TPI NATURAL GRASS
TURFGRASS PRODUCERS INTERNATIONAL

September/October 2018

# Turf News

*A publication of Turfgrass Producers International*

The only magazine devoted ***exclusively*** to turfgrass production

# TLI *Research Update*


## IN THIS ISSUE

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# IN THIS ISSUE

## FEATURE ARTICLES

### FOCUS: TLI Turfgrass Research Update



**PLUS**



**DEPARTMENTS**



**BONUS**

# PRESIDENT'S **TURF**

Jimmy Fox

## Be Bold!

Many of you are in the middle of fall planting, trying to figure out if the economy is going to "sputter" or keep chugging along, as you try to guess if you should plant more acres.

When the economy is chugging along, it's easy to lose sight of all the pressures that are impacting your business. Labor is hard to find. Not just affordable labor, but people willing to work outdoors. So, many of our customers' projects have been running behind schedule. I have never seen so many deadlines missed, even in the height of the last building boom in 2006. It has made scheduling and inventory management tough on all trades, including sod farming and installation.

Listed below are other potential issues facing our industry which may affect your business over the next few years. You may need to plan to accommodate more potential delays or adjust your pricing to compensate for increasing production costs. I am not an economist, but I do listen to my customers. We all need to stop, look at our business climate, and make adjustments before the bottom line is impacted negatively.

**Labor Costs:** With unemployment still at record lows, and states such as Washington, California, New York, Arizona and 19 others raising the minimum wage beyond the federal level, keeping good employees at a fair wage is getting harder. The cost of growing and delivering sod is going up!

**Trucking:** A growing economy creates the need for more supply chain movement…trucks. The demand is out-pacing the number of truck drivers. Add Electronic Data Loggers to the equation, and trucking costs are skyrocketing. Shipping routes have slowed, causing further delays. We are living in a new era of trucking regulation, and it is affecting the sod business, whether it is a demand for higher pay, or increased costs from outside trucking companies.

**Sand Shortage:** There is a global shortage of sand impacting cement and concrete production and golf course bunker renovation and installation. Aggregate in general is suffering from a lack of trucking, so sand delivery runs behind, creating bottlenecks nationwide. All this delays landscaping and golf projects.

**Lumber Shortage:** Hurricane recovery and increased home and commercial building have produced lumber shortages and increased prices. This is causing delays in building, and a trickle-down effect on construction pricing.

**Rising Interest Rates:** Most economists agree that interest rates need to go up eventually to keep banks healthy and hold off inflation. But rising interest rates spark fear they will stall the economy and shut down housing starts. In some areas, housing starts have already slowed due to increased construction costs, rising interest rates, and limited supply that combine to increase selling prices.

You are in business to make money. Be bold and make proactive adjustments so your bottom line is impacted…positively!

May God continue to bless your family and your business.

Jimmy Fox

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# EXECUTIVE DIRECTOR'S **TURF**

Casey Reynolds, PhD

## TLI Research and the Natural Turfgrass Industry

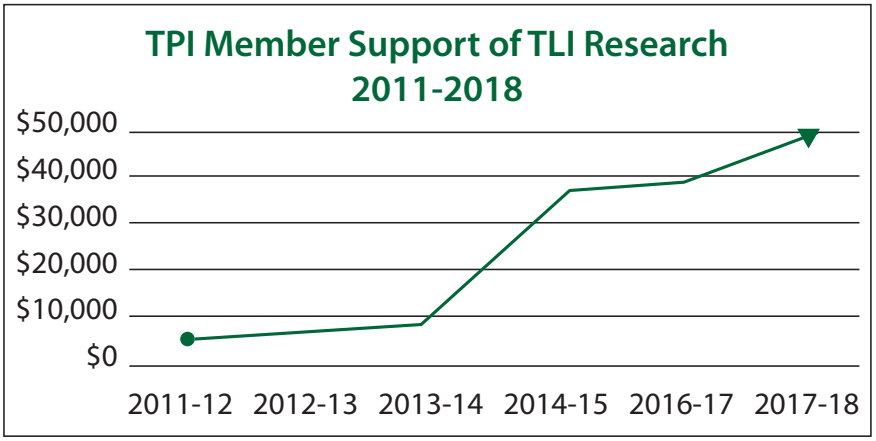
The *Turf News* September/October issue traditionally highlights TLI research, and while this year is no different, it is a little more special. TPI member support has resulted in an almost ten-fold increase in TLI research dollars from as recently as 2012, when it has grown from $5,500 to $50,000! These dollars are currently funding eight research projects at highly respected, globally-recognized, turfgrass universities, and we are excited to share updates on their progress. The details of these projects can be found beginning on page 12 of this issue and will provide an overview of methods, results, and impacts on TPI members and the natural turfgrass industry.

One of the often-unseen aspects of turfgrass research is the value and impact it has when I and other turfgrass industry representatives state our case to policymakers, urban planners, regulatory agencies, and others. As we sit in meetings where decisions are being made on the selection, planting, and use of different plant materials, we can share data that highlight the importance of keeping natural turfgrass an integral part of urban and suburban communities. We can point out its positive benefits on runoff reduction, temperature modification, topsoil remediation, athlete safety, and more. Having recent, relevant research data is vital to discussions among not only policymakers, but also the public in general.

The value of research funded by TLI and other agencies also is important as we seek collaboration and support from federal and state granting agencies. Not only are the data gathered in these projects helpful, but so too is the ability to show these agencies that we as an industry place value on our product and are willing to support it through investing our own research dollars. In this way, TPI can continue to build upon its reputation as a leader in natural turfgrass as we collaborate with our partners in groups such as the National Turfgrass Federation, the National Turfgrass Research Initiative, and others.

Lastly, the TPI Board of Trustees and staff are excited to have recently announced that the long-standing tradition of TPI member support of agronomic research has in 2018 been expanded to now include market, consumer, and public relations research as well. While these efforts will not be highlighted in this issue, TPI staff are working diligently behind the scenes with FleishmanHillard to investigate the factors that influence public perception of natural turfgrass and how we can create TPI Member-Only resources to benefit our members and the natural turfgrass industry. So, we hope you enjoy this issue and thanks as always for your support!

Cheers,

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# TPI NEWS

## WHAT TO KNOW

### THANKS TO ALL WHO HAVE ALREADY RENEWED MEMBERSHIPS FOR 2018! IF YOU HAVE NOT SENT IN YOUR DUES, THERE IS STILL TIME!


TPI Membership dues statements were mailed to all members at the end of May. If you did not receive your dues invoice in the mail, please contact TPI at 847-649-5555 and we can send you a new one. You can also login to the TPI website and renew online.
Remember that this statement will reflect a half-year of dues because of the recently-approved membership year change.
If you have questions about the membership renewal process, please contact Karen Cooper *kcooper@TurfGrassSod.org* or 847-649-5555. Thank you for your continued support of TPI and TLI.

### REGISTRATION AND HOUSING NOW OPEN FOR TPI'S INTERNATIONAL EDUCATION CONFERENCE IN CHARLOTTE, NORTH CAROLINA!

Plans are coming together for the 2019 International Education Conference in Charlotte, North Carolina, February 18-20. The week will kick off on Monday with optional social tours of several NASCAR-related sites and a field tour of Bank of America Stadium, home of the Carolina Panthers, followed by the President's Reception, hosted by 2019 President Eric Heuver. Tuesday's activities will include the annual business meeting, several outstanding education sessions **(see page 42 in this issue)**, and evening exhibit hall time. Wednesday kicks off with the Inspirational Breakfast, more cutting-edge education sessions, exhibit hall time, and the annual Show & Tell sessions with the new 2019 board of trustee members. The conference will wrap up with a big finale on Wednesday night: the 2019 TLI Banquet and Auction at the NASCAR Hall of Fame! Don't miss your chance to relax with friends and colleagues while enjoying the activities and displays at this outstanding facility. Watch your email inbox and future *Turf News* issues for more information!


INTERNATIONAL EDUCATION CONFERENCE | THE WESTIN CHARLOTTE
CHARLOTTE, NORTH CAROLINA
FEBRUARY 18-20, 2019

### KANSAS STATE UNIVERSITY'S ANNUAL TURFGRASS FIELD DAY GOES ONLINE

K-STATE TURFGRASS

On Thursday morning, August 2, KSU Turfgrass Research and Extension used Facebook Live to give a brief 20-minute video tour of their annual turfgrass field day event at the Rocky Ford Research Center in Manhattan, Kansas. The video was hosted by Dr. Cheryl Boyer, an associate professor in KSU's turfgrass and ornamental department. Dr. Boyer gave viewers a nice visual introduction to the research facility and included a broadcast of Dr. Jared Hoyle's introduction of the day. The Facebook Live event is a great way to generate publicity for the field day and also for KSU's turfgrass research program. Many universities are using various social media platforms to spread the word about their research and the importance of natural turfgrass and various industry initiatives!

# TPI NEWS

## MARK YOUR CALENDAR

### TPI HONORS AND AWARDS PROGRAM

Do you know a deserving individual who should be recognized for their contributions to the industry? If so, please consider nominating them for recognition through the TPI Awards Program. Deadline is September 30. The program acknowledges the tremendous contributions of deserving individuals in several categories based on nominations submitted by their peers. Award categories include TPI's Honorary Member Award, Distinguished Service Award, Innovator of the Year Award, and Turfgrass Educator Award of Excellence. More information is available online at: *http://www.TurfGrassSod.org/pages/discover-tpi/community/honors-awards-scholarships/*

### 2019 DR. HENRY W. INDYK SCHOLARSHIP

The application process for the 2019 Dr. Henry W. Indyk Scholarship begins on October 1. TPI members, their family, their employees, and their employee's families who will be attending college or graduate school during the 2019-2020 academic year are encouraged to apply. More information is available at *www.TheLawnInstitute.org/pages/science/scholarships/*.

### 2019 MEDIA KITS

Media Kits will be available by October 1 and will detail the advertising and sponsorship opportunities available with Turfgrass Producers International for the 2019 calendar year! There will be an early commitment discount for orders placed by December 31, 2018 as well as discounts for individuals or companies who commit to multiple ads or ads in all six *Turf News* issues. If you have not received yours when you are ready to think about next year's advertising or if you have any questions, please contact Karen Cooper by email at *kcooper@TurfGrassSod.org* or call her at 847-737-7631.


### TPI 2019 SUMMER CONVENTION & FIELD DAY

JULY 23 - 25, 2019

BLOOMINGTON-MINNEAPOLIS, MINNESOTA - USA

A field day at Wagner Sod Company's farm will highlight the 2019 Summer Convention & Field Day. Plan now to join TPI members for an exciting array of learning tours and activities. A preliminary schedule will be announced in an upcoming issue of *Turf News*!

### PHOTOS OF TPI EVENTS AVAILABLE ON SMUGMUG

Did you know that TPI members can view pictures from past conventions and conferences on Smug Mug?

**Visit:** *www.tpiphotos.smugmug.com/* to take a journey down memory lane.

# THANK YOU TO ALL 2018 DONORS

The Lawn Institute sincerely thanks ALL members that have donated to The Foundation in 2018. In recognition of the Forever Green, Gold Benefactor, Green Partner and 500 Club members, the lists below recognize those who have donated as of 7/31/18.

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For more information go to:
***www.TheLawnInstitute.org/page/forevergreen/***

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For more information on how you can support TLI and make a donation in 2018 go to: *www.The LawnInstitute.org/* and click on SUPPORT TLI.

**PERSONALIZE THE NEXT PAGE (Helpful Hints from The Lawn Institute)** Insert your company's business address and contact information by going to *www.TheLawnInstitute.org/pages/helpful-hints-from-the-lawn-institute/* to access The Lawn Institute's easy-to-use template. Then print and share with your customers—**it's free!**

# WEED IDENTIFICATION 101

There are approximately 300,000 species of vascular plants that form the dominant vegetation covering the Earth's surface. Vascular plants are defined by the presence of photosynthetic pigments and vascular tissues that carry water, minerals, and photosynthetic by-products throughout the plant. Within this group, flowering plants, also known as angiosperms, are a diverse group of land plants that are classified into 416 families. With this vast amount of plant species present, identifying weeds can often be quite tricky, so where is the best place to start?

Weeds, like all plants, are classified based on morphological characteristics of their reproductive and vegetative structures. The most useful part of a weed for identification is the flower, but leaves, rhizomes, stolons, tubers, etc. also can provide important clues.

Weeds are often grouped into categories such as broadleaf weeds, grassy weeds, and sedges. Broadleaf weeds have variable leaf shapes and arrangements, netted leaf veins, and often colorful or showy flowers, but their flowers also can be small and inconspicuous. Grassy weeds have simple, entire leaves, parallel leaf veins, and most commonly small, perfect flowers that are arranged in spikes, racemes, or panicles. Sedges also have simple, entire leaves and parallel leaf veins which often lead them to be mistakenly called grasses, such as "nutgrass," named after its underground tubers and grass-like leaves. Furthermore, there are several species of weeds with vegetative characteristics (leaves, stems, sheaths, etc.) that appear to be grasses, but when left un-mowed, their floral characteristics reveal that they are actually quite different. These species are sometimes referred to as "grass-like" weeds and can add another layer of difficulty to identification.

Identifying weeds based on morphological features is helpful because herbicides often are particularly effective on one or more of these groups. However, it is important to be able to identify specific weeds within a group (down to the genus and species level), because some herbicides may only control certain species. In addition to type of weed, the life cycle of the weed is important because it impacts when to treat it. Summer annual weeds are most easily controlled during spring prior to, or soon after germination, while winter annual weeds are best controlled prior to, or soon after fall germination. Perennial weeds, those with above or below-ground storage organs (rhizomes, stolons, tubers, bulbs, etc.), should be treated when they are actively growing and typically are more difficult to control.

Given the complexity of weed identification, it is often useful to seek the help of textbooks, websites, university or industry specialists, etc. to properly identify a weed before determining how to treat it. There are many useful resources available online, but it is important to consult reputable, industry or university websites that are regionally specific. Minor differences in species, regional common names, availability of registered herbicides, and more can have significant impacts on successful control.

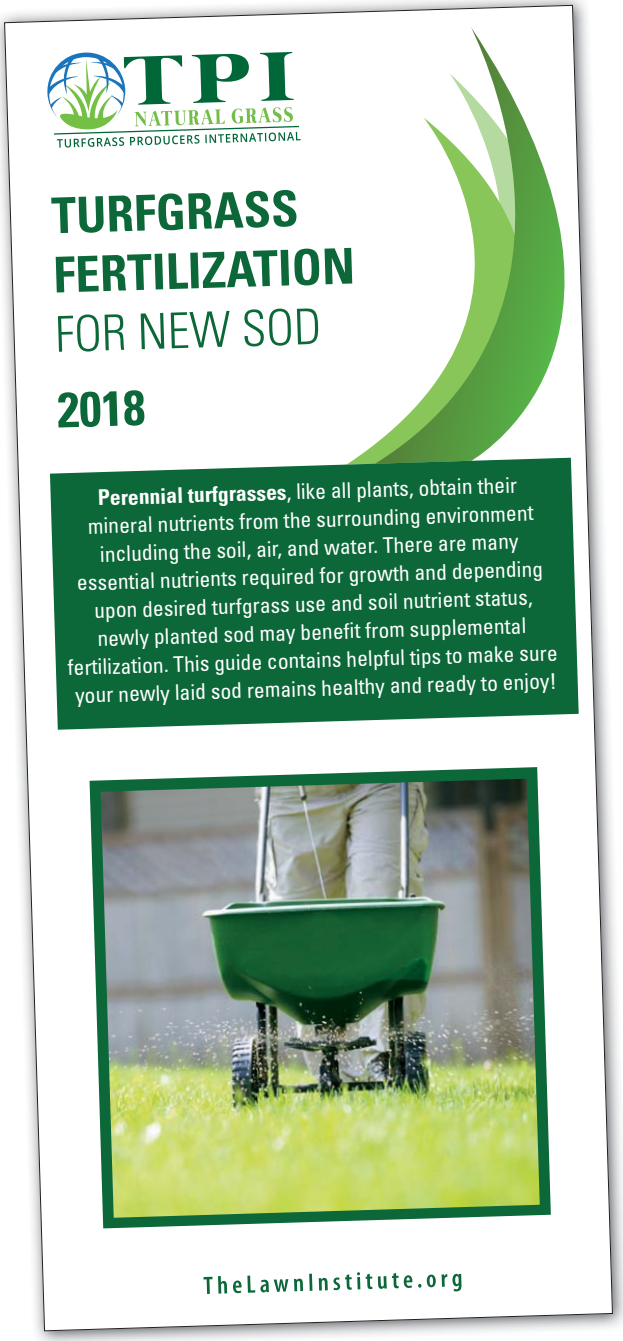
Lastly, don't forget the importance of healthy turfgrass as the first and best defense against weeds. Following proper turfgrass management practices can go a long way in reducing weed populations and stopping them before they become a problem.

For more information on lawn care and helpful "How to" tips, visit The Lawn Institute at:
*www.TheLawnInstitute.org.*

# NEW BROCHURE NOW AVAILABLE
# IN THE MEMBER-ONLY TOOLKIT!

A new brochure titled *Turfgrass Fertilization for New Sod* is now available in the TPI "Member-Only Toolkit" section of the TPI website *www.TurfGrassSod.org*!

Customize this brochure with your own company logo to provide your customers with information on how to fertilize and care for new sod.




*The US version is available now.*
*The International version (using metric units) will be posted as soon as it becomes available.*

## Not a TPI Member? Join Today

Take advantage of Member-Only Toolkit brochures and the many other resources TPI offers.

### FERTILIZER **MATH & APPLICATION**

Once you select an appropriate fertilizer, it is important to accurately determine the application rate. Fertilizer nutrients are typically applied at rates of 0.5 to 1.0 lb of nutrient per 1,000 ft$^2$. To calculate how much fertilizer to apply based on this range, simply follow these steps:

**1) Measure the area of the turfgrass in square feet (Area)**

**2) Select the rate at which you are applying the nutrient in the fertilizer (Application Rate)**

**3) Determine the analysis of the fertilizer (Analysis)**

Multiply these three values together as done below to determine how much fertilizer to apply.

Example: A homeowner wants to apply 1.0 lb of nitrogen per 1,000 ft$^2$ to a 5,500 ft$^2$ lawn and is purchasing fertilizer with an analysis of 16-4-8 based on a recent soil test.

| Area | | Rate | | Analysis | | Total Amount |
|---|---|---|---|---|---|---|
| 5,500 ft$^2$ | x | 1 lb of N / 1,000 ft$^2$ | x | 1 lb of 16-4-8 / 0.16 lbs of N | = | 34 lbs of 16-4-8 |

Many fertilizer products will also state on their label how many square feet they will cover. This eliminates the need for calculation, but still requires that the area be accurately measured. For example, "This bag covers 5,000 ft$^2$" means the fertilizer manufacturer has determined how much area this bag will cover by using math similar to that shown above.

Fertilizers are most commonly applied using a rotary or drop spreader. Rotary spreaders cover a larger area and are less prone to error while drop spreaders are great for small areas and areas adjacent to sidewalks, driveways, or other hardscapes. In order to improve the uniformity of coverage using either type, it is often recommended to apply half of the fertilizer in one direction and the other half perpendicular to that direction.

# Tahoma 31™

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# THE LAWN INSTITUTE
# TURFGRASS RESEARCH UPDATE

**By Casey Reynolds, PhD**

The Lawn Institute (TLI), the Foundation of Turfgrass Producers International (TPI), has a long-standing history of funding natural turfgrass research at nationally and globally recognized universities. Each year, TLI sends out a call for proposals to university researchers throughout the world to be compiled and reviewed by the TLI Research Committee at the TPI International Education Conference & Field Day. The TLI Research Committee members are comprised of TPI members, staff, university educators, and industry personnel to ensure that TPI members and their interests are fully represented in the process while also leaning on university, USGA, and NTEP personnel in an advisory capacity for input on current research at other institutions.

