Between the Lines
Keystone Athletic Field Managers Organization

Inside:

Seedbanking Kentucky Bluegrass and Perennial Ryegrass

Also:

NUTRIENT RESTRICTIONS IN TURF: What's Down the Road for Pennsylvania?

MAINTENANCE CALENDAR When to Do What

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The internet is not a fad! KAFMO has email addresses for about 50% of our members. I'm sure some of you are too "old school" to bother with the internet. News flash—the internet is here to stay. If my 84-year-old mother can read and send emails, so can you. I'm sure you have a coworker/child/person walking by who can teach you the basics. Personal computers are an inexpensive tool that keeps you connected professionally and personally.

For those of you already on the internet bandwagon, make sure KAFMO has your email address so we can send you news and reminders. Information about events shows up in your email inbox or on our website at www.kafmo.org long before snail mail gets it to you. Please send your email address along with your name to kafmo@aol.com. Thanks.

Dan Douglas, KAFMO President

Fertilizer regulation: Pennsylvania is in the process of drafting regulations to restrict the use of fertilizer on turf in an effort, like NY, MD and NJ, to reduce nutrient pollution of our waterways. The current proposal all but eliminates the use of phosphorus, limits the amount of nitrogen per application, limits the timeframe for a late fall/early spring application, and suggests the need for a fertilizer applicator certification program. Members of your KAFMO Board of Directors are taking an active role in the process so that all of us can continue to use fertilizer in an environmentally conscious manner to provide safe playing fields. See page 6 in this issue for the latest from Dr. Peter Landschoot of Penn State.

The Keystone Athletic Field Managers Organization was formed in 1994 by a small group of individuals who were concerned about the quality of the athletic fields in Pennsylvania. In 1997, KAFMO became incorporated as a chapter of the Sports Turf Managers Association. Today, KAFMO is over 300 members strong and each individual is committed to enhancing the professionalism of athletic field managers in the Keystone State.

Our goals are to improve the safety, playability and appearance of all athletic fields in Pennsylvania. As an organization we strive to accomplish our goals through seminars, field days, publications and networking with other professionals in the sports turf industry.

Any individual, institution, organization, vendor or supplier who has sincere interest in athletic field maintenance is welcome to become a member. Our members represent a wide range of professionals in the sports turf industry. From high school, collegiate and professional athletic facilities, to parks and recreation departments, municipalities, educators, youth leagues, contractors, and commercial vendors, our membership base is made up of a broad range of individuals who pool their knowledge together for the good of our craft.

Annual Events include:
• Summer - Field Day(s)
• October - KAFMO Cup Open golf tournament – proceeds benefit the Awards Fund
• January - Eastern Pennsylvania Turf Conference
• January - Northeastern Pennsylvania Turf Conference
• February - Annual KAFMO conference featuring seminars, exhibits and the annual awards program
• February/March - Western Pennsylvania Turf Conference
• March - Northwestern Pennsylvania Turf Conference

Educational Grants and Research
KAFMO has donated over $47,000 for educational grants and sports turf research since 2001. KAFMO provides scholarships for sports turf education and sponsors collegiate teams in the Sports Turf Managers Association’s Collegiate Challenge at their annual national conference. Research beneficiaries include: Sports Turf Managers Association’s Foundation for Safer Athletic Field Environments (SAFE), Pennsylvania Turfgrass Council’s fund for sports turf research at Penn State University and the Pennsylvania Turfgrass Research Fund, Inc.

On The Cover...
McConnellsburg High School Baseball Field won a KAFMO Field of Distinction Award for 2010. The field hosts more than 150 practices and games each year, including PIAA and District baseball playoffs. Head Groundskeeper Brent Seville, right, and his assistants, Brian Strait, left, and Victor Guyer, center, do most of the work in-house. The field is maintained on an annual budget of less than $3,000.

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The magazine will be free to KAFMO members.
Seedbanking potential of Kentucky bluegrass and perennial ryegrass

By Andrew Hoiberg, Iowa State University

Continual overseeding during a traffic season to build up a seedbank is often recommended as a way to perpetuate turf cover. However, there is not a good scientific understanding of seedbanking in athletic field settings. Anecdotal reporting of seed establishment well after the traditional germination window has been witnessed by many, but again, research studies on this topic are limited. A more thorough understanding of what factors are involved in the potential of commonly used cool season grasses to establish seedbanks is needed.

