stop #13

BENTGRASS OVERSEEDING INTO FAIRWAY TURF

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Golf course superintendents are extremely interested in converting fairways from a predominately annual bluegrass turf to creeping bentgrass with minimal disruption of playing conditions. Products such as Prograss, Scott's TGR, or Cutless have been great improvements as herbicides and growth regulators for selective annual bluegrass kill or suppression. However, many superintendents are faced with a situation where 80% or more of the grass on their fairways is annual bluegrass. Beginning a conversion program will not produce many results without an adequate bentgrass population to start with. The problem is how do you get a significant stand of bentgrass introduced into an existing annual bluegrass fairway? Many superintendents have tried overseeding fairways but generally find poor establishment rates. Poor establishment of overseeded bentgrass results from excessive competition from the existing turf. A normal overseeding procedure would call for the superintendent to core or verticut the fairways to open the turf, seed with a good quality bentgrass, and then fertilize with a starter fertilizer. By the time bentgrass germination begins, the existing turf is growing rapidly as a result of the cultivation and fertilization and outcompetes the seedlings. The net result is very little bentgrass establishment and a lot of wasted time, effort, and money.

This study was designed to examine the effects of a growth regulator, Embark, two methods of seeding, and two rates of seeding on the success of bentgrass overseeding. Plots were treated with Embark at rates of 0, 0.25, 0.5, 0.75 and 1.0 lbs AI/A on July 26th. For comparison, Embark rates used in the spring for seedhead control range from 1/16 - 1/8 lb AI/A. Embark applications in mid-summer do not give as much injury or growth suppression as do applications made in the early spring. Embark is also the only PGR which has no soil activity and therefore will not suppress the development of seedlings while suppressing the existing turf. Two methods of overseeding were used with the plots overseeded on July 28th and 29th. Plots were either overseeded with a Jacobsen slicer-seeder in two directions or were verticut deeply with a Ryan Mataway in two directions and then broadcast seeded. Seeding rates were 1 or 2 lbs seed/M. As a demonstration, strips of the various Embark rates used in the study were reapplied on August 23rd to show the amount of discoloration to expect, if you are interested in using this approach.

The study was laid out as a 3-way factorial combination of treatments. The three factors, as previously mentioned, were Embark rate, seeding method, and seeding rate. In this type of study each Embark rate is combined with all other factors. Thus, for each Embark rate there were two seeding method treatments and two seeding rates. Data in table 8 are reported as the means for the main effects, that is, the mean for each Embark rate is averaged across both seeding methods and seeding rates. The data report injury readings taken 1 and 2 weeks after seeding, visual estimates of growth suppression taken at 1 and 2 weeks after seeding, and visual estimates of bentgrass seedling density at 3 weeks after seeding. Seedling establishment increased linearly with increasing Embark rate. The higher the Embark rate the better the bentgrass establishment. Injury from these higher rates was definitely observable however not as severe as some of the injury we observe in the early spring from much lower rates of Embark application.

The seeding method also had a substantial effect on bentgrass establishment. The vertical mowing treatment provided better establishment than the slit seeding. Slit seeding does not open the turf enough and even under growth regulation the turf closed back over the slits so quickly that germination was significantly reduced.

Another important factor was seeding rate. Two rates were used and essentially no benefit was seen from the higher seeding rate.

When all the information is considered, the important point of this study is that overseeding grasses such as creeping bentgrass or Kentucky bluegrass, which are not extremely competitive seedlings, requires that the competition from the existing turf be reduced. The more the turf competition is reduced, the more successful the overseeding. Thus, superintendents who wish to overseed a green, fairway, or tee should realize that establishment will be anywhere from poor to none unless the turf is opened up and/or regulated. The more severe the reduction in the established turf cover the better the results.

Once a fairway has a sufficient bentgrass population, programs such as removing clippings, using a PGR, or Prograss will be much more successful.

TABLE 8. Effects of mefluidide, seeding method, and seeding rate on bentgrass overseeding.

		Injury*		Growth** Suppression		Seedling*** Establishment
FACTOR A:	Embark Rate (lbs AI/A	8/6	8/13	8/6	8/23	8/17
	0	8.9a+	8.9a	0.6d	0.5d	0.25c
	0.25	8.2b	8.5ab	6.6c	4.6c	1.7b
	0.5	7.5c	7.8bc	7.7b	6.0b	1.8b
	0.75	6.5d	7.3c	8.7ab	7.0ab	2.6b
	1.0	6.2d	6.3d	9.2a	8.3a	4.1a
FACTOR B:	Seeding Method					
	Vertical Mowing & broadcast	7.1a	7.3a	7.6a	6.1a	2.6a
	Slit seeding	7.8b	8.3b	5.5b	4.5b	1.6b
FACTOR C:	Seeding Rate					
	1 lb/M	7.5	7.6	6.5	5.2	2.0
	2 lb/M	7.5	7.9	6.6	5.3	2.2

+ Means in the same column with a different letter are significantly different at the P = 0.05 level.

* Injury rated on a scale of 1-9 with 9 = no injury, 1 = completely dead turf, and 6 = minimum acceptable level of injury.

** Growth suppression was rated visually on a scale of 0-10 with 0 being no visible growth suppression when compared to untreated, unmowed poa annua while 10 = complete growth suppression.

*** Seedling establishment was rated visually on a scale of 0-9 with 0 = no visible bentgrass seedlings and 9 = maximum bentgrass seedling density.