Duane Klundt, GO (Grassland Oregon) is serving as chair of the 2018 committee. Mike Pope, Harmony Brands, is vice-chair; and Steve Griffen, Saratoga Sod Farm, Inc., is the TPI Board liaison. Jim Keeven, SelecTurf, Inc., serves as a committee member. In addition, Casey Reynolds, PhD, serves as one of the advisors to the committee. Reynolds, along with all other advisors to the committee, do not vote on projects but are present to provide technical input on the quality and potential impact of proposals.

Applications for research funds can be requested on any topic, but the TLI Research Committee places priority on specific research areas that serve natural turfgrass producers and the turfgrass industry. With the help of the TLI research committee, these areas were updated for 2018 and are listed below. Other basic guidelines of the proposals include: applicants are encouraged to adhere to all TLI forms, formats, and deadlines for full consideration of proposals; proposals for single or multiple-year projects will be considered as long as the years and funding amounts are clearly stated; funds cannot be used for faculty salaries; proposals seeking funds for capital expenditures will be reviewed on a case-by-case basis; and overhead or administrative costs shall be held to an absolute minimum, but will not exceed 16 percent.

## TLI Research Areas

- **Cultural Impacts of Natural Turfgrass** - Research that includes, but is not limited to, societal health and well-being, fitness, athletic field safety, socio-economics, consumer attitudes, etc.
- **Environmental Awareness of Natural Turfgrass** - Research that includes, but is not limited to, carbon sequestration, heat abatement, pollution entrapment, soil remediation, run-off reductions, etc.
- **Natural Turfgrass Input Reductions** - Research that includes, but is not limited to, drought tolerance, reduced water use, nutrient requirements, traffic tolerance, integrated pest management, etc.
- **Extending Harvested Shelf-Life of Natural Turfgrass**
- **Reducing Production Costs of Natural Turfgrass**
- **Natural Turfgrass Research Communication & Education** - Information that can be used to develop content on The Lawn Institute website for educating policymakers, homeowners, and the general public on turfgrass science, management, impacts, etc. This can include literature reviews on environmental impacts, turfgrass benefits, region-specific turfgrass selection and management, weed/insect/disease control, and more.

This year, the committee received 19 research proposals focused on items including turfgrass insects, diseases, genetics and plant breeding, turfgrass water use, turfgrass cooling effects, biostimulants, plant growth regulators, and sod harvestability. The Lawn Institute Research Committee met on Tuesday, February 13, in Tucson, AZ, during the TPI 2018 International Conference & Field Day to review, discuss, and vote on these research proposals. The committee decided to fund the five university research projects listed in Table 1, in addition to four projects already underway. These projects represent a wide range of topics that can benefit TPI members both locally and globally. Projects including those such as turfgrass water use, urban heat islands, runoff, and cooling effects are all big-picture items that can be useful in long-term regulatory discussions, while projects on harvest aids for improved shelf-life and developing a pest-control guide for members are items that can provide practical and immediate benefits to TPI members.

| Table 1: TLI Research Projects Currently Funded as of June 1, 2018 | | | | |
|---|---|---|---|---|
| Researcher | Institution | Project | Duration | Funding |
| John Stier, PhD | University of Tennessee | Documenting Water Use for Turfgrasses in the United States | 2015-18 | $66,197 |
| Bernd Leinauer, PhD | New Mexico State University | Turfgrass Irrigation and Its Impact on Heat Island Mitigation and Energy Consumption | 2016-19 | $22,500 |
| Kevin Morris | NTEP | Cool-season Water Use Trials | 2016-19 | $15,000 |
| Kevin Morris | NTEP | Warm-season Water Use Trials | 2018-21 | $30,000 |
| Ben Wherley, PhD | Texas A&M University | Environmental Impacts and Runoff Dynamics Associated with Turfgrass Removal and Urban Landscapes | 2018-19 | $30,000 |
| Marco Schiavon, PhD | University of California Riverside | Mapping and Monitoring Turfgrass Cooling Effects from the House to the City Scale in Inland California | 2018-19 | $20,000 |
| Jay McCurdy, PhD | Mississippi State University | Harvest Aids for Improved Turfgrass Shelf-Life and Transplantation Success | 2018 | $10,000 |
| Lee Miller, PhD | University of Missouri | Turfgrass Pest Control Recommendations Guide (Disease Control) | 2018 | $2,500 |
| Matt Elmore, PhD | Rutgers University | Turfgrass Pest Control Recommendations Guide (Weed Control) | 2018 | $2,500 |

## Documenting Water Use for Turfgrasses in the United States ($66,197, 2015-18)

Water is likely to be, and in many cases already is, the most contentious resource limiting turfgrass use and maintenance in the foreseeable future. The primary objective of this project is to determine the actual amount of irrigation water needed to maintain functional turfgrasses in various regions of the United States including the Northeast, Upper Midwest, Intermountain West, and Southeast transition zone. The long-term goals of this project are to create a database of evapotranspiration (ET) rates of lawn grasses on a national scale and use this information to model irrigation requirements for any region of the United States. This irrigation model could be based on information such as turfgrass species and variety, temperature, humidity, soil type, slope, management inputs, and more.

Sites in this study include locations at the University of California-Riverside, Utah State University, Texas A&M University, the University of Tennessee, and the University of Connecticut. Plots were sodded at all sites during August and September of 2015 and grown-in during that period using irrigation (not-measured), starter fertilizer, and other generally accepted establishment practices. Researchers

Research teams at five different universities sodded their test plots during August and September of 2015.

These turfgrass plots for monitoring water use are at the University of Tennessee.

cooperated with TPI members to collect the grasses being assessed including bermudagrass (three locations), zoysiagrass (two locations), buffalograss (one location), tall fescue, Kentucky bluegrass, Kentucky bluegrass plus tall fescue mix (one location), Kentucky bluegrass plus fine fescue mix, and fine fescue (one location).

Fertility treatments, irrigation and turfgrass color and quality measurements began in the spring of 2016 and ran through 2017. Investigators compiled well over 100,000 data points on irrigation and evapotranspiration rates (ET) into spreadsheets and submitted it to Dr. Doug Karcher at the University of Arkansas for analysis.

This project is on track to being able to accomplish its goal of determining the actual amount of water required to maintain key grass species in different regions of the country to at least 50 percent green cover. Using ET rates, researchers will be able to determine the accuracy of ET predictions for requisite irrigation. Data analysis should be completed by summer of 2018, and a final report will be ready for The Lawn Institute by fall of 2018. A manuscript for publication in a peer-reviewed journal will be ready for submission and this project will also be presented at the 2018 Agronomy and Crop Science Society of America meetings in Baltimore, MD.

A broad view of the established turfgrass plots set up for monitoring water use at the University of California-Riverside.

An additional objective of this research is to publish a comprehensive literature review of turfgrass water use, irrigation practices, and turfgrass water best management practices (BMPs) which can be used to promote The Lawn Institute's goal of ensuring that natural turfgrasses are selected, planted, and maintained with continued environmental stewardship.

## Turfgrass Irrigation and Its Impact on Heat Island Mitigation and Energy Consumption ($22,500, 2016-19)

Kentucky bluegrass surrounds this test wall.

Strategies to conserve water have been implemented by many municipalities in the Southwest United States to minimize water used for irrigating urban landscapes. These strategies include eliminating turf areas and replacing them with xeric plants and/or hardscapes. However, such an approach can in return create or contribute to already existing urban heat islands. Heat islands are defined as urban, built-up areas that can be up to 12 degrees Celsius (53.6 degrees Fahrenheit) warmer than adjacent rural areas. The documented negative consequences resulting from heat islands include increased peak energy demands in summer months, higher air conditioning costs, greater air pollution and increased greenhouse gas emissions, an increase in heat-related illnesses and mortality, and decreased water quality. Despite these documented heat-island effects, no research has been conducted to determine the consequences of these strategies with regard to overall water and energy consumption. Research is needed to quantify the effect and importance of different types of landscapes on urban ambient temperatures around buildings and the subsequent energy consumption inside those buildings.

A study is underway at New Mexico State University to investigate the effects of different landscapes (irrigated turfgrass, non-irrigated xeric, hardscape) on ambient air and surface temperatures. In a second phase, data will be used to model energy requirements to cool or heat adjacent buildings. Two standard wood frame walls covered with stucco measuring 3.5 m by 3.5 m (11.48 ft. by 11.48 ft.) and surrounded by either Kentucky bluegrass or hardscape (coarse, crushed rock) were set up at New Mexico State University's turfgrass research center and on campus. Four thermocouples were mounted on each wall, two at 0.50 m (1.64 ft.) and two at 1.00 m (3.28 ft.) height from the ground. To measure air temperature, sensors were also installed at the same height in front on each wall at a distance of 10 m (32.81 ft.). Additional sensors measuring relative humidity, wind speed, and net radiation were placed on top of each of the walls. Sensor readings were collected and recorded every 30 minutes using dataloggers.

Data are used to calculate heat flux (q) on the outside of the walls, which is a contributing factor to temperature changes inside buildings. Heat flux or thermal flux, also referred to as heat flux density or heat flow rate intensity, is a flow of energy per unit of area per unit of time. Moreover, relative differences between the heat fluxes on turfgrass and on hardscape also can be calculated.

A small sample of results are presented here during one week in June 2017 with high solar radiation (7.22 kWh/m2/day, week of June 5, 2017). Generally, the temperatures on the outside of the walls surrounded by two different landscapes do not differ considerably (Figure 1) even though building wall temperatures are cooler when surrounded by natural turfgrass than xeric landscapes. However, differences are more pronounced for heat flux. In June for example, heat flux along the wall surrounded by xeric landscaping exceeds those at the wall surrounded by natural turfgrass by up to 80 percent (Figure 2). In November, during a time period with low solar radiation (5.69 kWh/m2/day, week of November 7) these differences are still present but are much smaller.

This research will continue through 2019 with more results forthcoming. You can also keep an eye on the Twitter accounts of Dr. Bernd Leinauer (@NuMex_Turf) and Dr. Matteo Serena (@matteoserena1) for updates and images.

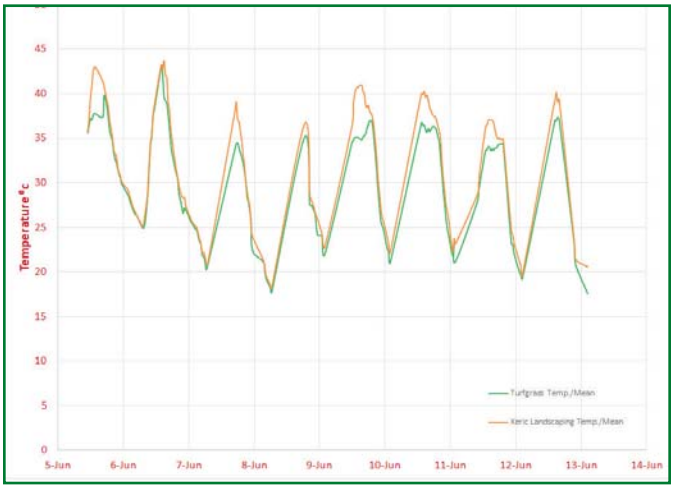



Figure 1. Temperature changes during one week in June on wall surrounded by turfgrass and by hardscape.

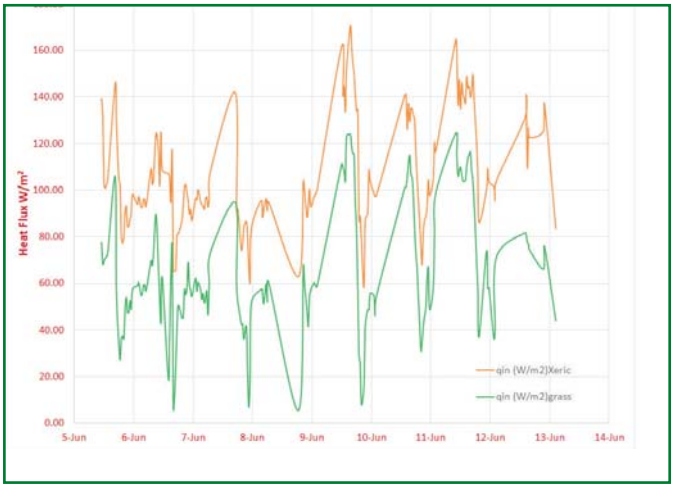



Figure 2. Heat flux changes during one week in June on wall surrounded by turfgrass and by hardscape.

## USGA/NTEP Cool-Season and Warm-Season Water Use Trials (Cool-season Trials, $15,000 2016-19; Warm-season Trials $30,000, 2018-21)

The United States Golf Association (USGA) has budgeted considerable funding to conduct a national water use and drought tolerance trial, utilizing the National Turfgrass Evaluation Program (NTEP) as its evaluation organization. Besides data collection on water use and drought resistance parameters, the goal of this effort is for the EPA Water Sense® program to adopt these (or similar methods) and to agree to certify the first plant species with the Water Sense® label. USGA has become a Water Sense® partner and NTEP has expressed interest in this idea from the Water Sense® staff. However, EPA needs more information about the methods and tests, as well as we believe, some successful trials.

Plugs of buffalograss are shown in the greenhouse prior to establishment.

The USGA has funded the installation of ten rainout shelters in the United States, five in the northern or transition zone and five in the southern region. Within these shelters, cooperators restrict irrigation for a period of 100 days for cool-season grasses or 120-150 days for warm-season grasses in "Approach 1." In "Approach 2" in the western US, they utilize three evapotranspiration (ET) replacement rates of 40, 60, and 80 percent. The cool-season sites were established in 2016 and 2017 and the warm-season sites were established in the summer of 2018. Data collection on the cool-season trials began in 2017, and in some cases notable differences in cool-season water use were recorded.

Documenting water use at multiple sites throughout the country is important for several reasons. First, new drought tolerant cultivars need to be compared with older standard cultivars for actual water use and their ability to maintain quality and green cover. It is also important to show municipalities, water utilities, regulators and others that drought tolerant cultivars are available with documented water use data and finally, having a certification program that identifies and labels drought tolerant cultivars is essential to the continued use of turfgrass on lawns and other areas where water use is a major concern.

## Environmental Impacts and Runoff Dynamics Associated with Turfgrass Removal and Urban Landscapes ($30,000, 2018-19)

This view shows some of the landscape conversion plots and comparison plots of established turfgrass systems.

As the population grows rapidly in urban areas, water conservation has become a key priority for many municipalities throughout the United States. Many homeowners traditionally prefer landscapes composed predominantly of natural turfgrass, but some communities, particularly in arid regions, are now enacting rebate programs which incentivize the removal of turfgrass and conversion to alternative landscapes with the goal of reducing outdoor water use. The objectives of this research are to utilize the urban landscape runoff facility at Texas A&M to evaluate runoff volume and chemistry dynamics following various types of landscape conversions in comparison to established turfgrass systems. Specifically, it will examine runoff flow, volume, and chemistry dynamics associated with urban landscape conversions. The project will also seek to document differences in reflective temperatures, maintenance, and overall landscape health/performance over the course of the study. In addition to

Each plot is individually irrigated. Drip irrigation is being installed here.

providing critical and timely information relating to the long-term sustainability of turfgrass systems, this project meets TLI's second objective of Environmental Awareness of Turfgrass identified in the previously mentioned TLI Research Areas.

This study will be conducted on the urban landscape runoff facility located at the Texas A&M University (TAMU) Scotts Miracle-Gro Center for Turfgrass Research in College Station, TX. The facility consists of 24 individually irrigated 13 ft x 27 ft. (3.96 m x 8.23 m) plots established with 5-year old 'Raleigh' St. Augustinegrass. The proposed study began on April 1, 2018, and will continue through March 31, 2020. Each plot has its own runoff collection system composed of an ISCO flow meter and sampler that provides full documentation of the amount of water lost to runoff as well as water samples for subsequent measurement of the chemical content of the runoff.

This approach will determine water requirements of various landscape conversions composed of variations in traditional lawns to 'water-efficient' alternative landscapes. Similarly, this project examines converting the existing St. Augustinegrass plots to either entirely or varying mixtures of turfgrass and water-efficient residential landscapes using regionally adapted native drought-tolerant shrubs or water conserving plants. In this way, the effects of different residential landscapes on the runoff volume, the chemical content of runoff, and soil properties can be evaluated. Plant areas within alternative landscapes will be irrigated twice weekly using drip irrigation, while turfgrass plots will be irrigated twice weekly at 60 percent of reference ET. Following conversations with landscape design architects, this research will compare the following landscape types:

- 100 percent natural turfgrass (existing 6-year old 'Raleigh' St. Augustinegrass)
- 100 percent xeriscape (decomposed granite surface with 50 percent area composed of native plants)
- 100 percent dark hardwood mulch (shredded hardwood mulch surface with 50 percent area composed of native plants)
- 100 percent hardscape concrete pavers (allowing for comparing runoff mitigation potential offered in comparison to turf)
- 100 percent sand-capped turf (4-inch sand-cap placed below the turf in order to determine benefits of sand-cap layer on water retention and runoff mitigation)

For the water-efficient landscape, Texas native drought-tolerant plant selection will be based on mutually agreed upon materials between Scotts and TAMU, potentially selected from Earth-Kind plant selector (*ekps.tamu.edu*).

Data to be recorded include reflective landscape canopy-to-air temperature, FLIR thermal imaging infrared cameras, weed pressure, runoff dynamics and water quality, water budgets, and overall landscape performance. Runoff characteristics will be evaluated for all naturally occurring rainfall events from April through October. Peak flow rates as well as total runoff volumes from each landscape type will be compared to determine the influence of landscapes on runoff characteristics. Additionally, runoff water samples will be collected and analyzed for pH, EC, Nitrogen (Total N, $NO_3$-N, $NH_4$-N, organic N) and orthophosphate-P concentrations throughout both years. Chemical analysis of samples will be performed for at least six events (two spring, two summer, two fall) from naturally occurring rainfall-induced events.

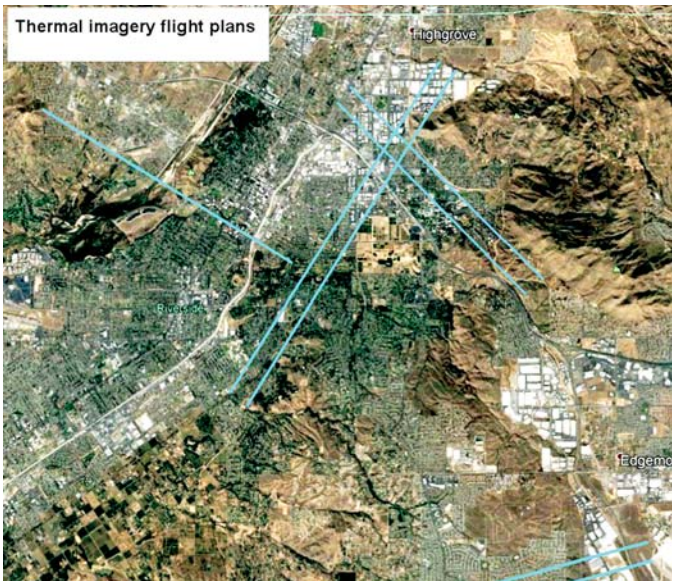
The majority of research studies evaluating alternative landscape benefits have focused primarily on water use, but it is also of interest to evaluate runoff volume and chemistry dynamics following various types of landscape conversions in comparison to established turfgrass systems, which have been shown to slow runoff and serve as a biological filter. Such research could provide valuable data documenting ecosystem services of various landscape types beyond simply water use, as well as shed light on the unintended environmental consequences of conversion to alternative landscapes.

