

# Field Notes

Winter/Spring 2001

## Field of Dreams...or a 100-Yard Nightmare?

by Michael Flowers, President

As I visit sports field facilities across southern New England, I am struck by the generally poor condition of many of these fields. There are many reasons why fields fail to impress – or simply fail – and they can't always be traced to lack of funds or uneducated turf managers. If this were the case, all NCAA, MLB and NFL stadium fields would possess highly efficient, smartly designed and well-implemented turf systems. They don't – there are some notable exceptions – despite the budgets and staff allocated to design and build these high-profile arenas.

At the high school level, a very well-known private school recently completed a \$200,000 sports complex only to have the field fail within six months. Several southern New England school districts have spent between \$2 and \$5 million on sports complexes only to yield substandard fields. Given the budgets for these projects, such results are inexcusable.

Why the lack of quality sports fields? I attribute three main reasons: 1) agronomic principles (or lack thereof); 2) self-defeating construction methods; 3) unrealistic expectations of the end user. These factors need to be addressed before quality sports fields are the rule and not the exception.

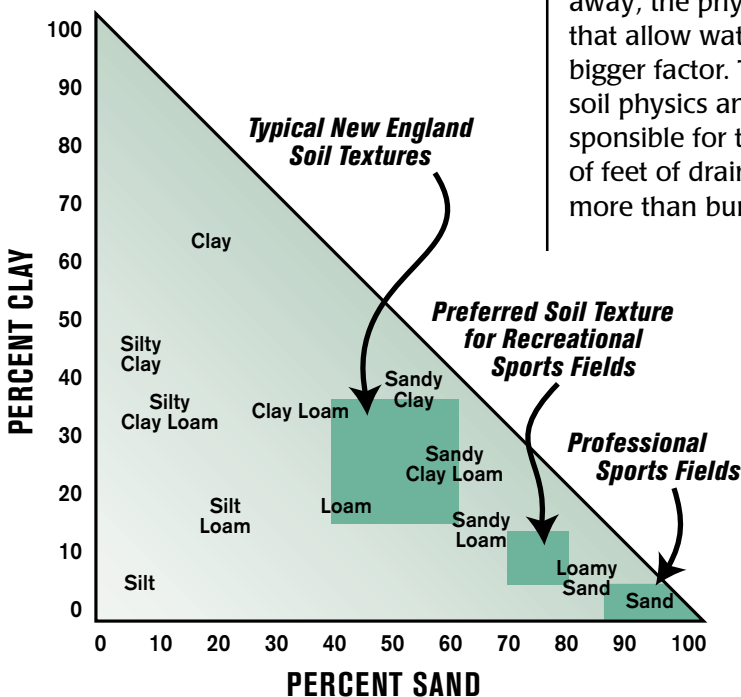
• **Agronomic blinders.** As the box at right explains, the vast majority of fields constructed today – certainly on the local level – are native-soil systems. While the maintenance of a sand-based field on the

west coast is essentially the same as it is here in New England (after adjusting for climate), the operation of a native-soil field on one side of town can be radically different from one on the other side of town – or across the street, for that matter. Soil physics and drainage patterns are very specific to a site – especially in glacier-carved New England – demanding a site-specific approach to native-soil sports field design and maintenance.

An agronomic evaluation of the intended rootzone should be performed on native-soil fields during the planning phase. This evaluation will help determine the composition and drainage capacity of the existing topsoil, allowing the owner to make realistic performance expectations for that field. If the topsoil proves too limiting for the intended design, a pre-qualified rootzone material can be added to the bid specification (i.e., a decision can be made to construct a modified-soil system).

Careful agronomic analysis will also allow a balanced consideration of possible subgrade treatments (i.e., does it need fracturing? a gravel blanket? drainage system?). What can be done? What are the costs and benefits? In many cases the marginal increase in performance doesn't justify the necessary expense. An example is the misguided notion that installing a drainage system will improve the performance of a soggy sports field. Common sense, right? Not necessarily! Poor drainage is not always due to the inability of gravitational water to drain away; the physical properties of the soil that allow water to be retained is often a bigger factor. The failure to understand soil physics and water movement is responsible for the installation of millions of feet of drainage pipe that is nothing more than buried money.

(continued on reverse)



This soil textural analysis, using USDA's classification scheme, shows the approximate soil designations for native-soil, modified-soil and sand-based sports fields.

### A Quick Education on the Basic Types of Sports Fields

**SAND-BASED (PERCHED WATER TABLE) SYSTEM:** Sand-based fields are constructed with a formal drainage system, gravel subgrade, and rootzone material comprised of 80-90% sand and 10-20% peat. Particle size of the sand is key, and is specified to exacting standards. The sand-based perched water table system is the basis for the design of USGA putting greens – a sand-based football field is essentially a large putting green – and is designed to move large amounts of water away quickly. The vast majority of college and professional fields are sand-based systems, yet account for a very small percentage of all sports fields in this country because of the considerable front-end investment required.

**NATIVE-SOIL SYSTEM:** Native-soil sports fields are constructed using on-site topsoil (comprised, typically, of 40-65% sand), which is one reason they require diligent maintenance to avoid compaction problems. Drainage capacity on these fields is largely a function of soil physics – which can vary greatly from site to site. Because native-soil systems are the least expensive field to build, they account for the vast majority of sports fields being built today.

