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I hope that next winter is colder than this past one was, now that there is an abundance of firewood, thanks to the emerald ash borer. Ash trees never really caused many problems for turf, and it is sad to see them literally wiped out. However, their loss has opened up some areas, allowing us to improve turf conditions on our properties. It was a nice winter for tree work but not so much for revenue from snow removal.

This spring, we will be facing some issues right out of the gate. The potential for a severe drought is still hanging over us. The eastern half of Pennsylvania is in some-modified drought condition. Twenty-five counties are in a drought watch, and eight are in a drought warning. This could rapidly change as the growing season begins. Take time to update your drought emergency plan with DEP. Check its website (www.dep.pa.gov) for the condition your county is in. So far, 2017 is starting to resemble 2002.

The PTC is committed to helping turf managers deal with the growing challenges you face. We continue to try to bring awareness to the importance of the green industry on the Pennsylvania economy. There are an estimated 2 million acres of turf in the commonwealth, creating a $1.5 billion industry. We continue to promote Rounds 4 Research to help raise money for turfgrass research. This program was very successful at the Philadelphia Golf show this past January.

There are also major changes coming to the Eastern Turfgrass Conference in 2018. This event is moving to Shady Maple in New Holland, PA. The conference will be a multi-session, one-day event in early January. Nationally recognized speakers and researchers will address topics unique to golf, sports turf, lawn care and pesticide use and safety. Vendors and industry professionals will be on hand to discuss products and to answer questions. This conference is evolving to help better meet educational needs of our members and turfgrass professionals.

We are all facing a lot of changes and uncertainty in our industry. Take advantage of opportunities to meet with colleagues and exchange ideas. This growing season will have some unique challenges. A strong agronomic program and the ability to adapt to changes will get us through.

Thank you to KAFMO for its generous donation of $7,000 to the PTC for turf research and for student participation in the annual STMA student challenge. We are proud to collaborate with this organization and others that are committed to the advancement of our industry.

Pete Ramsey
2017–2018 PTC President
“The Eastern”  
A Success at Valley Forge

The Eastern Pennsylvania Turfgrass Conference, or “The Eastern” was held on January 4–5, 2017. The education program was filled with many outstanding speakers on topics important to golf turf, sports turf, and lawn and landscape management.

Special appreciation and gratitude goes to Bill Corcoran (Lawn & Golf), Paul Brandon (Finch Services), Lance Ernst (Turf Equipment & Supply), Steve Chirip (Grass Roots) and Tom Valentine (SynaTek) for their leadership and their companies’ support with organizing the Turf Industry Social Reception. Thanks also to all the industry sponsors: Aercore, Andre & Sons, Arader Tree Services, Bayer, Blue Ridge Peat Farms, Fisher & Son, Floratine, Plant Food, Shreiner Tree Care and Syngenta. Also, these guys organized the Silent Auction at the Philadelphia Golf Show (Oaks, PA) on January 13–15, 2017. Thank you to all those golf course superintendents who graciously donated rounds of golf to benefit the Pennsylvania Turfgrass Council!

Thank you to all of our speakers, all of our industry sponsors for supporting the conference and all in attendance!

2017 Northeastern PA Turfgrass Conference and Trade Show

The Northeastern PA Turfgrass Conference and Trade Show was held on January 19, 2017, at the Woodlands Resort in Wilkes-Barre, PA. More than 300 persons attended the one-day seminar, and 26 companies exhibited. Pam Sherratt from Ohio State University gave two presentations on “Establishing Grass Quickly” and “Weed Control During Establishment.” Other speakers included Penn State University’s Dr. Ben McGraw on “Grub Management” and “Annual Bluegrass Weevil Best Management Practices” and Dr. Max Schlossberg on “Turfgrass Fertilization.”

The trade show was packed with attendees. Vendors are generally very happy with this meeting.

