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On the cover: L to R: Alex Steinman, Neville Kelly, Kurt Klinger, P.J. Ellis, men’s soccer coach Sasho Cirovski, Casey Rezendes, Jamie Franck, and Mac Wallace, University of Maryland.
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From the Sidelines

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Five trends in sports turf

If I NEVER HEAR “POLL NUMBERS” AGAIN IT’LL BE TOO SOON. The combination of the media’s need for content and all the data being produced by surveys of too many people on too many topics overpowers my senses and I usually ignore the results. Here are some decidedly non-scientific results from a one-man survey* on trends in sports turf:

High expectations: Everywhere you look there are high-definition televisions and sports mean great ratings. When’s the last time you dined out where there wasn’t a game on TV available, at least at the bar? And lots of people have HD at home. All those viewers see top-end fields in high-definition every game. This is raising standards locally (sometimes without a corresponding appreciation for good maintenance). Many more turf managers should expect to encounter a higher bar for field appearance AND improved playability.

Government debt. Another numbers trend is toward governments looking to spend less money in a time of record government deficits, which seem to be an ever-looming threat of budget cuts in parks & rec departments. Most states are also looking at cutbacks in education spending that will affect higher ed and K-12 districts. Private resources are providing more cash for school athletic programs every year; perhaps fundraising will become part of the curriculum in turf classes.

Safety. The National Football League is very popular and therefore influential. The NFL’s recent focus on keeping players safe regarding head injuries and concussions has the nation asking, “How safe is our favorite game?” No doubt that field hardness will continue to be of concern to turf managers for all sports. This new attention to concussions hopefully will lead to better standards nationwide. Measuring hardness and keeping records also might turn into more budget to keep surfaces safe as possible.

More synthetic fields. Google news feeds do not lie when it comes to what’s in the news and synthetic turf fields are proof. Hundreds of communities across the US are investigating, seeking funding for, and building synthetic turf fields because they are durable and possible moneymakers through rentals and tournaments.

In addition, many fields built when the infill generation began are now 8 years old and older, and their reclamation, reuse, and/or related problems replacing them will be affecting many more communities.

Water. Preserving water and making conscientiously green decisions about water is not only common sense and good business but also a duty for turf managers. Educating yourself to save water at work could look pretty good on your review, too.

Water-saving practices and equipment will continue to improve but are turf managers doing their best?

*No robocalls were conducted in connection with this survey.

Correction

In our article from the October issue, “Three keys to managing high traffic, high quality athletic fields,” there was an error in the ninth paragraph on page 10. The author intended to say “Soil organic matter can serve as an important source of carbon and nitrogen as it decomposes over time.” We regret the error.
The spirit of volunteerism

This month I recognize the spirit of volunteerism. It is on prominent display by those helping their neighbors recover from Superstorm Sandy; we see it in person at the Salvation Army kettles this time of year; and volunteerism drives STMA through service by our members on 23 committees. Those of you attending the conference in Daytona Beach will personally witness the efforts of our Conference Education, Seminar-on-Wheels, Student Challenge, and Chapter Relations committees. You will also see our volunteers in action serving as moderators for our presenters, leading our auction to raise money for SAFE, and staffing the Collegiate Challenge. Some of these volunteers will be seen, but as in the case of so many volunteers, most will be working in the background. You will find an update on the goals and activities of two of our committees, Conference Education and Environmental, in this issue of Sports Turf. More committee updates will appear in future issues.

As President, I have the challenge and privilege of placing our volunteers on committees. This is something that every President takes seriously because the STMA Board has the philosophy that good governance happens when we stay out of our committees’ way. We regularly discuss and remind ourselves of our role as a Board when we meet, and we are committed to let the “committees do the heavy lifting.” When you volunteer, we want you to understand that we recognize the time and effort required. Please do the best you can to serve, but everyone understands that sometimes there simply is not enough time in the day to do everything we would like to do. Committee sign up will be at the conference and online at www.STMA.org.

CEO Kim Heck led a great professional development exercise at our Fall Board meeting that placed the Board members in groups of “the early bird gets the worm” or “the second mouse gets the cheese.” We all agreed there were times when we needed to be in each group, and I think our Board (and our committees) have nice blends of both groups of personalities. As part of our exercise, we each got a short but highly informative book called Who Moved My Cheese by Dr. Spencer Johnson. It would make a nice holiday gift for one’s self-help library. The characters are mice and little people who live in a maze looking for their cheese. They have highly variable strategies in how they look for their cheese, but it is the little people (Hem and Haw) that struggle the most because they resist change. One comment made by Haw caught my attention: “What would I do if I weren’t afraid?” I can think of lots of times that I probably should have answered that question; maybe you can, too. I told this to a friend, and he sent me a one-liner from comedian Stephen Wright: “Well, what happens if you are scared to death twice?” Hmm…

I wish everyone a safe and happy holiday season and all the best for 2013!
Turf managers know that one key to correcting soil compaction in turf is aeration, also known as aerification. Aerification is performed using a wide range of equipment which drills, slices, spikes, punches or water-injects the turf and its underlying soil to various depths. Sometimes the equipment removes a plug of turf, and sometimes it only cuts a slit or punches a hole. With some equipment there is the additional benefit of a small amount of thatch control, as the slicing or core removal also removes some thatch. Regardless of the exact piece of equipment used, almost every turf manager has a piece of aerification equipment in their shed.