Two types of seedbanks exist in nature; transient, meaning short-lived (less than 1 year) and persistent (more than 1 year). In existing literature, species used in athletic fields have not traditionally shown the ability to form more than transient seedbanks. Species such as annual bluegrass are well known for their ability to form a dense, persistent seedbank, while species such as perennial ryegrass, are not traditionally found in high numbers in soil for extended periods. Seed size has been shown to influence longevity in soil, being inversely proportional to longevity, leading to the conclusion that seeds of perennial ryegrass and tall fescue would form shorter lived sandbanks than Poa.

Materials & methods

Two studies were established in September 2009 at Iowa State University to evaluate the potential of Kentucky bluegrass and perennial ryegrass to form useful seedbanks that contribute to turf cover in the presence of traffic.

The first study planted each species at three seeding rates and two seeding regimens; all at once (single), or divided into five equal applications (multiple), spaced one week apart, totaling the seeding rate in the single seeding. For Kentucky bluegrass, seeding rates of 6, 12, and 24 lbs 1000 ft$^2$ were used; for perennial ryegrass, seeding rates of 30, 60, and 90 lbs 1000 ft$^2$ were used. Plots were renovated to bare ground before the first seeding date of September 1st. Traffic treatments of no traffic or 4 passes/wk (1 traffic pass = 1 game) were used to evaluate the role of traffic in seedbank formation. Traffic treatments started on the day of seeding and the traffic simulator was used to “cleat in” multiple seeded plots. Due to ¾” cleats being used on our traffic simulator, a realistic sampling depth of 1” was used for evaluating banked seed.

Estimates of turf cover were taken periodically during the traffic season and 4” cores were extracted from each plot three times (in December after traffic ceased, in April following the traffic season, and in September, 1 year after seeding) to evaluate how much viable seed had been banked. Each core had the top 1” removed, broken up by hand, thatch and living tissue removed, and finally planted in an 8” azalea pot in a greenhouse to monitor seedling emergence. Seedlings were counted and removed after an emergence period, after which the soil was disturbed and any seed remaining was given a chance to emerge during a second emergence period. Cumulative seedling counts and turf cover were used to compare differences between seeding rate, traffic level, and seeding regimen.

The second study examined the fate of 400 seeds planted 1” deep in nylon mesh bags, used for seed retrieval. Bags were buried for 3, 6, or 12 months, after which they were extracted and evaluated in the laboratory. Seeds were counted as germinated, non-germinated, or dead. Seeds deemed non-germinated were placed in germination chambers and given time to germinate. If seeds germinated in the chamber, they were considered banked, if they did not, they were forceps tested and counted as either dead or potentially viable. Those that were potentially viable were tetrazolium-stained to determine if there was a viable embryo within the seed.

Results: Buried Seed

In 2009, 80-90% in-field germination of both species was observed, and those that did not germinate were either dead or did not contain viable embryos. It is important to note that this method of evaluating seed is representative of a single seeding as it is difficult to continually input seed into the sealed mesh bags, which would represent a multiple seeding regimen. It appears that 1” burial under bare ground is not the ideal situation for banking seed as open ground provides germinable conditions and seeds mostly germinated in an effort to populate the bare ground.

However, the first perennial ryegrass sample from the 2010 planting is showing different results. The number of seeds initially germinated remains similar; however, more of the non-germinated seeds are showing second-
ary germination in the greenhouse. In the first analysis of 2010, 80-90% of perennial ryegrass and Kentucky bluegrass seeds germinated in-field. Of the remaining 10-20% perennial ryegrass seeds, almost half germinated in the greenhouse, which is different from the 2009 seeds. Kentucky bluegrass, on the other hand, is showing very little secondary germination, which parallels the results from 2009. So far, perennial ryegrass is the only species that shows any viable seedlings remain after an initial germination surge after planting at 1” depth below bare ground.

**Percentage turf cover for KY bluegrass**

For Kentucky bluegrass, turf cover was positively influenced by higher seeding rates during the first two months of the traffic season (September/October). As attrition due to traffic evened turf cover, the influence of seeding rate was diminished and by December, 24 lbs 1000 ft² showed no more turf cover than 6 lbs 1000 ft². Kentucky bluegrass established from seed during the presence of traffic is not able to maintain turf cover; additionally, higher than normal seeding rates resulted in yellowish, immature plants. Proper establishment time windows are necessary to prepare Kentucky bluegrass for cleated traffic.

