Evaluation of Application Timing Efficacy of Evito Fungicide on Field Corn in Nebraska, 2010

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Evaluation of application timing efficacy of Evito fungicide on field corn in Nebraska, 2010.

A foliar fungicide efficacy timing trial was conducted at the University of Nebraska-Lincoln South Central Agricultural Laboratory near Clay Center, NE. Dekalb corn hybrid DKC 61-69, rating of “good” (5 out of 9) for gray leaf spot and “very good” (3 out of 9) for common rust, was planted on 29 Apr in 30-in. rows with a target population of 30,000 plants/A. The trial area was disked the previous fall with a crop history of six years of continuous corn. Three treatments and a non-treated control were replicated six times in a randomized complete block design. Each plot was four rows (10 ft) wide by 40 ft in length. Foliar fungicides were applied with a modified high-clearance sprayer. The 10 ft spray boom consisted of six nozzles (TeeJet XR11002) spaced 20 in. apart and 18 in. above the canopy. Each treatment was applied at 40 psi traveling 3.0 mph resulting in a 20 gal/A application volume. Foliar fungicides were applied on 3 Jun (V4) and 12 Jul (VT). Gray leaf spot (GLS) and common rust (CR) disease severity was assessed by estimating percent leaf area covered with lesions over the entire plot on 12 Jul (V18), 28 Jul (R3), 9 Aug (R4), and 23 Aug (R5, starch line two-thirds up kernel), and these data were used to calculate area under the disease progress curve (AUDPC). Stay green percentage was assessed on 12 Sep as the percentage of green leaf material remaining on the plant averaged through the plot. Grain was mechanically harvested with a two-row research combine on 8 Oct. The ends of plots were trimmed prior to harvest and the harvested area of each plot was measured following harvest and used to calculate yield. All data assessments were taken from the two center rows of each plot. Monthly rainfall levels were slightly above normal for most of the growing season with the exception of well-above normal levels (9.3 in) for Jun and below normal levels in Jul. Temperatures were slightly below normal for May and above normal for the remainder of the growing season. Supplemental water was added as needed by an overhead sprinkler linear irrigation system.

Common rust was the predominant foliar disease present in this trial at the time of application and through the majority of the growing season. Percent severity remained low and fairly level through the growing season. Gray leaf spot exhibited low severity levels throughout the entire season but increased slightly by the 9 Aug rating date. Neither CR nor GLS severity exceeded 3% for any treatment on any rating date. Gray leaf spot lesions were identified on the ear leaf by early August. Common smut, Physoderma brown spot, eyespot, anthracnose, and southern rust occurred at very low severity levels and their severity was not assessed. The area under the disease progress curve calculations indicated all fungicide treatments reduced GLS and CR severity as compared to the non-treated control. The Evito 480 SC, 2 fl oz, V4 fb VT treatment exhibited the lowest GLS and CR AUDPC with significant differences between treatments for GLS AUDPC. Among all treatments, the non-treated control had the lowest stay green percentage (23.2%) while Evito 480 SC, 2 fl oz, VT had the highest stay green percentage (30.3%). There were no significant differences among treatments for 500-count kernel weights. Grain moisture ranged from 16.2% to 16.4% for all treatments. The non-treated control had the lowest yield at 229.3 bu/A while Evito 480 SC, 2 fl oz, VT had the highest yield at 235.5 bu/A. There was no statistical difference in yield among all treatments.

<table>
<thead>
<tr>
<th>Treatment, rate/A and application timing</th>
<th>GLS AUDPC</th>
<th>CR AUDPC</th>
<th>Stay Green (%)</th>
<th>500 Kernel Weight (oz)</th>
<th>Grain Moisture (%)</th>
<th>Dry Yield (bu/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Treated Control…………………………………</td>
<td>68.0 a*</td>
<td>101.6</td>
<td>23.2 b</td>
<td>6.54</td>
<td>16.2</td>
<td>229.3</td>
</tr>
<tr>
<td>Evito 480 SC, 2 fl oz, V4…………………..</td>
<td>46.2 b</td>
<td>92.5</td>
<td>27.6 ab</td>
<td>6.63</td>
<td>16.4</td>
<td>231.5</td>
</tr>
<tr>
<td>Evito 480 SC, 2 fl oz, VT…………………..</td>
<td>42.3 b</td>
<td>91.8</td>
<td>30.3 a</td>
<td>6.58</td>
<td>16.4</td>
<td>235.5</td>
</tr>
<tr>
<td>Evito 480 SC, 2 fl oz, V4 fb VT…………………..</td>
<td>32.0 b</td>
<td>77.3</td>
<td>28.9 ab</td>
<td>6.50</td>
<td>16.2</td>
<td>233.3</td>
</tr>
<tr>
<td>Coefficient of Variation (%)</td>
<td>23.0</td>
<td>17.5</td>
<td>15.7</td>
<td>5.7</td>
<td>3.2</td>
<td>4.0</td>
</tr>
</tbody>
</table>

*Area under the disease progress curve.
Stay green was estimated as the percentage of green leaves remaining on the plant.
Yield calculations adjusted to a moisture content of 15.5%.
Data followed by the same letter or without letters within a column are not statistically different (P > 0.05) according to the Waller-Duncan k ratio t Test.