



**UNIVERSITY OF
GEORGIA**

COLLEGE OF AGRICULTURAL AND
ENVIRONMENTAL SCIENCES
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TIFTON CAMPUS CONFERENCE CENTER
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71st Annual Southeastern
TURFGRASS CONFERENCE
MAY 16, 2017



UGA TIFTON CAMPUS CONFERENCE CENTER
15 RDC ROAD
TIFTON, GEORGIA

Organized By:
The University of Georgia Tifton Campus
and
Abraham Baldwin Agricultural College
in cooperation with
USDA, Agricultural Research Service
United States Golf Association Green Section
Georgia Golf Course Superintendents Association
Georgia Urban Ag Council
The University of Georgia Cooperative Extension Service

71st ANNUAL SOUTHEASTERN TURFGRASS CONFERENCE

MONDAY, MAY 15 - 6:30 PM
The Golf Club of South GA
3922 US Hwy. 41 N., Tifton

If you are attending the Southeastern Turfgrass Conference on Tuesday, but are in Tifton the evening before, please join us at The Golf Club of South Georgia at 6:30 pm for a complimentary BBQ dinner sponsored by Tifton Turf Breeding Program with proof of conference registration. Please contact Brian Schwartz for more info at (229-386-3272).

TUESDAY, MAY 16

Morning Session - Small Auditorium

- 7:00 am **Registration & Breakfast Sponsored by UGARF**
- 8:00 am **Dr. Brian Schwartz - (UGA) Welcome Survey**
- 8:15 am **Kevin Kenworthy (UF) and Brian Schwartz (UGA) USDA Funding for Collaborative Turfgrass Research between Five Universities**
- 8:30 am **Jonathon Fox (UGA) Made in the Shade?**
- 8:35 am **Kevin Kenworthy (UF) Is Turf Type Bahiagrass a Possibility?**
- 8:50 am **Jing Zhang (UF) Metabolomic Analysis of Sting Nematode Tolerance in Bermudagrass**
- 8:55 am **Yanqi Wu (OSU) Breeding Turf Bermudagrass at Oklahoma State University**
- 9:10 am **Lin Xing (UF) Improved Genetic Parameter Estimations in Zoysiagrass by Implementing Post-Hoc Blocking**
- 9:15 am **Paul Raymer (UGA) Turfgrass Breeding at the UGA Griffin Campus**
- 9:30 am **John Spiekerman (UGA) Response of Seashore Paspalum to Salt Stress**
- 9:35 am **Katrien Devos (UGA) Diversity Analyses and Genetic Mapping in Seashore Paspalum**
- 9:50 am **Xingwang Yu (NC State) Genotyping-By-Sequencing in Zoysiagrass and St. Augustinegrass**
- 9:55 am **Break Sponsored by UGARF**
- 10:15 am **Ben Wherley (TAMU) Performance of Warm Season Turfgrasses Under Salinity Stress**
- 10:30 am **Lee Berndt (Environmental Turf) Dynamics of Machine Fluid Injury on a Bermudagrass Putting Green**
- 10:35 am **David Jespersen (UGA) Mechanisms of Drought Tolerance in Warm Season Grasses**
- 10:50 am **Larry Baldree (UGA) 'Cowboy' - A New Perennial Peanut Variety from the University of Georgia**

- 10:55 am **Clint Waltz (UGA) Improving Water Use Efficiency with Soil Incorporation of Organic Matter**
- 11:10 am **Drew Pinnix (NC State) Computing Irrigation Requirements for Turfgrasses**
- 11:15 am **Patrick McCullough (UGA) Research Update on Herbicide Resistant Annual Bluegrass from Georgia Turf**
- 11:30 am **Allison Couch (UGA) Bermudagrass Tolerance of the Herbicide Sethoxydim**
- 11:35 am **Gerald Henry (UGA) Dallisgrass Control: Everything but the Kitchen Sink**
- 11:50 am **Wenwen Liu (UF) Seasonal fluazifop-p-butyl Applications on Zoysiagrass With or Without Safener**
- 11:55 am **Lunch - Sponsored by The Turfgrass Group Georgia Crop Improvement Association & Georgia Seed Development**
- Recognition of the Monty Moncrief Scholarship Winners
- Recognize 3rd UGA "Friend of UGA Research" Winner

