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COMPARISON OF PREEMERGENT HERBICIDES FOR CRABGRASS

By Ralph E. Engel and C.W. Bussey; Cook College, Rutgers University

Editors Note: This paper is a combination of a report given at the Rutgers Turfgrass Expo in 1976 and new data from 1977 research by Engel and Bussey. Table three is new data, as well as information regarding oxadiazon (Ronstar) which has come on the market since the 1976 research.

Ralph E. Engel, Ph.D., is research professor of turfgrass science for the Department of Soils and Crops, Cook College, Rutgers University, New Brunswick, N.J. C. W. Bussey is head soils and plant technician at the College.

Table 1. Crabgrass control obtained in Kentucky bluegrass with experimental and standard preemerge herbicides. 1976.

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Rate, ai/A</th>
<th>Date of Application*</th>
<th>Crabgrass Control (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>bensulide 3.6 g</td>
<td>7 1/2</td>
<td>April</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>April</td>
<td>99</td>
</tr>
<tr>
<td>bensulide 4 ec</td>
<td>10</td>
<td>April</td>
<td>93</td>
</tr>
<tr>
<td>A820 2 g</td>
<td>6</td>
<td>April</td>
<td>92</td>
</tr>
<tr>
<td>A820 2 g</td>
<td>8</td>
<td>April</td>
<td>95</td>
</tr>
<tr>
<td>A820 4 ec</td>
<td>6</td>
<td>April</td>
<td>11</td>
</tr>
<tr>
<td>E1 131 50W</td>
<td>2 + 2</td>
<td>April-May</td>
<td>56</td>
</tr>
<tr>
<td>Sonalan 3E</td>
<td>1 1/2</td>
<td>April</td>
<td>10</td>
</tr>
<tr>
<td>Treflan 5 g.</td>
<td>1 1/2</td>
<td>April</td>
<td>84</td>
</tr>
<tr>
<td>Bay 6667 3E</td>
<td>4</td>
<td>April</td>
<td>7</td>
</tr>
<tr>
<td>Bay 6667</td>
<td>4</td>
<td>June</td>
<td>17</td>
</tr>
<tr>
<td>Hercules 26905</td>
<td>6</td>
<td>May</td>
<td>89**</td>
</tr>
<tr>
<td>Siduron 4.57 g</td>
<td>18</td>
<td>May</td>
<td>51</td>
</tr>
<tr>
<td>Siduron + DCPA 5 g</td>
<td>5 + 6</td>
<td>May</td>
<td>62</td>
</tr>
<tr>
<td>Siduron + DCPA 5 g</td>
<td>12 + 10</td>
<td>May</td>
<td>73</td>
</tr>
</tbody>
</table>

*April 28, May 21 and June 7.
**Very severe turf injury.

A search for better preemerge herbicides and better methods of using the currently available herbicides was conducted in 1976 and 1977 on a Kentucky bluegrass type turf at New Brunswick, New Jersey. Benefin, bensulide, DCPA, siduron and oxadiazon were among the market types studied with regard to most efficient procedures of use and as standards in comparison with six experimental types.

Methods — A mature type of mixed Kentucky bluegrass was growing on the test area. Crabgrass was overseeded on the test site in late March. An activated sewage sludge was used as a carrier for the seed at a rate of 1 lb N/M ft².

Herbicide treatments were made in April, May and June. Individual plots were 3' x 20' and each treatment was replicated three times in a randomized block design. Granular applications were made with a 3 ft. drop spreader. Spray applications were made with a fan type nozzle that delivered 40 gallons of solution/A with CO₂ pressure. The late spring and summer season had sparse rainfall and irrigation was used during this season to encourage crabgrass. Crabgrass germination appeared to be dispersed through this period. Crabgrass control ratings were made in September by three individuals and averaged.

Results — Bensulide gave control of 98, 99 and 93% with 7 1/2 lbs gr, 10 lbs gr, and 10 lbs ec/A, respectively (Table 2). Benefin at 2 lbs/A gave 44 and 92% control, respectively, with April and May application. DCPA gr at 10 lbs/A gave 35 and 62%, respectively, with April and May application. Siduron at 18 lbs/A in May gave 90% control. Of the experimental preemerge herbicides, A820 [butralin (4-[1, 1-dimethylethyl]-N-[1-methylpropyl]-2,6-dinitrobenzeneamine)] and RP 17623 [oxadiazon [2-tert-butyl-4-(2,4-dichloro-5-isopropoxyphenyl)-2-oxadiazolin-5-one]] were the only types that gave crabgrass control equivalent to bensulide, the best performing standard. El 131 (prosulfalin), a spray preparation, that is approaching marketing, gave 53% control with May application. The remaining experiments did not show promise as used.

