Rolling with the cool kids

If you really think about it, you could say that athletic fields are the cool kids of turf management. People will drive for hours, pay hundreds of dollars, and brave the worst weather conditions imaginable just to get a seat as close to them as possible. National and international television broadcasts are fixated on them for hours at a time. Heck, athletic fields have even been showing up fashionably late to the turfgrass management party for decades.

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Taking a quick look at the methods used to manage both athletic fields and golf course greens, it is rather easy to pick up on the similarities. When you glance a little closer, you'll find that virtually every one of these methods was originally honed by golf course superintendents across the world and then, typically years later, adopted by sports field managers everywhere. Tactics such as stripe mowing, applying sand topdressing, and core cultivation were at one time unique to putting green management and have since become commonplace on virtually every competition athletic field in the world; and because of it, the quality of those fields has improved dramatically!

"So who's showing up next to the party?"

One common management technique used daily (and sometimes more) by managers of golf course greens is routine lightweight rolling. Although, it has yet to gain similar popu-

larity in athletic field maintenance, it is a cultural practice used in managing turf that dates back as far as the 18th century on golf courses. Since this time, and particularly in the last quarter century, routine lightweight rolling has become an essential tool for golf courses. Research has proven that frequent and consistent rolling can provide a faster (smoother) putting surface, along with many other benefits that may not seem quite as obvious (and we'll discuss those a little later).

Although used on occasion during special circumstances, such as alleviating frost heaving or as a part of seeding/sodding projects, a roller is yet to become an everyday piece of equipment on a sports field. A rare field manager might swear by the benefits he or she gets from the consistent use of a lightweight roller, but it is definitely the exception ra 9ther than the rule.

Since we're on the topic of cool kids, I thought: Who's funnier, more popular, and just plain cooler than David Letterman? So why not use a Top 10 list to examine whether lightweight rolling might be the next cultural practice that began in golf to become a staple on athletic fields?

Let's take a look at the 2014 Canadian International Turfgrass Conference & Trade Show presentation given by Dr. Thom Nikolai of Michigan State University on his Top 10 Reasons to Roll Course Greens:

10. Alleviate heaving and minimize scalping when climactic conditions dictate.

Nikolai talks about the freeze/thaw cycles contributing to uneven surfaces on golf course greens, and it certainly applies to athletic fields as well. This is undoubtedly the current most common reason for rolling athletic fields. Rolling not only helps to smooth out a bumpy playing surface but it can also protect against scalping during the first spring mowing.

9. Seed bed preparation.

This is another reason that rolling logically translates from golf to athletic fields, where it is certainly time well spent when prepping a site for establishment by seed. In addition, rolling immediately after seeding is a great way to ensure that you achieve the all-important seed-to-soil contact required for germination and nutrient uptake. Similar benefits from rolling can also be seen when establishing an athletic field by sod. Lightweight rolling after sod installation can help create consistent contact between the soil and roots of the new turfgrass.

8. Broadleaf weed, moss, and algae reduction.

Although moss and algae tend not to be as big of a problem on an athletic field as on a low mown putting green, broadleaf weeds certainly are a common menace. Dr. Nikolai's Top 10 list hypothesizes that an increased turf density could help to out-compete unwanted pests such as dandelions and white clover. This could be especially beneficial for managers of school athletic fields who are required to use little to no chemical herbicides and where they are prohibited by legislation.

7. Decreased localized dry spot.

Research has shown that rolled putting greens experienced less localized dry spot, while the soil samples showed that the rolled plots retained more moisture and had greater root mass than those that were not. On an athletic field, the impact of increased root mass from rolling would be even more meaningful than on a golf course due to its positive effect on turf stability and, ultimately, athlete safety. Preliminary data from an athletic field rolling study at Michigan State University (**Fig. 1**) shows that rolling athletic fields five times per week may potentially increase root mass of a Kentucky bluegrass field maintained at 2.5 cm. More evidence needs to be seen to draw any conclusions on this and it is being evaluated further.

