

Postemergence Annual Weed Control Study - 1996

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Herbicides from AgrEvo and Rohm and Haas Company were screened for efficacy as early post- and postemergence annual weed control products in turfgrass. This study was conducted at the Iowa State University Horticulture Research Station north of Ames, Iowa. The experimental plot was an area of 'common' Kentucky bluegrass. The soil was a Nicollet (fine-loamy, mixed, mesic Aquic Hapludoll) with 2.5% organic matter, a pH of 6.9, 7 ppm P, and 87 ppm K. Supplemental irrigation was used to keep the turf in good growing condition.

The experiment was arranged in a randomized complete block design. Individual plots were 5 x 5 ft with three replications and 12 treatments. The assignment of treatments to plots was randomized. There were 11 herbicide treatments and an untreated control. Acclaim Extra 68.5EW, Acclaim 120EC, and Preclaim 370.6EC were applied as early postemergence products at 0.06, 0.12, and 2.06 lb a.i./A, respectively, and as postemergence products at 0.09, 0.18, and 3.09 lb a.i./A, respectively. Dimension 1EC was applied as a postemergence herbicide alone at 0.25 lb a.i./A and at this same rate in combination with Trimec Plus at 3 fl oz/1000 ft² and Preclaim at 3.09 lb a.i./A. Trimec Plus and Preclaim also were applied alone at these same rates (Table 1).

A pre-treatment survey of the experimental plot indicated that there was a large crabgrass population. The Kentucky bluegrass was uniform in quality throughout the plot. Early post- applications were made June 4. The crabgrass was in the 1-3 leaf stage and there was no evidence of tillering. The postemergence treatments were made July 12 when the crabgrass was in the 1-2 tiller growth stage.

The plot was periodically examined for turf quality and phytotoxicity. Turf quality was assessed using a 9 to 1 scale: 9 = best quality, 6 = lowest acceptable quality, and 1 = poorest quality. Visual quality data were taken June 7, June 25, July 3, July 15, July 23, July 30, and August 8 (Table 1). The plot was checked for phytotoxicity following the early post- and postemergence applications.

Effectiveness of the herbicides was measured by estimating the percentage of crabgrass cover in each plot on July 23, July 30, and August 8 (Table 2). Percentage reductions in crabgrass cover were calculated by comparing crabgrass counts from treated turf with those from the untreated controls.

In addition, broadleaf weed populations were examined even though the distribution was sporadic. The number of spurge and oxalis plants per plot was counted on August 8 (Table 3).

All data were analyzed using the Statistical Analysis System (SAS) version 6.09 and the Analysis of Variance (ANOVA) procedure. Means comparisons were made using Fisher's Least Significant Difference test (LSD).

There were no quality differences among the treated and untreated plots and turf quality remained above the lowest acceptable rating (a '6'). throughout the duration of the study (Table 1). Following the early post- and postemergence applications, the turf treated with Preclaim had a yellow coating. This coloration was not evident when the turf was checked for phytotoxicity three days after application (June 7 and July 15). There were no phytotoxic symptoms on any treated bluegrass.

All of the herbicides provided significant crabgrass control when compared with the untreated controls. Six of the products reduced crabgrass cover by > 95% (Table 2).

The oxalis and spurge data do not indicate significant control by any herbicides when compared with the untreated controls because of low numbers of these plants in the control plots (Table 3).

Table 1. Visual quality¹ of Kentucky bluegrass treated with early post- and postemergence herbicide products for the Postemergence Annual Weed Control Study.

