

ANNUAL BLUEGRASS AND CREEPING BENTGRASS
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Work continues on investigations into cultural practices and their effects on the competitive ability of annual bluegrass and creeping bentgrass. Three studies are involved in these investigations.

Studies one and two are being conducted on a mixed stand of annual bluegrass/creeping bentgrass maintained at a 0.5 inch height of cut. The area receives three irrigation treatments (watering to 75% and 110% of open pan evaporation and watering at wilt). Within each irrigation treatment half the block has clippings removed the other half has clippings returned. Additional treatments in study one include two fertility levels (2 lbs N/1000 ft²/yr and 6 lbs N/1000 ft²/yr), three plant growth regulator (PGR) treatments (Spring applications of Embark at 1/8 lb/A and Cutless 1.5 lb/A in 1984 and 1.0 lb/A in 1985) and overseeding treatments for a total of five treatment combinations. Study one was initiated in 1984 and will continue through the 1986 growing season.

Study two consists of the same irrigation and clipping treatments described in study one. Additional treatments are two compaction treatments (No compaction vs. 8 passes with a water-filled roller 3 times/week) and three coring treatments (no coring, coring once and coring 3 times a year). Compaction treatments were initiated in 1984 and coring treatments in 1985.

Data collection for both studies consisted of species counts to determine the amount of annual bluegrass/creeping bentgrass in each plot prior to treatment. Species counts were obtained in the fall of 1984 on study one to determine what, if any, effect the treatment combination had on species composition. Results of the species counts showed that, after only a year of treatment, the clipping treatments, regardless of any of the other treatments applied, had a marked influence on the species composition of the mixed stand. Plots where the clippings were removed showed a 5.5% decrease in annual bluegrass while plots in which clippings were returned showed a 1.4% increase. The remaining two years of this study will determine if this response will continue and also determine the long term effects of the other treatments applied.

Because no coring treatments were applied to study two until 1985 no species counts were obtained in the fall of 1984, but will be taken the fall of 1985 and 1986 to help determine compaction and coring effects on species composition.

Study three, initiated in the spring of 1985, is being conducted on a mature, essentially pure stand of annual bluegrass into which cup-cutter plugs of "Penncross" creeping bentgrass were transplanted. Plot size is 4'x6' with three plugs of Penncross transplanted per plot. Treatments of Cutless at different rates and times were applied as shown in Table 1. Data collection consisted of measurement of the area of the Penncross plugs to determine if any significant change in area could be attributable to treatments with Cutless.

Area of the plug was determined by placing a piece of clear plastic over the plug and tracing the perimeter. The area of the tracing was determined using a planimeter. No significant differences were found among the treatments when evaluated on 12 August, 1985 (Table 6). Continuation of this study until 1986 should determine if any of the Cutless treatments investigated would increase the competitive ability of creeping bentgrass in a predominantly annual bluegrass turf.

TABLE 6. Change in area of "Penncross" creeping bentgrass plugs in annual bluegrass after treatment with Cutless at different rates and times. Measurement obtained on 12 August, 1985. Hancock Turfgrass Research Center, East Lansing, Michigan

TREATMENT	CUTLESS RATE AND TIMING	MEAN OF 3/PLUGS PLOT (CM ²)	% INCREASE/DECREASE FROM CHECK
1	1.5#/A Spring (May 15)	76.3	5.3
2	1.5#/A Fall (August 15)	84.3	14.7
3	1.0#/A Spring	77.1	6.7
4	1.0#/A Fall	77.9	5.3
5	0.5#/A + 0.25#/A + 0.25#/A Spring (May 15, June 1, June 15)	77.8	7.0
6	0.5#/A + 0.25#/A + 0.25#/A Fall (August 15, August 30, September 15)	68.0	-5.3
7	0.5#/A + 0.5#/A Spring (May 15, June 1)	77.3	6.3
8	0.5#/A + 0.5#/A Fall (August 15, September 1)	77.4	9.7
9	1.0#/A + 1.0#/A Spring, Fall	87.0	16.7
10	CHECK	71.7	0.0

NOTE: Based on the analysis of variance (AOV) no statistical differences were noted on this evaluation date.