Nutsedge emerged 5/21 to 6/26
Nutsedge emerged after final Dual Magnum and Outlook application

7/11 (1 week)

8/7 (4 weeks)
Summary

1. The Ventura trials showed good efficacy of Dual Magnum for controlling yellow nutsedge in onions
2. It is unclear why there is a difference in activity of Dual Magnum and Outlook in Ventura County
3. No difference between the two herbicides was observed in Monterey County
Summary

4. Burning back nutsedge with acid fertilizer provides an opportunity to make Outlook work if nutsedge is emerged by the 2\textsuperscript{nd} true leaf stage

5. There may be a yield reduction from the caustic action of the fertilizer but it is much less than letting the nutsedge go uncontrolled
Summary

6. Both Outlook and Dual Magnum will be able to help to safeguard the yield of onions at sites with significant yellow nutsedge pressure.
Acknowledgements

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