Mesotrione: Nimblewill Control in Turfgrass
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Background/Objective:
Determine potential of mesotrione for controlling nimblewill.

Site Information
Location: William H. Daniel Research and Diagnostic Center
Soil Type: Starks-Fincastle silt loam
Soil pH: 7.2
Turfgrass Species: Kentucky bluegrass
Turf Condition: Fair
Turf Management:
  - Mowing Height cm (in): 6.4 (2.5)
  - Fertilization: non
  - Irrigation: To prevent moisture stress
Testing on Site Previous Year: None
Target Pest: Nimblewill
Growth Stage: Mature

Application Information
Application Date: 25 June 15 July 6 August
Application Time: 1:00pm 8:30am 9:00am
Air Temperature °C (°F): 19.4 (67) 21.8 (71) 16.5 (62)
Relative Humidity(%): 50 77 73
Wind Speed m s⁻¹ (mph): 0.9-2.7 (2-6) 0.4-1.3 (1-3) calm
Soil Temperature(7.6 cm depth) °C (°F): 22.8 (73) 21.1 (70) 18.9 (66)
Soil Moisture: moist moist moist
Spray Volume L ha⁻¹ (gal 1000 ft⁻²): 814 (2)
Spray Pressure: 35psi
Spray Nozzle: 8001.5
Spray Equipment: CO₂ backpack
Irrigation After Application: None
Experimental Design: Randomized complete block
Replications: 4
Plot Size m (ft): 0.75 X 0.75 (2.5 X 2.5)

Results
- Golf course cup cutter size plugs of nimblewill were transferred to the plot area in April and early May of 2004 and allowed to establish prior to the initial application on 25 June.
- Applications made July 15 were most effective in reducing spread of nimblewill based on rate of spread on 19 Aug.
- July 15 applications were most effective regardless if it was the sequential or only application made.
- Though the effect on transplanted plugs may not be identical to mature nimblewill stands, this study shows that mesotrione has the potential for controlling nimblewill.
Table 1. Effect of mesotrione on nimblewill.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate of application</th>
<th>Application timing</th>
<th>Discoloration</th>
<th>Presence</th>
<th>Spread</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lb a.i./A</td>
<td></td>
<td>2 July</td>
<td>7 July</td>
<td>20 July</td>
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<tr>
<td>Barricade 4FL</td>
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<td>25 June</td>
<td>0.0</td>
<td>2.8</td>
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<td>25 June</td>
<td>16.5</td>
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<td>76.3</td>
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<tr>
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<td>12.3</td>
<td>52.5</td>
<td>52.5</td>
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<tr>
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<tr>
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<tr>
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<td>78.8</td>
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<tr>
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<td>10.0</td>
<td>60.0</td>
<td>70.0</td>
</tr>
<tr>
<td>Mesotrione 4SC</td>
<td>0.187</td>
<td>25 June</td>
<td>20.0</td>
<td>73.8</td>
<td>77.5</td>
</tr>
<tr>
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<td>7.3</td>
<td>42.5</td>
<td>47.5</td>
</tr>
<tr>
<td>NIS</td>
<td>0.25&lt;sup&gt;d&lt;/sup&gt;</td>
<td></td>
<td>6 Aug</td>
<td>42.5</td>
<td>50.0</td>
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<tr>
<td>Mesotrione 4SC</td>
<td>0.25</td>
<td>6 Aug</td>
<td></td>
<td>12.5</td>
<td>57.5</td>
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<tr>
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<td>LSD (0.05)</td>
<td>NS</td>
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<td>28.9</td>
<td>24.8</td>
<td>0.4</td>
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</tbody>
</table>

<sup>a</sup> Percent of the nimblewill that was white or brown.
<sup>b</sup> 1 = nimblewill absent from plot and 2 = nimblewill present on plot.
<sup>c</sup> Increase or decrease of the nimblewill area with 5 = the size of original plug, 1 = maximum decrease, and 9 = maximum increase.
<sup>d</sup> Rate of application was percent volume per volume.