Oxadiazon has given a very good performance for crabgrass control. We found that effectiveness decreased if the application was delayed 2 or 3 weeks from late April into May. Also, the oxadiazon was severe on bentgrass in other tests, but this could be a plus on bentgrass-infested Kentucky bluegrass turf. This chemical is labeled for Kentucky bluegrass and bermudagrass only.

The application date of preemerge herbicides affected control in all comparisons (Table 2). In the case of DCPA, May application was better than April application which is the reverse of an earlier
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Just attach the Quick Aerator to the Turf-Truckster with three pull pins. The hydraulic system and dump kit on the Turf-Truckster allow you to lift and lower the Quick Aerator on the go from your seat. So movement from green to green is simple and fast.

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*Rating for vehicle equipped with 9.50-8 rear tires.

**QUICK SPIKER.** Attach the Cushman Quick Spiker to a Turf-Truckster equipped with PTO, hydraulic system and dump kit with just three pull pins. Spike a 57-inch swath, even over undulating greens, with the two precise spiking gangs. Nothing to tow. Nothing to load or unload. Spike 18 greens in less than 2½ hours.

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but mowing.

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**GREENSAVER (DRUM AERATOR).** The Cushman Greensaver is the efficient low-cost way to aerate greens and tees. Attach the Greensaver to your Turf-Truckster (equipped with a hydraulic system and dump kit) with 3 quick-release pull pins.

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test (1 and 2). With benefin and EL 131, May application was more effective than April application. RP 17623 was more effective with April than May application.

Literature Cited


Table 2. The effect of application date of preemerge herbicides on crabgrass control in Kentucky bluegrass turf. 1976.

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Rate, ai/A</th>
<th>Date of Application</th>
<th>Crabgrass Control (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCPA 5 g</td>
<td>10</td>
<td>April 28</td>
<td>35</td>
</tr>
<tr>
<td>DCPA 5 g</td>
<td>10</td>
<td>May</td>
<td>62</td>
</tr>
<tr>
<td>Benefin 2 1/2 g</td>
<td>2</td>
<td>April 28</td>
<td>44</td>
</tr>
<tr>
<td>&quot;</td>
<td>2</td>
<td>May</td>
<td>92</td>
</tr>
<tr>
<td>&quot;</td>
<td>2 + 2</td>
<td>April-May</td>
<td>87</td>
</tr>
<tr>
<td>E1 131 wp</td>
<td>2</td>
<td>April</td>
<td>15</td>
</tr>
<tr>
<td>&quot;</td>
<td>2</td>
<td>May</td>
<td>53</td>
</tr>
<tr>
<td>&quot;</td>
<td>4</td>
<td>April</td>
<td>9</td>
</tr>
<tr>
<td>&quot;</td>
<td>4</td>
<td>May</td>
<td>24</td>
</tr>
<tr>
<td>RP 17623 gr</td>
<td>3</td>
<td>April</td>
<td>93</td>
</tr>
<tr>
<td>&quot;</td>
<td>3</td>
<td>May</td>
<td>76</td>
</tr>
</tbody>
</table>

Table 3. Long-term Results with Several Preemerge Herbicides. 1968-1977.

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Rate, lb.a.i./A</th>
<th>Period of Years</th>
<th>Long-term Crabgrass Control Av. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>oxadiazon</td>
<td>3*</td>
<td>1968-1977</td>
<td>89.7</td>
</tr>
<tr>
<td>bensulide</td>
<td>10</td>
<td>&quot;</td>
<td>80.8</td>
</tr>
<tr>
<td>DCPA</td>
<td>12</td>
<td>&quot;</td>
<td>72.6</td>
</tr>
<tr>
<td>oxadiazon</td>
<td>3*</td>
<td>1968-1970</td>
<td>89.4</td>
</tr>
<tr>
<td>benefin</td>
<td>**</td>
<td>1968-1970</td>
<td>66.0</td>
</tr>
</tbody>
</table>

*A 4 lb/A rate was used in 1968 and 3 lbs in all others.
**1 1/2 lbs in 1968 and 1974, 2 1/2 lbs in 1973, 3 lbs in 1972 and 2 lbs for all others.

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