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Matt Shaffer, Merion Golf Club

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I hope that everyone by now has had a chance to relax and recover from the summer of 2016. I always wondered what the hottest summer in history would feel like, and lucky us, now we know. Sounds like none of us, regardless of experience, budget or location, were immune to the stress this past season produced. I have talked with some colleagues who attribute their survival to luck; they didn’t get the wrong storm at the wrong time the way others did. Many times, I looked at the radar and felt bad for whoever was under that slow-moving red blob.

This summer, we dealt with just about everything we could ever encounter. It was remarkably different for everyone. How could one facility be running out of water, and a couple of miles down the road, another one be pounded with rain and dealing with wet wilt? Communication this year was vital because the public thinks we are all in the same boat, day in and day out. I hope there is someone at your facility for you to turn to who will try to listen and understand your challenges.

I have conversations with friends who continually produce great conditions after years of budget cuts or are chasing someone’s idea of the next level. Many turf managers feel like they are their own worst enemy, but what choice do they have? Sometimes, our clients or committees put us in impossible situations. However, there is always someone who has been through a similar circumstance. The solutions our colleagues come up with for their issues are remarkable.

This is the time of year to seek out education for our challenges and to modify our programs. In between upgrading irrigation and drainage or tree removals, try to attend some seminars held on issues you are facing. The PTC is dedicated to providing education for golf, sports turf and commercial and residential turf professionals. These are great opportunities to talk with colleagues and professionals about next year, as well as the challenges you faced this year.

Take time to look back at what was successful for you in 2016. Chances are if it worked this year, it is probably a sound practice. Most importantly, take time for yourself and your family. Nobody else will remind you to do this. Nobody knows better than our families what we sacrifice in these careers.

The next blizzard, flood or 90°F degree day in May is just around the corner. The PTC is always here to help with education, research and fellowship. Please feel free to contact me at pramsey@messiah.edu or 717-577-5401.

Pete Ramsey
2017–2018 PTC President
Save These DATES!

JANUARY 19, 2017
Northeastern Pennsylvania Turfgrass Conference and Tradeshow
Woodlands Inn and Resort
Wilkes Barre, PA

Note: This is a week earlier than usual, due to a conflicting national turfgrass conference.
For more information, please email Dr. Andy McNitt at asm4@psu.edu.

FEBRUARY 28 – MARCH 2, 2017
Western Pennsylvania Turfgrass, Ornamental and Landscape Conference
Hilton Garden Inn Cranberry
(formerly the Four Points Sheraton)
Cranberry Township, PA

With more than 45 pesticide update credits offered, we have many speakers this year from other universities and institutions that will have great information to share with you. For more information, contact the PTC office at (814) 237-0767.
Even with limited manpower and/or money to keep sports fields in shape, every athletic surface demands some attention in the name of safety, if nothing else. For readers who have some field acreage that needs attention, here are some reminders of how to keep turfgrass as safe as you can with minimal attention.

The following recommendations all come from the same source, Penn State’s Center for Turfgrass Science, and its online resource, “Extension and Turf Advice.”

**Test your soil.**

Taking soil samples from athletic fields is not a waste of time; it can determine which nutrients are required, which can be first on your list of what can be done to maintain safe conditions and to help develop a fertility program. For some nutrients, a soil test is the only way you can accurately determine how much fertilizer your turf needs.

For a nominal fee, Penn State offers a standard soil test for phosphorus, potassium, calcium, magnesium and lime requirements. More comprehensive soil analyses are available upon request. Typically, nitrogen is not analyzed as part of a standard soil test because levels fluctuate too rapidly in the soil to provide meaningful recommendations.

The results obtained from a soil test are only as good as the sample submitted. Sampling directions vary from lab to lab, so follow instructions on the test kit carefully. Instructions should tell you how many subsamples are required per test, the sampling pattern, the sampling
depth and whether thatch should be included in the sample.