TUESDAY, MAY 16

Afternoon Session - Small Auditorium

- 1:00 pm **Wayne Hanna (UGA) Low Maintenance Ornamental Grasses with Diverse Applications**
- 1:15 pm **Leanna Leach (UGA) Establishing Insect Pest Management Strategies for GA Citrus**
- 1:20 pm **Justin Moss (OSU) Development of Cold Hardy Bermudagrass for Golf Course Putting Greens**
- 1:35 pm **Amanda Webb (UGA) A Seedy Story**
- 1:40 pm **Susanna Milla-Lewis (NC State) Making the Grass Greener in North Carolina**
- 1:55 pm **Luellen Swayzer (UGA) Chromosome Number of Colchicine-Altered St. Augustinegrasses**
- 2:00 pm **Grady Miller (NC State) Coloring Grass Green**
- 2:15 pm **Chase Straw (UGA) Does Variability Within a Sports Field Influence Ground Derived Injuries?**
- 2:20 pm **Dennis Martin (OSU) The Roll of Proprietary Protection and Varietal Certification in Current and Future Turfgrass Management**
- 2:35 pm **Roshani Pahari (UGA) Carbon Dynamics of Turfgrass on a Commercial Sod Farm**
- 2:40 pm **Bryan Unruh (UF) From the Laboratory to the Landscape: Introducing New Grasses into the Market**
- 2:55 pm **Adjourn 2017 Southeastern Turfgrass Conference**
- 3:30 pm **Optional Field Tour**

Kevin Kenworthy (UF) and Brian Schwartz (UGA) – USDA Funding for Collaborative Turfgrass Research between Five Universities. - This presentation will cover the collaborative effort to investigate drought responses in warm season turfgrass species. Information on drought responses, germplasm exchange and evaluation procedures will be provided to the audience. An update on TifTuf bermudagrass, a new drought tolerant cultivar tested in this research will also be given.

Jonathon Fox (UGA) – Made in the Shade? Advanced experimental lines and cultivars of bermudagrass, zoysiagrass, St. Augustinegrass, and seashore paspalum have been evaluated under 73% shade cloth for three years in Tifton, GA with the support from USDA-SCRI federal funding. Trends in establishment, persistence, and mowing characteristics will be presented from the research completed through the Spring of 2017.

Kevin Kenworthy (UF) – Is Turf Type Bahiagrass a Possibility? An overview will be provided of bahiagrass reproductive biology and its positive and negative attributes for use as a turfgrass. Additional information will be given in the development of turf type bahiagrass and their potential use in higher value landscapes.

Jing Zhang (UF) – Metabolomic Analysis of Sting Nematode Tolerance in Bermudagrass. African bermudagrass genotypes with contrasting tolerance to sting nematodes were studied using untargeted global metabolomics analysis. Significant metabolites and their roles in response to sting nematode infestation will be discussed.

Yanqi Wu (OSU) – Breeding Turf Bermudagrass at Oklahoma State University. The turf bermudagrass breeding program at Oklahoma State University was initiated in the 1980s with a major goal being to breed, develop and release superior cultivars with improved turf quality, cold hardiness, drought resistance, and other sustainable traits. ‘Latitude 36’ and ‘NorthBridge’ are two recent releases embraced by the turf industry and more experimental cultivars are in the pipeline.

Lin Xing (UF) – Improved Genetic Parameter Estimations in Zoysiagrass by Implementing Post-Hoc Blocking. Randomized complete block design is the most widely used experimental design in biological sciences, but as the number of treatments increases the block size becomes larger and it loses the capacity of controlling variance within a block. A method known as post-hoc blocking could be used in these cases to improve the genetic parameter estimation and thus obtain an unbiased estimation of the performance of a given experimental line.

Paul Raymer (UGA) – Turfgrass Breeding at the UGA Griffin Campus. The Griffin turfgrass breeding program is focused on the development of improved cultivars of seashore paspalum, zoysiagrass, tall fescue, and creeping bentgrass for a range of fine turf and environmental applications. Goals are to develop cultivars for high-stress environments with improved salt tolerance, drought tolerance, and disease resistance. This program has recently developed a non-GE herbicide resistance system for seashore paspalum and is actively involved in molecular breeding efforts to enhance disease resistance, herbicide tolerance, and drought tolerance in turfgrasses.

John Spiekerman (UGA) – Response of Seashore Paspalum to Salt Stress. Salt screens followed by RNA-seq analysis are being conducted to identify the molecular mechanisms conferring salt tolerance in seashore paspalum. It is our goal to identify genes connected to short-term (osmotic phase), medium-term (ionic phase), and recovery responses in a genotype and tissue-specific manner.

