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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, NJ. C. W. Bussey is head soils and plant technician at the College.

Table 1. Crabgrass control obtained in Kentucky bluegrass with experimental and standard pre-emerge herbicides. 1976.

Herbicide	Rate, ai/A	Date of Application*	Crabgrass Control (%)
bensulide 3.6 g	7½	April	98
"	10	April	99
bensulide 4 ec	10	April	93
A820 2 g	6	April	92
A820 2 g	8	April	95
A820 4 ec	6	April	11
E1 131 50W	2 + 2	April-May	56
Sonalan 3E	1½	April	10
Treflan 5 g.	1½	April	84
Bay 6867 3E	4	April	7
Bay 6867	4	June	17
Hercules 26905	6	May	89**
Siduron 4.57 g	18	May	51
Siduron + DCPA 5 g	5 + 6	May	62
Siduron + DCPA 5 g	12 + 10	May	73

*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 7½ 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 51% control. Of the experimental preemerge herbicides, A820 [butralin (4-(1, 1-dimethylethyl)-N-(1-methylpropyl)2,6-dinitro-benzeneamine)] and RP 17623 [oxadiazon (2-tert-butyl-4-(2,4-dichloro-5-isopropoxyphenyl)-2,1,3,4-oxadiazolin-5-one)] were the only types that gave crabgrass control equivalent to bensulide, the best performing standard. E1 131 (prosulfalin), a spray preparation, that is approaching marketing, gave 53% control with May application. The remaining experimentals 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

Continued on page 38



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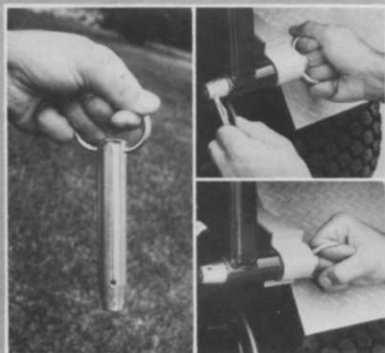
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5

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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.

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2. Engel, R. E. and C. W. Bussey (1974). Factors in the performance of preemerge herbicides for crabgrass control. Rutgers Turfgrass Proceedings, Soils and Crops 5:47-54.

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

Herbicide	Rate, ai/A	Date of Application	Crabgrass Control (%)
DCPA 5 g	10	April 28	35
DCPA 5 g	10	May	62
Benefin 2½ g	2	April 28	44
"	2	May	92
"	2 + 2	April-May	87
E1 131 wp	2	April	15
"	2	May	53
"	4	April	9
"	4	May	24
RP 17623 gr	3	April	93
"	3	May	76

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

Herbicide	Rate, lb.a.i./A	Period of Years	Long-term Crabgrass Control Av. (%)
oxadiazon	3*	1968-1977	89.7
bensulide	10	"	80.8
DCPA	12	"	72.6
oxadiazon	3*	1968-1970	89.4
		1972-1977	
benefin	**	1968-1970	66.0
		1972-1977	

*A 4 lb/A rate was used in 1968 and 3 lbs in all others.
**1½ lbs in 1968 and 1974, 2½ lbs in 1973, 3 lbs in 1972 and 2 lbs for all others.

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