**Fertilize properly.**
Dollar for dollar, fertilization does more to improve poor-quality turfgrass or to maintain good-quality turfgrass than any other management practice. Proper fertilization practices produce a dense, medium- to dark-green turf that resists pests and environmental stresses.

Careless application techniques or excessive amounts of fertilizer applied at the wrong time of year can result in serious turf damage and contamination of water resources. Successful turf-maintenance fertilization requires that you assess your turf’s nutritional requirements, understand fertilizers, know how much to apply and when, and use proper application techniques.

Cost is a primary concern in deciding which fertilizer product to use. Selecting the least-expensive fertilizer, however, does not necessarily mean you have found the best value. Fertilizer should be purchased on the basis of quality rather than on bag size or price. Quality is determined by the amounts and types of nutrients contained in the bag and by the product’s physical characteristics. Nitrogen, phosphorus and potassium are referred to as primary nutrients and must be supplied periodically to turf through fertilizer applications. Calcium, magnesium and sulfur, the secondary nutrients, are needed only occasionally in the form of fertilizer or lime.

**Mow the right way.**
Grass cutting is the major time-consuming operation in the maintenance of any turfgrass area. Good mowing practices are perhaps the most important single factor contributing to a well-groomed appearance and the longevity of any turfgrass area.

The heights at which a given perennial grass can be cut and still survive for extended periods are directly related to its ability to produce enough leaf surface to keep up photosynthetic production of food. Creeping-type plants, such as bentgrass, when properly fertilized and watered, are able to produce adequate leaf surface at very low heights of cut. Kentucky bluegrass and fine leaf fescues must be cut relatively high (1-1/2” to 2”) because they cannot produce enough leaf mass at low heights to sustain the plants. If bunch-type grasses, such as tall fescue or ryegrass, are cut close, too much leaf surface is removed, and the plant no longer can carry on enough food making activity to maintain satisfactory growth. Bunch-type grasses should be cut to 2” to 3” in height.

Frequency of mowing is also an important consideration. Infrequent clipping allows the grass to grow to such a degree that any subsequent clipping removes too much leaf surface. At no time should clipping amounts in excess of 1/4 to 1/3 of the total leaf surface be removed at a given mowing. Excessive clippings should be removed promptly. The frequency of clipping must be governed by the amount of growth. In turf, growth is related to weather conditions, season of the year, soil fertility, moisture conditions and the natural growth rate of the grasses.

Dull, improperly adjusted equipment not only destroys the aesthetic value of the turf by discoloration and bruising of the leaf tips, but it also provides more ready access for disease organisms and insects through the damaged leaves. Keep mower blades sharp.

Rotary mowers give a better cutting job if tall weeds and coarse grasses are present. Rotary mowers should be used where grass control rather than appearance is the predominant consideration.

Mowing wet grass should be avoided as much as possible. Dry grass cuts more easily, does not ball up and clog the mower and gives a finer-appearing lawn. Time tests show that mowing dry grass requires less time than mowing wet grass.

**Aerate regularly.**
Mechanical aeration provides an excellent, and probably the only, means of correcting or alleviating soil compaction. A compacted layer as thin as 1/4” to 1/2” can greatly impede water infiltration, nutrient penetration and gaseous exchange between the soil and the atmosphere.

Aerating machines remove plugs of soil from the turf area, thereby creating an artificial system of large or noncapillary pores by which moisture and plant nutrients can be taken into the soil. They also provide a breathing system through which carbon dioxide can escape from the soil and oxygen can enter the soil. A rapid intake in movement of water and air is recognized as a prime necessity in correcting damages to the turf caused by compacted soils.

Spring and early fall are the best times to aerate. Summer aeration of cool-season grasses, such as bluegrass, bentgrass and fescue, is not generally recommended because these grasses are in a semi-dormant condition, whereas crabgrass is quite active. A safe general rule for time of aeration is to aerate only when the desirable grasses are growing vigorously.