**MODIFIED-SOIL SYSTEM:** In a modified-soil field, coarse sand or organic matter is added to the existing topsoil to create a specified rootzone mix (generally optimal at 80% sand) that will achieve the drainage needs and performance expectations of that field. Modified-soil fields may also incorporate a gravel "blanket" and a drainage system to move water to the perimeter. Careful analysis of the soil physics is a key step in the design of a modified-soil system.

### See the Championship Turf Services exhibit at the following trade shows:

- Connecticut Groundskeepers Association Conference, February 28 – Hartford Civic Center (Booth #135)
- New England Regional Turfgrass Conference, March 7-9 – Rhode Island Convention Center, Providence (Booth # 303)

## Championship Turf forms alliance with SISIS, Inc.

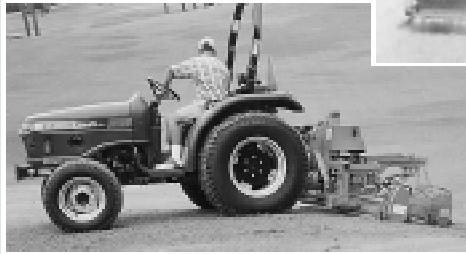
**Championship Turf Services** is proud to announce our partnership with **SISIS, Inc.** as its Northeast Manufacturer's Representative.

SISIS, Inc. is the wholly-owned subsidiary of Sisis Equipment Limited, a British company established in 1932 for the design and manufacture of sports turf maintenance equipment. Since that time, they have become one of the largest European manufacturers of this type of fine machinery.

SISIS manufactures 150 products in the U.K., but has selected 10 products for the U.S. market, including the Maxislit and Multislit Deep Slicers, the Technicore Vertical Action Aerator, Veemo and Auto-Rotorake Dethatchers, and Variseeder and Tilth 'n Seed seeders. Mounted and towed implement frames allow SISIS equipment to be used with most turf trucksters, while the Quadraplay and Twinplay systems allow multiple operations to be performed in one pass.

Championship Turf Services was the first company in the U.S. to use the Tilth 'n Seed. We are impressed with the ease of use and maintenance of this equipment and the manufacturer's dedication to quality. We look forward to the opportunity to introduce the SISIS line of equipment to New England turf managers. We strongly believe it is the best equipment of its kind available in the world.

SISIS, Inc. is headquartered at The Walker Golf Course at Clemson University. They maintain a complete inventory of equipment and parts to ensure service and support at all times. For further information or a demonstration of any of the SISIS products, please give us a call at (800) 562-5860. Also, visit the SISIS web site at [www.sisis.com](http://www.sisis.com) for a full view of the SISIS Group, its products and activities around the world.



*From top: Tilth 'n Seed; Veemo Dethatcher; Maxislit Deep Slicer*



## About Championship Turf Services...

Athletic fields must be built to exacting standards which satisfy both the immediate needs of athletes and the long-term viability of your facilities. You need a contractor who shares your attention to detail and obsession for quality. That's **Championship Turf Services**. We are a unique blend of agronomist and contractor, offering a full spectrum of athletic field construction and management services, including:

Precision Laser Leveling • Seed/Sodbed Preparation and Planting • Custom Aerification  
Overseeding • Topdressing • Drainage Solutions • Speed Seed™

Additionally, we are the Northeast Manufacturer's Representative for the SISIS, Inc. line of sports turf maintenance equipment (see story above), the best equipment of its kind in the world.

Call us today at (800) 562-5860 to discuss *your* athletic field project.

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## Field of Dreams (cont'd)

• **Poor construction.** Unfortunately, poorly executed construction can defeat an agronomically sound design. The most common example is the heavy-handed methods some contractors use to install or grade the rootzone mix, resulting in excessive compaction. While surface compaction from hundreds of feet playing football, soccer, field hockey and trombone is an easy problem to fix through aerification, fields that suffer deep-seated compaction before the first ball is kicked will quickly become grounds for sports-related injuries and expensive maintenance headaches.

Using agronomically inferior materials in the rootzone mix is another damaging construction practice, particularly with sand and gravel specifications, where particle size is so important. It is critical that the contractor not deviate from the rootzone mix specification. Going with a smaller particle sand, for instance, may save a few dollars up front, but it will significantly alter the drainage capacity of that field. And that's an expensive mistake to fix.

• **Unrealistic expectations.** The owners' expectations must be in line with the ability of the agronomic design to deliver a well-performing field within the budgetary constraints of the project. You can't expect to get 40 hours a week of play on a native-soil field with high clay content when its limit is closer to six, for instance. If you need 40 hours a week on that field, you will need to significantly modify the soil mix and drainage capacity – or you can modify your expectations.

No matter what the scale of the project is, a careful agronomic site analysis performed in the planning stages will help you learn whether your budget and expectations are realistic; it will help you hone your bid specifications to focus on materials and contractors who will get the job done correctly; and it will allow you to efficiently focus your limited resources where they will have the greatest impact.

Owners, school districts, and parks and recreation departments should always consult with a competent agronomist with access to good soil physics data. Your project may have the most respected landscape architect or general contractor onboard, but if the site's soil physics are not understood, you may not realize your field of dreams.

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