

Optimizing Seeding Dates for Autumn and Spring Renovation of Football Fields

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Intensely trafficked areas of athletic fields require routine seeding to reestablish grass and reduce the amount of exposed soil. It is important to maintain sufficient biomass/thatch/mat to reduce mud and compaction problems that develop when soil becomes exposed on the surface (Minner, 2004). Autumn, spring, and summer seeding schedules have been recommended for turf reestablishment (Minner, 2005). Dormant seeding is a practice that is often used when renovating football fields at the end of the playing season in November. Seeding in September usually germinates but the survivability of seedlings under traffic is not known. Seeding in October may or may not produce fall germinated plants. It is not known if seed planted in October germinates and dies in the autumn, germinates in the autumn and continues to grow in the spring, or remains as dormant seed in the autumn and germinates in the following spring.

Objective

To determine effective renovation seeding dates and turfgrass species that optimize turf cover for football activities.

Methods

This study was established on a Nicollet (fine-loamy, mixed, mesic Aquic Hapludoll) soil with 4.0% organic matter at the Horticulture Research Farm in Ames, Iowa USA, on 26 Sep 2003 and on 1 Oct 2004. Three species of turfgrass, Kentucky bluegrass KB (*Poa pratensis* L.), perennial ryegrass PR (*Lolium perenne* L.) and tall fescue TF (*Festuca arundinacea* L.) were used in the study. Seeding for year one occurred on 26 Sep, 3 Oct, 10 Oct, 17 Oct, 31 Oct, 14 Nov, and 28 Nov 2003 and 22 Apr, 13 May, and 3 Jun 2004. Year 2 seeding dates were 1 Oct, 15 Oct, 27 Oct, 15 Nov, 29 Nov 2004, and 15 Apr, 15 May, and 5 Jun of 2005. The experimental design was a randomized complete block with 3 replications and 2 factors (species and seeding dates). Seeding rates were 2 lb/1000 ft² of KB and 10 lb/1000 ft² of PR and TF.

Turf cover was evaluated before each seeding and on 29 Jun of 2004 and 27 Jun 2005. Only first year data for 2003-2004 is reported at this time. The data were analyzed using PROC ANOVA of the SAS software, Version 8 of the SAS System for Windows (SAS Institute, 1999). Means were separated ($\alpha = 0.05$) by Fischer's protected LSD.

Results

On 28 Nov 2003, perennial ryegrass and tall fescue produced considerably more turf cover (42-65% cover) than Kentucky bluegrass (10% cover) when all three grasses were seeded on 26 Sept 2003. Ryegrass and fescue provide faster and more complete coverage of the ground when fall seeded. Dormant seeding on 28 Nov 2003 did provide substantial turf cover (approximately 70% cover) for all three species by the following 29 June observation date. This indicates that autumn dormant seeding can be a successful method for increasing turf cover in the following summer. The 17 Oct seeding date produced the least amount of turf cover by the following summer on 29 June. This indicates that the least effective time to seed may be in Mid-October since it resulted in the lowest turf cover the following season. Even though this may be the least effective time to seed it did result in 33% to 57% turf cover by the following summer, and that may justify seeding through out the entire autumn football season.

Table 1. Percent cover of Kentucky bluegrass, perennial ryegrass and tall fescue observed during Fall 2003 and Spring 2004.

Seeding date	17-Oct	28-Nov	22-Apr	29-Jun
	%			
Kentucky bluegrass				
26-Sep	8.3	10.0	10.0	68.3
3-Oct	3.7	1.7	2.3	70.0
10-Oct	0.0	0.0	1.0	78.3
17-Oct		0.0	2.0	33.3
31-Oct		0.0	3.0	60.0
14-Nov		0.0	3.0	66.7
28-Nov			1.3	68.3
22-Apr				83.3
13-May				65.0
3-Jun				70.0
Perennial ryegrass				
26-Sep	32.7	65.0	83.3	83.3
3-Oct	20.0	26.7	21.7	75.0
10-Oct	0.0	1.0	1.3	70.0
17-Oct		0.0	1.3	50.0
31-Oct		0.0	1.3	60.0
14-Nov		0.0	2.3	71.7
28-Nov			1.7	70.0
22-Apr				81.7
13-May				80.0
3-Jun				70.0
Tall fescue				
26-Sep	21.7	41.7	45.0	63.3
3-Oct	15.0	13.3	10.0	78.3
10-Oct	0.0	0.0	2.0	90.0
17-Oct		0.0	3.7	56.7
31-Oct		0.0	2.7	63.3
14-Nov		0.0	2.3	71.7
28-Nov			2.0	70.0
22-Apr				86.7
13-May				51.7
3-Jun				68.3
LSD_{0.05}	3.5	4.4	5.5	16.2

Literature cited

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Minner, D.D. 2005. Athletic Field Seeding Schedule. <http://turfgrass.hort.iastate.edu/extension/EGathfldseedschedule.pdf>

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