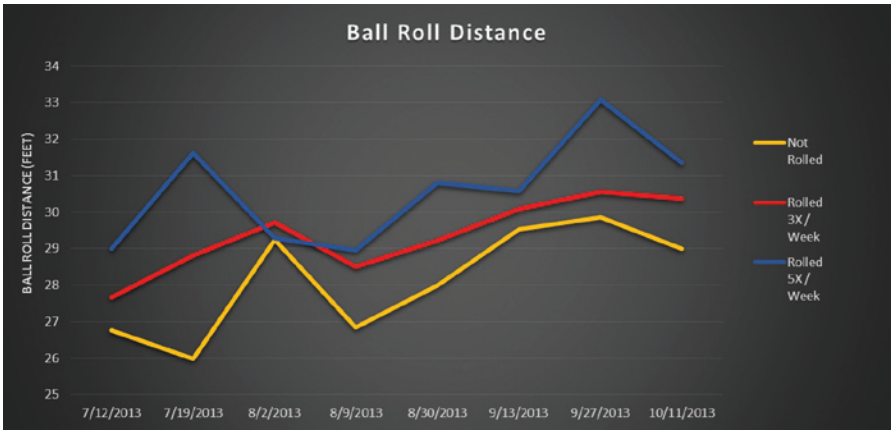

Figure 1. Preliminary data from an athletic field rolling study at Michigan State.

6. Height of cut raised and green speed retained.

Ongoing athletic field research at Michigan State University also shows promising results in regard to the possibility of routine rolling yielding a smoother, faster surface, just as it has on golf course greens. A soccer field gauge, which is essentially soccer's version of a golf Stimpmeter which measures green speed, was used to determine surface smoothness. Plots rolled five times per week were found to be faster than plots that were not rolled (**Fig. 2** on page 14). The thought of being able to create a surface that plays quicker, and more importantly is smoother and more consistent, would have the attention of athletes and coaches in such sports as soccer, baseball, lacrosse, and more.

5. Decreased cutworm activity—maybe!

Cutworms do their damage by feeding on roots and shoots of a turfgrass stand. This damage is much more evident and devastating at lower cutting heights, such as on putting greens, but can even become a problem on grass that is cut at home lawn height (7-10 cm). Anecdotal evidence indicates rolling may decrease cutworm activity on golf course greens and thus lead to a healthier, stronger rooted turf.

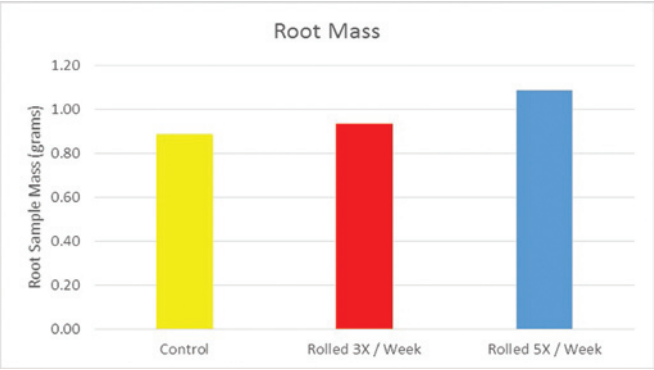

Figure 2. Plots rolled five times per week were found to be faster than plots that were not rolled.

4. Improved topdressing incorporation.

As indicated earlier, topdressing is one of the many cultural practices that athletic field management has adopted from the golf course industry. Sand topdressing needs to be incorporated into the root zone allowing it to serve its intended purpose beneath the canopy. No research has been performed specifically with athletic field rolling, but vibratory rolling after topdressing has been proven to be better for working the sand into the soil profile. Performing your athletic field rolling following a topdressing application might very well add one more benefit.

3. Decreased dollar spot.

One of the most impressive findings amongst the vast amount of research on rolling greens is the continued observation of decreased incidence of dollar spot. With the reason for this phenomenon being rather involved and somewhat intangible, the translation of this benefit to an athletic field setting currently stands at "to be determined" due to the current lack of dollar spot for athletic field rolling.

