

# Better Turf Thru Agronomics

UCRTRAC Newsletter, July 2002

## Second UCRTRAC Golf Tournament: A Winner for Turf Research



**LOW GROSS AWARD RECIPIENTS.** Holding the Low Gross Award trophy are winners (left to right) Michael Sommer, Sam Williamson, CGCS, Dave Flaxbeard, and Bill Martin, CGCS.



**LOW NET AWARD RECIPIENTS.** Receiving the Low Net Award and trophy at the UCRTRAC Golf Tournament on May 9, 2002 are (left to right) Eric Lover, Greg Furlong, and Steve Roy. Winner Terry Jergens is not pictured with the group.

One hundred twenty-three golfers participated in UCRTRAC's golf tournament, held on May 9, 2002 at the SCGA Members' Club in Murrieta.

The Low Net and Low Gross winners are pictured on the left. The tournament increases public awareness of UCR turf research and UCRTRAC (UCR Turfgrass Research Advisory Committee), as well as raising revenue for turf research.

"The golf tournament is an example of the teamwork that it takes to make a public/private partnership thrive. We planned the event for more than a year, but it was Bert Spivey, the Tournament Chairman and Superintendent at Industry Hills Golf Courses, who provided the leadership, energy, and enthusiasm that ensured success," said Chuck Wilson, Tournament Committee member.

Members of the Tournament Committee were UCRTRAC delegates: Carl Clifton, President, Lawnscape Systems; John Martinez, Superintendent, Southern California Golf Association (SCGA) Members' Club, Murrieta (see photo on page 2); Dennis Frey, Manager, Pacific Equipment & Irrigation; Robert Green, UCR Turfgrass Research Agronomist; Chuck Wilson, CGCS, President, Site Development Services; Paul Mayes, Director of Golf Course Maintenance, PGA of Southern California Golf Club, Calimesa; and Bert Spivey, CGCS.

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The 18-hole course at the SCGA Members' Club has a good layout and was in great condition, Spivey said. The tournament was designed as a four-man scramble. Among participants, the consensus was that "you can't find a course that plays any better."

SCGA Members' Club General Manager **Tom Pinch** and his staff provided every amenity to tournament participants, including a lunch and early dinner.

**Steve Porus** and **Phil Lange** managed the tournament, oversaw sponsorships, and facilitated publicity. (Please see the list of tournament sponsors in the right-hand column.)

**Neal Beeson**, President, Sports Turf & Facilities Management, and Treasurer of the SCTF, and **Greg Furlong**, sales representative, Eagle One Golf Products, volunteered during the tournament.

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**“ Since 1996, every dollar donated to UCRTRAC has helped to generate 2.6 dollars in turf research grants. ”**

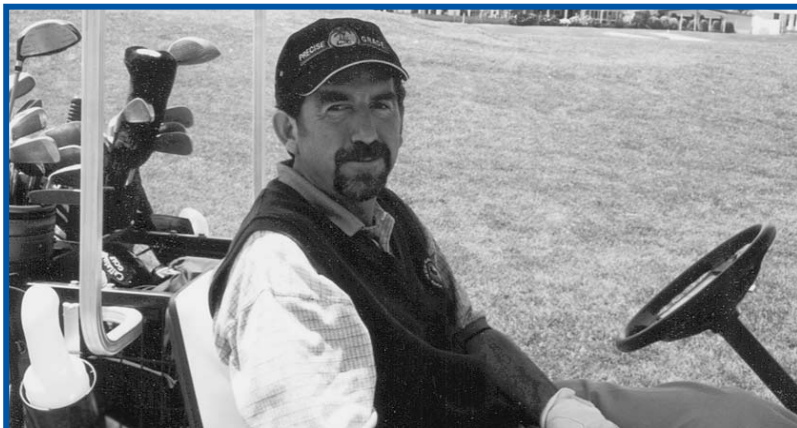
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Golf tournament proceeds will support UCRTRAC research and education extension activities that address specific industry needs. Since 1996, every dollar donated to UCRTRAC has helped to generate 2.6 dollars in turf research grants, said **Kevin Heaney**, Director of Golf Course Rating, SCGA, and **Tom Gustafson**, Executive Director and CEO, Southern California Section, Professional Golfers' Association (PGA) of America. Heaney and Gustafson are both UCRTRAC delegates.

“UCRTRAC has had ongoing research at the SCGA Members' Club since Fall 1997,” said **Robert Green**, UCR Turfgrass Research Agronomist. “Our current multi-year research project is entitled ‘Further Evaluation of On-Site Testing of Bermudagrass Cultivars on USGA Specification Golf Putting Greens,’” he said.

Established in 1996, UCRTRAC provides a formal industry-wide linkage between UCR and the turfgrass industries in Southern California. Member organizations contribute to UCRTRAC research and education initiatives.