## Mapping and Monitoring Turfgrass Cooling Effects from the House to the City Scale in Inland California ($20,000, 2018-19)

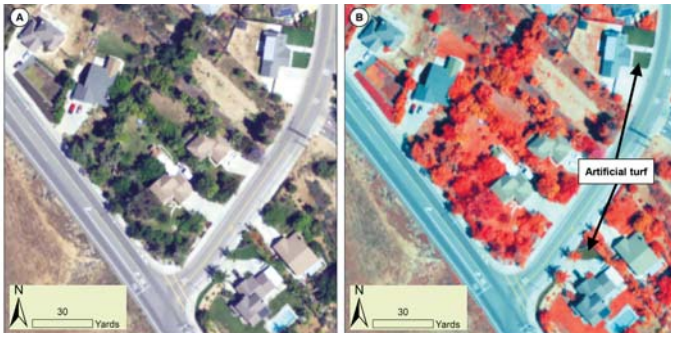
In the last decade, due to prolonged and persisting drought conditions, California USA has restricted water allocated for outdoor landscape irrigation and developed a plan to replace natural turfgrass in California's lawns by offering rebates for removal. Consequently, its removal may lead to a drastic increase of urban heat in inland areas. The hottest temperature recorded in scientific literature for artificial turf is 200 degrees Fahrenheit (93.3 degrees Celsius) during a day with a daytime air temperature of 98 degrees Fahrenheit (36.6 degrees Celsius). Previous research modeling the heating effect of artificial turfgrass on an average summer day in coastal Southern California found that the removal of natural turfgrass could lead to an increase in ground temperature of 72.7 degrees Fahrenheit (22.6 degrees Celsius). However, all previous studies conducted on natural turfgrass's cooling potential were either conducted on a small scale or were based on models. This study proposes spatial and temporal resolution on actual temperature increases in desert cities when turfgrass is replaced by artificial turf and other landscape cover options.

The main objectives of this study are to first, detect differences among natural turfgrass, artificial turf, and desert landscapes during the summer months in Riverside, CA. Differences in temperature will be studied at different scales: household, neighborhood, and whole-city; and second, to conduct a survey on irrigation practices on artificial turf areas (e.g., high school sport fields) to quantify the amount of water used in these areas during the summer months.

Temperature differences among different land covers (natural turfgrass, desert plants, and artificial turf) will be assessed using airborne and satellite thermal imagery. Airborne thermal imagery will be acquired over selected areas (~10 square miles/25 square kilometers) of the city of Riverside (Figure 3). Three to four flights per summer will be carried out in 2018 and 2019 and airborne thermal imagery will be acquired at a resolution of 1-square-foot (0.09-square-meters). Airborne imagery time series will be used to quantify the net temperature differences between different ground covers. An example of thermal imagery of different ground covers can be seen in Figure 4 where various bands of the electromagnetic spectrum are used to display imagery. Spatial statistics and cluster analyses will be used to characterize the cool and/or heat island effects due to each cover type at multiple scales: from the single household to the neighborhood scale (tens and hundreds of households). These spatial analyses will be used to determine if the choice of landscape cover type affects household temperatures, neighbors' household temperatures, etc.




Flight routes for the thermal airborne imagery are plotted over selected areas of the city of Riverside, CA.




Thermal imagery of different groundcovers can be seen in the various bands of the electromagnetic spectrum displayed in figure 4.

Remote sensing imagery from the Landsat 8 satellite (NASA and USGS) will be available for the entire city of Riverside with a temporal resolution of 16 days. Remote sensing will be used to quantify the net temperature differences among different ground covers over public spaces (e.g., public parks, sport fields at schools or recreational areas). The cooling/heating effects of different land cover types will be studied at the Landsat resolution from the neighborhood scale, to the whole-city scale, while airborne and remote sensing imagery will be complemented by ground measurements of temperature, humidity, and other meteorological variables.

In addition, a series of irrigation surveys will be conducted to assess differences in water consumption between artificial and natural turfgrass used for sport surfaces. Turfgrass managers will be interviewed to better understand artificial turf irrigation practices while at the same time a series of distribution uniformity tests will be conducted on sport surfaces during the summer when water consumption for irrigation is at its peak to precisely calculate irrigation water volumes used to cool down artificial turf.

## Harvest Aids for Improved Turfgrass Shelf Life and Transplantation Success ($10,000, 2018)

Shelf-life and transplantation success of sodded and sprigged turfgrasses are negatively affected by disruptive harvest techniques and post-harvest handling/storage conditions. Two primary examples are internal heating of palleted sod or sprigs and improper or delayed irrigation upon installation. Internal heating of stacked or rolled sod and sprigs during shipping/storage is a known cause of decline in transplant success. To minimize these conditions, sod producers may harvest during reduced night/morning-time temperatures or increase soil depth, which can absorb heat in harvested sod. Research has linked the use of certain biostimulants and plant growth regulators to increased sod shelf-life and although costly, refrigeration is increasingly a means of reducing sod spoilage. The objectives of this TLI research project are to evaluate the effects of several commercially available fungicides and soil surfactants on sod shelf-life, post-storage tensile strength, and transplantation success.

Slabs of sod from the different test plots are harvested and tracked precisely to monitor their reactions.

SDHIS (Succinate dehydrogenase inhibiting) fungicides, such as fluopyram and fluxapyroxad, are touted as having plant health enhancing properties, while the QoI (quinone 'outer' inhibiting) fungicide azoxystrobin has also been anecdotally linked to increased sod health prior to harvest. These plant-health promoting capabilities, although uncertain, are likely due to characteristics not solely related to fungicidal properties. Furthermore, soil surfactants may also enhance pallet shelf-life although exploration of their uses in sod production has been neglected. Regardless of the mechanism, any means of improving plant health prior to harvest or during installation could increase resiliency when sod is transplanted, thus directly increasing shelf-life. Likewise, pre-harvest applications may decrease time-to-regrowth of harvested areas.

Treatments in this study were applied to 'Latitude 36' hybrid bermudagrass 21 and 2 days prior to harvest and included

A thermocouple is being installed within this stack of sod to measure the internal temperature.

the fungicides Lexicon® Intrinsic®, Exteris® Stressgard® and Heritage®, the plant growth regulator Primo Maxx® and soil surfactants Dispatch® Sprayable, Revolution®, Sixteen90™, Ovation®, Zipline®, and Attain. A non-treated check, a refrigerated check (38 degrees Fahrenheit [3.3 degrees Celsius] for 24 hours post-harvest), and Lexicon® Intrinsic® applied directly over newly installed sod prior to post-installation irrigation and again 21 days later were included as comparison treatments.

Prior to harvest, soil moisture was measured using a TDR soil moisture probe. Sod was then harvested and stacked to a height of 12 layers deep and intended to promote anoxic conditions and initiate internal mass heating. Sod was stored at ambient field temperature, during which internal sod temperature was measured by thermocouples in each pallet. Upon un-stacking, samples were selected from center layers and tested for sod tensile strength. The sod was then installed in the same order in which it was harvested, and a post application Lexicon® Intrinsic® treatment was applied prior to irrigation. All sod treatments were irrigated and managed accordingly until re-establishment.

Data on bermudagrass transplantation and harvest area regrowth were assessed visually (cover and quality) and by spectral reflectance. Normalized difference vegetative index (NDVI), simple ratio vegetative index (RVI), and relative chlorophyll concentration (CI-RE) were calculated from the appropriate spectra to provide a more objective alternative to traditional visual estimates of turfgrass cover. In order to assess root growth and architecture of installed sod, golf green cup cutter sized plugs (approximately 3- to 6-inch [7.62- to 15.24 cm] depth) were excavated two, five, and eight weeks after installation from various treatments.

Initial results of this research were on display at the 2018 Mississippi State University Turfgrass Field Day in Starkville, MS, and will be available to TLI soon. This research will also be presented at the 2019 TPI International Education Conference in Charlotte, NC.

## Turfgrass Pest Control Recommendations Guide ($5,000, 2018)

Turfgrass weeds, insects, and diseases are often problematic in turfgrass sod production where they can reduce the quality, harvestability, and sale of turfgrass sod. As a result, turfgrass sod producers rely on plant protection products to prevent and treat infestations. There is an extensive number of herbicides, insecticides, and fungicides on the market and variations in use rates, labeled turfgrasses, site restrictions, etc. can make it difficult to track which products are appropriate for use. While there are various industry and university resources currently available for product selection, none are specific to the sod production industry. As a result, TLI has funded a NEW *Turfgrass Pest Control Recommendations Guide* for natural turfgrass producers that is currently under construction.

This resource will be created with input from Dr. Lee Miller, Associate Professor of Plant Sciences at the University of Missouri; Dr. Matt Elmore, Weed Science Extension Specialist at Rutgers University; Dr. Aaron Patton, Associate Professor of Agronomy at Purdue University; and Dr. Casey Reynolds, TPI Executive Director. It will contain over 100 pages of information on plant protection products, use rates, turfgrass tolerances, site restrictions, precautions, and recommendations for use in turfgrass sod production. This will be a TPI Member-Only benefit that will be updated annually and mailed to TPI members.

**Weeds such as this can reduce the quality, harvestability and sale of turfgrass sod.**

**Recommendations for controlling insects specific to the sod production industry will be part of the new *Turfgrass Pest Control Recommendations Guide*.**

Casey Reynolds, PhD, is executive director of Turfgrass Producers International. **All photos and graphics for this article have been supplied by the research team of the research project in which they appear.**

## Get Involved

The Lawn Institute will continue to release its annual Call for Research Proposals each August and will work hard to fund research that is impactful to TPI members. If you have an interest in getting involved, the TLI Research Committee is currently looking for producer members to serve. Commitments include two conference calls each year and a one-hour meeting at the annual TPI International Education Conference to discuss and select proposals. If you are interested in serving, please contact Duane Klundt, the TLI Research Committee Chair, at *DuaneKlundt@GrasslandOregon.com*.

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# CITY FIGHTS CRIME AND MENTAL ILLNESS WITH NATURAL GRASS

**By Suz Trusty**

The best tool to fight crime may be a lawnmower.

That's the opening line of the article, "This city fights crime with gardening," by Roni Dengler that was published in Science Magazine last February *(http://www.sciencemag.org/news/2018/02/city-fights-crime-gardening)*. Dengler went on to report, "That's the conclusion of a new study, which shows that sprucing up vacant lots by doing as little as picking up trash and cutting the grass curbed gun violence in poor neighborhoods in a major U.S. metropolis by nearly 30 percent."

The research project supported two studies simultaneously, the one on crime which is referenced above, and one on the impact of green spaces on mental health.

Melissa Breyer addressed the second study in her article, "A new study measured the mental health of Philadelphia residents before and after blighted lots had been converted into green spaces." It appeared online in July at *https://www.treehugger.com/urban-design/amazing-things--happened-when-206-vacant-lots-were-landscaped.html*.

Breyer reported: "Almost one in five American adults report some form of mental illness; more than 16 million adults experience depression alone every year." And, "Noting that 'spending time and living near green spaces have been associated with various improved mental health outcomes, including less depression, anxiety, and stress,' a group of researchers from the University of Pennsylvania set out to determine if by changing the places near where people live, they could affect change in mental health outcomes."

Vacant lots are abandoned property often overgrown with vegetation and littered with trash. The researchers reported they make up about 15 percent of land in cities. Too often, these lots serve as sites for selling and using drugs, which can lead to other criminal activity, including firearm violence.

The studies involved 541 blighted vacant lots in Philadelphia. They were divided into three categories: approximately one-third were left as they were; one-third cleared of trash, followed by limited mowing where possible and "regular monthly maintenance." One-third were given a "greening intervention." Those lots were cleared of trash, graded, then hydroseeded. A few trees were added and a one-meter (3.28 ft.) tall wooden fence, with multiple gateless openings, installed across the front or around the perimeter of the lot. That was followed by "regular monthly maintenance," which included mowing. The researchers reported minimal costs for the "greening intervention," with the initial makeover $5.00 per square meter (10.76 sq. ft.) and the upkeep averaging just 50 cents for the same area.

Just one model of possibly the best tool to fight crime. Photo by Steve Trusty.

Turfgrass producers and others well-aware of the benefits of natural grass won't find the conclusions of either study surprising.

The crime study reported a statistically significant—58 percent—reduction in peoples' fear of going outside due to safety concerns and a 76 percent increase in their use of outside spaces.

The mental health study found that those living within a quarter-mile radius of the improved lots had an average 41.5 percent decrease in feelings of depression and a nearly 63 percent decrease in self-reported poor mental health compared to those who lived near the lots that had not been improved. For areas below the poverty line, feelings of depression among residents who lived near the newly green lots decreased by more than 68 percent.

The researchers reported the vacant lot greening interventions were explicitly chosen because they were inexpensive and provided "basic amenities" to existing neighborhoods they otherwise would not have had. The informal and accessible turfgrass recreation space was used and enjoyed, based on the accumulation of picnic tables, grills, toys, and recreational equipment

The researchers stated, "Our study shows that direct changes to vacant urban spaces may hold great promise in breaking the cycle of abandonment, violence and fear in our cities and do so in a cost-effective way that has broad, citywide scalability." Such changes also may create greater recognition of, and appreciation for, the impact of natural grass.

Suz Trusty is co-editor of *Turf News*.

# High quality, low input turf varieties.


## *Use 40% less water without sacrificing turf quality with A-LIST approved varieties.*

The A-LIST is an independent, non-profit, industry initiative, fostering development of sustainable turfgrass varieties and related products that perform their function with less maintenance inputs, thus benefiting the environment. A-LIST monitors a voluntary evaluation program including metrics like water conservation, reduced fertility and traffic, heat, and drought stress tolerances, all with no fungicide or insecticide applications.

Products that meet the acceptance criteria can utilize the A-LIST Approved symbol in their marketing and receive the A-LIST Approved tag for use in packaging.

To become an A-LIST Approved Variety, a variety must have demonstrated superior performance in A-LIST trials as defined by:

- The top LSD group for drought tolerance as measured by percent green cover for each of two years in at least two locations.
- Acceptable or better turf quality for each of the two years in at least two locations.
- Have been entered into an NTEP trial for the species. For new cultivars that have met the approval standards for performance in A-LIST trials, final approval will be withheld until the cultivar(s) have been entered into an NTEP trial.

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# REMEMBER SAFETY FIRST
# WHEN OPERATING A UTV

Utility vehicles, or UTVs, are modern day workhorses that haul heavy loads, transport materials and make jobs easier. As they grow in popularity in rural, suburban and urban areas, it's important for operators and passengers to keep safety in mind.

"While UTVs are a lot of fun to drive, they should be treated like work vehicles, not toys," reminds Kris Kiser, President and CEO of the Outdoor Power Equipment Institute (OPEI), an international trade association representing more than 100 power equipment, engine, and utility vehicle manufacturers and suppliers.

## OPEI offers the following safety tips:

**Read your owner's manual.**
Follow all guidelines and familiarize yourself with the controls. Misplaced manuals can be found online and saved on your computer for future reference.

**Inspect your UTV before operation.**
Pay attention to tires, lights, and other systems. Check for missing or damaged parts. Replace any parts needed or take equipment to a qualified service representative.

**Only responsible, adult drivers should operate UTVs.**
Take a safety course for UTV operators. Do not allow a child to operate a UTV.

**Always wear your seat belt and utilize handholds.**
UTVs are equipped with a seat belt for the operator and with seat belts for any passengers. Passengers should be tall enough to reach handholds in the UTV while their backs are against the seat and feet are flat on the floorboards.

**Remember "all in."**
Keep hands, arms, legs and feet inside the UTV at all times.

**Exercise caution, especially on slopes.**
Drive completely up or down a slope or hill before making a turn. Do not turn the vehicle in mid-slope and stay clear of ditches and embankments. Regardless of inclines, drive slowly and turn smoothly. Pay attention when backing up.

**Pay attention when hauling a load.**
When hauling cargo, the vehicle's center of gravity is raised, so you may need to slow down and adjust your driving. Materials you are hauling should be in the cargo box and secured.

**Use care when towing a load.**
Follow the manufacturer's recommendations for weight limits, and make sure the cargo box is loaded to assume good traction for driving and stopping. Tow a load at a speed slow enough to maintain control. Remember, the stopping distance increases with the speed and weight of a towed load.

**Only operate your UTV in clear conditions.**
Do not operate your UTV in poor weather, when tired, if using medication that may impact your vision or operational skills, or when intoxicated.

**Maintain your UTV and fuel it properly.**
Follow manufacturer recommendations for maintenance, and only use E10 or less fuel. Some gas stations may offer 15 percent ethanol (E15) gas or higher ethanol fuel blends, but any fuel containing more than 10 percent ethanol can damage — and is illegal to use in — small engine equipment (like a UTV) not designed for it. Also, never put "old" gas in your UTV. If you don't know the date of purchase, safely dispose of the fuel in the can and buy fresh fuel.

For more safety tips, go to *www.opei.org*. And for further information on proper fueling, go to *www.LookBeforeYouPump.com*.

OPEI supplied this information. About OPEI: The Outdoor Power Equipment Institute (OPEI) is an international trade association representing more than 100 power equipment, engine and utility vehicle manufacturers and suppliers. OPEI is the advocacy voice of the industry, and a recognized Standards Development Organization for the American National Standards Institute (ANSI) and active internationally through the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) in the development of safety and performance standards. OPEI is managing partner of GIE+EXPO, the industry's annual international trade show, and the creative force behind the environmental education program, *TurfMutt.com*. OPEI-Canada represents members on a host of issues, including recycling, emissions and other regulatory developments across the Canadian provinces.

# Indy Sod & BLACK BEAUTY™ - a COOL partnership!

## *Indy Sod uses "Vacuum Cooled" Black Beauty Sod to differentiate and expand their business in Indiana!*

*Above: Marty Fundenberger and Barry check out the sod pallet that just came out of the vacuum cooler.*

*Above: The internal soil temperature of this sod dropped to 40° in twenty minutes.*

*Above: Simon Hilarides in the trailer that stores the vacuum cooled sod at Brehob Nursery.*

*Left: Vacuum cooling uses specialized equipment.*


*Above Left: Brehob Nursery in Westfield, IN.*

*Above Right: The management team at Indy Sod with Barry Green.*

*Below: Each pallet is shipped with the Black Beauty and Vacuum Cooled pallet flags.*


On their recent sod trip through Indiana, Barry Green II and Simon Hilarides visited with Marty and Matthew Fundenberger and Josh Golden at Indy Sod Farm in Lebanon.

After walking the Black Beauty sod fields, Josh, the farm manager, told us that they were now offering vacuum cooled Black Beauty sod to their customers. It rained a lot in Indiana this spring, and heavy rains will increase the weight of sod pallets substantially, making customers complain that laying sod became exhausting work. Vacuum cooling drains the water from the soil quickly and the sod becomes light and easy to handle. Indy Sod cuts pallets before a big rain is expected and has fresh cut, cool sod to ship, even when it's too wet to cut in their fields.

On the day that we visited in July, the air temperature was 95 degrees and the soil temperature of the sod going into the vacuum cooler was 92 degrees, but only twenty minutes later the sod was 42 degrees and cold to the touch. The shelf life of the vacuum cooled sod is increased to 4-5 days, even when the pallets sit in a parking lot or on a hot job site.

Marty and Matthew are owners who view a problem as an opportunity to provide a solution that makes customers happy, and therefore more loyal. Vacuum cooling sod is an expensive proposition but the benefits to Indy Sod's customers are substantial and this gives Indy Sod an edge over their competitors.

Later the same day, we visited with the Jonathan Green Turf Pro Distributor for Indianapolis, Brehob Nursery. Months ago we met with Dave Smith, the General Manager at Brehob and told him about the opportunity to sell vacuum cooled Black Beauty Sod to his customers. Dave jumped on the idea. Brehob has two locations, both north and south of the city. At our suggestion, Indy Sod placed a trailer box at both Brehob Nurseries yards, with their logo on the box, they also use the Black Beauty pallet flags on all the pallets they ship to Brehob. Now Brehob Nursery can sell the Black Beauty Sod that matches up with the Black Beauty seed that they already sell.

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# NEW USGA RECOMMENDATIONS
## FOR A METHOD OF PUTTING GREEN CONSTRUCTION



*The USGA Recommendations for a Method of Putting Green Construction* and a supplementary document *Building the USGA Green: Tips for Success*, have been revised and are now available through the USGA Green Section Record. After a comprehensive review process, the USGA Recommendations have been refreshed to incorporate the latest research, testing procedures, and construction techniques to ensure that the USGA Recommendations continue to provide superb performance around the world.

Follow the links to the websites below to access the information.

