Cutless. The highest rates of the Scott's product gave complete growth suppression from 3 to 5 WAT. Clipping weights did not return to the control level until 7 WAT for the 0.53 lbAI/A. The two highest rates of the Scott's Enhancer product were choosen because they are the same as the currently labeled rates of Scott's TGR except that the Turf Enhancer product has no fertilizer.

The two active ingredients in Cutless and Scott's Enhancer (common names are flurprimidol and paclobutrazol) have similar modes of action and in my observations the Scott's product is about twice as efficacious as Cutless on an active ingredient basis. Thus the two lowest rates of Scott's Turf Enhancer provided similar growth suppression as did the two lowest rates of Cutless.

Each of these products can cause some phytotoxicity or discoloration to the turf. The effects of these products can be seen in Table 1. Increasing rates of these products cause increasing turf discoloration. Notice the effect of fertilizer when comparing Scott's TGR to Scott's Turf Enhancer, which have the same active ingredient except that Scott's TGR is formulated on a fertilizer carrier.

EFFECT OF PGR'S ON PUTTING GREEN SPEED

The putting green speed study examined the effects of mowing height, plant growth regulator use, and grooming reels on putting green speed. The four treatments were Cutless at 0.25 LB/A, grooming reels once per week, Cutless at 0.25 LB/A and grooming reels once per week, and an untreated control. These four treatments were studied at mowing heights of 5/32" and 4/32". Results showed that the PGR treatments did show an increase in green speed but only at the higher height of cut (Figure 4). The data in Figure shows only four of the eight treatments that were studied. However, these treatments most clearly show the benefit of using a PGR to increase putting green speed. A the lower height of cut,4/32", no benefit is seen. At the 5/32" height of cut, a consistent increase in putting green speed of 6-10" is seen for a period of 3 weeks following PGR application. This is quite beneficial since it is desirable to keep heights of cut higher while gaining the type of green speed normally only seen from lower heights of cut.

PREEMERGENCE HERBICIDE STUDIES

A concern of the lawn care industry is the increasing legislation with which they must deal. A potential concern is the watering in of preemergence herbicide applications. Technically speaking, if a lawn care operator does not ensure that an application is watered in, then they may be considered in violation of the herbicide label. In order to determine the effect of watering in preemergence herbicides, we tested eight preemergence herbicides at two or three rates of application by watering in one set of treatments immediately after application and keeping water off the other set of plots for 14 days. This is the second year of this test and the results again have indicated that there is no measurable benefit to watering in preemergence herbicides (Table

2). The statistical analysis of this study indicates that the watering in had no statistically significant differences and the only differences occurred between different herbicide treatments averaged over both watering in and not watering in treatment sets. Thus, the data in Table 2 is displayed in two different ways. The first sets of data displayed show the means for watering in and not watering in at the three evaluation dates. According to the statistical analysis, there were no differences between watering in versus not watering in for each herbicide treatment. The only statistically meaningful differences are shown in the single columns of percent crabgrass and these values represent the amount of crabgrass for each herbicide regardless of whether it was watered in or not. This data gives good information on the performance of the individual herbicide treatments. Notice the excellent control given by both rates of prodiamine. This new herbicide from Sandoz Crop Protection is expected to receive federal labeling very soon. Also notice the values for turf density found in the last column of the table. This visual data indicated that the high rates of prodiamine and Team herbicides caused noticeable thinning of the plots. Other rates of Team and Balan also seemed to cause some thinning although not statistically different from all of the controls. While this data showed quite a bit of variability, the prodiamine plots could be picked out rather easily and indicate that this product may cause unacceptable injury. Other products giving excellent control of crabgrass include Dimension at rates of 0.38 and 0.5 LB/A and the 3.0 LB/A rate of PreM (Table 2).

LYSIMETERS FOR TURF LEACHING STUDIES

If you have followed the turf industry or agriculture in general for the last three years, you have to be aware of the intense public concern over the potential for ground and surface water contamination from chemicals and fertilizers used in turfgrass management. In response to this concern we have undertaken the construction of a unique system for measuring the amount of leaching of agrichemicals applied to turf. The general term used is a lysimeter, which is a device to collect drainage water from soils. A container lysimeter is one that works by building a large metal container into which soil is placed and a drain at the bottom is used to collect all the leachate coming through the soil. Lately, the influence of macropores on pesticide leaching has become a major concern. Macropores are channels through the soil that can conduct water (and pesticides or fertilizers as well) rapidly through the soil. Macropores can be formed by earthworms, decaying root channels, etc.