**Use quality seed.**
Late summer to early fall is the best time for seeding permanent turfgrass. One of the most important steps in turfgrass establishment is the selection of high-quality seed or a seed mixture that is adapted to the site conditions and intended use of the turf. Poor-quality seed
may be low in viability and contain weed seeds as well as undesirable grass species.

Consequently, the use of poor-quality seed may result in unsatisfactory turf establishment and, thus, wasted time, effort and money. Also, if the species in the seed mixture are not adapted to the site’s conditions, the resulting stand may become thin and subject to soil erosion and weed encroachment.

Information concerning specific varieties can be obtained from your County Agricultural Extension Office or Turfgrass Extension Specialist.

Irrigate sufficiently.
A practical watering program embodies three basic concepts: How should water be applied? How much water should be applied? How often should water be applied? While the basic concepts of a good watering program may appear simple, in actual practice many and varied problems are associated with the successful application of each.

Water should never be applied at a rate faster than it can be absorbed by the soil. The ability of a soil to absorb moisture at a given rate depends upon a number of factors, most of which are directly or indirectly associated with certain physical soil problems.

Likewise, soils that exhibit good aggregation (a measure of structure) permit more rapid infiltration of water than soils that display poor structural properties. The degree of compaction at or near the surface is of special importance insofar as infiltration of water is concerned. It has been shown experimentally that a very thin layer of compacted soil will substantially reduce the rate of infiltration.

Another very important factor that influences the ability of a soil to absorb moisture is the rate at which the water is applied. Sprinklers that do not adequately disperse moisture, as well as sprinklers that deliver a large volume of water within a concentrated area, tend to cause surface runoff. Whenever water is applied at a rate faster than it may be absorbed by a given soil, the water is being wasted.

The amount of water to apply at any one time will depend upon the water-holding capacity of the soil, the amount of moisture present when irrigation is started and drainage.

The frequency of irrigation depends on the type of grass, the soil’s physical properties and the climatic condition — especially rainfall, humidity, temperature and wind movement. It is often said that many turfgrass problems may be attributed to improper watering. Perhaps one of the most important factors contributing to improper watering is watering too often. In general, it is an excellent idea to let the condition of the grass determine when to apply moisture. On most general turfgrass areas, the time to apply moisture is just as the plants begin to wilt. As a matter of fact, with one possible exception, this could become a rule of thumb for watering turfgrass. The exception is on newly seeded areas that must be kept moist during the period the seed is germinating and seedlings are becoming established.
**Novel Treatments and Anthracnose Susceptibility of a Creeping Bentgrass/Annual Bluegrass-Cohabited Putting Green**

Salicylic acid (SA) is a phytohormone that serves as a precursor to systemic acquired resistance mechanisms. Endogenous SA application has been shown to increase expression of pathogenesis-related genes and induce defense responses in numerous plant species. Potassium silicate (0-0-60) is both a fertilizer and liming agent. Once absorbed by plant roots and deposited in cell walls, silicic acid has been reported to elicit pathogen resistance.

Recent field research evaluated anthracnose susceptibility of a creeping bentgrass/annual bluegrass-cohabited putting green in response to SA applications made with or without potassium (as potassium sulfate or silicate). Due to rapid photo-degradation of salicylic acid, applications were made in the early evening hours, and totaled 0, 1.5 or 3.0 lbs./M (1,000 ft²) annually. This trial was initiated in May and received no pesticide or N fertilizer treatments. Spectral assessments of anthracnose symptomology were made every 8±4 days.