Katrien Devos (UGA) – Diversity Analyses and Genetic Mapping in Seashore Paspalum. To facilitate breeding of seashore paspalum, a highly salt-tolerant turfgrass, we have conducted ploidy level and diversity analyses of the available germplasm collection. Our studies showed that diploid germplasm can be classified in three genetic subpopulations. One of the subpopulations comprised both seashore paspalum and *P. distichum*, confirming the close genetic relatedness between the two species.

Xingwang Yu (NC State)-Genotyping-By-Sequencing in Zoysiagrass and St. Augustinegrass. Marker-assisted selection (MAS) has been widely applied in plant breeding as a critical and effective method for varietal improvement. Using high throughput sequencing technology, two high-density genetic maps were constructed in our research, which offer an ultimate MAS tool to accelerate the turfgrass breeding process.

Ben Wherley (TAMU) – Performance of Warm Season Turfgrasses Under Salinity Stress. Salinity stress is an increasing problem across the southeastern U.S., especially given increasing use of recycled water for irrigation. This talk will present findings of salinity tolerance tests performed at Texas A&M on commonly used warm season turfgrasses within this region. Included in the tests were zoysiagrass, bermudagrass, seashore paspalum, and St. Augustinegrass cultivars. Responses to salinity differed both with respect to species as well as cultivars within species.

Lee Berndt (Environmental Turf) – Dynamics of Machine Fluid Injury on a Bermudagrass Putting Green. Research was conducted to determine the dynamics of machine fluid injury on a TifEagle putting green. Mathematical modeling and digital image analysis were used to determine the dynamics of both visual green color loss and injury area in response to treatment with various machine fluids. This research has identified turfgrass injury behavior previously unknown.

David Jespersen (UGA) - Mechanisms of Drought Tolerance in Warm Season Grasses. Drought is a major abiotic stress which can lead to wide spread damage to turf areas. Better understanding the mechanism utilized in warm-season grasses to combat drought is important for the future development of grasses with improved abiotic stress tolerances.

Larry Baldree (UGA) – ‘Cowboy’ - A New Perennial Peanut Variety from the University of Georgia. This presentation will briefly cover the history and uses of this new versatile plant developed at the UGA Tifton Campus, whether that be as an ornamental, ground cover, hay, or even in citrus groves.

Clint Waltz (UGA) – Improving Water Use Efficiency with Soil Incorporation of Organic Matter. To gain the benefits of organic matter it has to be added to the soil. For establishment of perennial turfgrasses, the sole opportunity is during site preparation prior to laying or seeding the grass. Often soil preparation, tilling or amending with organic matter, is overlooked and not valued as a practice that can make a lawn “sustainable”. Research demonstrating the impacts of proper site preparation, which include tilling and soil incorporation of compost, on turfgrass water use efficiency will be presented.

Drew Pinnix (NC State) – Computing Irrigation Requirements for Turfgrasses. In an effort to increase the efficiency of turfgrass irrigation, net irrigation requirements were estimated for eleven locations across North Carolina. The methodology presented provides an economical approach for turfgrass managers/homeowners to predict turfgrass water use that can result in greater irrigation efficiency and water conservation.

Patrick McCullough (UGA) - Research Update on Herbicide Resistant Annual Bluegrass from Georgia Turf. Annual bluegrass resistance to pre- and postemergence herbicides has risen exponentially in the southeastern United States. This presentation will review current field and greenhouse research at the University of Georgia on annual bluegrass control in warm season turfgrass. Topics covered will include herbicide resistant biotypes from Georgia turf, herbicide selection, and rotation programs to delay resistance.

Allison Couch (UGA) – Bermudagrass Tolerance of the Herbicide Sethoxydim. A non-GE sethoxydim tolerant bermudagrass that was previously developed by the turfgrass breeding program on the UGA Tifton campus has been used as a parent to develop a new population of hybrids. This presentation will include preliminary results of the first herbicide screen aimed at characterizing the inheritance of sethoxydim tolerance in these bermudagrasses.

Gerald Henry (UGA) – Dallisgrass Control: Everything but the Kitchen Sink. Dallisgrass is a problematic perennial grass weed that commonly infests golf courses, athletic fields, home lawns, and sod farms. Sole reliance on chemical control options is often ineffective and expensive. Investigations into the biology and ecology of dallisgrass within turfgrass environments may increase long-term control.