When comparing a single seeding with multiple seedings, both with no traffic, a single seeding resulted in greater turf cover until December, when the cumulative effect of multiple seedings caught up to the one time seeded plots and did not appear as spindly and off colored as the single seeded plots did. It appears that a single seeding, at an above normal rate of Kentucky bluegrass, is not a viable way to rapidly establish traffic tolerant turf. Plots that were seeded multiple times also looked healthier the following spring. This helps illustrate the detrimental effects of overcrowding populations of Kentucky bluegrass. Where 4 passes wk⁻¹ of traffic were applied, seeding regimen had little influence on turf cover as traffic quickly wore turf away.

**Percentage turf cover for perennial ryegrass**

For perennial ryegrass, seeding rate positively influenced turf cover throughout the traffic season. In September and October, 90 lbs 1000 ft² resulted in the greatest turf cover, while in November, 90 lbs 1000 ft² offered no more turf cover than 60 lbs 1000 ft². By December, seed rates of 30, 60, and 90 lbs 1000 ft², averaged over traffic levels, resulted in 58, 69, and 73% turf cover, respectively. In contrast to Kentucky bluegrass, seeding at higher than normal rates of perennial ryegrass resulted in a dense stand of wear tolerant turf.

Single seeding events almost always resulted in more cover at the end of the season than did multiple. Like the Kentucky bluegrass, single versus multiple seedings, with no traffic applied, had large differences during September and October, but by December the cumulative effect of multiple seeding events equalled the one time seeding turf cover. When comparing single versus multiple seedings, with 4 passes of traffic wk⁻¹, the single seeding provided greater turf cover throughout the study, although traffic thinned turf cover to less than 20% in both by December.

**Emerged seedlings—KY bluegrass**

Kentucky bluegrass showed very little banked seed in any of the cores analyzed during 2009-2010. Only in the first sample, taken at the end of the 2009 traffic season, did any significant number of seedlings emerge. Neither seeding rate nor traffic level influenced the number of emerged seedlings, but multiple seeding resulted in higher numbers of emerged seedlings compared to single seeding. These results suggest that Kentucky bluegrass forms a transient seedbank that offers limited potential to influence turf cover during traffic.

**Emerged seedlings—perennial ryegrass**

Emerged seedlings for perennial ryegrass increased as seeding rate increased with 90 lbs 1000 ft² producing the most seedlings. Similar to Kentucky bluegrass, cores extracted immediately after traffic ceased in December produced the most emerged seedlings. As time went on, the number of emerged seedlings decreased, and very few emerged from cores harvested 1 year after initial seeding. With Kentucky bluegrass, multiple seeding resulted in the most emerged seedlings.

Traffic of 4 passes wk⁻¹ resulted in fewer emerged seedlings than no traffic on multiple seeded plots, but was still higher than single seeded plots. This suggests that either the traffic is mechanically damaging the seeds so they are no longer available or that by continual surface disruption, more of the available seed is being used (e.g. put into a germinable position) during the traffic season. Traffic did not influence emerged seedling numbers in the single seeded plots. Turf managers should not count on perennial ryegrass to contribute significantly to turf cover after the traffic season is over, but it does appear that there is stored seed that can be used during the season with multiple inputs. It is also clear that some soil disturbance is necessary to put these reserves of seed into a germinable position. Through seed number calculations, the following table was developed:

<table>
<thead>
<tr>
<th>Seedrate (lb 1000 ft²)</th>
<th>Mean emerged seedlings 12.6 in²</th>
<th>lb available seed 1000 ft²</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>60</td>
<td>64</td>
<td>3</td>
</tr>
<tr>
<td>90</td>
<td>114</td>
<td>6</td>
</tr>
</tbody>
</table>

In order to build a transient seedbank with perennial ryegrass, turf managers should use multiple seeding events with rates of 5-20 lbs 1000 ft² per seeding multiple times during the traffic season. As the season progresses, environmental conditions become less favorable for seed germination; seeding events should be focused toward the beginning and middle of the season. The long term effects (> 1 year) of continuous seeding have yet to be elucidated as it is difficult to determine the age of seed when it emerges.

**Conclusions**

We have to compromise between the results on percentage turf cover and potential for seedbanking. Since Kentucky bluegrass performed poorly in both studies, we will focus on perennial ryegrass. Although not evaluated in this study, continual input of Kentucky bluegrass seed into a mature stand is likely to help. If single seedings, in general, produce more turf cover throughout the season than multiple, why should we consider multiple seedings? Even if you seed once at a high rate (see table below), multiple seed inputs can help further combat traffic.

Multiple seedings positively influence seedbanking potential, and with constant surface disruption (e.g. cleated traffic), this should put banked seed in a germinable position. But don’t stop putting seed out on your field just because you think you have a seedbank built up. Being proactive rather than reactive when it comes to overseeding your athletic fields will put you in the best possible position to sustain acceptable turf cover without resorting to a major, sod based renovation.

