

## NITROGEN EFFECTS ON WEEDS IN KENTUCKY BLUEGRASS

A study was initiated in 1991 to evaluate the effects of mulching either oak or maple leaves into a "Midnight" Kentucky bluegrass turf at the rate of 100 lbs of dry leaves per 1000 sq. ft. (approximately ankle height in depth). Check plots receiving no mulched tree leaves were included. A nitrogen variable was included in the study to observe if nitrogen would enhance the degradation of the tree leaves. All cool season grasses require some nitrogen to provide enough growth and density to compete with weedy species. Nitrogen was applied at 4 lbs. N per 1000 sq. ft. annually with either a spring or fall emphasis. Spring emphasis applications were applied in April, May, July, and August (1 lb. N per month) while the fall program received nitrogen in June, July, September, and October. A check plot with no nitrogen was also included. There were three replications of each treatment. Plots measured 4 feet by 12 feet. The leaf mulching portion of this study is reported by Thom Nikolai elsewhere in this proceedings. Tables 16 and 17 focus on the nitrogen variables included in the study.

August of 1995 was the last time the plots received a herbicide application. Broadleaf weed counts from 1997 are reported in Table 16. On May 22 flowering dandelions were counted on each plot. The no nitrogen plots had far greater dandelion counts than either nitrogen timing applications. Dandelions are biennials that flower during the second year. On May 23, July 15, and August 25 total broadleaf weed counts were taken. The no nitrogen plots always had the highest number. The timing of nitrogen applications had no impact on the weed population.

Table 16.

### Effects of Nitrogen on Weed Populations on a "Midnight" Kentucky Bluegrass Turf - 1997

	Number of dandelion flowers.	Number of broadleaf weeds per plot		
	May 22	May 23	July 15	August 25
No nitrogen	59 a	10 a	16 a	25 a
Spring*	5 b	2 b	1 b	3 b
Fall*	3 b	1 b	1 b	3 b
lsd @ 0.05	19.0	3.7	6.6	11.5
Probability	0.00	0.00	0.00	0.00

Soil test results on these plots from May of 1997 are reported in Table 17. Applying nitrogen resulted in significant decreases in both phosphorus and potassium in spite of the fact that clippings are returned to these plots. This points out the benefit of monitoring soil tests even when clippings are returned. There was no effect on either calcium or magnesium tests, however.

Table 17.

### Effects of Nitrogen on soil test results in the 0-3" depth after 6 years of treatments.

	Results from May of 1997				
	pH	Phosphorous	Potassium	Calcium	Magnesium
No nitrogen	7.5	33 a	104 a	1736	351
Spring*	7.5	22 b	60 b	1736	367
Fall*	7.4	22 b	72 b	1788	366
lsd @ 0.05	—	3.6	13.6	—	—
Probability	n.s.	0.00	0.00	n.s.	n.s.

Means in the same columns followed by the same letter are not significantly different at the 5% level. Using the lsd range test.

## BENTGRASS GREEN HIGH POTASSIUM STUDY

Studies evaluating high annual rates of potash on creeping bentgrass that were initiated in 1990 were continued in 1997. The study is located on a sandy loam to loamy sand green. There were four replications of six different treatments in the study. Plot size was 5 feet by 7 feet. All applications during the season were