Factors affecting the effectiveness of aerification include soil wetness, tine size, depth of aerification, soil texture, aerification frequency, and equipment type. Turf aerification research is somewhat difficult to do. Studying soil compaction requires large plots, uniform areas of compacted (and noncompacted) turf, and possibly many different pieces of equipment. Additionally, collecting the data required to show treatment differences requires intensive sampling and a lot of labor. Typical data collected from compaction studies may include soil bulk density, soil penetrometer resistance, surface hardness, water infiltration, shoot density, and root length or weight. The objectives of this article is to provide explanations of the type of data collected in turf compaction experiments, and to discuss some past and current turfgrass compaction research.

**RESEARCH**

Our previous work at Auburn University found that aerification was less likely to have an effect in noncompacted soils as compared compacted. We looked at the effects of using a deep, hollow tine aerifier (8 inch deep, 3/4 inch diameter) at two locations: a heavily trafficked and compacted marching band practice field, and a lightly trafficked field at the Auburn University Turfgrass Research Unit. At the heavily trafficked site, every additional core aerification in a given year decreased soil resistance. This was not the case at the lightly compacted site. Only one aerification was needed in a given year to produce a significant reduction in soil resistance. At the heavily trafficked site, the effects of deep-tine aerification usually lasted about 3 weeks. This supports the conclusions of previous workers that frequent aerification might be needed on compacted sites.

However we did not evaluate the effects of different equipment (e.g., tine depth, solid vs. hollow tine) on compaction in trafficked turf. We also wondered if continuous aerification would allow a compacted layer of soil to form at the bottom of the tine working depth. These “aerification pans” can form over time from the effect of tines pressing down on the soil below the level where they actually penetrate and remove soil.

This research looked used three different pieces of equipment (a pull-behind aerifier, a GA-60 standard tine aerifier and a Soil Reliever deep tine aerifier) using both solid and hollow tines. Plots were aerified four times per year and traffic was artificially applied with a heavy roller to induce compaction. Compaction was evaluated by measuring soil resistance to a soil penetrometer at depths down to 12 inches.

The equipment used has a large effect on the amount of compaction relief and where it occurs. The deep tine aerifier (8 inches deep) reduced soil resistance when either solid or hollow tines (5/8-inch diameter) were used. The standard tine aerifier (4 inches deep) often produced a significant reduction in resistance when hollow tines (5/8-inch diameter) were used.

The effect of the different sizes of aerification equipment on the relief of com-
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paction as measured by soil resistance was studied. The deep tine aerifier reduced soil resistance from 3.5 inches down to 7.6 inches, but did not reduce compaction in the top 3 ½ inches. The standard tine unit did reduce resistance significantly in the top 3 inches, but had no effect deeper in the soil.

The long-term effects of continued aerification with a standard tine unit fitted with solid tines (5/8-inch diameter) for 3 years in a row, at a depth of 2.3-5 inches, showed that there was significantly more resistance than in unaerified plots. This indicates that a layer of compacter soil (known as a “pan” or “aerification pan”) had developed near the bottom of the tine stroke. This illustrates the need for periodic deep tine aerification to avoid this problem. The pan of compacted soil was less severe when hollow tines were used, but still could build up over time.

When the surface hardness of the turf was measured using a Clegg hammer, all forms of aerification produced a softer surface at least for one week after treatment. The standard tine aerifier with hollow tines tended to produce the softest surface.

CONCLUSIONS

- Compaction of turfgrass soils lowers the percent macropores in the soil; a decrease in macropores limits soil aeration, which hurts root growth.
- Core aerification, especially solid tine, may not help eliminate thatch.
- Effects of aerification in heavily trafficked soils may be short-lived (about 1 month).
- Diagnostic techniques for detecting compacted soils, such as infiltration measurements or soil penetrometer readings, are widely variable, even across supposedly uniform surfaces such as a putting green.
- Compacted “pans” develop over time at the bottom of the tine’s penetration into the soil, especially when using solid tine equipment.
- Deep tine equipment is more effective at reducing soil compaction at depths below 2.5 inches.

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