Next year’s event will likely be held on January 25. You can always find out more info on this meeting at http://plantscience.psu.edu/nets.
The annual bluegrass weevil (ABW), *Listronotus maculicollis*, is the single-most destructive insect pest of short-mown turfgrasses found on golf courses in the Mid-Atlantic and northeastern United States and in eastern Canada. Superintendents rely heavily on the use of preventive chemical insecticides to reduce the probability of damage occurring to high-valued turf areas (e.g., greens, collars, fairways and tee boxes). Putting green complexes, including putting surfaces, collars and rough surrounds, receive more frequent insecticide applications than other at-risk areas on the course. ABW damage is rarely observed on the interior of the putting surfaces (maintained between 0.090” and 0.125”), although it’s commonly found on adjacent collars (mowed between 0.25” and 0.40”).

Over the last two years, we have been investigating the effect that putting green cultural practices, including mowing heights and nitrogen fertility, influence the probability of damage occurring. We hope to determine the potential risk of damage occurring to these areas and, ultimately, the usefulness of chemical insecticides applied to putting greens.

### Adult mowing survival

Our field observations of damage to collars suggest that adults and/or larval survival on greens may be negatively affected solely by the act of mowing, since all other cultural and chemicals would remain the same for the two areas. We investigated the effects that five heights-of-cut (HOC), including three from putting greens (0.100”, 0.125” and 0.150”), one collar (0.250”) and a fairway treatment (0.500”) had on adult survival in a greenhouse experiment using a bench-mounted reel mower. Adult ABW were placed on *Poa annua* cores following mowing in the field. The turf was allowed to grow for 24 hours in an incubator before mowing treatments were applied to simulate the time and growth that would be experienced between mowing events in the field. We found that a significant number of adults were removed from three greens’ HOC and increased as mowing heights decreased (2%, 7% and 30% removed for 0.150", 0.125” and 0.100”, respectively).

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By Benjamin Czyzowski, Former Master of Science Student, and Benjamin McGraw, Ph.D., Associate Professor of Turfgrass Entomology, Penn State University.
A high percentage of ABW eggs deposited in greens-height turf were found outside of the plant.

An ABW adult, walking across a putting green maintained at 0.150”.

An annual bluegrass weevil (ABW) adult.

A fifth-instar ABW larva.
Considering that putting greens are mowed between six and seven times per week during the growing season, the impact that mowing has on the removal of adults from putting greens is likely to be great, despite the low percentages with single mowing events. Less than 1% of adults were removed from collar and fairway heights. The impact is likely minimal in these areas, given the frequency of mowing.

Another interesting finding from this study was that the majority of the adults were not killed by the act of mowing. Survival after mowing suggests that clippings removed from greens need to be disposed away from high-valued turfgrass areas to avoid re-infestation.

**Canopy activity**

Studies were conducted to determine whether ABW adults were more active on top of the turfgrass canopy at certain times of the day and, therefore, more vulnerable to removal through mowing. Most insects demonstrate increased levels of activity at certain times throughout the day, whether it be during the day or night.

To characterize ABW activity, we observed marked adults over 24-hour periods with the use of time-lapse photography. This was conducted in a controlled laboratory setting at constant temperature. The photographs were reviewed, and the total number of ABW on top of the turfgrass canopy was recorded for each hour in one-hour increments.

We observed ABW activity at all hours of the day. However, there was a significant spike in activity in the first three hours following sunrise (6 a.m. to 9 a.m.). This indicates that ABW may be most susceptible to removal during the time when most turfgrass managers are generally mowing greens. In the 2016 research season, we will observe how different temperatures affect canopy activity, as well as observe activity in the field.

**Egg laying in putting greens**

Although we observed a significant percentage of adults removed at low mowing heights, some of the adults may be left in the turf stand and, therefore, capable of oviposition (egg laying). How-
ever, the low HOC found on putting greens may not be suitable for ABW to lay eggs from either a physical or a nutritional standpoint.