Material	Rate lb a.i./A.	Timing of application	June 7	June 25	July 3	July 15	July 23	July 30	Aug 8
1. Untreated control	NA	NA	7	7	6	7	7	7	7
2. Acclaim Extra 68.5EW ¹	0.06	EARLY POST	7	7	6	7	7	7	7
3. Acclaim 120EC	0.12	EARLY POST	7	7	6	7	7	7	7
4. Preclaim 370.6EC	2.06	EARLY POST	7	7	6	7	7	7	7
5. Acclaim Extra 68.5EW	0.09	POST	7	7	6	7	7	7	7
6. Acclaim 120EC	0.18	POST	7	7	6	7	7	7	7
7. Preclaim 370.6EC	3.09	POST	7	7	6	7	7	7	7
8. Dimension 1EC	0.25	POST	7	7	6	7	7	7	7
9. Dimension 1EC + Trimec Plus	0.25 + 3 fl oz	POST	7	7	6	7	7	7	7
10. Trimec Plus	3 fl oz	POST	7	7	6	7	7	7	7
11. Dimension 1EC + Preclaim	0.25 + 3.09	POST	7	7	6	7	7	7	7
12. Preclaim	3.09	POST	7	7	6	7	7	7	7
LSD _{0.05}			NS	NS	NS	NS	NS	NS	NS

¹Visual quality was assessed on a 9 to 1 scale: 9 = best quality, 6 = lowest acceptable quality, and 1 = poorest quality. EARLY POST applications were made on June 4 and POST on July 12, 1996. NS = means are not significantly different at the 0.05 level.

Table 2. Percent crabgrass cover¹ and mean percentage reduction in crabgrass cover in Kentucky bluegrass treated with early post- and postemergence herbicides for the Postemergence Annual Weed Control Study.

Material	Rate lb a.i./A.	Timing of application	Percentage crabgrass cover				Mean reduction
			July 23	July 30	Aug 8	Mean cover	
1. Untreated control	NA	NA	48	65	65	59	0
2. Acclaim Extra 68.5EW	0.06	EARLY POST	10	18	18	16	74
3. Acclaim 120EC	0.12	EARLY POST	10	15	15	13	77
4. Preclaim 370.6EC	2.06	EARLY POST	1	2	1	1	98
5. Acclaim Extra 68.5EW	0.09	POST	1	1	1	1	98
6. Acclaim 120EC	0.18	POST	1	1	1	1	98
7. Preclaim 370.6EC	3.09	POST	1	1	1	1	99
8. Dimension 1EC	0.25	POST	30	40	52	41	31
9. Dimension 1EC + Trimec Plus	0.25 + 3 fl oz	POST	18	12	15	15	74
10. Trimec Plus	3 fl oz	POST	27	17	20	21	64
11. Dimension 1EC + Preclaim	0.25 + 3.09	POST	4	1	1	2	97
12. Preclaim	3.09	POST	1	1	2	1	98
LSD _{0.05}			13	12	9	11	18

¹These values represent the area per plot covered by crabgrass.

EARLY POST applications were made on June 4 and POST on July 12, 1996.

Table 3. Number of oxalis and spurge plants¹ in Kentucky bluegrass treated with early post- and postemergence herbicide products for the Postemergence Annual Weed Control Study.

Material	Rate lb a.i./A.	Timing of application	Number of Oxalis	Number of Spurge
1. Untreated control	NA	NA	2	1
2. Acclaim Extra 68.5EW	0.06	EARLY POST	5	5
3. Acclaim 120EC	0.12	EARLY POST	6	7
4. Preclaim 370.6EC	2.06	EARLY POST	0	0
5. Acclaim Extra 68.5EW	0.09	POST	11	3
6. Acclaim 120EC	0.18	POST	7	2
7. Preclaim 370.6EC	3.09	POST	0	0
8. Dimension 1EC	0.25	POST	2	0
9. Dimension 1EC + Trimec Plus	0.25 + 3 fl oz	POST	0	0
10. Trimec Plus	3 fl oz	POST	0	0
11. Dimension 1EC + Preclaim	0.25 + 3.09	POST	0	0
12. Preclaim	3.09	POST	2	1

¹These values represent the number of plants per plot.

EARLY POST applications were made on June 4 and POST on July 12, 1996.