Arkansas Turfgrass Report 2009

Edited by:
Douglas Karcher, Associate Professor
Aaron Patton, Assistant Professor
and Michael Richardson, Professor

Department of Horticulture
University of Arkansas

University of Arkansas Division of Agriculture
Arkansas Agricultural Experiment Station
Fayetteville, Arkansas 72701

No findings, conclusions, or reports regarding any product or any process that is contained in any article published in this report should imply endorsement or non-endorsement of any such product or process.
**Conversion Table**

Conversions for commonly-used units in papers:

- 1 ft = 0.30 meters = 30.48 cm
- 1 inch = 2.54 cm = 25.4 mm
- 1 ounce = 28.3 g
- 1 lb = 0.454 kg = 454 g
- 1 PSI = 6.9 kPa
- 1 ppm = 1 mg / kg
- 1 gallon / acre = 9.35 L / ha
- 1 lb / 1000 ft² = 4.9 g / m²
- 1 lb / 1000 ft² = 48.8 kg / ha
- 1 lb / 1000 ft² = 43.56 lb / acre
- 1 lb / acre = 1.12 kg / ha
- 1 bushel / 1000 ft² = 3.8 m³ / ha

°F = \( \frac{9}{5} \circ C \) + 32
°F = 5/9 * (°F-32)
To Our Colleagues and Constituents

Turfgrass Industry:

As the green industry continues to expand across Arkansas and the nation, the University of Arkansas Division of Agriculture has assembled an outstanding team of researchers, extension personnel, and educators that are working to solve some of the most pressing needs of that industry. One segment of that industry that continues to provide a significant impact on the state’s economy is the turfgrass industry, which includes lawn care, parks, sports turf, sod production, and golf course maintenance. In a recent survey, it was estimated that the turfgrass and lawn care industry in Arkansas provides over 8,600 jobs and contributes over $336 million annually to the state’s economy.

The Arkansas Turfgrass Report is a Research Series that is published annually by the Arkansas Agricultural Experiment Station and features significant findings made by turfgrass scientists during the past year. Although this publication primarily summarizes findings from the research program, it also highlights advancements in teaching and extension programs, as well as significant issues that affect the industry as a whole. It is our desire that this publication will keep our stakeholders abreast of significant changes and advancements that affect our industry.

We are very proud of this third installment of the Arkansas Turfgrass Report, which includes 34 papers from faculty, staff, and graduate students. We hope these findings will enhance your ability to conduct business in an efficient and productive manner. The content of this edition of the Arkansas Turfgrass Report has been organized into categories in the Table of Contents (“Cultivar Trials,” “Turf Culture,” “Pest Control,” etc.) for your convenience.

We would also like to recognize the many organizations, companies, and individuals who have given their time, money, and talents to make our program successful. We are extremely grateful to the many people who contribute to this program.

We hope that this publication will be of value to all persons with an interest in the Arkansas green industry.

Doug Karcher
Associate Professor

Aaron Patton
Assistant Professor

Mike Richardson
Professor
The University of Arkansas turfgrass research team is grateful for assistance in the form of donated equipment and product, and research grants from the following associations and companies. Our productivity would be significantly limited without this support.

Andersons Golf Products
Aquatrols, Inc.
Arkalite
Arkansas Farm Bureau
Arkansas Turfgrass Association
BASF
Bayer Environmental Science
Pat Berger, University of Arkansas Athletics
Casey Crittenden, Bella Vista POA
Conwed Fabrics
Crossover Liquor
Jason Cuddy, Springdale Country Club
DeWitt Company
Double Springs Grass Farm
Dow AgroSciences
DuPont
Environmental Turf
Ewing Irrigation
FMC Corporation
Georgia Pacific
Golf Course Superintendents Association of America
Golf Course Superintendents Association of Arkansas
Dr. Wayne Hanna, University of Georgia
Helena Chemical
ISK Biotech
Jacobsen (Textron)
Johnston Seed Co.
Lebanon Seaboard
Lee McBurnett, Stonebridge Meadows
Lentz Sand and Gravel
Jason Miller, The Blessings Golf Club
Milliken
Milorganite Chemical
Mississippi State University
Monsanto Company
Jerry Musick, Razorback Park Golf Course
National Turfgrass Evaluation Program
NexGen Research
Brandon Nichols, Fayetteville Country Club
North Carolina State University
OJ Noer Foundation
Patten Seed Co.
PBI Gordon
Pennington Seed
PermaGreen Supreme, Inc.
Precision Labs
Professional Turf Products
Profile Products Co.
Pure-Seed Testing
Quail Valley Sod
Quali-Pro
Scotts Professional Turf
Seed Research of Oregon
Seeds West, Inc.
Spectrum Technologies
Stillwater Equipment Co.
Syngenta
Texas A&M University
The Toro Company
Tifsport Growers Association
Todd Towery, Pinnacle Country Club
Turfgrass Producers International
United States Golf Association
University of Florida
Winrock Grass Farm

We regret that some individuals or companies may have been inadvertently left off of this list. If your company has provided financial or material support for the program and is not mentioned above, please contact us so that your company’s name can be added in future reports.
# Table of Contents

## Cultivar Trials

**Summary of the 2008 NTEP Bentgrass Tee/Fairway Trial–1st Year Data**
Doug Karcher, Mike Richardson, Aaron Patton, and Josh Summerford .................................................................10

**Summary of the 2008 NTEP Bentgrass Putting Green Trial–1st Year Data**
Doug Karcher, Mike Richardson, Aaron Patton, and Josh Summerford .....................................................................15

**2007 NTEP Bermudagrass Trial – Year 3 Results**
Aaron Patton, Mike Richardson, Doug Karcher, and Jon Trappe ..............................................................................20

