Annual Grass Control with Experimental and Commercially Available Products
Zac Reicher and Dan Weisenberger

Background/Objective:
Evaluate various formulations of preemergence herbicides for crabgrass control in Indiana.

Site Information
Location: W.H. Daniel Research and Diagnostic Center
Soil Type: Starks-Fincastle silt loam
Soil pH: 7.2
Soil Organic Matter (%): 6.0
Turfgrass Species: Kentucky bluegrass blend
Turf Condition: Poor
Turf Management:
  Mowing Height cm (in): 2.5 (1)
  Fertilization: None
  Irrigation: To prevent moisture stress
Testing on Site Previous Year: None
Target Pest: Crabgrass (*Digitaria spp.*)
Growth Stage: prior to germination

Application Information
Application Date: 22 April 18 June
Application Time: 9:00am 8:30am
Air Temperature °C°F: 10 (50) 23.2 (74)
Relative Humidity(%): 64 64
Wind Speed m s⁻¹ (mph): 4.0 (9) 0 – 0.4 (0 - 1)
Soil Temperature(7.6 cm depth) °C°F: 10.6 (51) 23.9 (75)
Soil Moisture: 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: 3
Plot Size m (ft): 1.5 X 1.5 (5 X 5)
Results:

Crabgrass pressure was high on this Kentucky bluegrass strand due to the low mowing height (1"), and the untreated check was rated at 65% crabgrass cover by the end of the study. Therefore, this test may not be reflective of what may occur in home lawns mowed at 3 inches or higher. Following are highlights of the study:

- No phytotoxicity was seen from any treatment during the study (Table 1).
- All treatments except corn gluten meal reduced crabgrass significantly.
- MANA-PRO 65WDG at 1.0 and 1.5 lbs/A, Barricade 65WDG at 1.0 and 1.5 lbs/A, and Dimension Ultra at 0.25 + 0.25 lbs ai/A resulted in the lowest crabgrass cover by 26 August.
- There were no significant differences in crabgrass cover between MANA-PRO 65WDG and Barricade 65WDG at any time in the study.
- Neither formulation of Pendulum performed as expected, but there was no difference in cover between these formulations at any time during the study.
- By the last recording date, the performance of the following treatments was statistically equivalent: Barricade 65WDG at 1.0 and 1.5 lbs/A; MANA-PRO 65WDG at 0.5, 1.0, and 1.5 lbs/A; all Dimension treatments; Pendulum 3.8CS at 2.0+1.5 lbs ai/A and Pendimethalin 60WDG.

Table 1. Phytotoxicity to Kentucky bluegrass and cover of crabgrass after treatment with preemergence herbicides

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate of application</th>
<th>phytotoxicity</th>
<th>cover</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>26 April</td>
<td>30 April</td>
</tr>
<tr>
<td>lb a.i./A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pendulum 3.3EC</td>
<td>2.0</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Pendulum 3.3EC</td>
<td>1.5</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Pendulum 3.8CS</td>
<td>2.0</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Pendulum 3.8CS</td>
<td>1.5</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Pendulum 3.8CS</td>
<td>1.5</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>MANA-PRO 65WDG</td>
<td>0.5</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>MANA-PRO 65WDG</td>
<td>1.0</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>MANA-PRO 65WDG</td>
<td>1.5</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Barricade 65WDG</td>
<td>0.5</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Barricade 65WDG</td>
<td>1.0</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Barricade 65WDG</td>
<td>1.5</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Dimension Ultra WSP</td>
<td>0.25</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Pendimethalin 60WDG</td>
<td>3</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Corn Gluten Meal</td>
<td>20</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Check</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
</tbody>
</table>

| LSD (0.05) | NS | NS | NS | 4.3 | 17.2 | 21.8 |

---

*Phytotoxicity was rated on a scale of 1 to 9 where 1 = completely brown turf, 7 = acceptable damage, and 9 = no phytotoxicity.

*Percent of the plot area covered by crabgrass.

*Initial application was 22 April and the split application 18 June.

*Rate of application was pound of product/A.

*Rate of application was pound of product/1000 ft².