To examine the latter, we contained mating pairs (1 male + 1 female) on turf plugs at one of three previously mentioned greens’ HOC. After allowing the ABW time to mate and lay eggs, we dissected the turfgrass samples for eggs.

We observed that a significant amount of eggs were laid at all three HOC. However, we also observed that the majority of the eggs were laid outside the stem of the plant (loosely), opposed to inside the stem or under the leaf sheath as has been observed in previous studies. These loose eggs may be more vulnerable to predation and desiccation than eggs that have been placed inside the plant. This could result in fewer eggs surviving to damaging larval stages (4th and 5th instars) and may contribute to the lack of damage observed on putting greens.

**Future studies**

At the time of writing this article, we are investigating the effects of other management inputs on ABW oviposition and survival in putting greens, as well as building on our findings from the 2015 season. An important goal will be to observe how these cultural practices performed on putting greens affect larval growth, development and survival. It will be important to see if ABW larvae are capable of developing to damaging stages inside the significantly smaller turfgrass plant found on putting greens. Also, we will observe how different temperatures affect ABW activity, as well as observe ABW activity under natural conditions at various times throughout the growing season. Finally, we will examine the effects that different nitrogen fertility rates on ABW development in putting greens.

We hope to be in a better position to determine the usefulness of treating putting greens with chemical insecticides at the conclusion of this project and be capable of developing best management practices for the integration of cultural practices to reduce the probability of damage occurring.
Two New Graduate Students Join the Entomology Lab

The Turfgrass Entomology Laboratory at Penn State welcomed two new graduate students in January 2017. Alli Duffy, who completed her master’s degree in entomology at Purdue University in December, will bring her expertise in billbug management, chemical ecology and biochemistry to work on an annual bluegrass weevil (ABW) project. Her work will focus on ABW populations in more recently invaded areas (e.g., western Pennsylvania and the Mid-Atlantic) to better understand the differences between these populations and more established populations near the epicenter of ABW distribution (metropolitan New York City). Her work will provide greater understanding of the seasonal occurrence of populations and damage in these regions, as well as the development of pyrethroid resistance.

Andrew Huling, a recent graduate of the four-year Turfgrass Science program, will be entering the master’s program in agronomy. Andrew, who is a native of Enola, PA, worked his final summer internship in the McGraw Laboratory, where he provided support on several projects and conducted his own independent investigation on the effects that plant growth regulators have on ABW oviposition and larval development. Andrew’s project will focus on interactions between insecticides and the soil microbial community to improve white grub management.

Update submitted by Ben McGraw, Ph.D., Associate Professor of Turfgrass Entomology, Penn State University

Technological Developments in DNA Sequencing Are Boosting Advances in Turfgrass Science Research

If you’ve ever had your DNA tested from commercial businesses like 23andMe or Ancestry.com, then the actual amount of your DNA tested is less than 1/10 of 1% of your total DNA, or “genome.” The “genome” of an organism is the name we use for ALL of an organism’s DNA. However, new advances in DNA sequencing technology are now making it possible to examine the entire genome of not only humans but also our turfgrass species and their disease-causing organisms like fungi.

We have recently sequenced the genome of Salmonisia buchloëana, also known as pistil smut, a fungus that induces ovary development in genetic male plants and increases the seed yield potential of its host buffalograss. We found that the draft genome of S. buchloëana is approximately 20 million bases (the A’s, T’s, C’s and G’s) in size and contains 6,262 genes. The purpose of sequencing the S. buchloëana genome was to gain insight into its gene content and genome organization in order to better understand its remarkable ability to regulate the growth, development and sexual expression of its perennial grass host. Discovering S. buchloëana’s regulatory mechanisms will provide insight into the lifestyle of biotrophic parasites and give us new strategies for increasing seed yield in perennial grasses.

