Tenacity 4SC and Xonerate 70WDG in a Spring-Summer Program for Selective *Poa annua* Control (post-emergence) in Kentucky Bluegrass Fairways

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Why is Poa a problem?

• Very competitive and over time can dominate a turfgrass stand

• Conspicuous
  – Splotchy turf (lighter green color)
  – Unsightly seedheads (mid-May through mid-June)

• Susceptible to environmental stresses
  – Heat/Cold
  – Drought

• Diseases
  – Anthracnose
  – Snow mold

• Prolific seed producer at low mowing heights

• One of the most common weeds in turf
Control Strategies

• Water management
  – deep and infrequent

• Reduce shade

• Remove clippings (remove seed)

• Growth regulators (inhibit growth or seedheads)

• Pre-emergence herbicides (late summer)

• Selective Post-emergence herbicides
  ✓ Tenacity
  ✓ Xonorate
Tenacity 4SC

• Mesotrione

• Absorbed through roots and shoots.

• Unique mode of action: pigment inhibitor.

• Broadleaf and grass weeds and bentgrass.

• 4 – 8 fl oz/A. Limit 16 fl oz/A/year.

• Pre- and post-emergence (suppression) activity on *Poa annua*. 
Xonerate 70WDG

- Amicarbazone
- Absorbed through roots and shoots.
- **Mode of Action:** PSII inhibitor.
- Broadleaf and grass weeds.
- **Limit 10.25 oz/A/year.**
- **Do not** apply to soils > 7.4 pH.
- **Do not** apply to turf treated with mefluidide within previous 3 months.
- **Do not** apply to turf < 6 months old (12 months for KBG).
- Pre- and post-emergence activity on *Poa annua.*
## Study Treatments

<table>
<thead>
<tr>
<th>Treatment</th>
<th>fl oz or oz/A</th>
<th>May 2</th>
<th>May 23</th>
<th>June 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tenacity 4SC + Turflon Ester Ultra</td>
<td>5 fl oz + 16 fl oz</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2. Tenacity 4SC + Trimmit 2SC</td>
<td>5 fl oz + 16 fl oz</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3. Tenacity 4SC + Xonerate 70WDG</td>
<td>4 fl oz + 1 oz</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4. Tenacity 4SC + Turflon + Trimmit</td>
<td>16 + 16 + 16</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5. Tenacity 4SC + Xonerate 70WDG</td>
<td>5 fl oz + 2 oz</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

6. CHECK

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*a*NIS (Activator 90) at 0.25% v/v included at each application.

*b*Application interval = 3 weeks
Location

- Washington State University Palouse Ridge Golf Club (PRGC), Pullman, WA

- Kentucky bluegrass (KBG) fairway with 30 to 40% Poa annua
Objectives

- Assess Kentucky bluegrass and Poa injury

- Can Tenacity/Xonerase selectively eliminated Poa annua post-emergence?
Kentucky bluegrass injury

Herbicides applied: May 2, May 23, Jun 13, 2013

>2 = unacceptable injury
Poa annua injury

Herbicides applied: May 2, May 23 and June 13

>2 = unacceptable injury
Tenacity + Trimmit + Turflon

2 WAIT (May 17)

Tenacity + Trimmit + Turflon

Check

Tenacity 4 fl oz/A + Xonerate 1 oz/A

5 WAIT (June 6)

Tenacity + Trimmit + Turflon

Check

Tenacity 4 fl oz/A + Xonerate 1 oz/A

8 WAIT (June 28)

Tenacity + Trimmit + Turflon

Check

Tenacity 4 fl oz/A + Xonerate 1 oz/A

12 WAIT (July 25)

Tenacity + Trimmit + Turflon

Check

Tenacity + Turflon

Tenacity 4 fl oz/A + Xonerate 1 oz/A

Tenacity + Trimmit
Percent change of *Poa annua* in a Kentucky bluegrass stand

- 6/13/13 (6 WAIT)
- 7/24/13 (12 WAIT)
- 9/6/13 (18 WAIT)
<table>
<thead>
<tr>
<th>Herbicidal Treatments</th>
<th>18 WAIT (September 6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenacity 4 fl oz/A + Xonerate 1 oz/A + NIS</td>
<td>Tenacity 5 fl oz/A + Trimmit 16 fl oz/A + Turflon + NIS</td>
</tr>
<tr>
<td>Tenacity 5 fl oz/A + Trimmit 16 fl oz/A + NIS</td>
<td></td>
</tr>
</tbody>
</table>

Herbicides applied May 2, May 23 and June 13
Herbicides applied May 2, May 23 and June 13
Conclusions

• Tenacity/Xonerate treatments did not eliminate Poa but did result in significant reductions of Poa in the Kentucky bluegrass stand.

• However, the high level of Poa injury and depressions caused by the Tenacity 5 fl oz/A + Xonerate 2 oz/A treatment leaving pock marked fairways may result in undesirable playing conditions during the peak of the summer when play is highest. (Eventually KBG did grow into and fill these depressions by the end of the study).

• Tenacity 4 fl oz/A + Xonerate 1 oz/A also resulted in high levels of Poa injury for several weeks following initial application.

• However, this treatment did not cause Poa to quickly disappear thus not creating open areas (depressions) in the fairway. This may be a more desirable Poa control option to consider in terms of playability.

• Complete Poa control was not achieved with any treatment in this study, therefore, a multi-year program may need to be looked at to possibly achieve this goal or maintain Poa at lower levels.
Questions?

Tenacity 5 fl oz/A + Trimmit 16 fl oz/A + Turflon Ester Ultra 16 fl oz/A + NIS

Herbicides applied May 2, May 23 and June 13