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On the cover: "The Jungle," Louisa County Public Schools, Mineral, VA. Head Sports Turf Manager Michael Hopkins is also the turfgrass science instructor for Louisa County HS. His full-time staff includes Bill Pelott, Joe Bradford and Jimmy Null. Special thanks to Hopkins' Advanced Turf Science class, known as "The Jungle Turf Crew."

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From the Sidelines



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Editorial Director

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Love for turf management starts early

PERHAPS TURFGRASS MANAGEMENT'S ANSWER TO MIKE TROUT AND BRYCE HARPER, a young phenom has emerged who not only manages his field but also plays on it and owns it (well, sort of). I received an email over the summer from a 14-year-old youngster touting the wiffleball field he had built in his backyard. The email was signed "Eddie Zajdel, Head Grounds Keeper and player, Plymouth Brewers, Plymouth MI."

It read: "It all started 2009 when I constructed a little mound on the grass without my dad's permission. He was a little mad but soon saw all the [fun] I was getting out of it, so then he let me carve out a keyhole and batters box for the rest of that season, he said but then I finally convinced him to build the rest of the field, which took about 3 days.



"Since then I have been making it better. [My goals] are to 'sods up' all along the lip edges and create a gate for anyone who wants to enter and indeed to protect it from the family dog. Currently we have 5 flood lights up and working and plan to install another 2 before the World Series. We also are having a home run derby and All Star Game on the 11th and 12th of July after a donation of red infield conditioner from Diamond Pro. Then the Brewers play by play radio announcer, Joe Block,

is planning to come and announce a game during our World Series. Later this year I am going to meet the Tigers' head groundskeeper, Heather Nabozny, for the second time.

I emailed Eddie and asked if he wanted to be a groundskeeper when he grew up. "Yes I do. I find passion in grass and dirt and I also enjoy getting my name out there. I like the feeling I get when I work on [the field]; it is a feeling that's very hard to explain but I know it's good because I always want to learn more and work harder."

Did he build a hitter's park or a pitcher's? "I would pretty much call it a hitter's park because the distances are short and the field is kind of enclosed which makes or ideal for homerun hitters," Eddie replied. He said he hadn't won his own World Series yet because he always loses to his cousin, who plays for the Westland Tigers.

"One thing that I wish to accomplish in the future is not only becoming a groundskeeper but creating something like a public wiffleball field and starting up a league but the problem is the money," he concluded.

Sounds like Eddie is already well-seasoned in many a turf manager's lament! ■

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President's Message

Dr. Mike Goatley

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Daytona Beach conference to introduce changes

INOTE THE ARRIVAL OF FALL on a college campus from the energy associated with students arriving en masse for another semester and a town that appreciates the sights, sounds, and pageantry associated with college football. The arrival of fall also means (unbelievably) that our 2013 Conference and Trade Show is only a few months away. It is time to start making your plans for Daytona Beach. The STMA Board conducted a site visit of our 2013 Conference and Trade Show venue during its summer Board meeting and we all agreed that Daytona Beach has the feel of being just the right size and location for STMA. Daytona offers a variety of airports for which to shop for the best value for flights (Daytona Beach, Jacksonville, and Orlando are all possibilities) and the city is big enough for all the anticipated amenities of a conference venue, yet small enough that STMA will be the big event for the city this particular week.

Your Board continues to do everything it can to ensure you have the most affordable and rewarding conference experience possible and we want you to understand how much we listen to your suggestions and comments. When considering venues for future conferences, we debate back and forth the "value" of the location to our membership for what it offers as a venue to our attendees and vendors, but also for the costs associated with travel, lodging, and conference registration. We are a Board of members for the members; we hope you always feel comfortable letting us know how we are doing.

In particular for 2013, the Education Committee (chaired by Jeff Fowler) took a close look at comments from recent conferences and decided to shake up the educational program quite a bit. Be sure to read on page 40 in this issue about the changes in timing of many of our events and sessions as compared to previous years AND our first-time offering of STMA Academies. These specialized educational programs will offer certificates of completion for its attendees.