**2018 USGA Putting Green Recommendations:**

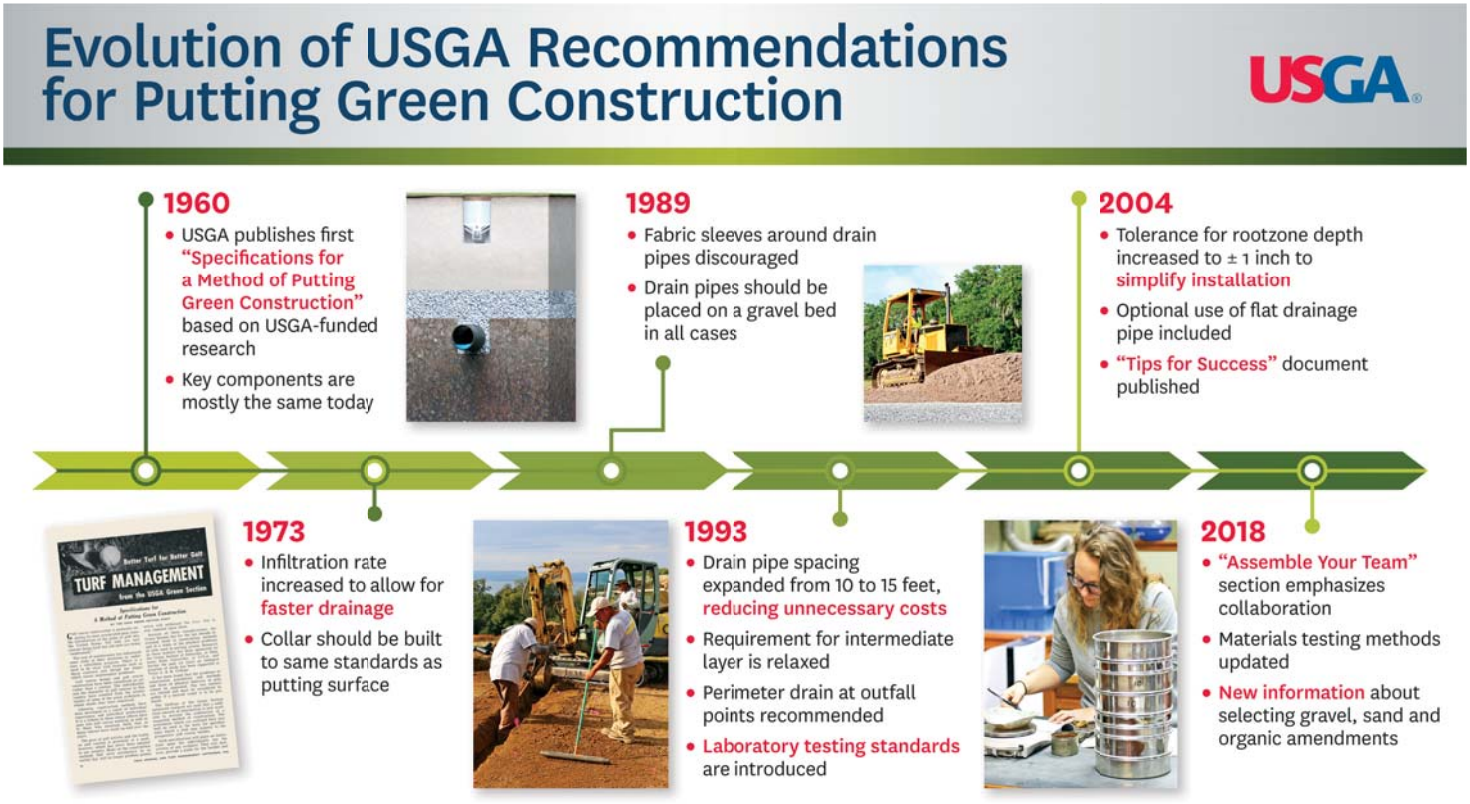
*http://gsrpdf.lib.msu.edu/ticpdf.py?file=/2010s/2018/2018-02-16.pdf*

**2018 Building the USGA Green: Tips for Success:**

*http://archive.lib.msu.edu/tic/usgamisc/monos/tipsforsuccess-2018.pdf*

**USGA Putting Green Construction Video Series:**

*http://www.usga.org/course-care/specialty-articles/usga-putting-green-construction.html*



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# **A VOICE** IN THE PROCESS

**By Suz Trusty**

*Editor's note: The "History of NTEP," the "NTEP Policy Committee Member Manual" and other NTEP documentation, all developed by Kevin Morris, executive director of NTEP, provided much of the background for this article.*

Since 1991, Turfgrass Producers International (TPI) has had a voice in the policy and testing processes of the National Turfgrass Evaluation Program (NTEP). As a not-for-profit organization, NTEP uniquely links the public and private sectors of the turfgrass industry through their common goals of turfgrass development, improvement and evaluation. TPI represents one of those private sectors.

## NTEP Begins

In the mid-1960s, Dr. Bill Meyer was a private turfgrass breeder in Oregon. "If any breeder wanted to get a cultivar tested, they would have to contact every university turfgrass specialist individually," says Meyer. The inefficiency of the process was a frequent topic of conversation with his mentor and friend, Dr. C. R. Funk, turfgrass specialist with Rutgers University in New Brunswick, NJ, at that time. 1968, Dr. Funk, in conjunction with other leading turfgrass specialists in the Northeast, created a sound scientific structure for a cooperative trial to evaluate Kentucky bluegrass at nineteen locations in the northeast and central U.S. There were 43 entries, split between commercially available cultivars and experimental lines.

Meyer says, "That first regional trial was completed in 1972, and went so well additional trials were discussed. Dr. Funk was on one of the first committees for this, and so was I. We decided we should have a coordinated test every five years to put in a different species." A second trial was launched that fall.

The United States Department of Agriculture (USDA) had previously established four regional Cooperative State Research, Education, and Extension Service (CSREES) committees: Northeast, Southern, North Central and Western. J. J. (Jack) Murray, USDA research agronomist, and the agency's only full-time turfgrass scientist, based at the Beltsville Agricultural Research Center (BARC) in Beltsville, Maryland, worked with those committees and had coordinated the trial programs. Beltsville was one of the trial sites.

Morris reports, "In June of 1975, during a regional meeting in Beltsville, fourteen of the 1972 trial evaluators participated in a workshop to discuss standardization of data collection methods. Considerable discussion developed on the use of a standard 1-9 rating scale with 9 being highest quality turf, best disease resistance, finest leaf texture, and best genetic color. Afterward, participants moved outside to rate individually three replications of fourteen selected entries in the 1972 regional test. Ratings were collected on turfgrass quality, density, percent ground cover, color and leafspot damage and were then statistically analyzed by a USDA statistician. Results of the statistical analysis indicated that the evaluators varied their ratings significantly for all five variables. Evaluators then went back out to the field to further discuss the ratings and make suggestions on improving rating methods. These discussions led to a refinement of the system that eventually became the NTEP rating system. The group also realized that the interaction allowed them to better understand the subjective nature of turfgrass field plot scoring and helped them to be more consistent with each other."

Following the first two successful trials, a regional tall fescue trial began in the southern U.S. in 1978. In 1980, a national Kentucky bluegrass test was organized, again with Jack Murray coordinating the project from his Beltsville office as a function of the USDA.

Morris reports, "The initial response was overwhelmingly favorable. Researchers and extension educators found the tests invaluable in learning about commercially available varieties and new experimental selections. Seed companies and plant breeders could quickly learn where grasses performed best and under what management levels. Consumers liked the convenience of one source for unbiased variety information. Also, locating the plots at mainly state university locations allowed them to be viewed by many people at field days. To see grasses growing side-by-side in field evaluations became very popular among the end-users in the turfgrass industry.

With the success of the 1980 National Kentucky Bluegrass Test, NTEP decided to coordinate a national perennial ryegrass test in 1982 and set up an entry fee structure that helped NTEP hire a full-time technical coordinator and is now the basis for NTEP operations. With the collection of funds, it was necessary to establish a 501(c)(3) non-profit corporation, thus NTEP was officially launched."

Kevin Morris was hired in 1982 as that technical coordinator, NTEP's first paid employee. The others had been USDA employees, using that paid time to coordinate the trialing and analyze the data. Officially, NTEP is a cooperative effort between the non-profit National Turfgrass Evaluation Program, Inc., and the USDA, headquartered at BARC.

As a not-for-profit organization, NTEP uniquely links the public and private sectors of the turfgrass industry through their common goals of turfgrass development, improvement and evaluation.

NTEP's mission is to provide leadership for the evaluation and improvement of turfgrass cultivars by:

- Providing a mechanism for uniform turfgrass evaluation;
- Advancing the science of evaluations;
- Collecting and disseminating turfgrass performance information; and
- Enhancing the transfer and use of information and technology relating to turfgrass improvement and evaluation.

Morris and his staff conduct the day-to-day operations of NTEP, which includes coordination of trials, data analysis, report generation, contract negotiation and maintenance, customer service and general office needs.

## The NTEP Policy Committee

The NTEP Policy Committee was formed in 1983. The committee is responsible for determining program policy including: (1) requirements for submission of entries, (2) scheduling tests, (3) evaluation methods, (4) selecting standard or control test entries, (5) setting entry fees, (6) coordinating tests in their respective regions, (7) establishing guidelines for publication and data distribution and (8) scheduling committee meetings. In addition, the policy committee basically serves as the NTEP board of directors, providing oversight of the finances of the program, making sure that NTEP is financially stable and responsible, and is keeping to the mandates of the bylaws.

"I have notes of the 1983 committee meeting," says Morris. "Dr. Funk and Dr. Bill Daniel from Purdue served on it. Initially, the committee consisted of university representatives and some breeders from the seed industry. It evolved to a wider spectrum of groups that had an interest in variety development."

In 1991, a representative from the American Sod Producers Association (ASPA) was added, in part because some of the sod producers were beginning to develop their own turfgrass varieties.

Today, the following organizations have one elected or appointed representative (with voting rights) on the Policy Committee: Turfgrass Producers International (TPI); United States Golf Association (USGA); Golf Course Superintendents Association (GCSAA); Turfgrass Breeders Association (TBA); American Seed Trade Association (Lawn Seed Division) – (ASTA); Western Seed Associations - The Oregon Seed Council and the Pacific Seed Trade Association; and one representative

from each of the four CSREES regional turfgrass research committees – Northeast, Southern; North Central and Western.

Along with the ten representative organizations listed, Morris, as NTEP executive director, serves on the policy committee as a non-voting member.

Morris says, "Each committee member is elected or appointed by the group or organization they represent to serve a four-year term. NTEP does not specify the process, the groups do. Typically, each representative will serve a four-year term, but there are no term limits, and some do opt to serve two or more terms. Policy committee meetings start with each person giving a report on what's happening in their side of the industry, providing that broad-spectrum perspective for the discussion to follow.

"Each trial has an advisory committee, typically six to eight people representing universities, breeders and marketers. It usually includes a policy committee member and often university turfgrass scientists that are also cooperators for the NTEP trials. The advisory committee makes recommendations to the policy committee. So, every trial is guided by 16 to 18 turfgrass industry representatives."

## TPI NTEP Policy Committee Representatives

The first TPI representative on the committee was Al Gardner, A-G Turf Farms, Inc., who was TPI President in 1986-1987. Gardner served two terms. The second representative, Ike Thomas, The Thomas Group, was TPI President in 1985-1986. Thomas also served two terms. The third TPI representative was Warren Bell, Biograss Sod Farm, TPI President in 2005-2006, who served two full terms and part of a third. Gary Wilber, Oakwood Sod Farm, Inc., served the remainder of that term. The appointment of the next TPI representative will be announced soon.

## Great Expertise—Great Respect

Bell says, "The interaction within the committee was excellent, with obvious mutual respect. The turfgrass scientists from the universities and breeders and seed companies all had their areas of expertise, yet all were very open minded and curious and willing to listen to questions and debate issues. The discussion on why to set up certain trials in certain areas and why to explore different trials and then how those trials should be conducted took all the perspectives into consideration."

Thomas says, "At my first meeting, I looked around the table and saw PhD, PhD, Ike, PhD, PhD … but everyone was very cordial. Strong opinions and strong personalities within the committee could be challenging sometimes, but everyone was committed to a common goal. There will always be different ideas and the committee has to come together to work through those; they must be addressed, and some form of resolution achieved—and that always happened."

Dr. Mike Kenna, director of USGA Green Section Research since February of 1990, has served on the policy committee all but one four-year term since then. He oversees the USGA's turfgrass and environmental research activities. Dr. Kenna says, "Representatives of all of stakeholder groups have primary areas of interest. For USGA, that's the golf fairways, putting greens, low maintenance roughs and water issues, but it's the whole spectrum of turfgrass industry issues that impact those areas. Having all the different industry perspectives and university representatives from the four different areas of the country helps us to address those issues from the national level."

TPI member Paul Hedgpeth, Columbia River Seed, Kennewick, Washington, served representing the American Seed Trade Association. "I filled in the last year of my predecessor's term and then my own four-year term," Hedgpeth says. "As the trials are created for any given species, each of the committee members contributes what is important to the segment of the industry they represent and works to create trials that are relevant to that. For the ASTA representative, that's breeding and marketing issues. The TPI representative is interested in sod production and marketing issues, but also brings a real-world viewpoint from interaction with the end users—the municipalities, landscape contractors, golf courses, sports fields, and residential properties. The academic side represents not only the cooperators and university research but also the regional issues and concerns. There are a lot of opinions involved. Each representative needs to be able to speak their mind in that forum and make a positive contribution. The job is to talk about what does need to happen and then do it."

TPI member Duane Klundt, GO (Grassland Oregon) served from 2004 to 2007, representing the Oregon Seed Trade Association/Pacific Seed Association slot. Klundt says, "My contribution as part of the committee came as a salesman, not a researcher. It helped me understand the researchers' perspective and gave me a broader view of the markets. To have that collaboration within the industry, when the industry was fragmented for so many years, with each segment doing its own thing, is huge."

## Criteria—Fair and Equal for All

"The entire committee was committed to making sure there wasn't any outside influence on the scientific methods of conducting the trials, on the performance of the seed or vegetative stock, or on gathering the data or compiling the results," says Bell. "That is the most valuable asset—and the question we individually and as an industry should always ask, "How independent is the scientific data that is being presented?"

Dr. Meyer initially served on the policy committee as one of the breeder representatives, and later, after he joined the Rutgers staff, as one of the regional turfgrass scientists. He says, "All of the entries are treated equally, whether they are submitted by a major seed company or a much smaller operation. Dr. Funk and many of the other university representative who had established that criteria in their own programs made sure it was part of the NTEP policy from the beginning."

"The main goal was, and is, to treat all the grasses alike," says Thomas. "We took great pains to make sure no variety had any advantages over another; to make sure everything was comparable and on an equal basis. If anything in the data was out of range, we'd make sure that it was correct, not some type of aberration."

## Criteria for Trial Parameters

Bell says, "By design, the vast geography the trials encompass will push the limits of some of the entries to see how all the cultivars perform in differing climatic conditions. Big credit goes to the turfgrass breeders for their willingness to subject their creations to such observations based on scientific methods and good hard science. Ultimately that defends the end user."

Thomas says, "Coming from the real world, I would sometimes suggest a different type of trial or trial environment than the others had considered, such as an additional stress test in the different environments. Talking about why it was important to sod production and to different categories of end users put it in perspective for everyone. Over time, each industry segment would present their suggestions with similar explanation and discussion. Examining all those different issues were a big part of the committee's work."

"The decision was made about ten years ago to start the ancillary trials," says Morris. "Along with the standard trials, certain locations added performance trials for specific traits such as traffic, disease or salt tolerance. That's been well-received across the industry."
Additional funding is needed for major projects such as the USGA/NTEP Cool-Season and Warm-Season Water Use Trials. TLI is helping fund those two trials. The USGA invested significant funds to get it started, purchasing the rainout shelters and building the infrastructure.

## Always Moving Forward

NTEP is ever-evolving to remain relevant to the industry and its stakeholders. Kenna says, "We engaged in much discussion initially about using digital imaging analysis for turfgrass quality and then about how that could be improved. The researchers' traditional, 1 to 9, visual evaluation, though subjective, is valuable, so NTEP incorporates both."

Hedgpeth says, "The big focus in turf internationally is low maintenance. We need to figure out what that means for the different areas of use and for the different types of users. What cultivars can we use in what types of situations to not just survive, but really thrive? Finding those answers is a very long-term and potentially ever-changing quest."

Morris says, "With ever-advancing computer technology, the internet and the cloud, we're continually looking for ways to streamline the entire data acquisition, analysis, and availability processes to deliver results to the stakeholders faster. Another goal we're pursuing is getting all our data on a searchable database."

With 95 percent of NTEP's funding coming from entry fees, it is subject to funding swings based on the trial cycles. Some of the former committee representatives suggested adding an additional, industry-wide, funding source for NTEP to alleviate that challenge. Also suggested by some is the addition of policy committee members to represent the lawn care and sports field segments of the industry.

"NTEP is so fortunate to have always had great people on the policy committee who cared about the organization itself and checked their ego at the door," says Morris. "We've had key people at key times—not just one person, but several at a time—that have stepped up to the challenges over the years."

Thomas says, "Serving on the NTEP Policy Committee was interesting, thought-provoking and challenging. There have always been good people, with good intentions on the committee—and that helps in a big way."

The NTEP policy committee provides a forum for the multiple segments of the turfgrass industry to work together for the good of all, including the end users. Commitment to its goals has remained strong for 36 years. Klundt says, "The NTEP policy committee has helped shape industry evolution over that time. The grasses have improved; our focus has become sustainability; we're maintaining the environment in a much better way. TPI has had a voice in that for 27 years."

## NTEP Policy Committee Members Represent the Following Organizations:

### Turfgrass Producers International –

TPI is an international non-profit trade association that represents the voice of the turfgrass sod industry and provides information and resources to turfgrass sod producers.

### United States Golf Association –

USGA is involved in many aspects of golf, including defining and administering the rules of golf. The USGA Green Section, which the USGA committee member represents, oversees the USGA's turfgrass and environmental research activities.

### Golf Course Superintendents Association of America –

GCSAA is an association for professionals who manage and maintain golf courses.

### Turfgrass Breeders Association –

TBA represents the needs and concerns of the public and private turfgrass breeders in the US.

### American Seed Trade Association (Lawn Seed Division) –

ASTA members are companies that develop, produce, buy and sell seeds.

### Western Seed Associations –

The Oregon Seed Council and the Pacific Seed Trade Association represent grass seed production and marketing companies in the Pacific Northwest.

One representative from each from the four regional Cooperative State Research, Education, and Extension Service (CSREES) committees: Northeast, Southern, North Central and Western.

Suz Trusty is co-editor of *Turf News*.