Anthracnose symptomology was greatest in July and exceeded acceptable thresholds regardless of SA or silicate treatment. In July and August, plots receiving annual rates of 2.4 lbs. K2O/M demonstrated less anthracnose symptomology than plots receiving none, but anthracnose was not controlled to acceptable thresholds. Single applications of technical-grade salicylic acid (99%) to putting greens should never exceed 0.5 lbs./M. 📧

**Update submitted by Max Schlossberg, Ph.D., Assoc. Prof. Turfgrass Nutrition, and George R. Fitch, BS Turf ’16, Center for Turfgrass Science, Penn State University**

**Induction of Systemic Resistance in Perennial Ryegrass-Gray Leaf Spot Pathosystem Through Employing Plant Defense Response Elicitors**

Strategic and sustainable practices in the management of turfgrass health through an integrated approach are highly desirable in the turfgrass industry. In this approach, the integration of plant defense response elicitors into traditional chemical and cultural practices is one of the most sustainable solutions towards reaching the goal of such a management strategy.

Our investigation on silicon-mediated systemic defense response indicated that the defense response was accompanied by an increase of non-penetrated papillae or cell-wall appositions harboring callose, phenolic autofluorogens and lignin-like/polyphenolic compounds. Silicon-amended ryegrass plants significantly increased activities of peroxidase and polyphenol oxidase upon inoculation with the pathogen. Simultaneously, the relative expression of gene-encoding phenylalanine ammonia lyase (PALa and PALb) and lipoxygenase (LOXa) was significantly up-regulated in silicon-amended plants compared to non-amended control.

Further studies on the effects of defense response elicitor on the development of gray leaf spot on perennial ryegrass turf indicated that applications of silicon at the rates of 0.4 and 2.0 tons/A significantly suppressed gray leaf spot in perennial ryegrass. Application of silicon at the rate of 0.4 and 2 ton/A reduced disease incidence 21% and 40%, respectively. Similarly, reduction of 20% and 47% disease severity was achieved by application of silicon at the rate of 0.4 and 2 ton/A, respectively.

The results this study shows that silicon is an important plant defense elicitor, and silicon-mediated defense response in perennial ryegrass can be an effective component of integrated disease management strategy in gray leaf spot pathosystem.

**Update submitted by Wakar Uddin, Ph.D., Professor, and Alamgir Rahman, Ph.D., former Graduate Research Assistant, Department of Plant Pathology and Environ. Microbiology, Penn State University**

**Research Summaries**
What year did you graduate PSU, and what was your specific major?

What was your first turf job?
My father owned a small home-lawn-care business for which he was the only employee. He brought me on sporadically throughout high school to help with larger accounts when practices such as aerification or applications of fertilizer were needed. My first paying job in turf was on the grounds crew at East Coast Golf Academy in Northborough, MA.

What are you doing currently (include official job title) and/or researching?
Currently, I’m an Associate Professor and Director of the University of Tennessee’s new Weed Diagnostics Center. In these roles, my team and I maintain active research and Extension programs focused on controlling problematic weeds of both warm- and cool-season turfgrass systems including sports fields, golf courses and residential and commercial lawns.

What is one piece of sports turf management advice you can offer KAFMO members?
Never hesitate to communicate why a particular management practice is being implemented on a field. Whether you are speaking to players, coaches, parents or administrators, doing so will elevate your image as a professional sports turf manager and the entire profession as a whole.

Where Are They Now?
Penn State Turf Program Alumni in Academia

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Associate Professor
University of Tennessee

Jason Henderson, Ph.D.
Associate Professor of Turfgrass and Soil Sciences
Dept. of Plant Science and Landscape Architecture
University of Connecticut

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Contact: Dan Douglas,
President
Phone: 610-375-8469 x 212
KAFMO@aol.com
What year did you graduate PSU, and what was your specific major?
1997, in Agriculture Systems Management

What was your first turf job?
Turfgrass and Soils Consultant (Hummel & Co., Inc.)

What are you doing currently and/or researching?
My position includes teaching, research and Extension responsibilities. I teach an “Introduction to Soil Science” course for our Associates Degree program and an “Advanced Turfgrass Management” course for both our Associates and Baccalaureate Degree programs. Most recently, my research has focused on alternative turfgrass-management strategies for areas where pesticides are no longer an option, as well as rootzone and topdressing constituent selection.