Based on this project and previous research conducted at Iowa State, the following table of recommendations has been made for athletic field managers:

<table>
<thead>
<tr>
<th>Kentucky bluegrass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not recommended when starting from bare ground</td>
</tr>
<tr>
<td>3-6 lb/1000 ft²</td>
</tr>
<tr>
<td>Once + follow up</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perennial ryegrass</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-90 lb/1000 ft²</td>
</tr>
<tr>
<td>15-30 lb/1000 ft²</td>
</tr>
<tr>
<td>Once + follow up</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tall fescue</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-60 lb/1000 ft²</td>
</tr>
<tr>
<td>15-30 lb/1000 ft²</td>
</tr>
<tr>
<td>Once + follow up</td>
</tr>
</tbody>
</table>
Nutrient Restrictions in Turf: What’s Down the Road for Pennsylvania?

By Dr. Peter Landschoot

Unless you’ve been living in a deep, dark hole, you have probably heard that nitrogen and phosphorus fertilizers are on the hot seat in the United States. Several states are either considering or have enacted legislation involving nutrient restrictions in turf. If the Environmental Protection Agency (EPA) has its way, Pennsylvania and the other five states in the Chesapeake Bay watershed will soon have laws governing the application of phosphorus, and perhaps nitrogen fertilizer on turf. The following is a summary of EPA’s new program for reducing nutrient loading into the Chesapeake Bay, and how it may affect athletic fields and other turf sectors in our state.

Nutrients and the Chesapeake Bay

To understand why EPA and state governments have begun to crack down on fertilizers, consider where we’ve been and where we are headed with respect to water quality in the Chesapeake Bay. The Chesapeake Bay is the largest estuary in the United States, providing critical habitat for thousands of species of fish, birds, and mammals. About half of the Bay’s water volume comes from the Atlantic Ocean, whereas the other half drains into the estuary from the enormous 64,000-square mile watershed. Of the 50 major tributaries that feed into the Bay, three rivers (Susquehanna, Potomac, and James) deliver about 80% of the fresh water, with the Susquehanna River contributing the largest volume (48%).

As the Susquehanna meanders through the mountains and valleys of central Pennsylvania, it picks up nutrients and sediment from farms, wastewater treatment plants, forests, and developed areas. The Susquehanna eventually flows into the northern portion of the Bay, where it deposits nutrients and sediment-enriched water. The EPA estimates that 41% of the nitrogen and 24% of the phosphorus entering the Bay comes from Pennsylvania.

During the summer, excess nutrients foster algae blooms that block sunlight from reaching the submerged aquatic vegetation that provides habitat for fish, shellfish, and waterfowl. As algal colonies die, they sink to the bottom of the estuary where they undergo decomposition. Decomposition of algae depletes water of oxygen and results in “dead zones” and fish kills.

Although some progress has been made over the past 25 years in reducing nutrient loading into the Chesapeake Bay, it is still impaired and in poor health. Since 2005, Chesapeake Bay watershed states and the EPA have been involved in developing a program that would help restore the Bay to “fishable” and “swimmable” status, as required by the Clean Water Act. A pollution reduction program would also help resolve commitments made in consent decrees, memos of understanding, and settlement agreements dating back to the late 1990s that address impaired water in the District of Columbia, Delaware, Maryland, and Virginia.

In May 2009, the Obama Administration issued an executive order that set aggressive goals for restoring health of the Bay by 2025. Because EPA is the regulatory and enforcement agency responsible for ensuring clean water, it launched a comprehensive program to significantly improve water quality of the Bay over the next 15 years.

EPA’s Chesapeake Bay TMDL Program

In response to slow progress in reducing nutrient loading, legal challenges, and the executive order, EPA initiated the Chesapeake Bay TMDL Program. TMDL stands for total maximum daily load, and defines the amount of pollution (in this case nutrients and sediment) a water body can handle and still be healthy. Through this program, EPA is essentially establishing a “pollution diet” for all six Bay watershed states and the District of Columbia. The TMDL program involves establishing limits on pollutants, schedules for pollution reduction plans, expectations and evaluation criteria for meeting pollution limits, controlling point and nonpoint source pollution, and actions to ensure progress.