**2007 NTEP Seashore Paspalum Trial – Year 3 Results**
Aaron Patton, Mike Richardson, Doug Karcher, and Jon Trappe ................................................................................25

**2007 Arkansas Zoysiagrass Trial – Year 3 Results**
Aaron Patton, Mike Richardson, Doug Karcher, and Jon Trappe ................................................................................28

**Report from the 2006 NTEP Tall Fescue Trial – 2009 Data**
Mike Richardson, John McCalla, Doug Karcher, and Aaron Patton ...........................................................................36

**Ball Lie of Creeping and Colonial Bentgrass Cultivars Under Fairway Conditions**
Dan Strunk, Joey Young, Doug Karcher, Mike Richardson, and Aaron Patton ..........................................................40

**Organic Matter Accumulation of Bentgrass Cultivars Following Establishment on a Sand-Based Putting Green**
Liu Yang, Doug Karcher, and Josh Summerford .........................................................................................................46

## Turf Culture

**Wetting Agent Effects on Rootzone Moisture Distribution Under Various Irrigation Regimes – Year 2 Summary**
Doug Karcher, Mike Richardson, Aaron Patton and Josh Summerford ...........................................................................50

**Effects of “Immerse GT” and “Immerse GT 2009” Wetting Agents on Localized Dry Spot Incidence and Rootzone Moisture Distribution under Various Moisture Conditions**
Doug Karcher and Josh Summerford .........................................................................................................................57

**Leaf and Stolon Characteristics of Commercially Available and Experimental St. Augustinegrass Cultivars**
David Moseley, Aaron Patton, and Jon Trappe ...........................................................................................................64

**Zoysiagrass Performance in Arkansas as Influenced by Nitrogen Rate, Mowing Height, and Cultivar**
Aaron Patton and Jon Trappe .......................................................................................................................................69

**Zoysiagrass Growth as Influenced by Nitrogen Source in a Greenhouse Trial**
Aaron Patton, Jon Trappe, and Antonio Pompeiano ....................................................................................................74
High Frequency Rolling on a Sand-based Putting Green
Jay Richards, Doug Karcher, Mike Richardson, Aaron Patton, and Josh Summerford.................................77

Ammonia Volatilization Following Foliar Application of Various Liquid and Granular-soluble Nitrogen Sources to Putting Green Turf
Chris Stiegler, Mike Richardson, John McCalla, Josh Summerford, and Trent Roberts.................................82

Golf Ball Lie Differs Among Bermudagrass and Zoysiagrass Cultivars – Year 2
Jon Trappe, Aaron Patton, Doug Karcher, and Mike Richardson.................................................................87

Clipping Yield and Scalping Tendency of Bermudagrass and Zoysiagrass Cultivars – Year 2
Jon Trappe, Aaron Patton, Doug Karcher, and Mike Richardson.................................................................91

Establishment

Establishment Rate of Commercially Available and Experimental St. Augustinegrass Cultivars
David Moseley, Aaron Patton, and Jon Trappe............................................................................................95

Seedling Emergence of Tall Fescue and Kentucky Bluegrass as Affected by Two Seed Coating Techniques
Mike Richardson, John McCalla, and Kenneth Hignight...........................................................................99

Poultry Compost as an Amendment for Establishing Creeping Bentgrass in a Sand-Based Rootzone
Josh Summerford and Doug Karcher...........................................................................................................104

Tall Fescue Establishment Under Varying Levels of Phosphorous
Josh Summerford and Doug Karcher...........................................................................................................108

Stress Tolerance

Drought Tolerance of 15 Bermudagrass Cultivars
Mike Richardson, Doug Karcher, and John McCalla.................................................................................112

Drought Tolerance of Kentucky and Hybrid Bluegrass Cultivars
Mike Richardson, Doug Karcher, and John McCalla.................................................................................116

Divot Recovery Among Bermudagrass and Zoysiagrass Cultivars – Year 2
Jon Trappe, Aaron Patton, Doug Karcher, and Mike Richardson...............................................................119

Divot Resistance of Bermudagrass and Zoysiagrass Cultivars
Jon Trappe, Aaron Patton, Doug Karcher, and Mike Richardson...............................................................123

Shade and Traffic Tolerance of Bermudagrass and Zoysiagrass – Year 2 Results
Jon Trappe, Aaron Patton, Doug Karcher, and Mike Richardson...............................................................127
Pest Control

Annual Bluegrass Control in Creeping Bentgrass Putting Greens
John McCalla, Mike Richardson, John Boyd, and Aaron Patton ................................................................. 133

Effect of Mesotrione on Overwintering and Spring Green-up of Seeded Bermudagrass
John McCalla, Mike Richardson, John Boyd, and Aaron Patton ................................................................. 139

Effect of Mesotrione on Sod Quality of Tifway Bermudagrass
John McCalla, Mike Richardson, John Boyd, and Aaron Patton ................................................................. 145

Controlling Dollar Spot on Creeping Bentgrass with Fungicides
Aaron Patton and Jon Trappe .......................................................................................................................... 150

Response of Bermudagrass and Zoysiagrass Cultivars to Dismiss South and Solitare Herbicides
Mike Richardson and John McCalla .............................................................................................................. 155

Miscellaneous

Arkansas Turfgrass Acreage
Aaron Patton ..................................................................................................................................................... 160

Golf Club Selection and Golfer Influence Divot Size in Bermudagrass Fairways
Aaron Patton, Jon Trappe, Doug Karcher, and Mike Richardson ............................................................... 165

2009 Weather Summary for Fayetteville, Arkansas
Mike Richardson and Chris Stiegler .............................................................................................................. 169