The primary focus of the herbicide trial with carrots was to evaluate crop tolerance to four relatively new products to support possible registrations through IR-4. Trials are being conducted in several states on multiple specialty crops. The products are pyroxasulfone (Zidua), acetochlor (Harness), both caused injury and reduced yields in 2013 so rates were lowered in 2014, GWN-10293, and A16003. While pyroxasulfone and acetochlor are preemergence herbicides, similar in activity with Dual Magnum and Outlook, the GWN-10293 and A 16003 products have both preemergence and post-emergence activity and are potentially new classes of chemistries. Additionally, a second part of the trial focused on evaluating three post-emergence herbicides with the potential to control Lorox-resistant weeds. Two rates of Blazer, Reflex, and GoalTender were applied at 3-4, 6-7, and 9-10 leaf stages.

The planting season was very difficult. The extremely cold weather through the end of March and into April led to virtually frozen soils early in the season. This led to difficulties with soil preparation for planting and also to non-uniform seeding with planters in the early crops, including carrots.

Results: The data have been divided into two tables, one for the preemergence herbicides and the second for the post-emergence treatments. All of the new preemergence herbicides (including Dual Magnum) caused initial stunting (Table 1). This was slowly reduced and although yields were not negatively affected, it did persist until harvest (8/4). The post-emergence applications of all three herbicides caused early necrosis however, this disappeared with both Blazer and Reflex but persisted longer with GoalTender (Table 2). The crops recovered in all treatments and yields, while slightly lower with the higher rates, were not significantly reduced.

Overall, it is unlikely that any of the four new herbicides will be safe enough for use in carrots, particularly in rainy conditions. There is a possibility that we might be able to get a Special Local Need (SLN) for post-emergence Reflex use however, this will require an additional IR-4 residue trial. This could therefore take several years.

While all of the products provided control on common broadleaf weeds (e.g. redroot pigweed, c. lambsquarters, h. galinsoga) there were heavy populations of wild buckwheat, PA smartweed and field pennycress which were poorly controlled.
### Evaluating New Herbicides in Carrots, 2014 (Pre-emergence)

<table>
<thead>
<tr>
<th>Trt No.</th>
<th>Treatment</th>
<th>Form</th>
<th>Rate</th>
<th>Growth Stage</th>
<th>Stunting 6/10</th>
<th>Stunting 6/25</th>
<th>Stunting 7/17</th>
<th>Stunting 8/1</th>
<th>YIELD lbs/120 ft²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Untreated Check</td>
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<td></td>
<td></td>
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<td>0</td>
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<td>12</td>
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<tr>
<td>2</td>
<td>Handweeded Check</td>
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<td></td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>8.60</td>
</tr>
<tr>
<td>3</td>
<td>Lorox 50 DF &amp; Blazer 2 L</td>
<td>1 lb</td>
<td>PRE</td>
<td></td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>6.50</td>
</tr>
<tr>
<td>4</td>
<td>Dual Magnum 7.62 EC &amp; Blazer 2 L</td>
<td>1 pt</td>
<td>PRE</td>
<td></td>
<td>27</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>8.60</td>
</tr>
<tr>
<td>5</td>
<td>Zidua 85 WG &amp; Blazer 2 L</td>
<td>1.1 oz</td>
<td>PRE</td>
<td></td>
<td>22</td>
<td>33</td>
<td>7</td>
<td>0</td>
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</tr>
<tr>
<td>6</td>
<td>Harness 7 EC &amp; Blazer 2 L</td>
<td>9 oz</td>
<td>PRE</td>
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<td>67</td>
<td>70</td>
<td>35</td>
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<td>7</td>
<td>GWN-10293 50 WG &amp; Blazer 2 L</td>
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<td>PRE</td>
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<tr>
<td>8</td>
<td>A16003 1.67 L &amp; Blazer 2 L</td>
<td>2.5 oz</td>
<td>PRE</td>
<td></td>
<td>37</td>
<td>20</td>
<td>18</td>
<td>17</td>
<td>7.90</td>
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### Evaluating New Herbicides in Carrots, 2014 (Post-emergence)

<table>
<thead>
<tr>
<th>Trt No.</th>
<th>Treatment</th>
<th>Form</th>
<th>Rate</th>
<th>Growth Stage</th>
<th>Necrosis (%) 6/25</th>
<th>Necrosis (%) 7/25</th>
<th>Necrosis (%) 8/1</th>
<th>YIELD lbs/120 ft²</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Untreated Check</td>
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<td></td>
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<td>0</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Handweeded Check</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Lorox 50 DF &amp; Blazer 2 L</td>
<td>0.5 lb</td>
<td>PRE</td>
<td></td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>4</td>
<td>Lorox 50 DF &amp; Blazer 2 L</td>
<td>0.5 lb</td>
<td>PRE</td>
<td></td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
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<td>Lorox 50 DF &amp; Blazer 2 L</td>
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<td>Lorox 50 DF &amp; Blazer 2 L</td>
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<td>22</td>
<td>18</td>
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