The first step in the TMDL program is to establish caps or allowances for nitrogen, phosphorus, and sediment loads in all six Bay watershed states and the District of Columbia. The allowances are based on models developed over a number of years from extensive water monitoring and research across the Bay watershed. The EPA hopes to achieve total allowances of 187.4 million pounds of nitrogen and 12.3 million pounds of phosphorus by 2025. Pennsylvania’s allocation is 76.77 million pounds of nitrogen and 2.74 million pounds of phosphorus. These numbers represent about one-half of the nitrogen and phosphorus loading that occurred in 1985.

The second step in EPA’s TMDL program is for each Bay watershed state to develop a watershed implementation plan or WIP. The WIP is each state’s road map to achieving the nutrient and sediment load allocations. Each WIP will be developed in two phases. The Phase 1 WIP will divide nutrient and sediment load allocations by pollution source sector [e.g. agriculture, wastewater treatment plants, urban/suburban/rural storm water].

The Phase 2 WIP will further subdivide nutrient and sediment load allocations at the local level (county, conservation district, municipality, etc.). The Phase 2 WIP is intended to inform county conservation districts or planning commissions of the nutrient and sediment loads generated by their geographical area so they can help implement actions to reduce the loads. EPA works with each state to refine the WIPs, and provides feedback on whether they believe the load allocation will be met. They also provide guidance on where more pollution controls are needed.

In Pennsylvania, the Department of Environmental Protection (DEP) is in charge of developing the WIP. In spring 2010, DEP formed workgroups for agriculture, wastewater treatment, and urban/suburban/rural storm water. Each workgroup is composed of stakeholders who discuss and debate how various best management practices, existing and proposed regulations, and upgrades in infrastructure can achieve EPA’s TMDL nutrient and sediment allocations by 2025.

After a series of meetings during the spring and summer of 2010, DEP submitted a 132-page draft of Pennsylvania’s WIP to EPA. In this first draft, only three paragraphs focused on lawns and golf courses, and the language on nutrient restrictions was very general. A few weeks after the first draft of the Pennsylvania WIP was submitted, it was rejected by EPA. EPA claimed that although the nitrogen allocation was met, there was insufficient information to provide reasonable assurance that this would be achieved by 2025. EPA also stated that Pennsylvania’s draft WIP did not account for 11% of the phosphorus allocation, and was 1% over its sediment allocation.
In October 2010, EPA and DEP explained their respective positions regarding the draft WIP in a series of public meetings around Pennsylvania. EPA threatened to impose a “federal backstop” if DEP did not provide reasonable assurance that nutrient and sediment allocations would be met in the final Phase 1 WIP (submitted November 29, 2010). The backstop involves expensive and severe restrictions on point sources of pollution such as animal feedlots, wastewater treatment plants, and storm water retention systems. Such a backstop would be very expensive for Pennsylvania. Thus, DEP revised the first draft of the Pennsylvania WIP and included more provisions for phosphorus reductions and greater detail on how nitrogen, phosphorus, and sediment allocations would be achieved. One of the items addressed in the final Phase 1 WIP was turfgrass fertilizer restrictions and a certification program for professional fertilizer applicators.

**Proposed phosphorus restrictions and certification program**

To address EPA’s concerns and provide reasonable assurance nutrient allocations will be met by 2025, DEP proposed many changes in the final Phase 1 WIP, including an Urban Nutrient Management program. The proposed program includes two main components, education and legislation. The education component will be geared to homeowners and professional fertilizer applicators. Homeowner education programs will focus on proper fertilizer application techniques and reducing use of phosphorus-containing fertilizers. Education for professional applicators may involve a certification program for continuing education credit. The legislation component will focus on reducing phosphorous applied and sold by commercial lawn services, retailers, landscapers, turf growers, and other nonagricultural entities. Education and legislation programs will be statewide.

DEP stated that Pennsylvania’s Urban Nutrient Management program should be built from programs that already exist. For example, the Pennsylvania Department of Agriculture Bureau of Plant Industry (PDA) already has a pesticide applicator certification program for lawn care operators, landscapers, sports turf managers, and golf course managers. Pesticide applicators must be certified, keep records, and comply with pesticide rules and regulations. The PDA also administers fertilizer labeling laws and routinely inspects manufacturers, wholesalers, and retailers that sell fertilizer materials. A professional fertilizer applicator certification program could be modeled after PDA’s pesticide applicator certification program.

