A Time of Rest

The word "sabbatic" is derived from the Greek term sabbath, meaning a time of rest. A sabbatic leave is a privilege college professors are entitled to to refresh, refocus, and to work on projects they just wouldn't be able to accomplish in the course of their normal activities.

Having recently returned from a one year sabbatic leave, I have been asked by many curious people how I enjoyed my "time off", and to what exotic places did I travel. Well, I didn't spend the year at home watching TV game shows and eating bon-bons. I traveled to places like Tomball, Texas, Olathe, Kansas, and some town in western Ohio (I don't recall the name of the town, but it was flat, hot, and was surrounded by nothing but corn fields). I did have a great year, though, and would like to share with you a synopsis of what I worked on, and how the turfgrass industry may be affected.

Laboratory Standards

For over thirty years the USGA specifications have been the most widely accepted and used greens construction specifications in the industry. Since their inception, they have relied on laboratory test results to determine if a rootzone is acceptable or not. The original specs included a brief and rather incomplete writeup of the test procedures.

In the past few years several new labs have begun to offer physical testing services. With no industry standards, a problem of quality control was obvious. It was common for superintendents to send identical samples to different labs, only to receive very different results. When you consider that the USGA Specifications are based on these laboratory results, you can see why there might be a serious problem.

Having 14 years experience informally testing rootzone mixes, I approached Jim Snow, national director of the USGA Greens Section about writing standard test procedures for the industry to follow. With USGA support, I was able to take a leave for a full year to work on the lab standards, and to work on a revision of their specifications.

I spent the first couple of months visiting eight labs around the country to assess their current operating procedures, and to discuss potential changes with the lab directors. After my visits, it was safe to say that no two labs were performing the tests the same way. In fact, my visits uncovered serious shortcomings in a few of the labs, from the use of inappropriate equipment to math errors. One lab had been sending out erroneous results for years. Only three of the eight labs had a trained agronomist on staff.

To assess the seriousness of this problem, I split a uniformly mixed rootzone sample, and sent a subsample to all the labs. The variation in the results I received back only reconfirmed the need for standard test methods.

Test methods published by the American Society of Agronomy and the American Society of Testing and Materials (ASTM) were then adapted for putting green and sports turf rootzone mixes. The procedures provide a cookbook approach to the testing process, and include all mathematical formulas. While these standards will no doubt improve the operating procedures in most labs, please be advised that the competence in the lab personnel interpreting the results will likely remain as it was before.

These procedures have since gone through a critical review by several soil scientists, and are now being submitted to ASTM as accepted and published standard test methods. Most labs will be adopting these procedures soon. While there are no guarantees, the results coming out of the labs should be much more consistent than in the past. Also, a quality assessment program to monitor lab performance is being considered.

USGA Specifications

The USGA Specifications for Putting Green Construction have gone through two revisions since the original, the latest in 1989. For many reasons, the 1989 specs were very controversial and a source of much criticism for the USGA Green Section. Jim Snow asked that I 1) critically review the specs and make recommendations for revisions; 2) provide a scientific rationale for the new specifications, and 3) identify areas of research.

For several months I was a student again, studying the scientific literature in soil modification, soil physics, and geotechnical and drainage engineering. For the first time, work performed in other disciplines was incorporated into the specs. This review resulted in a couple of significant changes to the specs. For example, by incorporating known rules in drainage engineering, we were able to make the intermediate coarse sand layer (choker layer) optional, provided that a gravel meeting very specific criteria could be found. This change alone could result in very substantial cost savings with no effect on green performance.

The original specifications, published in 1960 by Dr. Marvin Ferguson, were designed to allow the use of local materials in putting green construction. It was Dr. Ferguson's philosophy that I embraced when I reviewed the specs and made recommendations for changes.

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Tall Fescues

continued from cover

Tall fescues are undeniably one of the toughest, most wear tolerant grasses.

only influence the frequency of mowing, but also the cost of clipping disposal where clippings are removed.

Overseeding Programs

Continuous overseeding is necessary to maintain thick stands of tall fescue on athletic fields, as is the case with other bunch type grasses. Maintaining turf density in tall fescue stands appears to be especially important. Failure to do so will cause the grass to develop clumps of very coarse texture.

Tall fescue is not very compatible with other cool season grasses. Mixtures of 90% tall fescue and 10% bluegrass can be used successfully if the lawn area is maintained to favor the tall fescue; that is, low fertility and no irrigation. Overseeding tall fescue into existing fields of other grasses can have undesirable results. I have seen several school grounds that were sold on a tall fescue overseeding program that for some reason was discontinued. Evidence of the programs' failure exists as unsightly and difficult-to-control grassy weed problems across the entire properties.

Table 1. Comparison of Maintenance Requirements of Cool Season Grasses.

Grass Species	Irrigation Needs	Fertility Needs	Mowing Frequency	Pest Problems	Adaptation to New York
Tall fescue	low	low	high	few	fair
K. Bluegrass	med	low-med	med	some	excellent
Per. Ryegrass	med	med	high	some	very good
Fine fescue	low	low	low	some	excellent

While there will be some applications for tall fescue in New York, it is certainly not the wonder grass some have touted it to be.

A Superior Alternative?

Is tall fescue a superior alternative to Kentucky bluegrass, perennial ryegrass, or fine fescues? On Long Island and the extreme southeast corner of New York State, tall fescues are a viable option for non-irrigated turf areas. There may be other applications for tall fescue in upstate New York, but landscape architects, contractors, and turfgrass managers should be very selective of the application.

Table 1 lists some of the characteristics of cool season grasses commonly used in New York State. For general lawn areas, Kentucky bluegrass, or mixtures of bluegrass with fine leaf fescues will provide a quality lawn, and will do well in low maintenance situations. Kentucky bluegrass and perennial ryegrass are the preferred species for athletic fields. Perennial ryegrass is especially well suited for overseeding, and much better than tall fescue for this purpose. Perennial ryegrass germinates very quickly, even in cool soils, has good wear tolerance, excellent close mowing tolerance, and is very attractive.

In summary, Kentucky bluegrass, perennial ryegrass, and the fine leaf fescues have for years performed well in New York State in most turfgrass situations. While there will be some applications for tall fescue in New York, it is certainly not the wonder grass some have touted it to be. Be careful in deciding where tall fescue fits into your establishment plans or maintenance program.

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Rest

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The new specifications are more flexible than the 1989 version in areas I thought there could, and should be more flexibility. The changes should allow perfectly acceptable materials to be used; materials that would not have met the overly restrictive specifications of the past. At the same time, the specifications' limits are very clearly defined. In other words, there will be no doubt if a material does or does not meet specification.

After I made my recommendations for changes to the USGA, the proposed specs went through the most rigorous and comprehensive review ever. Scientists, architects, and others from around the world were invited to review the specs. Where appropriate, their suggestions were incorporated into the specifications giving them a strong foundation as well as international credibility.

A complete review of the literature was written that provides the scientific rationale for the pending specifications. These will be published by the USGA Green Section early in 1993.

My year "off" was a great experience for me in that it gave me the time to do a thorough job on a sorely needed project. It was an opportunity to meet many new people in a segment of the industry that most of us don't normally have contact with. I had a chance to travel extensively, and to visit some very fine golf courses. It was a pleasure to work with the USGA Green Section staff; a very dedicated and experienced group of individuals. Finally, it was very gratifying to feel that my efforts have contributed to the turfgrass industry in some way, and not solely within the borders of New York State. It was a great year indeed!

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