What is one piece of sports turf management advice you can offer KAFMO members?
Don’t forget the fundamentals. Ask good questions, think through the answers and let sound agronomics drive your decision-making, day to day as well as in your long-term plan for the areas you are managing.

John “Trey” Rogers, Ph.D.
Professor, Crop & Soil Science Department
Michigan State University

What year did you graduate PSU, and what was your specific major?
1993, M.S. in Agronomy (turfgrass specialty under Dr. Tom Watschke), and 1996, Ph.D. in Agronomy (turfgrass specialty under Dr. Tom Watschke)

What was your first turf job?
Working on Wedgewood Golf Course for my father, Dave, the superintendent, starting at age 14. It inspired me to pursue a career in the turf industry.

What are you doing currently and/or researching?
I’m the academic and career advisor for all turf students at Delaware Valley College, and I teach a variety of classes related to turf management. My latest research has been with putting green trueness, alternatives to synthetic herbicides and putting green organic matter.

What is one piece of sports turf management advice you can offer KAFMO members?
Hire and mentor a high school student. It can be rewarding, and you may inspire them to have a career in turf.

Doug Linde, Ph.D.
Professor of Turf Management
Delaware Valley College

What year did you graduate PSU, and what was your specific major?
B.S. in Turfgrass Science, Minor in Business/Liberal Arts, 1998; M.S. Science in Agronomy, 2002

What was your first turf job?
Grounds crew, South Hills Country Club, Pittsburgh, PA

What are you doing currently and/or researching?
Primarily, I conduct traffic-stress research on cool-season turfgrass species commonly established for sports fields. In an outreach capacity, I visit athletic facilities in New Jersey to assist turf managers in solving problems associated with high-traffic sports fields. I also serve as an advisor to the Rutgers Turfgrass Club.

What is one piece of sports turf management advice you can offer KAFMO members?
Stick to the basics: Mowing. Irrigation. Fertilization. Seed and/or sod as much as possible to maintain turf cover.

Brad Park
Sports Turf Education and Research Coordinator
Rutgers University, New Brunswick, NJ

What year did you graduate PSU, and what was your specific major?
1988, Ph.D., Agronomy

What was your first turf job?
Assistant Professor, Michigan State University

What are you doing currently and/or researching?
Studying turfgrass renovation techniques and factors.

What is one piece of sports turf management advice you can offer KAFMO members?
Four rules of life: Show up, pay attention, tell the truth, and don’t be attached to the outcome. You control the first three.

What year did you graduate PSU, and what was your specific major?
1998, M.S. in Agronomy (turfgrass specialty under Dr. Tom Watschke)
On November 16, 2016, at the Penn State Golf Turf Conference in University Park, Mark Kuhns, CGCS, received the Pennsylvania Turfgrass Council’s Dr. George Hamilton Distinguished Service Award. This award is the Council’s highest honor and is presented each year to one individual who has exhibited outstanding service to Pennsylvania’s turfgrass industry.


Mark’s current position is Director of Grounds at Baltusrol Country Club in Springfield, New Jersey, a position he has held since 1999. At Baltusrol, Mark oversees two championship golf courses and has directed golf course preparations for the 2000 U.S. Men’s Amateur, as well as the 2005 and 2016 PGA Championship Tournaments. Over his 40-year career in the golf course industry, Mark has trained and mentored hundreds of young men and women in the science and art of golf course management. Many of these individuals have gone on to become successful golf course managers or industry representatives.

In addition to his impressive golf course management and mentoring background, Mark has an outstanding record of service to the golf course industry at both the local and national level. Service has been a lifelong endeavor with Mark, beginning with membership in and eventually president of the Mountain and Valley GCSA and the Greater Pittsburgh GCSA. After moving to New Jersey, he served as the Government Relations chair for the GCSA of New Jersey and vice president of the New Jersey Green Industry Council. Perhaps his greatest contribution to the golf industry was through serving on the GCSAA board of directors, as a trustee for the Environmental Institute for Golf and as president of GCSAA in 2009.