DEP stated in the WIP that Pennsylvania’s Urban Nutrient Management program should not be overly restrictive, but instead be designed to reduce the amount of nutrients in the Bay watershed that reach local streams. The following items were proposed as a means of achieving nutrient reductions with certain exemptions:

1. Limiting the application of fertilizer that contains phosphorus to lawns, golf courses, and other mowed grassy areas (turf).
2. Exempting the application to lands used for agricultural production.
3. Exempting the use of animal manure that is mechanically dried, ground, or pelletized, or to a finished sewage sludge product (do not discourage alternative uses of manure).
4. Allowing fertilizer containing phosphorus to establish grass during the first growing season.
5. Allowing application of fertilizer containing phosphorus to an area if a soil test shows that the soil in the area is deficient in phosphorus.
6. Prohibiting the intentional application of turf fertilizer, manure that is mechanically dried, ground, or pelletized, and finished sewage sludge product to an impervious surface and requires a person who spills any of these substances onto an impervious surface to immediately remove it.
7. Regulating the retail sale of turf fertilizer containing phosphorus unless the fertilizer is sold for one of the purposes for which it is authorized (labeled) to be used, such as new lawns, reseeds, or where a soil test demonstrates a need.

The EPA accepted the final WIP in December 2010, and the TMDL program is currently in place.

The third step of EPA’s TMDL program will involve monitoring progress toward meeting nutrient and sediment target allocations. Beginning in 2012, Pennsylvania and the other Bay watershed states will develop 2-year milestones to track progress toward reaching nutrient and sediment reduction goals. These milestones will demonstrate the effectiveness of the WIPs by identifying pollutant reduction controls and a schedule for implementation. EPA will review these 2-year milestones and evaluate whether they are sufficient to achieve necessary pollution reductions.

Through use of the Bay Tracking and Accountability System, EPA will determine if milestones are met. If plans are inadequate or progress is insufficient, EPA can invoke backstop actions to ensure pollution reductions. These include expanding coverage of National Pollution Discharge Elimination System (NPDES) permits to sources that are currently unregulated, requiring additional pollution reductions from point sources such as wastewater treatment plants, increasing federal enforcement and compliance in the watershed, prohibiting new or expanded pollution discharges, redirecting EPA grants, and revising water quality standards to better protect local and downstream waters. If all goes well, 60% of the targeted nutrient and sediment reductions will be achieved by 2017, and 100% will occur by 2025.

**What’s next?**

A draft of a new turfgrass fertilizer bill for Pennsylvania was just introduced in January. The proposed bill addresses the provisions listed in the WIP, as well as additional restrictions on nitrogen and blackout dates for fertilizer applications. The following are some provisions from the proposed bill:

**Use Restrictions:**

- No application of fertilizer from November 15 to March 1, or when the ground is frozen, or to impervious pavement.
- No application within 15 feet of water body/or within 10 feet if using a drop spreader, rotary spreader with deflector or targeted spray liquid.
- Fertilizer with phosphorous cannot be used unless the fertilizer is applied to new turf, to repair or reestablish turf, or if needed based on a soil test.
- Nitrogen will be limited to no more than 0.7 lbs of water-soluble N and no more than 0.9 lbs of total N per 1,000 square feet per application.
- Restrictions do not apply to processed sewage solids or manipulated animal or vegetable manure.
- No fertilizer product may be labeled for use as a de-icer.

**Professional Fertilizer Applicator Certification:**

- Must be certified by Pennsylvania Dept. of Agriculture (PDA), except for golf course employees who must be under the direct supervision of a certified professional fertilizer applicator.
- PDA must publish a list of certified professional fertilizer applicators on their website.
- Regulations to create a certification program must be promulgated by June 30, 2012.
- Requirements and training opportunities must be aligned with existing requirements for pesticide certification to the maximum extent practicable.

It is important to realize that the above language is proposed at this point, and that some of these provisions may change as the bill moves forward. Pennsylvania’s turfgrass industry needs to be vigilant and engaged in any legislative process. KAFMO officers have written letters and attended meetings associated with the proposed fertilizer bill, and their leadership will be important on this matter in the coming weeks and months. Legislation could be reasonable and straightforward, or politicized and encumbered by demands from special interests. Hopefully, leaders from many local and statewide turf organizations will be involved in the process and provide updates in newsletters and as presentations at conferences.
**TIPS: Training, Ideas, Professionalism, Solutions**

By Dave Anderson, Hempfield SD

- **Keeping string lines organized**
  If you want to save yourself some time and a lot of headaches, keep your string lines organized. I like to keep my strings on an electrical cord reel and have dedicated reels for each sports field for which we put lines down, for example field A boy’s lacrosse, field C Soccer, field D Baseball foul lines and so on. Each reel should have a name or number written on it and the order (in a column) in which the strings are on the reel. This is important because you put the string lines down in the order they have been marked on the reel and when you are pulling string lines up to put back on the reel, you start at the bottom of the column and work up to the top. Then when you need to string a field up the next time you paint the string lines are in order. With all string lines cut to fit and in order on the reel, your put-down and pick-up times will be optimized. Bobby Piccolo, Derry Twp.