2. It's the economy (rolling/mowing frequency programs).

Cost savings analyses of greens rolling have focused on a rolling/mowing trade off in which labor, fuel, and maintenance costs are all considered. Alternating rolling and mowing, as opposed to mowing every day, is said to save time and money (both fuel and maintenance costs), while also improving wear tolerance and yielding similar green speeds. If comparable conditions can be replicated with this method on athletic fields, these cost savings could certainly be seen. This tactic could be particularly valuable on fields that do not receive play on a daily basis, and thus may not require a fresh mowing as often.

1. Increased customer satisfaction.

The customer of a golf course, the golfer, is satisfied by many of the same things as the customer of an athletic field, the athlete. Both desire a smooth and consistent surface that will allow them to direct their concern toward their own performance rather than that of the turf. Routine lightweight rolling has been proven, through research and application, to help give golf course customers what they want. There is definitely some evidence that rolling can deliver the same to athletes.

Now with all these potential benefits, what has prevented the majority of groundskeepers and field managers from joining this rolling revolution seen in golf over the last 20+ years? Just as was once the case in golf turf management, the concern that detrimental effects caused by consistent rolling will negate, or even eclipse, its benefits has caused many sports field managers to balk at the idea.

Certainly the number one concern with consistent rolling of athletic fields is the potential for compaction, and rightfully so. A compacted field can create an unhealthy turf stand, as well as create poor drainage and fields that are unplayable during any type of rainfall. Surface hardness (a measure of compaction) is being observed closely in all athletic field rolling studies at Michigan State. To date, there has been no statistical evidence of any significant compaction (Fig. 3), however if a field manager chooses to implement a routine rolling program, he/she should do so with caution. Compaction is greatest when forces are applied to the wet ground, especially on fields with high silt/clay content and rolling should never be done on saturated soil. Additionally, on any field where frequent rolling occurs, regular core cultivation/aeration should also be done to counteract any potential compaction that may happen over time.

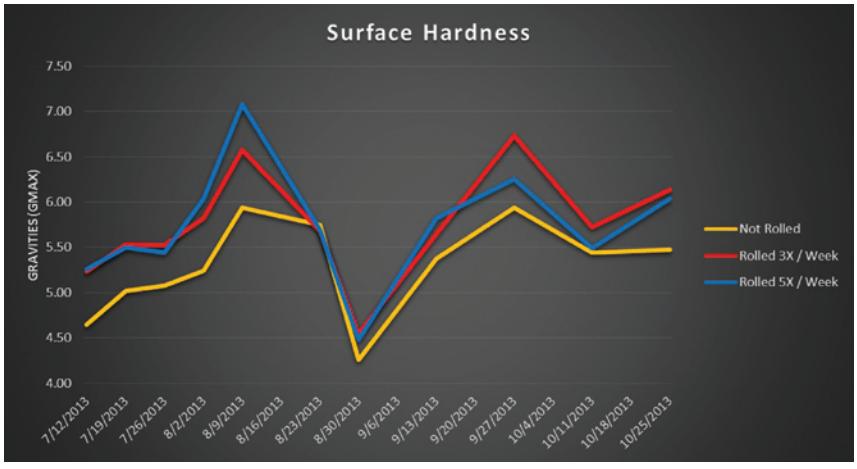

Figure 3. There has been no statistical evidence of any significant compaction.

Furthermore, rolling should be done with extreme caution during potential periods of stress on the turf. Rolling during drought, heat, cold, or disease stress will only intensify or spread the negative effects incurred during these harsh conditions.

Overall, the evidence to support rolling golf course greens is strong and rarely debated. However, there currently just seems to not be enough research and experience for most athletic field managers to follow their superintendent counterparts in this practice. Early research is beginning to show that routine rolling of athletic fields is worth looking into, with more research and in every day practice. Only then will we get the chance to see this cultural practice roll through the door, fashionably late. ■

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