

EVALUATION OF SEVEN MANAGEMENT FACTORS AND THEIR
INTERACTION ON THE PLANT COMPOSITION OF AN
ANNUAL BLUEGRASS-BENTGRASS POLYSTAND

STOP
#9

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Two golf course management practices currently receiving a great amount of attention are the removal of clippings from fairway turf and the use of plant growth regulators (PGR's). This study, initiated in the spring of 1984, will examine these two practices as well as irrigation rate, fertility, and overseeding with bentgrass, on the plant composition of a mixed annual bluegrass-creeping bentgrass turf.

The study area is composed of a mixed annual bluegrass-creeping bentgrass stand maintained at a 0.5 inch height of cut with a triplex mower. The area is divided into nine irrigation blocks allowing for three irrigation treatments replicated three times. Within each irrigation treatment half the block will have clippings removed, while the other half will have clippings returned. The irrigation treatments are watering to 110% of open pan evaporation, watering to 75% of open pan evaporation and watering at wilt. Fertilizer is being applied at two rates, 2 lbs. N/1000 ft²/yr. and 6 lbs. N/1000 ft²/yr. The PGR's Embark (1/8 lb/A) and EL-500 (1.5 lb/A) were applied in the spring. In mid-August half of the plots were broadcast overseeded with bentgrass at 1 lb/1000 ft².

As a companion study, the effect of compaction and two coring treatments on the competition of annual bluegrass and creeping bentgrass is being examined. The same clipping and irrigation treatments in the previously mentioned study will be utilized. Two compaction treatments (compaction and no compaction) and two coring treatments, hollow tine (VOHT) and solid tine (shatter core) are being applied.

Data collection has included monthly visual quality estimates and species counts. Before treatments were initiated species counts were taken to determine the amount of annual bluegrass or bentgrass in each plot. Species counts will be taken each fall for the duration of the experiment. Proposed duration is three years. These species counts will give an accurate estimate of the species population shifts as influenced by these seven management factors.

Results of visual color estimates recorded on June 22nd are shown in Table 11. Although statistically no dramatic differences were displayed, of interest is the relative rank of the treatments. Plots treated with Embark consistently rank higher than the corresponding plots treated with EL-500 or no PGR, also the Embark plots under both high and low nitrogen fertilization rank in the upper 50% of the treatments when clippings were returned. Plots where clippings were returned repeatedly ranked higher than the duplicate plot where clippings were removed regardless of other treatment. Irrigation level did not appear to influence relative ranking of plots with all three irrigation treatments interspersed in the treatment rankings. The color values displayed in Table 11 should not be interpreted as absolute until subsequent color ratings and, more importantly, species counts are collected and the data analyzed.

Table 11. POA/Bent Competition Study

Date Evaluated: 6-22-84

<u>Relative Rank</u>	<u>Treatment Name</u> (See Key)	<u>Highest Rating Indicates</u> <u>Darkest Green Color (Range 1-9)</u>
1.	HI N EMB C+ MH20	8.5 A
2.	HI N EMB C+ HH20	8.2 AB
3.	HI N EMB C+ LH20	7.7 ABC
4.	HI N EMB C- HH20	7.7 ABC
5.	HI N EMB C- LH20	7.7 ABC
6.	HI N NO PGR C+ HH20	7.5 ABCD
7.	HI N NO PGR C- LH20	7.2 ABCDE
8.	HI N EL500 C+ MH20	7.0 ABCDEF
9.	HI N EMB C- MH20	7.0 ABCDEF
10.	HI N NO PGR C+ MH20	7.0 ABCDEF
11.	LO N EMB C+ HH20	7.0 ABCDEF
12.	HI N EL500 C+ LH20	6.8 ABCDEFG
13.	HI N NO PGR C- HH20	6.8 ABCDEFG
14.	HI N EL500 C- LH20	6.7 ABCDEFG
15.	HI N NO PGR C- MH20	6.7 ABCDEFG
16.	LO N EMB C+ LH20	6.7 ABCDEFG
17.	LO N EMB C+ MH20	6.7 ABCDEFG
18.	LO N EMB C- HH20	6.5 ABCDEFG
19.	HI N EL500 C+ HH20	6.2 BCDEFGH
20.	HI N EL500 C+ MH20	6.2 BCDEFGH
21.	HI N EL500 C- HH20	6.0 CDEFGH
22.	LO N EMB C- MH20	6.0 CDEFGH
23.	LO N NO PGR C+ HH20	6.0 CDEFGH
24.	LO N NO PGR C+ MH20	6.0 CDEFGH
25.	LO N NO PGR C- HH20	5.5 DEFGHI
26.	LO N EL500 C+ LH20	5.3 EFGHIJ
27.	LO N EMB C- LH20	5.3 EFGHIJ
28.	LO N EL500 C- LH20	5.2 EFGHIJ
29.	LO N NO PGR C+ LH20	5.2 EFGHIJ
30.	LO N NO PGR C- LH20	5.2 EFGHIJ

Treatments having the same letter are not significantly different. Mean separation by Duncan's Mrt (5%). Standard error = .6.

Key:

HI N = 6#N/1000 ft²/yr
 LO N = 2#N/1000 ft²/yr
 EMB = Embark (1/8#/A)
 EL500 = EL-500 (1.5#/A)

C+ = Clippings Returned
 C- = Clippings Removed
 LH20 = Irrigate at Wilt
 MH20 = Irrigate 75% Pan Evaporation
 HH20 = Irrigate 110% Pan Evaporation

<u>Relative Rank</u>	<u>Treatment Name</u> (See Key)	<u>Highest Rating Indicates</u> <u>Darkest Green Color (Range 1-9)</u>	
31.	LO N EL500 C+ HH20	5.0	FGHIJ
32.	LO N NO PGR C- MH20	5.0	FGHIJ
33.	HI N EL500 C- MH20	4.8	GHIJ
34.	LO N EL500 C+ MH20	4.2	HIJ
35.	LO N EL500 C- HH20	3.7	IJ
36.	LO N EL500 C- MH20	3.3	J

Treatments having the same letter are not significantly different. Mean separation by Duncan's Mrt (5%). Standard error = .6.

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