The newly remodeled Convention Center is going to be appreciated by both vendors and attendees from all perspectives: location, ease of access, layout, etc. It simply has a great feel for a show our size. And our host hotel, the Hilton, sits right on the beach directly across from the Convention Center. Even though January might be a little nippy for a swim in the Atlantic, it is still a treat to watch a sunrise over the ocean. Please join us if at all possible to renew friendships and make new acquaintances.

I would like to close this month by thanking Patrick Allen for 7+ years of exemplary service, most recently as STMA's Sales and Marketing Manager. Pat has accepted a position with Kansas City University of Medicine and Biosciences to become their next Assistant Director of Alumni Programs, a great opportunity for both him and his family. Thanks, Pat—we will miss you, but we are pleased for you too. Rock Chalk Jayhawk! ■

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Phoma macrostoma: update on the new turfgrass bioherbicide

FOR SEVERAL YEARS, the fungus *Phoma macrostoma* has undergone extensive evaluation by Agriculture & Agri-Food Canada and The Scotts Company to see if a bioherbicide could be developed to control broadleaved weeds in turfgrass. In 2009, the summer issue of *SportsTurf Manager* reported on its discovery as a potential bioherbicide, and some of the research demonstrating its efficacy and crop safety.

Last June (2011), the Pest Management Regulatory Agency approved a conditional registration for *Phoma macrostoma* to be used domestically and commercially for control and/or suppression of weeds such as dande-

lion, scentless chamomile, English daisy, white clover, black medic, Canada thistle, chickweed, broadleaf plantain, and ragweed. The bioherbicide may be used safely on a variety of turf types such as Kentucky bluegrass, bent grass, perennial or annual ryegrasses, fescues, brome-grasses, timothy, and Bermuda grass.

The fungus is formulated into granules which may be applied to either newly-seeded or well-established lawns from a ready-to-use applicator for spot treatments or by broadcasting the granules as either pre-emergent or post-emergent applications. The product may be applied anytime from spring through

» **A BROADCAST APPLICATION** of granules containing *Phoma macrostoma* on research demonstration plots in Saskatoon.

fall, but it works best when the mean day time air temperature is hovering above 20°C (15-30°C range) and the soil is relatively moist. The product does not need to be “watered-in” but some precipitation or irrigation (up to 1-3 inches) within 24-72 hours after application would be beneficial particularly if the soil is not friable or moist.

Continuing research has expanded our knowledge of how the bioherbicide will perform in the field. Studies have shown that extreme moisture events around application will reduce the level of weed control attained, especially on sandy soils. The bioherbicide may be applied at the same time as commercial granular fertilizers which may result in a 10-15% enhancement in weed control.

Currently, *Phoma macrostoma* is undergoing scale-up development to be able to efficiently produce commercial quantities, thus a commercial launch is still a few years away. ■

K.L. Bailey is with Agriculture & Agri-Food Canada, Saskatoon, SK. S. Falk is with The Scotts Company, Marysville, OH.

ADDITIONAL READING

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Editor's Note: The referenced article in the Summer 2009 issue of *SportsTurf Manager* may be accessed online at www.sportsturfmanager.com/Publications/SportsTurfManager/Archive.

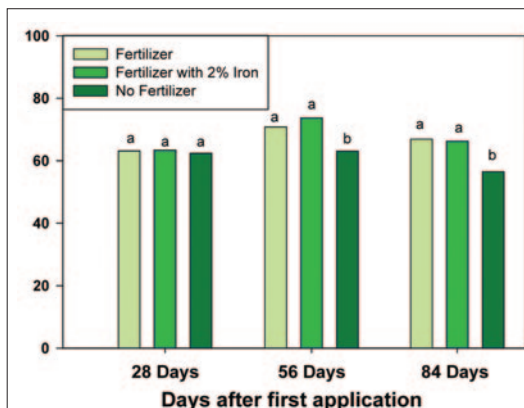


Figure 2. GRANULES of *Phoma macrostoma* were applied at the 1X rate with or without commercial fertilizer granules at Marysville, Ohio. The use of fertilizers with the bioherbicide improved weed control later in the season. (Different lower case letter show significant difference among treatments using an LSD test at P= 0.05.)