Wenwen Liu (UF) – Seasonal fluzifop-p-butyl Applications on Zoysiagrass With or Without Safener. This study was aimed at characterizing the safening potential of triclopyr tank-mixed with fluzifop-P-butyl at two higher than recommended rates for zoysiagrass, with a goal to identify the highest fluzifop-P-butyl rate that can be safely used on tolerant cultivars under field conditions. Additionally, the effects of applications in three different seasons on plant growth were also characterized to determine whether fluzifop-P-butyl tolerance varies throughout the year and to establish the best application timing to avoid injury in the field.

Wayne Hanna (UGA) – Low Maintenance Ornamental Grasses with Diverse Applications. This talk will include discussion on seed and pollen sterile grasses developed at the UGA Tifton Campus for low maintenance use. These grasses are very drought tolerant once established and some perenniate as far north as Canada.

Leanna Leach (UGA) – Establishing Insect Pest Management Strategies for Georgia Citrus. Insect sampling and characterization is underway in a citrus grove in Tifton so that more information is available on seasonal insect population dynamics in an effort to prepare for the future expansion of the GA citrus industry.

Justin Moss (OSU) – Development of Cold Hardy Bermudagrasses for Golf Course Putting Greens. Development of fine textured, cold hardy bermudagrasses for use as putting green surfaces could be beneficial for sod producers in the U.S. transition zone. This presentation will cover traditional breeding efforts towards development and selection of bermudagrasses that are cold hardy, can tolerate low mowing heights, and have good sod quality characteristics.

Amanda Webb (UGA) – A Seedy Story. Genetic instability in the bermudagrass cultivar ‘Tifgreen 328’ has been recognized for decades. Work is currently being done in Tifton to characterize the seedhead morphology and potential seed set in ‘Tifgreen’ and many somaclonal variants derived from it.

Susanna Milla-Lewis (NC State) – Making the Grass Greener in North Carolina. The turfgrass breeding program at North Carolina State University has focused on improving cold tolerance and pest resistance in St. Augustinegrass. This presentation will highlight our work in breeding for gray leaf spot and chinch bug resistance in combination with improved winter survival utilizing both conventional and molecular methodologies.

Luellen Swayzer (UGA) – Chromosome Number of Colchicine-Altered St. Augustinegrasses. Seeds from the cultivar ‘Raleigh’ were previously treated with colchicine at NC State University and resulted in the discovery of putative tetraploids. This presentation will summarize the results from mitotic squashes of several of these lines.

Grady Miller (NC State) – Coloring Grass Green. This talk will address the selection, application, and performance of green colorants and dyes/pigments for turfgrass uses. The presentation will provide an overview of using turf colorants and pigments along with specific research results and practical experience using many of the commercially available products.

Chase Straw (UGA) – Does Variability Within a Sports Field Influence Ground Derived Injuries? A two year study was conducted at the University of Georgia's Rec Sports Complex and Club Sports Complex with men's and women's rugby and ultimate frisbee Club Sports athletes. Several field properties (e.g. soil moisture, soil compaction, surface hardness, etc.) were mapped and hot spot analysis was used to identify significantly “hot” and “cold” areas of each property within the fields. Ground derived injury locations were compared to hot spot maps to evaluate the influence of within-field variability on injuries.

Dennis Martin (OSU) – The Roll of Proprietary Protection and Varietal Certification in Current and Future Turfgrass Management. This presentation will cover the various forms of proprietary protection, turf varietal identity certification and how these factors work to ensure you get the best possible turfgrass product.

Roshani Pahari (UGA) – Carbon Dynamics of Turfgrass on a Commercial Sod Farm. While many in the public have a positive view of golf courses, sports fields and lawns, the perception that turf is an environmental foe has also been growing in some circles because of unverified concerns that large amounts of carbon dioxide (CO₂) is being emitted from the turf system. Warm season grasses, in particular, have been understudied for their C-behavior and C-sequestration potentialities. This research delves into the quantification of a carbon budget for ‘Tifway’ bermudagrass grown on a highly managed commercial sod farm in middle Georgia using a highly efficient eddy-covariance technique.

Bryan Unruh (UF) – From the Laboratory to the Landscape: Introducing New Grasses into the Market. Attendees will learn about the strategies being employed to move new turfgrass cultivars developed through the five-state SCRI Turfgrass Breeding Project into the market. Strategies range from enhanced promotional and marketing strategies to demonstration landscape.

