1995 *Poa annua* Control in Creeping Bentgrass Greens - Year 2

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Several herbicides were evaluated throughout the fall of 1995 and the spring of 1996 for their efficacy in controlling *Poa annua* in green height creeping bentgrass. The plot was located on an established 'Penncross' creeping bentgrass practice green at Veenker Memorial Golf Course in Ames, Iowa with 60-80% infestation of *Poa annua*.

The experiment was arranged in a randomized complete block design. Individual plots were 5 x 5 ft and three replications were conducted. There were six treatments including an untreated control, Turf Enhancer 2SC [Paclobutrazol (TGR)], Proturf high K fertilizer (15-0-29) + Prograss, High K fertilizer (15-0-29) + Turf Enhancer, Prograss 1EC (Ethofumesate) at two rates, and Primo 1EC (Table 1). Liquid formulations were applied using a carbon dioxide backpack sprayer equipped with #8006 nozzles at 25-30 psi.. The granular materials were applied using cardboard containers as 'shaker dispensers'.

Weather conditions were highly variable during this study. Rainfall was sporadic and temperature fluctuations were large. Supplemental irrigation was used to keep the bentgrass in good growing condition.

In September and October of 1995, Turf Enhancer 2SC was applied at 8 fl oz/A and Proturf fertilizer + Turf Enhancer at 0.125 lb a.i./A. Spring 1996 applications were on April 22, June 4, and July 10. Prograss 1.5EC was applied at 0.380 and 0.560 lb a.i./A and Proturf fertilizer + Prograss at 0.380 lb a.i./A in September, October, and November 1995 and April 1996. Primo 1EC was applied in the fall of 1995 at the rate of 0.3 fl oz/1000 ft^2, in April 1996 at 0.25 fl oz/1000 ft^2 and in June and July at 0.30 fl oz/1000 ft^2. On May 9 the plot was fertilized with Nutralene at 1/2 lb N/1000 ft^2. Potassium also was applied at 1/2 lb/1000 ft^2. Proturf fertilizer (15-0-30) was not applied to the untreated control plots.

The first spring treatments were made April 22. Sequential applications were made June 4. The last 1996 applications were made July 10. The materials were watered in with the irrigation following each application.

On April 12, green up had occurred and *Poa annua* germination was observed. There were obvious differences in quality among the plots on April 16. Visual quality was assessed using a 9 to 1 scale: 9 = best quality, 6 = lowest acceptable quality, and 1 = poorest quality (Table 1). Subsequent visual quality data were taken on May 9 and May 30.

Poa annua control was measured by determining percentage of *Poa annua* cover per plot (Table 2). The first *Poa annua* data were taken April 16 and subsequent data were taken May 9, May 30, June 12, July 3, July 31, and August 29.

Data were analyzed using the Statistical Analysis System (SAS) version 6.09 and the Analysis of Variance (ANOVA) procedure. Means were compared with Fisher's Least Significant Difference (LSD) test.

Several treatments significantly reduced turf quality on April 16, 1996 (Table 1). These reductions were likely due to loss of *Poa annua* during the winter in treated plots (Table 2). No other reductions of turf quality below acceptable levels were observed during the rest of the season with the exception of Primo 1EC on June 10 (Table 1).

Primo was the only treatment that did not significantly reduce *Poa annua* during the 1996 season (Table 2). Prograss 1.5EC at 0.56 lb a.i./A was the most effective treatment with an average reduction of 81% as

compared to the untreated control (47% to 9%). Turf Enhancer 2SC reduced *Poa annua* an average 45% without added K fertilizer and 57% with added K fertilizer.

Table 1. Visual quality[1] of Kentucky bluegrass treated with herbicide and herbicide + fertilizer formulations in the 1995-1996 Green Height Bentgrass *Poa annua* Control Study.

	Material	Rate lb a.i./A	Spring applications[2]	April 16	May 9	June 10	Mean quality
1.	Untreated control	NA	NA	7	9	7	8
2.	Turf Enhancer 2SC	0.125	April, June, July	4	7	7	6
3.	Proturf fertilizer + Prograss	0.380	April	5	8	8	7
4.	High K fertilizer + Turf Enhancer	0.125	April, June, July	4	6	8	6
5.	Prograss 1.5EC	0.380	April	5	7	7	6
6.	Prograss 1.5EC	0.560	April	6	8	9	7
7.	Primo 1EC	0.300[3]	April, June, July	7	8	5	7
	$LSD_{0.05}$			1	1	1	1

[1] Visual quality was assessed using a 9 to 1 scale: 9 = best quality, 6 = lowest acceptable quality, and 1 = poorest quality.
[2] Applications were made on April 22, June 4, and July 10.
[3] The rate for the April applications was 0.25 fl oz product/1000 ft^2 and the rate for June and July was 0.30 fl oz product/1000 ft^2.

Table 2. Percent *Poa annua* cover[1] in Kentucky bluegrass treated with herbicide and herbicide + fertilizer formulations in the 1995-1996 Green Height Bentgrass *Poa annua* Control Study.

	Material	Rate lb a.i./A	Apr 16	May 9	May 30	June 12	July 3	July 31	Aug 29	Mean % cover
			% cover							
1.	Untreated control	NA	57	52	60	53	60	25	23	47
2.	Turf Enhancer 2SC	0.125	20	10	48	53	17	12	22	26
3.	Proturf fertilizer + Prograss	0.380	32	13	13	17	35	25	17	22
4.	High K fertilizer + Turf Enhancer	0.125	17	13	22	42	22	13	15	20
5.	Prograss 1.5EC	0.380	15	18	12	18	23	12	8	15
6.	Prograss 1.5EC	0.560	10	12	5	7	7	8	12	9
7.	Primo 1EC	0.300	60	38	57	38	53	23	20	41
	$LSD_{0.05}$		14	15	19	33	21	NS	NS	11

[1]These percentages represent the area per plot covered by *Poa annua*.
NS = means are not significantly different at the 0.05 level.