- **Inspect bases**
  Are the bases you use on your fields in good shape? Make sure they are not worn or weathered to the point that they are unsafe. Removing bases and storing them in a dry location after each use will extend their life. Cleaning the bases, home plate and pitching rubber is a nice touch for a special event. Cleaner/degreasers like Spray Nine and Greased Lightening along with a small scrub brush works well. Propping a base on the edge of a milk crate makes cleaning easier. Painting is an option but the surface tends to get slippery over time. Keep the bases in good condition and visible. A new set of bases is less expensive than a trip to the hospital. Dan Douglas, Reading Phillies

- **Fertilize in May**
  The month of May is an excellent time to fertilize your athletic fields. By mid- to late-May vertical shoot length of grass blades has slowed down and the turf could use additional food to maintain color and vigor through the summer months. A good rule of thumb is to use a fertilizer that has 50% slow release fertilizer at a rate of .75 to 1 lb. of nitrogen per 1000 sq. ft. Fertilizing at this rate would ensure a proper shoot to root growth rate. A good balanced fertilizer like 20-10-10 would be a good choice. Too much nitrogen at this time of the year would cause increased shoot growth, which would lead to increased mowing, greater turf disease susceptibility, and weaker turf roots.

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wrote Chip Baker, Asst. Baseball Coach, Florida State University, Tallahassee, FL

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**Upcoming Events...**

**Mark your Calendars!**

**Sports Field Construction Conference**
Berks County Agricultural Center, Leesport, PA
June 28 - 29, 2011

**KAFMO Summer Field Day**
FirstEnergy Stadium, Reading, PA
June 29, 2011

**KAFMO Cup Golf Tournament**
Dauphin Highlands Golf Course, Harrisburg, PA
October 10, 2011

**16th Annual KAFMO Athletic Field Conference**
Grantville, PA
February 17, 2012

Details of all events will be available at www.KAFMO.org.

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15th annual Athletic Field Conference attracts big crowd

More than 260 turf managers gathered February 18 near Harrisburg for KAFMO’s 15th annual Athletic Field Conference, one of the longest-running meetings of its kind in the country. The event was co-sponsored by the Pennsylvania Recreation & Park Society.

The event was made possible through the support of 22 conference sponsors (see list below) and a record-number 34 exhibitors.

Fowler Founders Award

Jim Cornelius, Certified Sports Field Manager (CSFM), recently retired as the supervisor of buildings and grounds after 36 years with the West Chester School District, received KAFMO’s 2011 Fowler Founders Award, the organization’s highest honor. Cornelius had overseen all maintenance, HVAC, warehouse and grounds at West Chester, which includes 18 buildings on 344 acres and includes four synthetic and 40 natural turf athletic fields. He has been an active member of KAFMO since 1996.

The award is named in honor of Donald Fowler, retired Penn State extension agent, who is credited with organizing the group of individuals who formed KAFMO. The award itself is one of Don Fowler’s worn-out work boots that have been bronzed and symbolizes the hard work and determination demonstrated by recipients. Jeff Fowler, Don’s son and also a PSU extension agent, recently was elected to the Board of Directors of the national Sports Turf Managers Association (STMA).

Field of Distinction Winners

KAFMO also honored three fields with its Field of Distinction Awards that are awarded annually to facilities that have demonstrated a dedication to providing safe and playable conditions for their users regardless of the level of play.

Shillingford Field, Bryn Mawr College was constructed in 1982 and is primarily used as Bryn Mawr’s field hockey field. Between practices and games, there are more than 100 events on the field each year. The field also hosts summer lacrosse camps for 500 athletes. In addition, a neighboring school uses the field for field hockey games and practices. Head groundskeeper Armando Artega has diligently maintained the field for the past 10 years and accomplishes everything by himself with an annual budget of less than $3,000.

Robert E. Yetter Field, Lower Allen Township was named for Township Solicitor Robert E. Yetter, who was killed in a 2002 auto accident involving a drunk driver. In his memory the community in 2005 upgraded its softball field into a high competition baseball field. In 2010 extensive work was done to improve field drainage and to bring the pitching mound up to professional standards. Yetter Field is the home of adult, teener, and high school baseball teams and summer camps. Groundskeeper Mark Hoffman and his assistant, Robert Brobst, maintain the field.