# SAVE THE DATE

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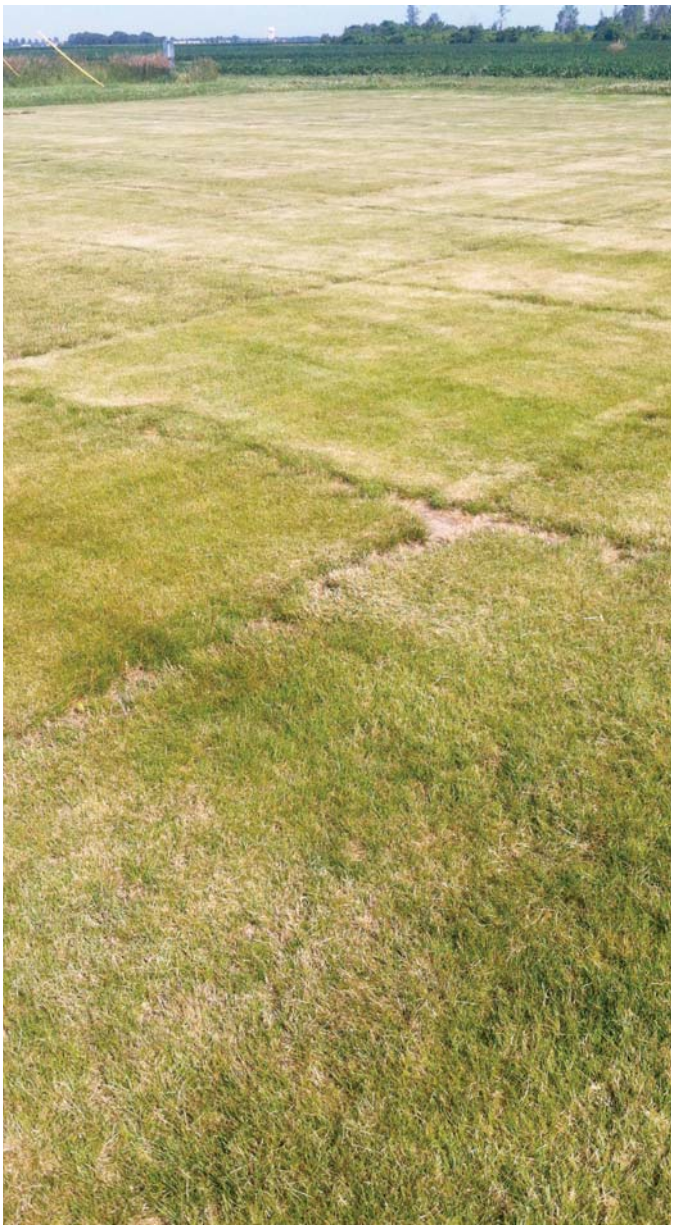
# ROOTED IN **RESEARCH**

## SOD STRENGTH CHARACTERISTICS OF 51 COOL-SEASON TURFGRASS MIXTURES

**By Joshua Friell, PhD; Eric Watkins, PhD; Brian Horgan, PhD; and Matthew Cavanaugh. Edited for "Rooted in Research" by Casey Reynolds, PhD.**

Sod provides many benefits such as rapid establishment and soil stabilization, both of which are important on roadsides following construction. Previous research has evaluated both natural and man-made erosion control materials on a sloped roadside and suggested that sod (natural), straw (natural), and jute (man-made) were the only products to effectively reduce both runoff and sediment losses when used at construction sites. In that study, sod reduced runoff to a greater extent than straw or jute with runoff being decreased by 61, 25, and 16 percent, respectively, as compared to bare ground. On newly constructed roadsides, species exhibiting rapid germination may also be seeded as a natural control for erosion and runoff. However, many of those species, such as smooth brome, bird's-foot trefoil, reed canarygrass, and crown vetch have proven to be invasive. Successful sod installation on roadsides can provide instant erosion and runoff control while minimizing weed encroachment.

In the upper Midwest, Kentucky bluegrass is the dominant turfgrass due to its ability to provide high quality turf. The rhizomatous growth of Kentucky bluegrass and its ability to knit and transport well have also made it a champion of the sod production industry. However, Kentucky bluegrass has been observed to not perform well on roadsides in Minnesota and has inferior salt tolerance compared to many other species, which is often important for snow and ice management practices that rely on salt. Other turf species such as tall fescue, creeping bentgrass, and fine fescues may also be used to produce sod; however, tall fescue and fine fescue species have not been extensively used for sod production except in mixtures with Kentucky bluegrass or if netting is used to hold the sod together. The bunch-type growth habit of those species is thought to create poor harvesting, handling, and transport properties due to low mechanical strength.



Research plots were established at the Rosemount Research and Outreach Center in Rosemount, MN, and at the University of Minnesota at St. Paul, MN. Photo courtesy of Eric Watkins, PhD

In sod production, mechanical strength is important to withstand harvest, transport, handling, and installation. Previous research has tested the effects of mixture proportions and seeding rate in mixtures of Kentucky bluegrass, fine fescue species, and bentgrass species on sod tearing strength and concluded that the rhizomatous components, including Kentucky bluegrass, strong creeping red fescue, and browntop bentgrass were responsible for improved sod tearing strength when seeded in mixtures. Additional research has ranked rooting characteristics and sod tearing strength from strongest to weakest, as Kentucky bluegrass, *Festuca* spp., perennial ryegrass, and *Agrostis* spp., which corroborated previous findings that mixtures of *Festuca* spp. and Kentucky bluegrass had lower tearing strength than Kentucky bluegrass alone. Furthermore, hard fescue is a heavy root producer with a high root/shoot ratio indicating the ability to produce sod strong enough for production. Taken together, these previous studies indicate the potential to create sufficiently strong sod from alternative turf species, like fine fescues, and the need to identify proper species and mixture proportions when producing sod. Therefore, the objective of this study was to evaluate tensile strength and work required to tear sod of mixtures of nine species of cool-season turfgrass previously determined to perform well on Minnesota roadsides.

A single cultivar was selected to represent each of nine cool-season turfgrass species, including Kentucky bluegrass, tall fescue, creeping bentgrass, weeping alkaligrass, slender creeping red fescue, strong creeping red fescue, Chewings fescue, hard fescue, and sheep fescue. Selections were based on previous suitability studies for Minnesota roadsides and direct evaluations of salt tolerance. Using the nine selected cultivars (Table 1), 50 seed mixtures were designed and assigned a number where each mixture contained between three and six species. A standard species mixture representing the salt-tolerant turfgrass mixture specified by the Minnesota Department of Transportation (MnDOT) was also included. That mixture, MNDOT, is commonly used and is considered to possess sufficient strength for harvest, shipping, and handling.

Three replications of the 51 mixtures were established at the Rosemount Research and Outreach Center (Rosemount, MN) and at the University of Minnesota (St. Paul, MN). The 51 total mixtures were allowed to establish for approximately 22 months before a small sample area of each plot was harvested using a Turfco KisCutter sod cutter and subjected to mechanical testing. Sod tensile strength was tested using a custom-built tensile testing device, and quantitative measures of strength were measured to determine differences among mixtures. Tensile load was measured via an Omega LC703-300 load cell, and the total distance that the sod was stretched was recorded using a Unimeasure LX-PA-15 string potentiometer. Plant community composition and thatch depth were also recorded after harvest.

Analyzed results revealed that Mixture 48 (40 percent STCRF; 20 percent ALK; 40 percent CHF) was the strongest mixture, with a mean maximum tensile load of 507.74 newtons (N). The final plant community of Mixture 48 averaged across both sites contained 98 percent fine fescues and no alkaligrass. Of the mixtures in the top statistical grouping, only Mixture 48 was seeded with any alkaligrass. Mixture 30 (40 percent ALK; 20 percent KBG; 40 percent SHF) had the lowest mean maximum tensile load of 142.84 N and was not

**Table 1. Species and Cultivars used in Sod Strength experiments**

| Species | Common Name | Abbreviation | Cultivar |
|---|---|---|---|
| *Agrostis stolonifera* | Creeping bentgrass | CBG | Mariner |
| *Poa pratensis* | Kentucky bluegrass | KBG | Moonlight SLT |
| *Puccinellia distans* | Alkaligrasss | ALK | Salty |
| *Festuca rubra* ssp. *Rubra* | Strong creeping red fescue | STCRF | Navigator |
| *Festuca rubra* ssp. *Litoralis* | Slender creeping red fescue | SLCRF | Shoreline |
| *Festuca trachyphylla* | Hard fescue | HDF | Beacon |
| *Festuca ovina* | Sheep fescue | SHF | Marco Polo |
| *Fesctua arundinacea* | Tall fescue | TF | Grande II |
| *Festuca rubra* ssp. *fallax* | Chewings fescue | CHF | Radar |

statistically different from three other mixtures in the trial including the MNDOT standard mixture, which had a mean maximum tensile load of 219.26 N. All of the mixtures in the weakest statistical grouping were seeded with either 20 or 40 percent alkaligrass, by seed count. Alkaligrass has primarily a bunch-type growth habit and some species in the *Puccinellia* genus have been shown to not compete well with other turfgrasses, especially slender creeping red fescue, under dry conditions.

Sod strips were cut from the research plots using a Turfco KisCutter sod cutter. Photo courtesy of Eric Watkins, PhD

Just three of the mixtures in the top statistical grouping for maximum tensile load contained less than 90 percent fine fescue in the final plant community, and none contained more than 19 percent Kentucky bluegrass. Perhaps most interesting, mixtures that resulted in identical final plant community compositions sometimes produced varying maximum tensile loads. For example, 7 mixtures all comprised 100 percent fine fescues in the final plant community but were seeded with quite different original seed mixtures. Maximum tensile loads for these mixtures ranged from 300.07 to 464.38 N and spanned several different statistical groupings. This result indicates that several establishment and maintenance factors influence final sod strength besides species composition and growth types.

When measuring the amount of work to tear sod in Newton-meters (Nm), Mixture 13 (20 percent KBG; 40 percent HDF; 40 percent CHF) required the greatest amount of work (16.57 Nm) at the St. Paul site, but was not different than 12 other mixtures. At the Rosemount site, Mixture 32 (10 percent STCRF; 40 percent CBG; 10 percent TF; 40 percent CHF) had the highest required work to tear (38.86 Nm), which was not different than 15 other mixtures.

Mixture 30 (40 percent ALK; 20 percent KBG; 40 percent SHF) required the least amount of work to tear at both sites, with an average of 3.32 Nm and 8.21 Nm, which was not significantly different from 17 other mixtures in the trial including the MNDOT mixture at the Rosemount site. None of the mixtures in the top statistical grouping for work to tear at Rosemount contained less than 90 percent fine fescues in the final plant community and just two of them contained less than 90 percent fine fescues at the St. Paul site. Chewings fescue was the most commonly-seeded fine fescue species for mixtures in the top statistical grouping at Rosemount and hard fescue was the most commonly-seeded fine fescue in the top group at St. Paul. Once again, mixtures comprising identical final species compositions produced different work to tear values.

Mixture 43 (40 percent STCRF; 20 percent CBG; 20 percent HDF; 20 percent CHF) produced the greatest mean thatch depth of 9.7 mm and was similar to four other mixtures in the trial, while Mixture 23 (20 percent ALK; 40 percent SHF; 40 percent TF) produced the lowest mean thatch depth of 2.1 mm and was similar to eight other mixtures in the trial. Sod maximum tensile load and work required to tear sod both had a positive correlation with thatch depth for the combined site data. However, despite the significant positive correlation of thatch depth with maximum tensile load and work to tear, the small coefficient values suggest that thatch depth is likely not a major determining factor of sod strength for practical applications.

It is notable that, averaged across both sites, 75 percent of the mixtures in the trial resulted in final species compositions that comprised more than 90 percent fine fescue species. Moreover, it is likely that thinning of other species, such as tall fescue or alkaligrass, would create an effectively lower seeding rate for mixtures containing less fine fescue in the initial seed mixture and, thus, potentially weaker sod. Change in the proportion of fine

The sod tensile strength testing apparatus and data acquisition system is shown here at the St. Paul site. Photo courtesy of Joshua Friell, PhD

This view of the sod tensile strength testing apparatus shows the linear actuator, string potentiometer, load cell, and clamping system. Photo courtesy of Joshua Friell, PhD

fescue from the initial seed mixture to the final grid count data was negatively correlated with maximum tensile load and work to tear each sample. These data indicate that plots seeded with lower rates of fine fescues but resulting in high proportions of fine fescue in the final turf stand tend to result in weak sod. It is likely that thinning due to species competition and management practices that are unfavorable to some species in the stand are responsible and should be considered during sod production.

Results indicate that seed mixtures containing Kentucky bluegrass do not necessarily create stronger sod and that mixtures containing fine fescue species can achieve similar or superior sod strength. Those fine fescue species also tended to produce sod that required the most work to separate the two halves of the sample. Many of the mixtures presented here were able to improve on the mechanical properties of the MnDOT sod, which is considered to be acceptable for harvest and transport

The sod tensile strength testing apparatus shown here contains a sod sample prior to testing at the St. Paul site. Photo courtesy of Joshua Friell, PhD

to roadside construction sites. The standard MnDOT mixture, which included the same cultivars as all other mixtures, produced sod that provided low maximum tensile load and required minimal work to tear the sod in half. In this trial, sod was allowed to grow for 22 months before testing; however, the typical production period for Kentucky bluegrass sod in Minnesota is 15 months. Further research is necessary to positively determine the mechanisms by which species selection and management practices interact to convey sod strength.

The core take-away messages from this research include:

1. Turfgrass seed mixtures containing fine fescue species can produce sod that achieves equal or greater strength than those containing large amounts of Kentucky bluegrass when harvested 22 months after establishment.
2. Change in proportion of fine fescues from each initial seed mixture to the resulting final plant community was negatively correlated with sod strength characteristics.
3. Thatch development was only weakly correlated with either maximum tensile load or work required to tear sod.
4. Mixtures with different seed compositions, but resulting in similar or identical final species compositions, often possessed very different mechanical properties.

**This work was first presented at the International Turfgrass Research Conference in New Jersey in 2017 and was published in *Agronomy Journal* (Agron.J. 108:1749-1757 (2016).**

Joshua Friell was a graduate research assistant at the University of Minnesota when this project started. Dr. Friell contributed to the testing and paper development while in his current position as senior research scientist for The Toro Company. Eric Watkins, PhD, is Professor of Turfgrass Science and Brian Horgan, PhD, is Professor and Extension Turfgrass Horticulturist in the Department of Horticulture at the University of Minnesota. Matthew Cavanaugh was a Turfgrass Research Scientist at that facility during this research project and is now assistant superintendent at Rush Creek Golf Club. Casey Reynolds, PhD, is executive director of Turfgrass Producers international.

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# HONORS, AWARDS AND SCHOLARSHIPS—OH MY! WHAT GREAT OPPORTUNITIES!

**By Suz Trusty & TPI Staff**

Do you know a deserving individual who should be recognized for their contributions to the industry? If so, please consider nominating them for recognition through the TPI Awards Program.

## TPI AWARDS PROGRAM categories include:

### HONORARY MEMBER -
Outstanding contribution to the research, planting, growing and marketing of turfgrass sod. (Need not be a current TPI member.)

### DISTINGUISHED SERVICE -
Outstanding devotion of time, talent and energy to TPI, its programs and objectives for five or more years. (Need not be a current TPI member.)

### INNOVATOR OF THE YEAR AWARD -
Unique and significant achievement that advances turfgrass sod production through research, engineering, training, marketing, public relations or environmental improvement, etc. (Must be a current TPI member.)

### TURFGRASS EDUCATOR AWARD OF EXCELLENCE -
Outstanding contribution to the turfgrass industry through academics, public outreach, and/or involvement with turfgrass associations, turfgrass producers, suppliers, manufacturers, researchers, etc. (Need not be a current TPI Member.)

All the award recipients will receive recognition in *Turf News*, the TPI Membership Directory and during the TPI International Education Conference in Charlotte, North Carolina.

To download an award nomination form for mailing or faxing, or to complete the nomination online, visit: http://*www.TurfGrassSod.org/pages/discover-tpi/community/honors-awards-scholarships/*

The deadline for nomination submissions is: September 30, 2018.

## DR. HENRY W. INDYK SCHOLARSHIP

The application process for the 2019 Dr. Henry W. Indyk Scholarship begins on October 1. TPI members, their family, their employees, and their employee's families who will be attending college or graduate school during the 2019-2020 academic year are encouraged to apply. All applications must be received by January 7, 2019.

The Dr. Henry W. Indyk Scholarship was established by The Lawn Institute (TLI) Board of Trustees in 2006 to honor a founding father of Turfgrass Producers International (TPI) and to help to mitigate the rising costs of college and post-graduate education. TLI will provide a scholarship valued up to $10,000 (US). This includes an initial award of $2,500, renewable up to three times, pending certain criteria. For more information, visit *http://www.TheLawnInstitute.org/pages/science/scholarships/*. The applications are reviewed by TLI's Scholarship Committee and objectively evaluated, based on pre-determined criteria. The recipient or recipients will be notified once the committee has made its decision.

Obviously, the scholarship funds are a huge benefit to the students and their families. TLI's investment in the future of these young people also reaps huge benefits for the future of the turfgrass industry.

Consider **Dr. James D. (Jay) McCurdy**, the recipient of the TLI Dr. Henry W. Indyk Scholarship in 2006, the year it was established. Dr. McCurdy is now an assistant professor and turfgrass extension specialist in the Department of Plant & Soil Sciences at Mississippi State University in Starkville, MS. Dr. McCurdy will join Dr. Roch Gaussoin (University of Nebraska-Lincoln) to present "Principles and Practices for Extending Sod Shelf-Life" at TPI's International Education Conference in Charlotte, NC. They will address the variables that impact shelf-life and the best practices for improving the shelf-life of your cut sod, including new data from TLI-funded research that Dr. McCurdy's turf team is conducting.

Many past scholarship recipients have joined the family business and are filling key roles there, such as **Kevin Coombs**, 2008 recipient, of Coombs Sod Farms in Elmer, NJ, and **Kelsey Lain Gurda**, 2009 recipient, of Pine Island Turf Nursery in Pine Island, NY.

**Sara Lechlider**, recipient of the 2017 one-year TLI Scholarship, is attending Purdue University, majoring in Agribusiness and minoring in Turfgrass Management. Last year, during her freshman year, Purdue University selected her as one of 30 students to serve as hosts and hostesses for their Rising Professionals program. She is the daughter of Doug and Robin Lechlider, Laytonsville Landscaping, Inc., in Laytonsville, MD.

**Amy Wilber**, recipient of the 2017 four-year TLI Scholarship, is attending The Ohio State University, majoring in Sustainable Plant Systems with an emphasis on Turfgrass Science. Her summer of 2018 internship took her across the pond to the famed tennis courts of Wimbledon. Look for an article on her experience there in the November/December issue of *Turf News*.

**Andrew Aposhian**, the 2016 TLI Scholarship recipient, is the son of Steve and Wendy Aposhian, FireFly Automatix, North Salt Lake, Utah. In July, Andrew provided the following "Update on Education" to TPI Headquarters and the Scholarship Committee—via email of course.

He opened stating a copy of his transcript and fall class schedule were attached and continued with the following.

*My major is still Computer Science with a double major in Mathematics. Here is a report summarizing how my education in Computer Science can be applied to the turf industry:*

*This last year was the busiest and most rigorous year of school I have ever had. From taking classes in Discrete Mathematics to Technical Game Development, I was able to substantially grow my knowledge of computer science and its applications. So much of what I have learned I am already applying to the turf industry as this summer I am working again as a software developer at FireFly Automatix. Software has numerous applications to the turf industry, among which are organizational tools for managing a turf farm as well as advanced analytics using big data and machine learning.*

*Management software is becoming indispensable to virtually every industry, including the turf industry. Software has the capability of facilitating better management of business, farming, transportation logistics, marketing, and customer management. Who will build all this software? Software developers! Much of my education last year was focused on making me a better software developer. In my Web Development class, I learned about how to make database-driven web applications. The ubiquity of the cloud has made web applications one of the most popular ways to deploy software, making web development an important skill. Another example of how I gained software development skills last year was in my Software Engineering course. In Software Engineering, we learned best practices of how to develop software in collaborative teams and practiced what we learned by completing semester-long team projects. I also had a great opportunity to practice software development in a team in my Technical Game Development class.*

*Another class that has proved especially useful to me was my Operating Systems class. A critical area of work that makes software usable is something called DevOps. DevOps encompasses the operations needed to develop and deploy applications. My Operating Systems class helped me understand concepts of systems and parallel programming which I use every day at work to provision servers and manage test environments for the software we develop. DevOps skills are important for facilitating rapid development and are necessary for the deployment of any kind of application.*

*General software development principles as well as mathematics lay a critical foundation for more advanced uses of software that can be applied to the turf industry. Big data processing and machine learning are both examples of more advanced fields of computer science that I think will prove extremely valuable. Machine learning can be used in many different ways on a turf farm including giving farmers insights about how to more efficiently water and protect their grass. Although last year I did not take any classes that directly taught about machine learning, I took several classes including Introduction to Probability Theory and Discrete Mathematics that helped prepare me to learn about machine learning and big data analytics.*

*Some may think of farming as a low-tech industry; however, this stereotype is rapidly becoming less and less accurate. The turf industry needs algorithms, analytics, machine learning, automation and cloud-based tools to become more efficient and productive. Farmers want to grow their businesses and spend more time with their families; computer tools can help their farms accomplish these goals. Labor is an increasingly greater pressure point on the agricultural industry that is also driving technological innovations that make farming more efficient. Ultimately, computer science is something that all members of the turf industry should be familiar with and profit from.*

*I want to thank The Lawn Institute again for their incredible generosity. The scholarship you have given me has made a large impact on my life. I will continue to work hard to make the most out of my education opportunity.*

He closed with: *Sincerely, Andrew Aposhian.*

Oh My! What great opportunities lie ahead!

