Managing Cool-season Grasses as Part of a SportGrass® System

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New and innovative systems are being developed for natural grass fields. Coaches, athletes, and trainers prefer natural grass to reduce physical stress on players. Artificial surfaces are more durable because of low maintenance and longer life (Morehouse, 1992). SportGrass® is the first product that combines the playability of natural grass with the durability of synthetic turf.

SportGrass® system consists of a natural grass playing surface grown into a layer of amended sand. The system consists of natural grass growing in a synthetic matrix with fibrillated fibers (polypropylene blades) with a backing. Within the layer of sand are polypropylene grass blades tufted into a woven black backing (SportGrass® literature, 1996). The SportGrass® system is combined with rapidly draining sand-based systems. Roots can grow through the woven backing and into the sand below. Since grass roots grow down through the synthetic fibers and backing, the crown and roots of the plant are "protected." SportGrass® is stabilized horizontally by the backing and vertically by the polypropylene blades. Grass can be established by seeding or sprigging. Processes are being commercially developed to produce SportGrass® sod.

The SportGrass® system was designed to reduce divots, ruts, and bare spots due to heavy traffic. The product claims to reduce the need for renovation and frequent repairs. Cool-season and warm-season turfgrasses can be grown in the SportGrass® system. If the natural grass is briefly worn away, the synthetic and sand portions of the SportGrass® system maintain a stable playing surface. SportGrass® also aids in a quicker recovery of the turfgrass (http://www.sportgrass.com).

The SportGrass® material is produced in 15 ft by 100 ft rolls. The synthetic turf mat is laid on top of the sand-based root zone. During installation, the seams of the synthetic material are temporarily held to the root zone with metal sod staples. Sand that matches the root zone is then topdressed and brushed into the polypropylene blade matrix. As an alternative, a gunit gun has been used to blow dry sand into the polypropylene fibers. Once the matrix has been filled, seeding or sprigging can take place. The seed is typically sliced into the surface so that the plant crown develops within the sand/fiber matrix. SportGrass® can also be installed as sod. The topdessed synthetic material is placed over a plastic sheet to impede root penetration. The sod can then be harvested mechanically using large roll sod equipment. SportGrass® has the potential for use on football, baseball, and soccer fields and golf courses.

Two separate studies, each with a specific objective, were initiated in the fall of 1996. The first objective was to evaluate conventional methods of turfgrass management as they apply to SportGrass®. Of particular interest is how grass management practices influence the accumulation of organic matter within the synthetically-reinforced zone. Clipping removal, cultivation, and plant growth regulators will be evaluated (Table 1).

The second objective was to evaluate how grass species, seeding rates, and traffic intensity influence the performance of the natural grass and synthetic turf combination. (Table 2).

Table 1. Treatments used to evaluate management of the grass mat within the SportGrass® system.

Trt	Clippings	Cultivation	PGR	Other	with SportGrass®
1.	Catch	none	none	none	yes
2.	Return	none	none	none	yes
3.	Return	Verticut	none	none	yes
4.	Return	Solid core	none	none	yes
5.	Return	none	Primo	none	yes
6.	Return	none	none	after thatch accumulates, begin thatch reduction treatment	yes
7.	Return	none	none	Seeded control	no
8.	Return	none	none	Sodded control	no

Table 2. Species layout.

Trt	Grass species (whole plot trt)	Seeding rate lb/1000 ft^2	Traffic Intensity (Split plot)	
			Low	High
1.	Kentucky bluegrass	2	yes	
2.	Kentucky bluegrass	2		yes
3.	Kentucky bluegrass	4	yes	
4.	Kentucky bluegrass	4		yes
5.	Perennial ryegrass	7	yes	
6.	Perennial ryegrass	7		yes
7.	Perennial ryegrass	14	yes	
8.	Perennial ryegrass	14		yes
9.	KB & PR	2 & 7	yes	
10.	KB & PR	2 & 7		yes
11.	KB & PR	4 & 14	yes	
12.	KB & PR	4 & 14		yes