Mark has given much of his time and energy to Penn State and Pennsylvania’s turfgrass industry over the years through his activities with the Pennsylvania Turfgrass Council and the Penn State Ag Advisory Council. He also served as a director of the Pennsylvania Turfgrass Research Trust. Through its dedication and fundraising efforts, this organization raised over $300,000 for an endowment to fund graduate and undergraduate research in turfgrass science at Penn State.

In 2004, the Pennsylvania Turfgrass Council announced that the Distinguished Service Award would be renamed to memorialize Dr. George W. Hamilton Jr., a professor in turfgrass management at Penn State, who died after a courageous battle with cancer. Mark Kuhns exemplifies the spirit of this award and Dr. Hamilton’s passion for advancing the industry. The membership of the Pennsylvania Turfgrass Council and the Penn State Turf Program congratulates Mark on being recognized for his accomplishments.

PTC president Andrew Dooley (left) presents PTC’s Dr. George Hamilton Distinguished Service Award to Mark Kuhns, CGCS.
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Congratulations to our Golf Course Turfgrass Management Program Class of 2016!


Top row (left to right): David Cox, Dylan Creighton, Michael Bornstein, Cory Bostdorf, Jeremy Nicholas, Kyle Basehore and Ryan Wilkinson.
Turfgrass Calendar

**January 19**
Northeastern PA
Turfgrass Conference and Trade Show
Woodlands Inn
Wilkes Barre, PA

**January 24–27**
STMA Conference and Exhibition
Orlando, FL

**February 4–9**
Golf Industry Show
Orange Co. Convention Ctr.
Orlando, FL

**February 17**
21st Annual KAFMO Athletic Field Conference
Holiday Inn Harrisburg/Hershey

**February 20–23**
TPI International Education Conference & Field Day
(Turfgrass Producers Intnl.)
Saddlebrook Resort
Tampa, FL

**February 28 – March 2**
Western PA
Turfgrass Conference and Trade Show
Sheraton Four Points North
Mars, PA

Advertiser Index

- Aer-Core, Inc. ........................................ 10
  www.aer-core.com
- Beam Clay ........................................... 11
  www.beamclay.com • www.partac.com
- Central Sod Farms of Maryland, Inc. .... 17
  www.centalsodmd.com
- Covermaster, Inc. ................................. 5
  www.covermaster.com
- CoverSports USA .................................. 7
  www.coversports.com
- East Coast Sod & Seed ........................... 17
  www.eastcoastdod.com
- Fisher & Son Company Inc. ...................... 3
  www.fisherandson.com
- FM Brown’s & Sons ................................ 18
  www.fmbrown.com
- George E. Ley Co. ................................. 17
  www.gelcogolf.com
- Leading Edge Communications ............... 15
  www.ledgingedgecommunications.com
- Lebanon Turf ...................................... Back Cover
  www.leb turf.com
- Medina Sod Farms, Inc. ........................ 17
  www.medinasodfarms.com
- Pennsylvania State University .............. Inside Front Cover
  www.psu.edu
- Progressive Turf Equipment, Inc. ............ 5
  www.progressiveturf equipment.com
- Seedway, LLC ..................................... 7
  www.seedway.com
- Shreiner Tree Care ................................ 17
  www.shreinertreecare.com
- Smith Seed Services ............................. 17
  www.smithseed.com
- Tech Terra Environmental ...................... Inside Back Cover
  www.techt terraenvironmental.com
- Tomlinson Bomberger Lawn Care,
  Landscape & Pest Control ..................... 17
  www.mytomborn.com
- Walker Supply, Inc. .............................. 17
  www.walkersupplyinc.com

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