# EDUCATION PRESENTATIONS WILL BE EXCELLENT!


INTERNATIONAL EDUCATION CONFERENCE | THE WESTIN CHARLOTTE
CHARLOTTE, NORTH CAROLINA
FEBRUARY 18-20, 2019

**By Karen Cooper**

The TPI Conference and Education Committee has developed an outstanding slate of education presentations for the 2019 International Education Conference that you cannot afford to miss! Learn about the scheduled events and then go online to register at *www.TurfGrassSod.org*!

## Keynote Presentations

Tuesday morning's keynote speaker is former US military war correspondent Shawn Rhodes. He will be addressing successfully managing change in your organization and in your life in his talk entitled "Creating A Pivot Point: Leveraging Change Without Sacrificing Results." Mr. Rhodes also will be leading a breakout session on Tuesday for attendees who wish to delve a little deeper into how to prepare for and adjust to changes. In addition, he will be attending other events during the conference to learn more about TPI and visit with members.

Wednesday's keynote presentation, entitled "The Grass Is Always Greener... Until It Isn't: The Changing Perceptions of Public Opinion" will be given by Philip Davis of Tungsten Branding. Mr. Davis will highlight how industries, such as the dairy, pork and egg industries, have faced perception challenges and how they have successfully rebranded themselves by highlighting their strengths and repositioning their brands in terms of public perception.

## Tuesday and Wednesday Breakout Sessions

The breakout sessions for 2019 include a combination of panel discussions and research presentations on a wide variety of business/industry and turfgrass management topics.

**Business Office Best Practices (panel discussion):**
Members of this panel will discuss innovative practices implemented in their offices that increase farm productivity and efficiency. Prepare to learn and walk away with new ideas for your office!

**Innovative Farm Management:**
Join Greg and Diane Mischel of DeBuck's Sod Farm of Michigan as they discuss the innovations they've implemented as third-generation growers. Diane grew up on a farm started by her grandparents. She earned a degree in Crop and Soil Sciences with a specialization in turf management from Michigan State University. After they married, Greg joined her on the farm equipped with a degree in horticulture from MSU and some experience from the greenhouse business. Come learn about how they've combined Diane's experience with Greg's "fresh eyes" to make cost-effective changes and updates.

**Plant and Soil Interactions for Sod Producers:**
Learn to create the best possible soil environment for your turfgrass as Drs. Nick Christians and Adam Thoms from Iowa State University team up to talk about the nutrient levels in your soil. They will cover both macronutrients and micronutrients, as well as discuss at what levels deficiencies occur. You will learn how to manage soil pH to improve growth and how to identify problems in the field, especially during establishment. Attendees are encouraged to send their soil tests to Dr. Christians and Dr. Thoms in advance or bring them to the presentation for discussion. Contact Karen Cooper at *kcooper@TurfGrassSod.org* for more information.

**Principles and Practices for Extending Sod Shelf-Life**:**
Join Drs. Roch Gaussoin (University of Nebraska-Lincoln) and Jay McCurdy (Mississippi State University) as they discuss this important and timely topic. You'll learn about the variables that impact shelf-life and hear about the best practices for improving the shelf-life of your cut sod, including new research from TLI-funded research.

**New Natural Turfgrass Marketing Tools in the TPI Member-Only Toolkit**
Join TPI's Executive Director Dr. Casey Reynolds and representatives from our public relations (PR) firm FleishmanHillard as they demonstrate the new TPI Member-Only Toolbox and show you how the PR pieces created specifically for TPI members can help you market your business and promote the use of natural turfgrass!

**Turfgrass May Not be as Thirsty as Your Neighbors Think**:**
Come learn how the findings of an extensive multi-year study funded by TLI can challenge what we think about the water needs of various types of turfgrasses. Dr. John Stier, professor and associate dean for the Herbert College of Agricultural Sciences and Natural Resources at the University of Tennessee-Knoxville, and Dr. Douglas Karcher, professor of horticulture at the University of Arkansas, will present their findings from an innovative multi-year, multi-location study dedicated to reducing irrigation inputs in home lawn turf.

**What Drives the Market: Pricing, Marketing, and Forecasting:**
Join Dr. Ben Campbell, an assistant professor and extension economist at the University of Georgia, as he talks about how the turf market has—and is—evolving and what these changes mean to your business. He also will examine different pricing strategies and how to choose the strategy that works best for your business, as well as ways to forecast demand and how these forecasts should drive your decision making.

**What I Wish I'd Known (panel discussion):**
Come hear several long-time TPI members discuss their experiences in the turfgrass industry, including how the industry has changed and what changes they think we must make to face the future effectively. They'll share some of the good advice they've received over the years and talk about what they wish they'd known when they started. This will be a fun and informative discussion with something for everyone!

## Other Activities

Other highlights of the week include an opportunity to learn about the latest innovations in products, services, and equipment from a wide variety of vendors in the exhibit hall; a networking lunch on Tuesday; an optional social tour of area NASCAR sites, followed by a tour of Bank of America Stadium, home to the Carolina Panthers of the National Football League (NFL). (The natural turfgrass playing surface at the stadium is provided by TPI member Chad Price of Carolina Green Corp.) The 2019 International Education Conference will be capped off with a TLI banquet and fundraising auction on Wednesday evening at the NASCAR Hall of Fame directly across from the conference hotel. Don't miss your chance to support TLI with your friends and colleagues.

** Identifies reports on university-based TLI-funded research

# SCHEDULE OF EVENTS

*(Preliminary - Subject to change.)*

### MONDAY, FEBRUARY 18, 2019

| | |
|---|---|
| Time TBD | Social tour and sports facility tours |
| 5:00 pm - 5:30 pm | First Time Attendee Welcome Reception |
| 5:30 pm - 7:30 pm | President's Welcome Reception |

### TUESDAY, FEBRUARY 19, 2019

| | |
|---|---|
| 8:00 am - 9:00 am | Breakfast & Annual Business Meeting |
| 9:15 am - 10:30 am | Education Session<br>**Creating A Pivot Point: Leveraging Change Without Sacrificing Results;**<br>*Shawn Rhodes, former US military war correspondent* |
| 10:45 am - 11:45 am | Concurrent Breakout Sessions |
| 11:45 am - 1:15 pm | Networking Lunch |
| 1:15 pm - 3:45 pm | Concurrent Breakout Sessions |
| 4:00 pm - 5:00 pm | The Lawn Institute Open Committee Meeting – Research<br>TPI Open Working Group Meeting – Membership |
| 5:00 pm - 7:30 pm | Exhibit Hall Open<br>*Dinner will be served in the Exhibit Hall from 6:00 pm - 7:30 pm* |

### WEDNESDAY, FEBRUARY 20, 2019

| | |
|---|---|
| 7:00 am - 8:00 am | TPI Open Working Group Meeting - Public Relations |
| 8:00 am - 9:00 am | Inspirational Breakfast - All Are Welcome! |
| 9:00 am - 10:30 am | Education Session<br>**The Grass Is Always Greener... Until It Isn't: The Changing Perceptions of Public Opinion;**<br>*Phil Davis, Tungsten Branding* |
| 10:45 am - 11:45 am | Concurrent Breakout Sessions |
| 12:00 pm - 2:00 pm | Exhibit Hall Open<br>*Lunch will be served in the Exhibit Hall from 12:15 pm - 1:45 pm* |
| 2:15 pm - 3:15 pm | Concurrent Breakout Sessions |
| 3:30 pm - 5:00 pm | Show & Tell Sessions<br>*Incoming members of TPI Board of Trustees* |
| 5:30 pm - 9:30 pm | TLI Banquet and Fundraising Auction at NASCAR Hall of Fame |


INTERNATIONAL EDUCATION CONFERENCE | THE WESTIN CHARLOTTE
CHARLOTTE, NORTH CAROLINA
FEBRUARY 18-20, 2019

Karen Cooper is associate executive director of Turfgrass Producers International.


# START YOUR (FUNDRAISING) ENGINES!

**By Karen Cooper**

The Lawn Institute is hosting a banquet and benefit auction at the NASCAR Hall of Fame on Wednesday, February 20, in conjunction with TPI's 2019 International Education Conference. It's super easy to take part—the Hall of Fame is located across the street from the Westin Charlotte (the conference's host hotel) and the event is included with your conference registration.

Mark your calendars and plan to be part of this memory-making night!

The evening will kick off with a cocktail hour while you explore the history of NASCAR, race your friends in virtual stock car races, and compete against other attendees for bragging rights in a pit crew challenge. Things get exciting after we all enjoy a southern-themed dinner when we auction off several exciting items and raffle off a Chevrolet Corvette, courtesy of Brian Bouchard of Kingston Turf!

Raffle tickets are $100 each and will be available through the conference and during the evening leading up to the drawing. The number of tickets being sold is limited so don't miss your chance to get yours!

## Why do we need a fundraising event?

Last fall, the TLI Board of Trustees voted to fund a major PR campaign to promote natural turfgrass. The purpose of the campaign is to help educate stakeholders about the value of natural turfgrass, especially when compared to plastic (synthetic) surfaces. The new program also will provide TPI members with professionally-designed tools they can use to promote their businesses in print and online. Additionally, TLI is committed to devoting approximately $50,000 each year to innovative university research projects chosen for their value to the production of natural turfgrass. Other items funded through TLI include education programs and member scholarships. Your financial support is vital to the success and growth of these projects.

"We are living in a world where natural grass is not always 'PC' (politically correct)," said TPI President Jimmy Fox. "Well-intentioned environmentalists, architects, and soccer moms are buying into the fallacy that turfgrasses use too much water, and that the pesticides and fertilizers used in maintaining natural grass are contaminating our water. Science and basic facts prove the great benefits of natural grass, but no one is advertising that on the


Racing simulators at the NASCAR Hall of Fame.

evening news, or running million-dollar ads during the Super Bowl about how amazing turfgrass is. Our goal is to facilitate a change in perception about natural grass using current research and touching as many people as we can through social media. We also will put the tools in your hands to promote this message in your local markets. We are not promoting TPI or TLI, we are promoting natural grass. We are putting your generous donations to work for you and your business."

TPI Executive Director Casey Reynolds, PhD, said "The natural turfgrass research and public relations efforts funded by The Lawn Institute are vitally important when engaging the general public as well as local and national policy-makers in discussions around the importance of natural turfgrasses. We are always thankful to TPI members and their support, especially as we enter into this new public relations campaign with FleishmanHillard and undertake construction of a new TLI website to further promote natural turfgrass."

## How can I help?

You can help with this event in many ways:

- You can donate items for the auction! Items that have been successful in the past include equipment, catered dinners, time at vacation homes, hunting trips, camping or travel gear, and monthly "club" memberships such as steaks or wines.
- You can bid on auction items! Come to the banquet, make some memories with your friends and family, and participate in the auction!
- Buy raffle tickets! The Corvette has been generously donated so all raffle proceeds go directly to TLI.
- Purchase an event sponsorship and remember to thank other sponsors. You can be a Friend of the Auction for as little as $250 and there also are several corporate sponsorships available. All sponsorships will count towards 2019 TLI Donor recognition. **If you wish to be an event sponsor, please contact TPI Associate Executive Director Karen Cooper at: *kcooper@TurfGrassSod.org.***
- Remember to thank our sponsors. Many aspects of the TPI education conference and the TLI banquet are underwritten by valuable support from our sponsors.
- Spread the word about TPI and TLI. If you know producers who are not currently TPI members, encourage them to join!


Pit Crew Challenge at the NASCAR Hall of Fame.

Karen Cooper is associate executive director of Turfgrass Producers International. **All photos courtesy of NASCAR Hall of Fame.**

# **DONATE TO TLI** AND REALLY, REALLY ENJOY IT!

**By Suz Trusty**

**A dice and dollar game of Left-Right-Center around the Coombs' kitchen counter. From left to right: John, Jim, Hank, Steve, Laurie, Randy, Hilda, Kathy and Mary. Donna is the photographer.**

What happens when five TPI couples get together for the weekend? Fun breaks out!! So, when Donna Coombs placed the winning bid for a Gourmet Dinner for 8 at the TLI "After Hours" Dessert Reception and TLI Fundraising Auction last February, she already knew she and John would really, really enjoy it and that others within the TPI Family would too.

The Gourmet Dinner, donated by Hank and Mary Kerfoot of Modern Turf in Rembert, South Carolina, would incorporate their own special recipes which that master chef couple have fine-tuned to perfection. And John and Donna Coombs of Coombs Sod Farms in Elmer, New Jersey, made plans to share that experience, hosting some of their good friends from Turfgrass Producers International who attend the TPI Conference every year.

Donna said, "We suggested some dates when sod sales would be slowing a bit and July 21-22 worked for everyone. Joining us for the weekend were Jim and Kathy Keeven from SelecTurf in Jefferson City, Missouri; Randy and Hilda Jasperson from Jasperson Sod Farm in Franksville, Wisconsin; Steve and Laurie Griffin from Saratoga Sod Farm in Stillwater, New York; and of course, Hank and Mary Kerfoot.

John and Donna live nearly 40 minutes from the nearest hotel, and they love sharing their home with guests, so everyone stayed with them. Hank said, "The accommodations were great. They have two guest rooms and had borrowed a couple of very nice campers from friends. Donna said they stole the camper idea from the Keeven's Duck Hunt TLI Fundraising trip last year. John had the campers all hooked up and ready, which worked out very well for extra refrigerator space, too."

Everyone arrived in time for a Friday evening get-together. Donna said, "Hank and Mary always do so much more than expected. They'd volunteered to provide the dinner featuring their wonderful Chicken Cuban. The weather was perfect for enjoying it all outside."

## Saturday Surprises

John and Donna had planned an ocean fishing trip departing from Cape May as the Saturday highlight, but rains and wind moved in overnight and a small craft advisory was issued through Saturday. "So we improvised," said Donna. "Mary suggested a tour of the Winterthur Estate in Delaware, a former du Pont family home that is now a combination museum, garden and library. John had rented a small 'turtle top' bus for the weekend, so everyone piled in for the excursion. We finished exploring Winterthur around two and then continued visiting during a relaxing lunch at The Rail at Clay Creek Country Club in Wilmington.

Back at the house, the visiting continued as Donna took charge for dinner. She'd decided on a typical family-style summer meal featuring steak, corn-on-the cob, and blueberry muffins. Hank says, "Donna is a really good cook. Her breakfasts each morning and that Saturday

night dinner were great. And the flower arrangements all through the house were beautiful, all supplied by their daughter-in-law who is a florist."

Though John had reserved box seats for the Cowtown Rodeo, the oldest weekly running rodeo in the USA, with the rain, he and Donna opted to keep their guests cozy and dry with a "stay-in" evening of visiting and playing games, which all called "great fun." As Donna said, "Sometimes the best plans are the ones you don't make!"

## Clay Shoot

Sunday morning everyone headed to the five-station clay shoot that John had built on their property—which all declared a "pretty neat setup" and "quite challenging." To hold the shells, the Coombs had put together personalized, red half-aprons for everyone that stated "2018 TPI Dinner Friends Weekend."

**Lining up for a photo during the clay shoot are (from left to right) Steve, Laurie, John, Hank, Mary, Kathy, Jim, Hilda and Randy.**

## Pizza Everyone!

Hank brought his wood-pellet-powered Uuni portable pizza oven that heats up to 900 degrees. He said, "It only takes one-minute to bake a pizza, but I need to turn it around at 30 seconds, and then once more, so it cooks evenly. We pop them in and it cranks them out, which keeps me on my toes, but it's so much fun."

It was a do-it-yourself Sunday lunch extravaganza! Hank and Mary make their own red sauce and had an array of other toppings set up on the counters. They had dough ready for everyone to roll out their own base and choose their toppings. Most snipped their individual pizzas into small slices to share. Hank and Mary supplied sides of salad, homemade potato chips, and both chocolate chip meringue and pecan shortbread cookies.

The Coombs sons and their families—including the grandkids—were invited to join in the fun. "The grandkids were in their glory," said Donna. "Hank and little Jacob played catch with a ball of pizza dough. Mary encouraged Ryan to make 'any kind of pizza he wanted' and when he said blueberry, without hesitating, she said, 'Okay, and what else do you want on it?' He shopped in the frig and pulled out a block of cream cheese and some pepperoni. Once baked, it was really pretty good."

## The Finale—Shrimp and Grits

After cleanup, came a tour of the farm. Next up was the fabulous shrimp and grits—the gourmet dinner of the TLI Auction, but for eight plus. The Kerfoots had invited the Coombs family to join them, without the grandkids this time. That made it dinner for 16, which was no problem for the chefs or the hosts. Hank says, "John and Donna said they designed their kitchen and dining room specifically to host big family get-togethers. The whole family comes over for dinner every other Sunday."

After the tour, Hank and Mary scooted everyone else out of the kitchen as they began preparations. Donna said, "But we'd all had so much fun making lunch together that I popped in and asked them to allow us to help. They relented, and what happened next warmed my heart. Everyone was going in a cabinet or cupboard or the frig, grabbing this and that and getting it ready. I was delighted they felt that comfortable and at home—I absolutely loved it!"

And those famous shrimp and grits? Hank said, "We added some chorizo sausage and prosciutto as a surprise for those who had eaten it before." Donna said, "There are not enough words to say how wonderful that meal was."

Jim Keeven reported, "We had the best time! Ate tooo much wonderful food, laughed way too hard, and had one of those weekends you don't forget. John and Donna are very gracious hosts! I guess that's why everyone likes them so much."

Randy Jasperson noted, "They'd planned a fishing outing, but it was raining too much, and no one minded, especially because we all knew how much they needed the rain. Besides, we had such a good time at the house, visiting, that it couldn't have been better."

Hank said, "We couldn't have had better hosts; John and Donna are so gracious and welcoming. They are both neat, orderly people. Over the weekend, our group made a total mess of their kitchen several times, and we all laughed and had so much fun doing it!"

Donna says, "John and I really appreciate that our kids were so welcomed by the group and able to visit with everyone. They'd not met any of these TPI friends before. We hope this TLI auction experience will inspire them to attend the Conference and meet even more wonderful TPI people."

So, why do TPI members continue to offer and bid on these great TLI auction items? They say it's a great way to support TLI and acknowledge all it does for turfgrass producers and the future of the industry.

The consensus: There's nothing better than supporting the TLI outreach while sharing a great weekend with some fabulous friends.

Suz Trusty is co-editor of *Turf News*. **All photos by Donna Coombs.**

# **TPI FAMILY** COMES TO THE RESCUE

**By Suz Trusty**

Early on the July morning of Friday the 13th, Scout Master Jason Pooler, owner of Tri-Turf Sod Farms, Inc., in Paris, Tennessee, and Assistant Scout Master Troy Crawford, headed for Colorado with seven members of their Boy Scout Troop 22 in a borrowed 15-passenger van. Two of those scouts were Jason's sons, Jacob (age 17) and Preston (age 14).

Their original plan had been for a two-week adventure at Philmont Scout Ranch in northern New Mexico, a site long prized by Scouts for its rugged trails and mountain peaks. The plans changed when all hiking and other activities scheduled there were shut down due to the destructive 36,000-acre wildfire that raged through New Mexico. According to a CNN report, approximately 13,000 youth and adults that had registered for events there were affected by the shutdown.

Jason says, "We'd done some searching and had selected an alternate site, in Gunnison, Colorado, which would give us the opportunity to hike the Elk Trace Trail. Our route took us through Wichita, Kansas. We were about 30 miles on the west side of Wichita when our van broke down. I called Tim Wollesen of Sales Midwest, Inc. because he was the first TPI member I could think of that was located in Kansas."

When Tim got the emergency call that evening, he was in Hilton Head, South Carolina, quite a distance from his Olathe, KS, headquarters. With Olathe about three hours from Wichita, sending help from there was not a viable option either. So Jason asked if there was a "sod farm buddy" closer to them.