In order to preserve the natural soil structure, including macropores, our lysimeters were specially constructed and are termed intact soil monoliths to denote the fact that these lysimeters are an intact block of soil 1 m2 in diameter (approximately 45" in diameter) and 1.2 m deep. Two of these intact soil monolith lysimeters were excavated, captured, and installed at the Hancock Turfgrass Research Center. The process began in early September of 1989 and was finished in April of 1990.

Table 2. Effect of post-application watering on crabgrass control by preemergence herbicides.

Herbicide	Form	Rate	Percent Crabgrass						Percent Crabgrass			Turf Density (1 = Low 10=Dense)
			7/9/90 watering in		8/9/90 watering in		9/4/90 watering in		7/9/90*	8/9/90*	9/4/90*	8/9/90
			no	yes	no	yes	no	yes				
MON-15104	1EC	0.25	0	0	2.3	2.7	2.3	5.3	0	2.5	3.8	5.2 ABCD
MON-15104	1EC	0.38	0.3	0	2.7	1.3	3.7	1.7	0.2	2.0	2.7	6.0 ABCD
MON-15104	1EC	0.50	0	0	1.0	0.3	1.7	0.7	0	0.7	1.2	5.0 ABCDE
PRODIAMINE	65WDG	0.5	0	0	1.0	0.7	0.7	0	0	0.8	0.3	4.8 BCDE
PRODIAMINE	65WDG	0.75	0	0	0.3	0	0.3	0	0	0.2	0.2	3.3 E
PREM	60WDG	1.5	0.7	0.3	6.0	4.0	7.0	8	0.5	5.0	7.5	6.0 ABCD
PREM	60WDG	3.0	0.3	0	3.0	1.7	6.7	2.0	0.2	2.3	4.3	5.0 ABCDE
TEAM	2G	2.0	0.3	0.7	4.0	3.3	7.0	6.0	0.5	3.7	6.5	5.3 ABCD
TEAM	2G	3.0	0	0.3	2.3	2.0	3.0	3.3	0.2	2.2	3.2	3.3 E
BALAN	2.5G	2.0	0.3	1.7	6.0	9.3	16.3	17.7	1.0	7.7	17.0	4.3 DE
BALAN	2.5G	3.0	0.3	0	3.3	4.7	4.3	12.0	0.2	4.0	8.2	4.7 CDE
DCPA	75WP	7.5	1.3	1.0	9.3	7.0	14.3	6.3**	1.2	8.2	10.3**	4.7 CDE
DCPA	75WP	10.5	0.3	1.0	6.3	8.0	12.3	26.0	0.7	7.2	19.2**	5.3 ABCD
LESCOSAN	4EC	12	0	1.0	1.7	3.0	2.3	10.7	0.5	2.3	6.5	6.5 AB
LESCOSAN	4EC	10	0.3	0	2.3	2.3	2.7	2.0	0.2	2.3	2.3	5.5 ABCD
LESCOSAN	4EC	7.0	1.0	0.7	5.7	3.3	6.3	5.7	0.8	4.5	6.0	5.8 ABCD
RONSTAR	2G	2.0	1.7	0.7	9.7	4.7	13.3	4.7	1.2	7.2	9.0	6.7 A
RONSTAR	4G	4.0	0.7	0.7	3.7	5.0	5.0	10.3	0.7	4.3	7.7	5.3 ABCD
CONTROL			1.3	1.3	10.7	8.7	14	17.3	1.3	9.7	15.7	6.7 A
CONTROL			2.7	2.7	18.3	20	31.7	32.7	2.7	19.2	32.2	5.7 ABCD
CONTROL			2.7	2.7	25.0	14.3	38.3	30.7	2.7	19.7	34.5	6.2 ABC
	LSD (P=0.05)		NS		NS		NS		0.8	4.0	9.7	1.8

*These values represent the average of both the post-watering in and no post-watering in treatments. Plots were covered in the event rain and precipitation were withheld for 10 days. There was no difference in crabgrass control between watered in and not watered in plots.

**The DCPA treatments precipitated and less than the stated rate was applied.