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Maintaining synthetic surface safety

WITH THE INCREASING FOCUS on concussions in sports, many aspects associated with athlete safety are under higher levels of scrutiny. The hardness of the playing surface is one of them. While both natural and synthetic turf fields can reach unsafe hardness levels, synthetic turf fields seem to receive the most attention. Assuming a proper installation, synthetic fields start off well below hardness thresholds in the months after install. Over time, these fields may get harder and in some cases, if not properly cared for, can reach unsafe levels. So, why do synthetic turf fields get hard? Is it compaction? Or is there something else going on?

It is a common belief that compaction of the infill is the reason fields get hard. For many of us, that seems to make sense. We know that heavy use on a natural turf field leads to soil compaction and, in turn, increased surface hardness. But, to what degree does crumb rubber and sand compact? Certainly there is a “settling-in” period in the weeks after installation, but based on our observations, compaction is minimal after the settling-in period in most cases. In fact, most infill is sized such that only limited compaction is even possible due to the relatively uniform size of the infill particles.

RESEARCH RESULTS

Our research plots at Penn State provide an interesting example. In 2002, various synthetic turf companies installed their products which were then used in a research trial that concluded in 2010. Over the course of 8 years, a section of each of these plots was exposed to 96 simulated games per year using our traffic simulator. By the end of the trial, those trafficked sections were exposed to more than 1,500 passes with our traffic simulator. However, by the end of the study, surface hardness values were still well below

the published threshold of 200 G's set by the American Society for Testing and Materials (ASTM) and the US Consumer Products Safety Commission. Even wheel ruts caused by the tractor repeatedly pulling the traffic simulator over the same area for 8 years



>> Top: A FIREPROOFING DEPTH GAUGE is a good tool to measure infill depth and can be purchased for less than \$15.

>> Bottom: THE SMALL AMOUNTS OF INFILL collected in shoes, clothing, equipment bags, etc., may seem insignificant individually, but those small amounts add up.

tested to be well below the 200 G level. This example helps illustrate that compaction alone is most likely not the main cause of excessive surface hardness.

We have also observed specialized machines remove infill from an existing field, “clean” it, and reinstall it back into the carpet in an effort to reduce surface hardness. The Gmax values before and after this process were essentially the same. It was only after new rubber was added that the Gmax was reduced.

Other factors, however, can compromise the infill resiliency and thus increase surface hardness. For example, excessive and repeated painting of lines and logos without the occasional cleaning of the painted areas, including removal or wash-through of old paint, can lead to a hard surface. Excessive deposits of debris and particulate matter may compromise the infill if the surface is not cleaned over time. The build-up of this type of debris takes many years in most cases and typically is not a major concern for fields with even moderate maintenance.

So why do some fields become hard over time? We believe that “walk-off” crumb rubber and the associated loss of infill depth is the main cause for increases in surface hardness of synthetic turf fields. “Walk-off” crumb rubber refers to crumb rubber that leaves the field in the shoes, clothing, equipment bags, etc. of field users. While it seems like an insignificant amount on an individual basis, when looked at collectively for all field users, it begins to add up. Add in the infill material that is removed from necessary regular maintenance activities such as grooming, brushing, sweeping, and blowing, and the amount of infill removed from the field can be substantial.

OBSERVING “WALK-OFF” CRUMB RUBBER

This idea of “walk-off” crumb rubber is supported by our observations as we have tested many fields in the United States. Almost every time our tests show a high surface hardness value, it is associated with a low level of infill. The infill creates the padding and shock-absorption for the synthetic turf system. As the thickness of that “padding” is reduced, there is less of a cushion between the surface and the hard base under the turf, thus resulting in elevated surface hardness. This is often most evident in the high-use areas of the fields, where the majority of play occurs and, in turn, the majority of the rubber “walks off.” Thinking back to our research plots here at Penn State, infill depth remained at or very close to installation levels