UCRTRAC member organization and their delegates include the Southern California Golf Association (**Kevin Heaney, John Martinez**), the Southern California Section, Professional Golfers' Association (**Tom Gustafson, Paul Mayes**), the California Golf Course Superintendents Association (GCSA) (**Pat Gradoville, CGCS**), the Hi-Lo Desert GCSA (**Mike Kocour, Nancy Dickens, CGCS**), San Diego GCSA (**John Martinez**), GCSA of Southern California (**Bert Spivey, CGCS, Pat Gradoville, CGCS**), California Sod Producers Association (**Jergen Gramckow**), Southern California Turfgrass Council (**Carl Clifton, Mark Hodnick**), Southern California Turfgrass Foundation (**Chuck Wilson, CGCS, Neal Beeson**), University of California, Riverside (**Robert Green, Vic Gibeault, Steve Cockerham**), and the United States Golf Association (**Pat Gross, David Wienecke**).



*UCRTRAC delegate John Martinez is Superintendent of the SCGA Members' Club.*

## Thanks to Tournament Sponsors

**Gold:** Eagle One Golf Products,  
EZ Party Rentals

**Silver:** Pacific Earth Resources,  
Southland Sod Farms, Synagro  
Professional Organics, West  
Coast Turf

**Bronze:** American Sod, Best  
Professional Products,  
Greenways Environmental, PGA  
of Southern California, Satsuma  
Landscape, SCGA Members'  
Club, Simplot Partners, Superior  
Sod, Western Farm Service,  
J. R. Simplot

**Trophy:** Unlimited Access Co.

**Committee Meetings:**  
Lawnscape Systems, Pacific  
Equipment & Irrigation

**Hole:** Bull Enterprises, Oglebay  
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Industry Hills Golf Courses,  
Mimis Café, Montebello Golf  
Course, SCGA Members' Club

**Water:** Bill Culbertson

**Donuts:** Lawnscape Systems

**Ditty Bag:** Commander  
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Turfgrass Council, Synagro  
Professional Organics, Unlimited  
Access Co.

**General Donations:** Jobs in  
Horticulture, Bill Martin, CGCS,  
Frank Ramos

## Nitrogen Improves Fall Color Retention in Three Seeded Bermudagrasses; Iron Applications, Vertical Mowing Not Helpful

**UC**Riverside turf researchers recently completed a two-year study to test the efficacy of three cultural practices – nitrogen (N) and iron (Fe) applications and vertical mowing – for their potential improvement of fall color retention in three seeded bermudagrass (*Cynodon dactylon*) cultivars – Princess, FMC 6 (Sultan brand), and NuMex Sahara. Nitrogen proved to be the only efficacious treatment.

Seeded bermudagrasses are widely planted in Southern California for their adaptation to the region. They are tough, warm-season grasses that recover quickly from traffic injury during active growth, but they have limited recuperative potential during the winter season when dormant.

"If bermudagrasses are used intensively for recreational purposes during the winter season, the fields look worn and can be severely damaged due to lack of recuperative ability. Our objective was to test cultural practices to reduce and/or postpone dormancy during the late fall and winter in Southern California," said Vic Gibeault, UC Riverside Extension Environmental Horticulturist.

Visual turfgrass color and quality were measured weekly on a scale of 1 to 9 (9 = deep green) to determine the efficacy of the three cultural treatments, since dormancy manifests as color loss and reduction in overall quality. Quality rating scores account for color, texture, density, uniformity, and presence or absence of pest activity, Gibeault said.

**Nitrogen (N)** treatments had the most significant and consistent impact on color retention at all time periods with all grasses. More N resulted in significantly higher color response during the growing season and, in general, better color retention in the fall. Like color, quality was primarily influenced by N, with increasing quality noted at the higher N rate. N was supplied as calcium nitrate ( $\text{Ca}(\text{NO}_3)_2$ ) at a rate of 1 lb N/1000ft<sup>2</sup>/mo or per 2 mo.

**Iron (Fe)** treatments had very little influence on color retention or quality. There were no statistical differences among the Fe treatments, with one exception: 'Princess' responded to the high Fe treatment in the fall. Fe was supplied monthly at a rate of 2 oz or 4 oz  $\text{FeSO}_4/1000\text{ft}^2$ .

**Vertical mowing** treatments did not improve turf quality, and the October treatment reduced quality.

Cultivar color closely tracked late fall soil temperatures. As soil temperatures reached 50-52°F at a depth of six inches, the greatest color loss was observed.