**2016 Pesticide Credits Listed Below
2017 Continuing Education Units Should Be Similar**

**6 hours 24 GA Pesticide Credits
0.55 GCSAA Points
Florida - 3.5
Alabama - 10
South Carolina - 4.5
North Carolina - 4
Tennessee - 2
Crop Advisors - 0.5 Soil & Water; 3 IPM;
4 Crop Management**

**Certificates Will Be Distributed at the
End of the Conference**

**For More Information Visit
www.ugatiftonconference.caes.uga.edu
or call
UGA Tifton Campus Conference Center
229.386.3416**

TO REGISTER:

Complete registration form below, return it with payment to Conference Office, UGA Tifton Campus Conference Center, 2360 Rainwater Rd., Tifton, GA 31793-5766. Make checks payable to UGA TCCC/Turfgrass. You may also register on-line at www.ugatiftonconference.caes.uga.edu. Payment must accompany registration. Registration or credit card payment **cannot** be accepted by phone.

REFUNDS & CANCELLATIONS:

Refunds will be given for cancellations made one week prior to the conference. A \$10 cancellation fee will be charged. You may also make substitutions at any time at no additional charge. For substitutions or cancellations call 229-386-3416.

PESTICIDE CREDITS/CEUs:

Pesticide recertification credit in category 24 (Ornamental and Turf) has been requested from Georgia, South Carolina, North Carolina, Florida, Tennessee and Alabama. Forms that must be filled out for pesticide credit will be distributed at the end of the day. Continuing Education Units have been requested from the Golf Course Superintendents Association of America and will be awarded by Abraham Baldwin Agricultural College. Certified Crop Advisors credit will also be offered.

WE WANT TO HELP:

Special arrangements for people with disabilities will be made if requested in advance. For these arrangements or more information, call the Conference Office at 229-386-3416.

LODGING:

It is requested that you directly contact the hotels for room reservations in Tifton. A block of rooms has been reserved at the following motels. (To receive these special rates, refer to the "Turfgrass Conference" when calling for reservations.) It is suggested that these reservations be made as far in advance as possible. Most rooms will be held at these rates until **May 2, 2017**.

Country Inn & Suites - 229-382-8100 - \$85 plus tax (includes breakfast) **Hampton Inn & Suites - 229-382-8800** - \$129 plus tax (includes breakfast)
Hilton Garden Inn - 229-382-8484 - \$109 plus tax (breakfast \$9.95) **Holiday Inn Express - 229-382-3300** - \$99 plus tax (includes breakfast)

**71ST ANNUAL SOUTHEASTERN TURFGRASS CONFERENCE REGISTRATION
MAY 16, 2017**

FIRST NAME _____ LAST NAME _____

ORGANIZATION _____ COUNTY _____

MAILING ADDRESS _____

CITY _____ STATE _____ ZIP _____

DAYTIME TELEPHONE _____ FAX _____ Email _____

WHERE DID YOU HEAR ABOUT THIS PROGRAM? _____

PLEASE CHECK ONE: GOLF COURSE _____ LANDSCAPE & COMMERCIAL _____ SOD FARM _____

SPORTS TURF _____ STUDENT _____ UNIVERSITY RESEARCHER _____

_____ **\$75.00** registration fee postmarked by May 2, 2017 _____ **\$10.00** Student registration (with ID) fee postmarked by May 2, 2017
_____ **\$100.00** registration fee AFTER May 2, 2017 _____ **\$10.00** Student registration (with ID) fee postmarked after May 2, 2017

Complimentary Dinner, May 15, 2017 @ The Golf Club of South Georgia _____ Will Attend _____ Will Not Attend

Payment by check (payable to UGA TCCC/Turfgrass) _____ Signed Purchase Order (No "P.O. Requisitions" or "Vouchers" Accepted) _____

Credit Card Number _____ Expiration Date _____ Security Code _____

Credit Card Billing Address _____

Signature _____

Make checks payable to UGA TCCC/Turfgrass and mail to: TURFGRASS Conference, UGA Tifton Campus Conference Center, 2360 Rainwater Rd., Tifton, GA 31793-5766. **IF REGISTERING FOR MORE THAN ONE PERSON BE SURE TO INCLUDE ALL THE ABOVE INFORMATION FOR EACH PERSON. This form may be copied. PAYMENT MUST ACCOMPANY REGISTRATION.**