Update submitted by David R. Huff, Ph.D., Professor of Turfgrass Breeding and Genetics, Pennsylvania State University
Increase your social media awareness and grow your business in all the right circles.

Social media marketing is leading the way today’s companies are reaching potential and existing customers. Marketing online is no longer just left to websites and emails—it now must encompass a well-executed plan spanning the most popular social media platforms, or run the risk of allowing competitors to steal the spotlight.

Most companies, though, don’t have time to populate and maintain a consistent online presence or the resources to hire someone to do so. That’s why Leading Edge Communications has created social media marketing services to serve this important consumer niche.

We’ll connect you with customers through a combination of social media platforms such as Facebook, Twitter, Instagram, Pinterest, LinkedIn and blogs. We’ll improve your search rankings through a more organic search engine optimization plan. Our team of social media experts will even manage services such as answering comments and questions, publicizing events and products, and responding to reviews and feedback. Leading Edge Communications will become your social media marketing partner, working alongside you and your team, helping keep current customers up-to-date, while introducing new customers to who you are.

Simply put… social media is where customers are, and it’s where businesses of any size need to be. Find out more about our social media marketing services and let’s discuss the right circles you need to be in.

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The Sports Turf Managers Association (STMA) has 34 chapters throughout the U.S. that represent more than 5,000 sports turf industry professionals. National STMA believes that all agronomy is local, and its affiliated chapters serve a key role in delivering regional information. As a proud member of the KAFMO chapter, you might be thinking, how might a national STMA membership benefit you and your career?

The STMA is the recognized leader in championing the sports turf industry and its professionals. When STMA members are asked, “Why are you a member of the Sports Turf Managers Association?”, one of the most common responses is “the network of people.” More than 2,600 members strong, STMA has a diverse membership that spans the globe. STMA has become a closeknit community of professionals who share the same passion for their work and who experience similar challenges in their daily work environment. National STMA works to provide the resources and professional contacts to help you be a successful sports turf manager.

Consider the top 3 benefits you receive as a national STMA member:

✔️ **A network of peers who are willing to share their best practices.**

The STMA just hosted its 28th Annual Conference and Exhibition in Orlando, Florida. Members from across the United States, as well as international attendees, came together to increase their professional network of peers, connect with old friends and share their experiences from the past year. The conference serves as an event that allows members to share information with other successful members of the sports turf industry. The conference features educational seminars, sports facility tours, networking opportunities and a tradeshow. Whether you’re interested in improving your field management practices, increase your network of peers or learn about new products and services available in the industry, there’s truly something to benefit all attendees.

✔️ **Opportunities for education to help you do your job better.**

The STMA provides a multitude of educational resources. STMA’s annual conference features academics and industry experts who teach best management practices using case studies, hands-on speed sessions, traditional presentations and in-depth classes. STMA records conference presentations to help benefit conference attendees unable to make it to concurrent sessions and sports turf managers unable to make it to the conference.

The STMA website hosts technical field maintenance articles and webinars. Access to Michigan State’s Turfgrass Information File is also an added benefit of STMA membership. This database provides access to all published materials reporting on aspects of turfgrass and its maintenance.

The STMA also developed a turfgrass science curriculum. Educators can use this tool to create interest and awareness in the industry with secondary agricultural students. It can also be used as a training tool to help both you and your employees learn more about the science and methods behind successful turfgrass management.

✔️ **Opportunities to promote yourself and your facility professionally.**

The STMA has developed a certification program for sports turf managers with the goal of fostering and improving professionalism within the sports turf industry. Attaining the Certified Sports Field Manager (CSFM) status is meant to challenge your knowledge of managing sports fields and to draw upon all aspects of your background in education and experience to prove that you are one of the best in the industry. Meeting the challenge can contribute to your professional advancement in sports field management.