McConnellsburg High School Baseball Field was built as part of the new high school construction in 1976. The site hosts more than 150 practices and games each year, including PIAA and District baseball playoffs. It is also the home field for McConnellsburg baseball and soccer. Numerous improvements such as irrigation, lighting, and fencing have been added over the years. Head Groundskeeper Brent Seville and his assistants, Brian Strait and Victor Guyer, do much of the work in-house.

The field is maintained on an annual budget of less than $3,000.

Scholarships & other donations

KAFMO presented its Waddington/Harper Scholarships to five students who are near graduation and plan careers in turf management. The scholarships are named in honor of Dr. Donald Waddington and Dr. John Harper (deceased), two retired Penn State turfgrass professors. This year’s recipients are Daniel Vater, Penn State; Cody Harvey, Penn State; Jonathan Oleksi, Penn State; Travis Pitts, Delaware Valley College; and Alex Steinman, Penn State.

Each received $500.

The organization also donated $500 toward expenses for the continued recovery of Jake Chalfin of Laurel Valley Soils, who was paralyzed last year in a steepchase competition accident. KAFMO President Dan Douglas said Chalfin, a long-time supporter of KAFMO, is moving forward with his recovery and went back to work March 1.

Douglass also reported that the organization had donated:

- $3,000 to the Pennsylvania Turfgrass Council and Penn State for sports turf research
- $2,000 toward expenses for Penn State students participating in the STMA Student Collegiate Challenge, held in January in Austin, TX
- $500 to the Pennsylvania Recreation & Parks Society

Douglas also reviewed several initiatives the KAFMO Board is working on in 2011, including improving the member resource manual, continuing to provide volunteers for the Little League World Series field crew, and working on a proposal to help shape any future fertilizer regulations that may be considered in the state.

Bobby Piccolo, parks superintendent for Derry Township, won the $100 cash raffle.

Education sessions

Before the sessions began, Steve LeGros of Turf & Dirt, Inc. presented his video tribute to the 15th anniversary of the Conference.

The event’s educational sessions kicked off with Dr. Andy McNitt’s discussion of required maintenance aspects of synthetic fields. McNitt is a nationally recognized expert on synthetic fields and serves as the Director of the Center for Sports Surface Research at Penn State, the world’s first facility dedicated to research on synthetic turf, running tracks and indoor sports surfaces. He covered issues including turf grooming & brooming, drainage, seam work, cleaning, painting and paint removal, as well as providing the latest research on heat and infection issues.

Jeff “Vern” Borger, an instructor in turfgrass weed management at PSU, followed with a presentation on effectively using plant growth regulators to control poa annua that included information on new herbicides as well as research results and practical advice on other popular herbicide products used by Pennsylvania turf managers.

Ohio State sports turf extension specialist Pam Sherratt spoke on “Cultural Practices to Reduce Pesticide Use.” Her presentation covered record-keeping and field monitoring, the importance of healthy soils, cultural practices such as grass selection, irrigation, fertility, and mowing, and of course pest, weed and disease control. Sherratt shared several tools available to turf managers, including field evaluation documents and aids in predicting turf problems.
The STMA-produced video, “Baseball Mound Reconstruction – A Professional Approach,” was shown during the lunch break.
After lunch, Sherratt returned to offer her case for using perennial ryegrass as a sports turf option, and included her research on establishment, irrigation needs, extending wear tolerance, and use of fungicides to maintain ryegrass.
Jason Bowers, CSFM, wrapped up the day’s sessions by reviewing his first year of maintaining the surface for the Philadelphia Union soccer club at PPL Park in Chester.

Thank you to the following sponsors of the 15th Annual KAFMO Athletic Field Conference:

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“KAFMO West” participates in conference at Allegheny College

KAFMO joined forces with Penn State Cooperative Extension, Northwestern Pennsylvania Golf Course Superintendents Association, and Allegheny College to hold its 15th Annual Educational Conference March 22. More than 200 people were in attendance and more than 25 vendors displayed their wares.

Speakers included Dr. Andy Mc Nitt, Jeff Borger, Greg Hoover, and Dr. Gary Moorman from Penn State. PSU cooperative extension agents Jeff Fowler, Joel Hunter, and Ruth Benner also presented, as did Steve LeGros of Turf & Dirt, Inc., and Grant McKnight, president of Natural Sand Company. It was a fantastic line-up of presenters and a great chance to catch the latest research from the College of Agricultural Science at Penn State.

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- Can perform management practice or control at this time.
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