Tim says, "TPI has several members close to Wichita, but the first one I pulled up on my phone was Tony Wilbur of The Sod Shop. Jason told me he knew them, so I gave him Tony's cell phone number."

Jason says, "Tony was hauling hay out of the field when I caught him and told him our situation. We figured he was about 45 minutes away from us. The weather forecasters were tracking a big lightning storm with heavy rains that was moving toward Wichita, but Tony told me not to worry. He said he'd get back home with his hay load and come to get all of us and he said they had a brand-new shop with plenty of space, so we could all camp in there out of the storm."

It was 8:30 at night when Tony and his wife Olivia showed up at the broken-down van. They had come in two separate vehicles to make sure they'd have enough room for all the guys and their gear. Jason says, "They had the name and phone number for a mechanic they trusted who would work on the van. We got the wrecker contacted and had the van towed there. Troy and six of the scouts, along with the gear, piled into the vehicle Olivia was driving for the trip to The Sod Shop. Tony took me and my oldest son


Jason (fifth from left), Todd (second from left) and their scouts pose with Bob (third from left) in front of The Sod Shop truck right next to the shop that they "camped in."

Camping on the mountainside was great.

to the airport to pick up a rental van. I told the rest of the troop I'd stop on the way back and pick up some pizzas for our group. Tony wouldn't hear of that. Instead, he stopped on his way back and brought everybody burgers and fries."

When the two Poolers arrived at the The Sod Shop, Troy and the rest of the scouts had the sleeping bags pulled out and ready for the short night. All were pleased to have such great quarters to sleep in on what turned out to be a very stormy night.

Jason says, "At 4:00 am, Bob, the farm manager and harvester guy, came into the shop. I'm sure he was surprised to find nine people spread out across his shop in their sleeping bags. He woke me and asked, 'Who are you 'all?' I told him the story and that we would be getting up at 6:00 am and leaving by 6:30. Bob left, but at 5:45 he walked in the door again, loaded with all sorts of good stuff, including donuts and strawberries and orange juice and milk. He really made sure we started the morning off right."

Jason, Troy and the boys then got everything loaded in the rental van and took off for the week. The mechanic called and reported a major transmission issue but promised to have the work done by late Friday when the group would come back through Wichita.

Tim reports he got a text from Jason, "And he was ecstatic. He reported that Tony and Olivia not only rescued them, but also let them 'camp out' in their shop and got them all fed that night and breakfast the next morning. I've heard so many stories of such kindness among TPI members. I think I could travel anywhere and if I ran into problems

**The travelers are happy to arrive safely in Colorado.**

there would be a TPI member that would help me and/or my family. That's the power of the TPI family."

In addition, Jason got a phone call from Wade Wilbur, Tony's son who operates The Sod Shop in the Kansas City area. "He wanted to make sure we were doing okay after hearing about our adventure from his Dad and urged me to let them know if there was anything else we might need."

The Colorado site was all the campers had hoped for, with the spectacular mountain views expected at an elevation of 11,000 feet. "We got in 31 miles of hiking on the Elk Trace Trail and 20 miles of white water rafting," says Jason. "It was a challenging adventure for our youth and for us leaders."

With the group ready to head for home, Jason called the mechanic to check on the van. "They were still working on the transmission but said it would be ready on Friday—just not until 9:00 pm. So, I called Tony again to see if we could stay in his shop overnight on Friday. Being Tony, he said of course. I did ask him to make sure that Bob knew 'the campers' would be back."

It was another rainy night in Wichita when Jason, Troy and the scouts arrived at The Sod Shop. Early Saturday morning Bob was there again with one of the foremen. "As we were packing up to head home, Bob told us it hadn't rained a drop after we left the first time and temperatures had been running between 100 and 110 degrees," reports Jason. "But when we were getting close to Wichita, it started raining again and they got another inch and a half overnight. Then Bob said, 'You guys need to come every Friday.'"

A trip that could have been derailed by a broken-down van turned into a great experience thanks to the warm hearts of Tony and Olivia and their staff. Jason says, "We're lucky—no, we're blessed—that our revised trip plans took us through Wichita, which put us in the path of The Sod Shop and the Wilburs who came to our rescue. I can't describe how thankful I am for all they did for us. The friendship and fellowship within the TPI family is extraordinary."

Suz Trusty is co-editor of *Turf News*. **All photos by Jason Pooler.**

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# ASSOCIATION **UPDATES**

## THE 6TH EUROPEAN TURFGRASS SOCIETY RESEARCH CONFERENCE


**By Stewart Brown, ETS President**

The European Turfgrass Society recently held its 6th Research Conference 2018 in Manchester, United Kingdom. This is the first time this prestigious event has been held in the UK with past conferences in Italy (2008), France (2010), Norway (2012), Germany (2014) and Portugal (2016). The ETS Conferences are the forum par excellence for scientists, lecturers, consultants, companies and practitioners to discuss technical research and issues related with the study of turfgrass and amenity landscape areas.

**Attendees of the 6th ETS Conference Field Day gather for a photo. Photo courtesy of ETS.**

The Organizing Committee, led by ETS President and Conference Convener, Dr. Stewart Brown (University Centre, Myerscough, UK), organized this international congress under the theme: "Different Shades of Green" to reflect the many, varied sports surfaces, and amenity facilities the industry encompasses.

Delegates attended from around the world including countries in Europe, and the USA, Canada, China and Australia. In total, 19 different countries were represented at the three-day conference comprised of two days of research presentations and a third day for a technical tour to sports turf facilities. Delegates had presentations from keynote speakers: Steve Isaac (Director of Sustainability for The R&A), Dr. Micah Woods (Asian Turfgrass Center), Dr. Ruth Mann and Dr. Tom Young (Sports Turf Research Institute) and Dr. Mike Richardson (Professor at the University of Arkansas, USA). Forty-three research papers and posters were presented on a variety of turfgrass and landscape management topics from authors. Most delegates also attended the technical field day with visits to the Sports Turf Research Institute, Manchester City FC (CFA) and Campey Turfcare Systems.

The Conference went very well and we are now organizing the next ETS event: the Field Days 2019, which will be in Italy, Padova and Venice, 27th and 28th of May. More details will be announced soon.

## 2018 ETP SEMINARS & TURF EXPO!

The European Turfgrass Producers Association (ETP) is happy to invite you to the 2018 ETP Seminars & Turf Expo! This year we will welcome you for an intense three-day program of Turf Expo, Farm Tour and Seminars at Troia's peninsula - Comporta, Portugal, on 24th, 25th and 26th October.

As customary by now for ETP at this time of the year, turf growers from all over Europe and the rest of the world will gather in the new nursery that Novogreen has opened in Comporta, for learning, meeting, networking and evaluating machinery and products for sod farming.

### Seminar venue:

Aqualuz Tróia Hotel - Tróia, 7570-789 Carvalhal, Grândola, Portugal

### Turf Expo venue:

Novogreen sod farm - Comporta 7580 - Portugal
If your farm or company is a current member of ETP, ETS, or TPI, then all the people registered with that affiliation will pay the Member visitor's fee (including spouses and accompanying persons).

### For more information, visit:

*http://www.turfgrassproducers.eu/2018turfshow/*

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# ASSOCIATION **UPDATES**

## JASPERSON SOD FARM HOSTS WSPA FIELD DAY

This equipment lineup made for easy viewing at the WSPA Field Day. Photo by Ryan Menken

**By Karen Cooper**

A nice breeze, a little sun, and 75 degrees created a perfect setting for the Wisconsin Sod Producers Association (WSPA) Field Day, held on Thursday, July 19, at Jasperson Sod Farm in Franksville, Wisconsin. More than 135 individuals came from Wisconsin, Iowa, Minnesota, Missouri, and Ohio to see a great selection of products from twenty companies. The long-distance award for the day (winners of a Jasperson Sod Farm cooler!) were James and Michele Gibson from DG Turf Farm of Notus, Idaho. The Gibson family flew out to Wisconsin to see their brand-new harvester be demonstrated and for James to get an early start on training to operate it. (It would be loaded on a trailer for the trip to their farm immediately after the field day.)

The event started out as the WSPA summer picnic, but a couple of equipment representatives contacted WSPA vice-president Randy Jasperson about possibly demonstrating some equipment and soon Randy's son Mark and son-in-law Ryan Menken decided that it would be a great time for a full-blown field day.

The exhibitors quickly signed up and WSPA Executive Secretary Gina Halter worked with TPI to reach out to producers in the region. According to Ryan, "The way this event came together just shows how much of a family sod growers really are. We had so many people willing to help make this happen and many of our neighboring farms offered the use of their equipment for demonstrations. It was a great day because a lot of people came together to make it happen."

The WSPA generously donated net proceeds from the day to The Lawn Institute in support of TLI's new public relations campaign to promote natural turfgrass. This event generated $4,400 for TLI through vendor sponsorships and attendee donations.

Is your state or regional association planning an upcoming field day? Contact TPI Associate Executive Director Karen Cooper at *kcooper@TurfGrassSod.org* to find out how TPI can help.

In-the-field demonstrations take center stage at the Wisconsin Sod Producers Association Field Day at Jasperson Sod Farm. Photo by Ryan Menken

## VIEWING THEIR HARVESTER IN ACTION

James and Michele Gibson are third-generation owners of DG Turf Farm in Notus, Idaho. James' grandparents started the farm in 1972 and they have been TPI members since 1978. This new machine was their first brand-new automated harvester and they simply couldn't wait to see it! As with most sod growers, time is precious in the summer and this field day was their first trip away from the farm together in the summer since they were married eight years ago.

James and Michele Gibson and their children enjoy the WSPA field day. Photo courtesy of Michele Gibson

The Gibson children watch as their Dad, James, and the trainer run the new harvester. Photo courtesy of Michele Gibson

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# ASSOCIATION UPDATES

## REPORT FROM TURF AUSTRALIA

**By Liz Mecham**

Australia's turf industry is making the most of its compulsory grower levy funds by trying to solve some of the biggest industry issues and questions.

Newly funded research and development projects are looking at fully understanding the value of the turf industry—both on-farm and beyond the farm gate—turf mites and couch smut. Funded projects are also looking at how to best communicate with growers and deliver them industry information and educate the consumer of the value and benefits of natural turf.

"The Australian industry has been aiming to use its levy in the best way for growers," Turf Australia's Market Development Manager Jenny Zadro said. "There are some complex production issues in our industry where we have growers in the Eastern States struggling to keep up with supply because the demand is so great, while at the same time there are severe drought conditions beginning to encroach on our production regions. Meanwhile, an economic downturn and water shortages in metropolitan areas has seen our growers in Western Australia really challenged to sell turf and sell the benefits of this great product."

The compulsory levy paid by growers (1.5c per square metre of turf sold) is used to undertake research and development projects—which also receive dollar for dollar funding from the Australian Government—and industry marketing projects (which do not receive additional government funding).

In the last year, research and development projects funded by the levy have included:

- *Economic, environmental, social and health impact and benefits of the Turfgrass and Lawncare Industries in Australia* - this project aims to identify the direct and indirect benefits the turf industry and lawncare industry generate from the production of, and access to, turf products.
- *Turf Industry Research and Statistics 2016/2017* project – this project identified the direct economic value of turf production and the scale of production in Australia by farm, state, variety and a number of other datasets.
- *Integrated Pest Management of phytophagous (plant-feeding) mites on turfgrass* – this project will investigate a sustainable control strategy for invertebrate pests in turf and look at options for an integrated pest management approach.
- *Improved capacity for integrated disease management of couch smut (Ustilago cynodontis) in turf* – this project will develop an improved integrated disease management plan for couch smut and will include researching the fungus to better understand its distribution and transmission, as well as evaluating its control through fungicides and the potential for resistant couch varieties and hybrids.
- *Turf Industry Communications Project* – this project delivers the industry magazine, a monthly e-newsletter, a Facebook page and part of the Turf Australia website to give information about industry projects to growers to increase the uptake of the funded project outputs.
- *National Market Development Program for the Australian Turf Industry* - This program is developed to drive an increase in the value of turf as perceived by turf growers, industry stakeholders, key influencers, consumers and the community.
- *Turf industry marketing program* – this project has recently created a new consumer website *www.lawnspiration.com.au* to help sell the benefits of turf to the wider community. The website itself does not sell turf, but links consumers with growers and delivers information on turf varieties and lawncare tips.

The Australian industry also has undertaken the development of a safety railing system for hand stack harvesters in a bid to improve the safety of workers in the industry. "The safety railing system is something Turf Australia funded the development of because of the importance of safety on our turf farms," Zadro said. The railing system has been developed with growers, an engineering firm and the government workplace health and safety authority to ensure it meets all standards for creating a post-market alteration to a harvesting machine.

Turf Australia's NxGen Forum is designed for the new generation of turf producers. The very successful 2018 NxGen Forum was held in Cairns, North Queensland, in June. Plans are underway for new events and opportunities for continued development of turf production as well as working closely with the end users of turf, promoting the many benefits of turf on our communities, environment and health and wellbeing.

Liz Mecham is communications manager for Turf Australia.

# HAPPENINGS

## TPI Loses Another Member

Gladys Gavranovic

The TPI family is saddened to hear of the passing on another member. Gladys Gavranovic, 69, of Wharton, Texas, passed away on Wednesday, June 20, 2018, at William P. Clements Jr. University Hospital in Dallas.

Gladys and Willie, her husband of nearly 50 years, were long time TPI members. They were part of the welcoming team at the 2016 TPI Field Day in Texas, joining daughter Irene Gavranovic-Sipes and her husband Scott Sipes at All Seasons Turf Farm.

Gladys was born in El Campo, Texas, on October 23, 1948, to the late Louis Paul and Dorothy Marie Bilek Hoffmann.

Gladys was raised in the Nada area and attended St. Mary's Catholic School and later graduated from Garwood High School. She received some education from Wharton County Junior College. On October 5, 1968, she married Willie Gavranovic in Nada at St Mary's Catholic Church. They worked together as owner-operators in the agriculture industry for many years, eventually starting a turfgrass farm. Gladys' hobbies early in life were playing tennis, volleyball, and piloting with her husband. Throughout life, she enjoyed gardening, traveling, socializing, decorating and coordinating for parties and special events, and dancing. She was also very active in her church; she was a member of Catholic Daughters of Americas Court 1990 in Wharton and even sang in the choir for several years. Gladys was a 10-year double lung transplant survivor and enjoyed educating and supporting others going through the same treatments.

Gladys is survived by her loving husband, Willie Gavranovic, Sr. of Wharton; daughters, Irene Gavranovic-Sipes and husband, Scott of Fulshear, and Rachel Weaver and husband, Ryan of Wharton; son, William Gavranovic, Jr. and wife, Jenny of Wharton; grandchildren, Caroline, Haley, Garrett and Connor Gavranovic and Barron, Seth, Suri and Flynn Weaver; sisters, Clara Laitkep and husband, Patrick and Rosalie Vyvial and husband, Randy; brother, Paul Hoffmann and wife, Sherry and numerous nieces, nephews and extended family.

A Funeral Mass was celebrated on June 26, 2018 at Holy Family Catholic Church in Wharton.

Memorial contributions may be directed to Catholic Daughters of Americas Court 1990 or UT Southwestern Medical Center, P. O. Box 910888, Dallas, TX 75391-0888 or online at *engage.utsouthwestern.edu* to support Lung Transplant Research.

### Tribute to Gladys Gavranovic from Tobey Wagner

Gladys was an incredible woman of strength, perseverance, and faith. We shared the love of gardening, plants, and nature as she was an avid gardener.
Conversations with her always shifted to family as she would ask "how is your family doing?" and when I asked about her she responded, "I'll be ok." One of the most humble and unselfish individuals I have ever met.
A life well lived. Our prayers and thoughts are with the Gavranovic family.

**Tobey Wagner—President, Sod Solutions**

## Lawn Solutions Australia National Conference 2018 a Success

Lawn Solutions Australia (LSA) reports on their Annual Conference held recently in Gold Coast, Queensland. Over those two days, the group of turf specialists came together to hear from turf industry suppliers, international guests and inspirational speakers. LSA is Australia's largest network of turf specialists offering exclusive turf varieties through its national network of turf production, product and research facilities.


Lawn Solutions Australia Field Day held at Jimboomba Turf Group

**Day 1 – Field Trip to Jimboomba Turf Group hosted by owner Lynn Davidson**
The LSA field day consisted of several equipment demonstrations from our industry partners, as well as an on-farm presentation by guest speaker and world-renowned Zoysia breeder David Doguet. Everyone also enjoyed a tour of Jimboomba Turf's farming operation, which is one of the largest in Australia, with special interest being shown in the new turf varieties Sir Grange and TifTuf.

With attendance around 200, this was one of the largest field days seen in the Australian turf industry.

**Day 2 – LSA Conference at the Mantra on View Hotel**
The conference welcomed guest speakers, Australian Paralympian Kurt Fearnley; Comedian, actor and writer Anh Do, and renowned American MC Tommy Dean. The day also

included a host of other speakers talking all things marketing, new grass varieties and what the next 12 months and beyond hold for Lawn Solutions Australia and the turf industry.

The LSA Awards dinner followed in the evening with LSA ambassador Jason Hodges hosting. Our MC Tommy Dean also returned to entertain the audience performing his hilarious stand-up comedy.

Peter Kirby, from Adama attended as one of the major Industry Sponsors and had this to say;

*"I attend a large number of conferences within my role at Adama, and I believe that the Lawn Solutions Australia conferences set the standard for the rest of the industry to aspire to, when it comes to quality speakers, organisation and overall professionalism of the event. Great work to all involved".*

From Lawn Solutions Australia member The Turf Farm, Tracey Daniel;

*"Thank you to the Lawn Solutions Australia group for hosting an awesome conference and field day on the sunny Gold Coast. Our team has been inspired with the knowledge shared by speakers and industry partners alike and we feel excited for the future of the turf industry.*
*It was invaluable to visit a likeminded farm such as Jimboomba Turf surrounded by other family-based, industry leaders to talk about our successes and challenges within the industry. It was an excellent opportunity for peer support and inspiration, as farming is in our blood and we are all travelling down the same road together. The guest speakers: Anh Do and Kurt Fearnley, were excellent in giving us perspective and encouragement on both our professional and personal journeys. Afterwards, we loved being able to let our hair down at the awards dinner and sharing a story and a drink (or two) bonded us together further as a team. Overall the 2018 LSA conference renewed our passion for creating a place where families make memories, while having a few ourselves along the way."*

Overall it was a tremendous event on the Gold Coast, with a host of people travelling from all over Australia, New Zealand and from the US to attend. Lawn Solutions Australia would like to thank everyone who attended, performed and spoke at the conference, with special thanks to Lynn and Carolyn Davidson for hosting the field day at Jimboomba Turf and the evening at Towri Sheep Cheeses.

**A rewarding evening event was held at the Towri Sheep Cheeses farm and event center.**

## Purdue University Groundskeeper Wins 'Stars and Stripes' Field Art Contest


**Purdue University's Assistant Sports Field Manager takes the honors in this year's STMA 'Stars and Stripes' Field Art Contest with this design.**

The Sports Turf Managers Association (STMA) has named Ryder Haulk, Assistant Sports Field Manager for Purdue University Athletics (West Lafayette, IN), winner of the annual "Stars and Stripes" field art contest.
Haulk's "Red, White and Purdue" design at Bittinger Stadium shattered previous voting records, garnering 2,019 online "likes" nationwide and earning him a complimentary pass to the 2019 STMA Annual Conference & Exhibition in Phoenix, AZ. (Jan. 22-25). Brian Bornino, CSFM, also assisted with the project which included 50 stars and 13 stripes within the Purdue "P." Finishing in second place, with more than 1,300 votes, was Danny Losito, Head Groundskeeper of the Columbia Fireflies (Columbia, SC).
"We're honored to have won the Stars and Stripes contest; there were so many great entries this year!" says Haulk. "Creating themed field art without sacrificing safety or playability is always a fun challenge and it was truly a team effort as our student employees – Lane Zink, Brett Shoults, Matt Homco and Anthony Marquet – were a big help in creating the design."

