1-27-2016

Breaking Down Resicore - Does It Pass the Test?

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The first line of defense against herbicide resistance is using herbicide programs that include multiple herbicide groups effective against target weeds. When using premix products, this involves comparing the application rates of active ingredients in the premix versus rates applied with the stand-alone products. This step is needed to insure that the premix is providing an effective dose of the active ingredient.

Resicore is a new product from DowAgroSciences for preemergence weed control in corn. Resicore includes herbicides from three different groups (15, 27, 4), and all three active ingredients are used at rates nearly equivalent to their respective stand-alone products (Table 1). Both acetochlor and mesotrione have good activity on waterhemp; however, clopyralid is weak on waterhemp and other Amaranthus species. Thus, Resicore provides two effective herbicide groups for waterhemp when used at labeled rates. While the clopyralid does not place significant selection pressure on waterhemp, it contributes to
control of other important broadleaf weeds. Resicore passes the test of including multiple herbicide groups (15 and 27) that provide effective control of waterhemp when used according to the label.

<table>
<thead>
<tr>
<th>Active ingredient (a.i.)</th>
<th>Resicore HG lb a.i. / gal</th>
<th>Resicore lb a.i. / A @ 3 qt</th>
<th>Stand-alone Product</th>
<th>lb a.i. / A</th>
</tr>
</thead>
<tbody>
<tr>
<td>acetochlor</td>
<td>15 2.80</td>
<td>2.10</td>
<td>3 pt Surpass</td>
<td>2.40</td>
</tr>
<tr>
<td>mesotrione</td>
<td>27 0.30</td>
<td>0.22</td>
<td>7.7 fl oz Callisto</td>
<td>0.24</td>
</tr>
<tr>
<td>clopyralid</td>
<td>4 0.19</td>
<td>0.14</td>
<td>0.5 pt Stinger</td>
<td>0.19</td>
</tr>
</tbody>
</table>

Table 1. Components of Resicore and their use rates compared to stand-alone products.\(^1\)

\(^1\)Listed rates are label rates for fine textured soils with >3% O.M., or the high rate for pre applications where a soil type table is not provided.

For comparison, the breakdown of SureStart II is shown in Table 2. SureStart II contains three herbicide groups (15, 2, 4), but the breakdown of components indicates that it does not provide multiple, effective herbicide groups for waterhemp control. Most waterhemp in Iowa is resistant to Group 2 herbicides, thus flumetsulam will not provide effective control of this weed. As discussed earlier, clopyralid is weak on waterhemp. Acetochlor is the only active ingredient in SureStart II with good activity on waterhemp. However, the rate of acetochlor provided by SureStart II is approximately 40% less than a full rate of Surpass. The low acetochlor rate reduces the length of residual control, resulting in the postemergence program controlling nearly all of the waterhemp population in fields treated with SureStart II. This is the type of scenario that leads to new resistant biotypes.

<table>
<thead>
<tr>
<th>Active ingredient (a.i.)</th>
<th>SureStart II HG lb a.i. / gal</th>
<th>SureStart II lb a.i. / A @ 3 pt</th>
<th>Stand-alone Product</th>
<th>lb a.i. / A</th>
</tr>
</thead>
<tbody>
<tr>
<td>acetochlor</td>
<td>15 3.75</td>
<td>1.41</td>
<td>3 pt Surpass</td>
<td>2.40</td>
</tr>
<tr>
<td>flumetsulam</td>
<td>2 0.38</td>
<td>0.05</td>
<td>1.0 oz Python</td>
<td>0.05</td>
</tr>
<tr>
<td>clopyralid</td>
<td>4 0.12</td>
<td>0.14</td>
<td>0.5 pt Stinger</td>
<td>0.19</td>
</tr>
</tbody>
</table>

Table 2. Components of SureStart II and their use rates compared to stand-alone products.\(^1\)

\(^1\)Listed rates are label rates for fine textured soils with >3% O.M., or the high rate for pre applications where a soil type table is not provided.

In summary, herbicide programs should contain multiple herbicide groups used in a
manner (rate, application timing, etc.) that provides a high level of activity on weeds of concern. The amount of active ingredient provided by different products varies widely, and some products may provide too low of a rate to place significant selection pressure on a weed of concern. The only way to know if a premix product provides an effective dose of a specific active ingredient is to do the math.

*Use of trade names does not imply endorsement of that particular product, and exclusion does not imply non-approval. The products described in this article were chosen to demonstrate the process of evaluating rates of active ingredients contained in premix products versus rates contained in stand-alone products.*

**Category:** Weeds

**Crop:** Corn

**Tags:** weed management herbicide resistance

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