The STMA Awards Program rewards and recognizes turf managers who go above the call of duty to further the science of turf management. These are individuals who have researched facets of turf management that aid fellow turf managers’ pursuit of excellence. Programs such as the Field of the Year program provide an opportunity for sports turf managers to showcase the hard work and dedication required...
to maintain baseball, football, soccer, softball or other athletic fields. The Awards Program seeks to enhance pride in your profession, garner the respect of your peers and increase positive media attention for you and your facility.

The Environmental Facility Certification Program was developed to help document the environmental stewardship of STMA members and is awarded to the facility. Sports field managers have long been known within the turfgrass industry as dedicated to field and facility management practices that minimize impacts on the environment. This program helps you create and provide documentation of your stewardship for presentation to the outside world, including your employer and local community.

The STMA website also hosts an extensive career center. You can use our career center to post jobs, internships and resumes, or access resources to assist with writing a resume, conducting and preparing for an interview, hiring new employees and maintaining a positive work environment with existing employees.

Final thoughts
Still unsure if being a national STMA member is for you? The STMA’s mission is to advance professionalism in sports field management and safety through education, awareness programs and industry development. The thriving community of members — members like you, the sports field manager in the next town or the CSFM on the other side of the country — are what make the STMA a great organization. It is a support system of professionals who are always willing to lend a hand, develop new solutions and dedicate themselves to providing the best possible playing surface.

The STMA is there to support you and promote your proudest accomplishments. For more information, please visit www.stma.org.

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Congratulations to OUR GCSAA TURF BOWL TEAM!

Penn State’s Turf Bowl Team #10 — Kevin Heimann, Derek Buganza, Thomas Goyne and Curt Moore — took first place in GCSAA’s Collegiate Turf Bowl Competition this year, presented in partnership with John Deere Golf at the Golf Industry Show (GIS) in Orlando. Penn State’s Team #11 took sixth place in the same competition. The Penn State students who participated in the competition (pictured top left) along with advisor Dr. Ben McGraw, returned to State College, PA, with the traveling trophy and prize award.

Also, Congratulations to OUR STMA STUDENT TEAM!

Penn State students Kevin Heimann, Derek Buganza, Thomas Goyne and Curt Moore (pictured lower left) also took first place in the 4-year division at this year’s Student Challenge Cup Competition at the Sports Turf Managers Association Conference (STMA) in Orlando! Students also took second place in the 2-year division. This is the third year in a row that a Penn State team has taken first place in either the 4- or 2-year division. Congratulations to all the Penn State students who competed this year!

ALUMNI UPDATES

Collin Meyers (BS 2010) has been a grounds assistant for the Atlanta Falcons for the past three seasons. He accompanied the team to the 2017 Super Bowl in Houston.

Penn State alumni Collin Meyers, striping the field for the Atlanta Falcons.
Scan the QR code: Download your favorite QR reader to your phone and scan the code to learn more about these companies.
Turfgrass Calendar

July 16–18
NALP Legislative Day on the Hill
(National Association of Landscape Professionals)
Washington, D.C.

July 19–22
TPI Summer Program
(In conjunction with the 2017 International Turfgrass Research Conference)
The Heldrich
New Brunswick, NJ

September 26–28
NRPA Congress and Expo
(Nat. Rec. and Park Assn.)
New Orleans, LA

November 14–16
Penn State Golf Turf Conference
Nittany Lion Inn
State College, PA

January 10, 2018
Eastern PA Turf, Ornamental and Athletic Field Conference and Trade Show
Shady Maple Conf. Center
East Earl, PA

January 16–19, 2018
STMA Conference and Exhibition
Fort Worth, TX

January 25, 2018
Northeastern PA Turfgrass Conference and Trade Show
Woodlands Inn
Wilkes Barre, PA

February 3–8, 2018
Golf Industry Show
Henry B. Gonzales
Convention Center
San Antonio, TX

February 27–28, 2018
Western Pennsylvania Turf, Ornamental and Landscape Conference and Trade Show
Doubletree by Hilton Hotel, Pittsburgh Cranberry
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