

RAPID ESTABLISHMENT OF CREEPING BENTGRASS
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Annual bluegrass is the predominant grass species on many golf course fairways and other managed turfgrass areas. In many situations annual bluegrass is difficult to manage and is considered a weed. Most attempts to eliminate annual bluegrass are unsuccessful due in part to the tremendous seed reservoir that is present in the soil. The purpose of this study was to try and retard the growth of the annual bluegrass with the Embark giving the creeping bentgrass a better chance of establishing. Following establishment, Prograss, a selective herbicide which has pre and post emergence activity on annual bluegrass, would be applied to further weaken the annual bluegrass, and to inhibit the germination of the annual bluegrass seeds. Method of cultivation and seeding rate were also examined in this factorial study.

All plots had 95% or more annual bluegrass when the study was initiated. Chemical treatment was one of the major factors examined in this study. The treatments examined were: Embark (0.25 lb ai/a); Embark (0.25 lb ai/a) + Prograss (1 lb + 1 lb ai/a); Round-up (4 lb/a); Round-up (4 lb/a) + Prograss (1 lb + 1 lb ai/a); and an untreated control. The Embark treatments and Round-up were applied on 8/4/86. The Prograss treatments were applied 4 weeks following seeding on September 15 and October 15 (1 lb ai/a on each date). On 8/7/86 and 8/14/86 the study area was fertilized with a complete fertilizer (12-12-12) at a rate of .5 lb N/M. Cultivation treatments (core cultivation, vertical mowing, and no cultivation), another factor of this study, were applied on 8/13/86. The plots were overseeded (1, 2, and 4 lbs 'Penncross'/M) on 8/14/86. Following overseeding, the last factor of the study, a drag mat was used to incorporate the seed into the soil and rolled to ensure good seed to soil contact.

To evaluate the experiment, counts were made on Nov. 2, 1986 using a 4 ft. by 6 ft. grid consisting of 4 in. by 4 in. squares yielding 112 intersections. The plant beneath the intersection was examined and the percentage creeping bentgrass determined. Visual estimates of percent creeping bentgrass, annual bluegrass, and Kentucky bluegrass were made July 13, 1987.

Statistical analysis, of the November counts, determined that chemical treatment and seeding rate resulted in a significantly greater amount of creeping bentgrass. Results of the chemical treatments indicate that the Round-up and Round-up + Prograss treatments resulted in the greatest establishment of creeping bentgrass. The statistical analysis also indicated that the 2 and 4 lb/M seeding rate resulted in significantly more creeping bentgrass than the 1 lb rate. However, there was not a significant difference between the 2 and 4 lb. rates. Initially it had appeared that vertical mowing resulted in greater creeping bentgrass germination, however, the statistical analysis indicates that there was not a significant difference between the method of cultivation used.

Visual estimates made on July 13, 1987 (Table 4) indicate that the Round-up + Prograss treatment resulted in the greatest creeping bentgrass cover, 81%. The Round-up treatment resulted in 50% creeping bentgrass and the Embark + Prograss treatment 43%. The Embark and control treatments had less than 20% creeping bentgrass cover. These results show that application of

Prograss is helpful in the establishment of overseeded creeping bentgrass. Additionally, treatment with Prograss weakened the annual bluegrass enough to allow the Kentucky bluegrass, present at the beginning of the study, to increase.

Treatment with Prograss four weeks following planting resulted in injury and some mortality of the creeping bentgrass seedlings. Preliminary field studies conducted last year have determined that delaying Prograss application for at least six weeks following germination reduces the injury to the creeping bentgrass seedlings. Several overseeding studies will be conducted this year, and the information from last year's studies has been used to adjust the rates and application schedules of the treatments used this year. Additional treatments are also being added in an attempt to determine a successful program of overseeding creeping bentgrass into annual bluegrass areas.

TABLE 4. Mean Percent of Grass Species on Overseeded Plots Due to Chemical Treatments (Visual Estimates 7-13-87)

<u>CHEMICAL TREATMENT</u>	<u>BENTGRASS</u>	<u>ANN. BLUE</u>	<u>KENT. BLUE</u>
Embark (EMB)	16	71	13
EMB + Prograss (PRO)	43	32	25
Round-up (RND)	50	50	0
RND + PRO	81	15	14
No Chemical (control)	19	67	14