# TURF INDUSTRY NEWS

### New Website Launched for Tahoma 31 Bermudagrass

Sod Production Services, the master licensing and marketing agent for Oklahoma State University's winter-hardy Tahoma 31 Bermudagrass, announces a new website, *Tahoma31Bermudagrass.com*, which offers research, resources, videos, and information about the grass.

### NGAG Names Adamski Managing Director

Natural Grass Advisory Group (NGAG) has named Julie Adamski as the firm's first Managing Director. Positioned to provide independent support reinforced by a proprietary testing and analytics program, NGAG has simplified the challenge of producing high-quality, high-use grass fields—Indeed #GrassCanTakeMore. Adamski moves into the position having served as Director of Professional Relations & Product Development for Sod Solutions. Previously, Adamski was hands-on in producing high-quality, high-use natural grass fields with the field management teams at the Pittsburgh Steelers and Maryland SoccerPlex. Adamski can be reached at *julie@NaturalGrass.Org*.

### Extension Specialist Touts Turfgrass Practices for Environment, Human Health

Efficient varieties and informed management practices can help Texans make the most of turfgrasses' natural human health and environmental benefits, according to Texas A&M AgriLife Extension Service's new turfgrass specialist.

Dr. Lindsey Hoffman assumed her post at the Texas A&M AgriLife Research and Extension Center in Dallas on July 9. She said her public outreach initiatives will deliver holistic approaches for coaxing maximum benefit from turfgrass use. She joins Dr. Becky Grubbs as AgriLife Extension's second turfgrass specialist for Texas.

"Turfgrasses provide a number of services to the ecosystem," Hoffman said. "They control erosion, contribute to cooler spaces and provide viable surfaces for sports and recreation. We also know green spaces in general contribute to human emotional wellbeing."

However, she added, proper selection and best management practices must work hand-in-hand to ensure Texans make the most of turfgrass resources. Hoffman can be reached with turfgrass inquiries by phone at 972-952-9212, by e-mail at *Lindsey.Hoffman@ag.tamu.edu* or on Twitter by following her handle *@lhoffman2578*.

### News from OPEI

The Outdoor Power Equipment Institute (OPEI) held its 66th Annual Meeting recently, focusing on messages of innovation and industry advancement.

One item of particular interest to turfgrass producers was the preview of a new television program sponsored by TurfMutt and produced in partnership with Hearst Television and Litton Entertainment. The show, which highlights the importance of lawns and outdoor space to families and pets, will debut this fall on the CW network.

The OPEI Board of Directors met in conjunction with the Annual Meeting, installing its 2018-2019 leadership. The board bid outgoing chairman Dan Ariens, Chairman and CEO, Ariens Company, a fond farewell and welcomed incoming Chairman Tom Cromwell, Group President, Kohler Power, Kohler Company.

OPEI is an international trade association representing more than 100 power equipment, engine and utility vehicle manufacturers and suppliers. OPEI is the advocacy voice of the industry, and a recognized Standards Development Organization for the American National Standards Institute (ANSI) and active internationally through the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) in the development of safety and performance standards. OPEI is managing partner of GIE+EXPO, the industry's annual international trade show, and the creative force behind the environmental education program, *TurfMutt.com*. OPEI-Canada represents members on a host of issues, including recycling, emissions and other regulatory developments across the Canadian provinces. For more information, visit *www.OPEI.org*.

### SiteOne Landscape Supply Continues the Acquisition Mode

Since the last issue of *Turf News* SiteOne Landscape Supply has announced six new acquisitions. Number six for the year so far was Auto-Rain Supply. Auto-Rain is the leader in the distribution of irrigation and related products to landscape professionals in the Spokane Valley market, with five locations in Washington and Idaho.

Number seven in the string was All American Stone and Turf located in College Station, TX. Founded in 2000, All American is a leader in the distribution of hardscapes, landscape supplies and natural stone products to landscape professionals in the East Texas market.

Landscape Express was the eighth acquisition. Started in 1994, Landscape Express is a distributor of hardscapes and landscape supplies with four locations in the Boston, MA, metropolitan area.

Next on the list is Kirkwood Material Supply. Founded in 1983, Kirkwood serves the greater St. Louis market with eight locations focused on the distribution of hardscapes and nursery products to landscape professionals.

A Northern Virginia company is the tenth to be acquired. Stone Center has one location in Manassas, VA. Started in 1999, Stone Center is a distributor of hardscapes, landscape supplies and outdoor lighting in the Washington, D.C., metropolitan area.

Rounding out the list as of July 31 is CentralPro. Founded in 1972, with 11 locations across Central Florida, CentralPro is a distributor of irrigation, lighting and drainage products to landscape professionals throughout the State of Florida

These acquisitions add to SiteOne's current irrigation, agronomics, landscape lighting and nursery products business in these areas.

TPI Supplier member SiteOne Landscape Supply (NYSE: SITE), is the largest and only national wholesale distributor of landscape supplies in the United States and has a growing presence in Canada. Its customers are primarily residential and commercial landscape professionals who specialize in the design, installation and maintenance of lawns, gardens, golf courses and other outdoor spaces.

# TURF INDUSTRY NEWS

### Australia's TurfBreed Adds Native Turf Variety to Portfolio

TurfBreed announced in early July its purchase of the well-known native turf variety, OZ TUFF®. Discovered in 2001 by turf breeder Robert Morrow, OZ TUFF® is an exceptional native green couch from Childers in Queensland. It was immediately identified as a superior plant growing among common green couch.

TurfBreed Managing Director Steve Burt said that OZ TUFF® offers an excellent native couch alterative to common couches currently grown.

OZ TUFF® was ranked number one for wear tolerance and recovery following studies conducted by the former Redlands Turf Research team for wear tolerance (Roche et. al, 2012). The variety has demonstrated improved wear tolerance compared to other turf species like blue couch, kikuyu and other green couch varieties. In terms of suitability, it meets all categories such as residential, commercial/industrial, parks and sports fields. Studies have shown the variety grows on a wide variety of soil types and can be watered with poorer quality water. Studies conducted by the Queensland Government also found that OZ TUFF® continued growing at salinity levels of 30 dS/m—where sea water is 54 dS/m (Poulter et al. 2010). Australian Sports Turf Consultants also conducted studies to determine if growing ryegrass within its dense thatch layer was possible and was proved successful. TurfBreed is a turf genetics management business, and partners with many professional turf growers. For more details or information, contact Steve Burt, at *sburt@turfbreed.com.au* or phone 0419 007 398.

### Updates on WOTUS Status

The Waters of the United States (WOTUS) rule was implemented in 2015 by the Obama administration. The rule gives expansive power to the federal government to regulate development and commerce that happens around bodies of water in the U.S. Although the law loosely refers to "navigable waters," it has been used to justify regulatory action around small, temporary bodies of water. Most farming activities were thought to be exempted, but the rule has been used to stop some activities that were normal agricultural practices before the rule and steep fines have been leveled against some.

The Trump administration announced on June 27, 2017, that it would begin repealing the Obama-era rule, promising to "return power to the states and provide regulatory certainty to our nation's farmers and businesses," Environmental Protection Agency Administrator Scott Pruitt said at the time. The Trump administration delayed the rule's implementation until 2020, but environmental groups have filed lawsuits to put the rule back in effect.

On June 12, 2018, a federal judge granted preliminary injunctions to 11 more states (Georgia, Alabama, Florida, Indiana, Kansas, North Carolina, South Carolina, Utah, West Virginia, Wisconsin, and Kentucky) against WOTUS. They join the 13 other states (North Dakota, Alaska, Arizona, Arkansas, Colorado, Idaho, Missouri, Montana, Nebraska, New Mexico, Nevada, South Dakota and Wyoming) a federal judge in North Dakota had exempted from the rule in 2015 shortly after it was finalized. Twenty states opposed to the Waters of the United States rule are pushing the EPA to finish reviewing and rescinding the rule quickly.

On July 12, EPA published the notice Definition of "Waters of the United States" Recodification of Preexisting Rule. The link is: *https://www.federalregister.gov/documents/2018/07/12/2018-14679/definition-of-waters-of-the-united-states-recodification-of-preexisting-rule*. The purpose of the supplemental notice is to 'clarify, supplement and give interested parties an opportunity to comment on certain important considerations and reasons for the agencies' proposal.' The notice strengthens the documentary record against certain legal challenges and also strengthens the rationale supporting the Agencies' repeal proposal. Public comment was due by mid-August. NALP anticipates a new definition of WOTUS in late 2018. NALP will be providing comments in support of EPA's further clarification and will be working with industry groups and EPA once a new definition of WOTUS is published. This information was compiled from NALP's online government affairs brief, The Advocate, and EPA publications.

### The Latest on Chlorpyrifos

On June 13, 2018, Hawaii became the first state to ban chlorpyrifos when Gov. David Ige signed legislation passed by state lawmakers. The law takes effect in January. The state may issue exemptions for three years to allow agriculture businesses time to adjust.

On July 30, the California Department of Pesticide Regulation released its comprehensive risk assessment of chlorpyrifos. Per that document, a scientific panel has recommended chlorpyrifos be listed as a toxic air contaminant (TAC). As defined in California, a TAC is "an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health."

Both the EPA and its critics say science is on their side in the debate over whether the agricultural insecticide should be banned. Chlorpyrifos is among the world's most widely used pesticides. It's commonly sprayed on citrus fruits, apples and other crops, including turfgrass on sod farms. Look for much more discussion on chlorpyrifos. Some of the common or trade names include: Brodan, Detmol UA, Dowco 179, Dursban, Eradex, Lorsban, Piridane, and Stipend. On August 9, a federal appeals court ordered EPA to bar its use within 60 days.

### GCSAA Assumes Leadership Role for First Green

GCSAA has officially assumed leadership for First Green, with a new logo and website, *http://www.thefirstgreen.org/*, to promote the program centered on golf courses as environmental "learning labs" for students in middle school to 12th grade. First Green provides hands-on STEM (science, technology, engineering and math) education at golf courses. Studies fall within the focus of schools' environmental science and horticulture curriculums. Founded in 1997, First Green is the only STEM education and environmental outreach program that uses golf courses as learning labs. Each field trip averages 75 students who learn about golf and the environment. For most students, these "outdoor classrooms" represent their first exposure to a golf course.

# TURF MARKETPLACE

# CLASSIFIED **ADS**

**CALL TEXAS SOD FOR ALL YOUR SOD NEEDS:** New and used equipment; Parts for all Sod Equipment; Netting, Harvester Tarps, Trimble GPS Equipment, Sod Staples, Truck Tarps and much more. **Contact: 888-246-4268** or ***www.TexasSod.com***

**SALES MIDWEST:** Several good used little roll, slab, big roll, and auto-stacking harvesters for sale. New & Used Donkey, Brouwer, Kesmac, MasterCraft, First Products, Progressive. We also offer a full line of parts, Poly Tubes, Degradable Big Roll Netting, Degradable Field Net & a variety of harvester & mower blades. **New & Used Equipment Contact: Sales Midwest Inc. at 800-385-9408, 913-254-9560** or ***www.salesmidwest.com***. **Contact: Diversified Asset Solutions at 888-888-8133, 913-829-5622 or *twollesen@assetbids.com***. **Get Registered for Our On-line Turf Auctions – Held Online at: *www.assetbids.com***

**FOR SALE:** 2002 Trebro Autostack, 11,500 hours. Has been very reliable for us. Will come with new spare parts. All wheel drive motors and planetary hubs replaced two years ago. Machine located near Grand Rapids, MI. Asking $70,000. **Contact: Joe at 616-292-6055**

**EQUIPMENT FOR SALE:** 22' Progressive Mower - $8,000; 15' pull type Aerway - $8,500; Landpride 6' slit seeder - $5,000;Restored JD 5020 ready to show or work - $15,000; Good diesel Spyder forklift w/push-off plus another one for parts - $6,000 for both; 2 - shaved 66" x 43.00 - 25NHS tires - $1,000 for both; 87 Int. 9670 Cummins 400 13 speed, sharp, new paint and chrome - $14,000; 40' land plane x 10' wide - $1,000; Fuel Tanks, 12,000 gal. - $4,000 & 5000 gal - $3,000; 2 - E-Z Rain soft hose pulls - $7,000 for both; Caprari MR 100/2D pump mated on trailer with 127 hp Perkins diesel only 182 hours - $14,000; Caprari MEC 125/2A pump #380667 approx. 2,500gpm, new - $5,500; Peerless 8"x6" pump, 1500gpm, 67 total hours - $4,000; Good Volvo diesel 334 cid 174 hp motor - $3,000; Over 200 fittings & guns; 3 pipe trailers; hand lay aluminum irrigation pipe, 11,420 x 8", 5,000' x 6", 7,740 x 5", 660' x 4" **Contact Sam Harris (formerly Sod-Rite) at 765-808-3166** or **email: *sh47383@gmail.com***

Wherever you see this camera icon, visit ***www.TurfGrassSod.org*** to view pictures of the advertised items. When viewing the electronic version of this page, just click on any of the icons above that interest you to proceed directly to the advertiser's supplied picture.

## **TPI CLASSIFIED ADVERTISING**—TARGETED TO TURFGRASS PRODUCERS WORLDWIDE

### Buying or selling equipment, supplies, properties, or looking for employment opportunities?

TPI classified advertising is the answer! Reach your target market with a low cost classified ad in *Turf News* magazine and the TPI website at *www.TurfGrassSod.org.*

All classified ads are posted to the TPI website & featured in the matching *Turf News* issue for one low rate!

### Premier Classified Advertising!

With the Premier Classified Advertising option you can add one photograph to your website ad! The electronic version of *Turf News* will link the reader directly to your ad on TPI's website. Readers of the print version will be able to view your ad with picture by going to *www.TurfGrassSod.org.*

**Classified Ad Rates:** TPI Member $200……...Non-member $275

**Premier Classified Ad:** TPI Member $225……...Non-member $300

Rates are determined in one-inch vertical increments. Please estimate approximately 65 words per inch.
Photos are limited to the website and one photograph per ad.

**Deadline:** 30-days prior to *Turf News* issue date (e.g., November/December *Turf News* issue, ad is due by October 1).

**Payment:** Classified ads are to be paid in advance—we accept check or Visa, MasterCard & AmEx.

**Contact:** Please send your classified ad to Geri Hannah via fax 847-649-5678; email *ghannah@TurfGrassSod.org* or regular mail to:

**Turfgrass Producers International, 444 E. Roosevelt Road #346, Lombard, IL 60148 U.S.A.**
*All classified ads are subject to review; TPI does not endorse any ad and reserves the right to edit or decline any ad.*

# AD INDEX FOR SEPTEMBER/OCTOBER ***TURF NEWS*** MAGAZINE



## **WELCOME** NEW & RETURNING MEMBERS

**Kirk Weyant**
New England Pro Greens & Turf
PO Box 428
Franklin, NH 03235
603-934-1995
*kirk@turfinstall.net*

**Charles Singlehurst**
Springwood Turf Limited
Benefield
Peterborough, Cambridgeshire PE8
5AG United Kingdom
(44) 832-205236

**Fotis Nezis**
Gennatos Turf
Megalou Spilaiou 17
Aten, Athens, Attiki 115 22 Greece
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*pratibeccia@gmail.com*

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Quality Turf Farms, LC
PO Box 321
West Columbia, TX 77486
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*bostonb@qualityturf.com*

**Toshko Todorov**
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*totex@totex.net*

**Keaton Frye**
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12554 210th St.
Davenport, IA 52806
563-391-1663
*keatonfrye@sevencitiessod.com*

**Matteo Serena**
New Mexico State University
945 College Ave.
Las Cruces, NM 88003
575-432-9645
*mserena@nmsu.edu*

# TURF INDUSTRY **CALENDAR**

## SEPTEMBER

**September 11**
**Iowa Turfgrass Field Day**
Ames, IA
Contact: *https://www.hort.iastate.edu/event/turfgrass-field-day-2/*

**September 11**
**Mid-South Turfgrass Council Fall Meeting**
McCurdy Sod Farms, Dyer, TN
Contact: *Bob McCurdy mccurdysodfarms@gmail.com*

**September 13**
**UC Riverside Turfgrass and Landscape Research Field Day**
Riverside, CA
Contact: *http://ucanr.edu/sites/turfgrassfieldday/*

**September 17-19**
**AmericanHort Plug & Cutting Conference**
Sheraton Charlotte Hotel, Charlotte, NC
*Contact: https://americanhort.site-ym.com/page/Plug2018_Home*

**September 17-19**
**Florida Turfgrass Association 66th Annual Conference & Show**
Renaissance World Golf Village Resort, St. Augustine, FL
Contact: *https://www.ftga.org/page/CS*

**September 18**
**CGSA Fall Field Day**
Priddis Greens, Calgary, AB
*https://golfsupers.com/en/events/2018-cgsa-fall-field-day*

**September 19**
**Landscape Ontario Nursery Growers Summer Tour**
Contact: *https://horttrades.com/nursery-growers-summer-tour-2018*

## OCTOBER

**October 3**
**North Carolina Sod Producers Field Day**
Laurinburg, NC
Contact: *http://www.ncsod.org/about*

**October 4-5**
**Long Beach Landscape Expo**
Long Beach, CA
*http://www.landscapeonline.com/TLE-LB/index-tle-2018.php*

**October 4-6**
**FNGLA The Landscape Show**
Orange County Convention Center, Orlando, FL
Contact: *http://www.thelandscapeshow.org/*

**October 10**
**2018 AgriLife Extension Turfgrass and Landscape Field Day**
Dallas, TX
Contact: *https://aggieturf.tamu.edu/events/*

**October 11**
**Maryland Turfgrass Association – 2018 Field Day**
Central Sod Farms Inc., Centreville, MD
Contact:
*https://www.eventbrite.com/e/turfgrass-field-day-tickets-44454463497*

**October 16-19**
**PGMS School of Grounds Management & GIE+EXPO**
Louisville, KY
Contact:
*http://pgms.org/2018/05/09/2018-school-of-grounds-management-gieexpo/*

**October 28-30**
**Northwest Turfgrass Association Conference and Show**
Walla Walla, WA
Contact: *http://www.nwturfgrass.net/pages/conference/registration.html*

## NOVEMBER

**November 4-7**
**ASA-CSSA-SSSA Annual Meeting**
Baltimore, MD
Contact: *https://www.acsmeetings.org/*

**November 12-14**
**Carolinas Golf Course Superintendents Association Conference and Show**
Myrtle Beach, SC
Contact:
*http://www.carolinasgcsa.org/Education-Conference/Conference-and-Show*

**November 15-16**
**A Green Tec Expo**
Miami, FL
Contact: *http://www.agtexpo.com/*

**November 15-16**
**Green Industry Show & Conference**
Edmonton EXPO Centre at Northlands
Contact: *www.greenindustryshow.com*

**November 27-28**
**Oklahoma Turfgrass Conference and Trade Show**
Owasso, OK
Contact: *http://www.otrf.net/events.html*

**November 27-29**
**Deep South Turf Expo**
Biloxi, MS
Contact: *http://www.deepsouthturfexpo.org/*

## DECEMBER

**December 3-6**
**Ohio Turfgrass Foundation Conference & Show**
Columbus, OH
Contact: *https://www.ohioturfgrass.org/otfshow*

**December 3-7**
**Irrigation Show 2018**
Long Beach, CA
Contact: *http://www.irrigation.org/2018Show*

**December 4-6**
**2018 Kansas Turfgrass Conference**
In conjunction with KNLA - Topeka, KS
Contact: *http://www.kansasturfgrassfoundation.com/annual-ktf-conference.html*

**December 11-13**
**Texas Turfgrass Association Winter Conference**
San Antonio, TX
*Contact: http://texasturf.com/*

## FUTURE EVENTS (2019)

**February 18-20, 2019**
**TPI 2019 International Education Conference**
The Westin Charlotte
Charlotte, NC


**July 23-25, 2019**
**TPI 2019 Summer Convention & Field Day**
Hyatt Regency Bloomington - Minneapolis
Minneapolis, MN


For additional calendar items, visit ***www.TurfGrassSod.org***. If you are planning an industry event of interest to our readers please send the information to: ***kcooper@TurfGrassSod.or*** and put "Industry Calendar" in the subject line.

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