Fertility treatments with N and Fe were applied with a drop spreader. Test plots were irrigated throughout the study and

## Key Points

- **Nitrogen (N)** treatments had the most significant and consistent impact on color retention at all time periods with all grasses. N was supplied as calcium nitrate ( $\text{Ca}(\text{NO}_3)_2$ ) at a rate of 1 lb N/1000ft<sup>2</sup>/mo or per 2 mo.
- Quality was primarily influenced by N, with increasing quality noted at the higher N rate.
- **Iron (Fe)** treatments showed no effect on winter color retention or quality or had minimal influence (results not statistically significant). One exception: 'Princess' responded to high Fe in the fall. Fe was supplied monthly at a rate of 2 oz or 4 oz  $\text{FeSO}_4/1000\text{ft}^2$ .
- **Vertical mowing** treatments did not improve turf quality. The October treatment actually reduced quality (too late in the season for satisfactory regrowth).
- **Influence of soil temperature.** Cultivar color closely tracked late fall soil temperatures. As soil temperatures reached 50-52°F at a depth of six inches, the greatest color loss was observed.

mowed once or twice weekly. Vertical mowing in August or October was performed with a single pass of a Ryan Ren-O-Thin set to cultivate to the soil surface, not into the profile.

Cooperating with Gibeault were UCR Staff Research Associate Richard Autio and UCR Agricultural Operations Superintendent Steve Cockerham.

For more detail, particularly the tabular data, see *California Turfgrass Culture*, Vol 52 (1-2), 2002.

## Allelochemicals (Phenolic Compounds) Act as Growth Inhibitors; Distribution Differs in Warm- and Cool-Season Turf Species

**A**llelopathy may be a potentially useful trait for turfgrass breeding and management, says UC Davis (UCD) environmental horticulturist Lin Wu.

Allelopathy is any indirect, beneficial or harmful effect by one plant on another through release of chemicals into the environment. Phenolic acids are "allelochemicals," compounds identified in chemical interactions between plant species.

Ten phenolic acids extracted from buffalograss (*Buchloe dactyloides*) significantly inhibited shoot and root growth in annual bluegrass (*Poa annua*) seedlings, which may explain the lack of *Poa annua* invasion in buffalograss stands, said Wu.

Please see *Allelochemicals*, page 4

The allelochemicals acted like broad-spectrum preemergence growth inhibitors of *Poa annua* seedlings, severely impairing root growth.

"Since seedlings with impaired root growth are unlikely to survive in a well-established sward, this finding has practical significance," Wu said.

**Phenolic Acid Distribution.** Wu and his colleagues also tested phenolic acid distribution in four warm-season turf species (zoysiagrass, buffalograss, bahiagrass, and kikuyugrass) and four cool-season turf species (perennial ryegrass, Kentucky bluegrass, creeping bentgrass, and tall fescue).

The cool-and warm-season grasses actually differed in phenolic acid distribution, a potentially useful trait for turf breeding and management; however, allelopathic responses and effects can differ under different management regimes, Wu said.

Gallic acid was found in the cool-season species, but not in the warm-season species. Salicylic acid was found in all the warm-season species tested, but not in the cool-season species.

"Whether the distribution of salicylic acid in turfgrasses has any relation to disease resistance is an interesting question for further research," wrote Wu in the most recent issue of *California Turfgrass Culture* (Vol. 52[1-2], 2002). Collaborating with Wu were Ali Harivandi, Extension Farm Advisor, Alameda, Contra Costa and Santa Clara Counties, and Xun Guo, Environmental Horticulturist, UCD. For more detail, please see *California Turfgrass Culture* (Vol. 52[1-2], 2002).

## Key Points

- Allelopathy may be a potentially useful trait for turfgrass breeding and management.
- Allelopathy is any indirect, beneficial or harmful effect by one plant on another through release of chemicals into the environment.
- Phenolic acids are "allelochemicals," compounds identified in chemical interactions between plant species.
- Ten phenolic acids extracted from buffalograss inhibited shoot and root growth in annual bluegrass, which may explain the lack of *Poa annua* invasion in buffalograss stands.
- Allelochemicals that were studied acted like broad-spectrum preemergence growth inhibitors.
- Cool-and warm-season grasses differed in phenolic acid distribution.

## New UCR Biotechnology Specialist

**A**lan McHughen is the new UC Cooperative Extension (UCCE) Biotechnology Specialist at Riverside. His position represents an expansion of the CE program at Riverside.

McHughen will be conducting research using biotechnology to improve plants for California farmers, which may include the environmental horticulture industry. "Turf is a good candidate" because the database is already "available to be mined," McHughen said.

In addition to research, McHughen is also responsible for explaining to non-scientists the benefits and hazards of biotechnology and is eminently qualified to do so. His recent book, *Pandora's Picnic Basket: The Potential and Hazards of Genetically Modified Foods*, published by Oxford University Press (2000), has been critically acclaimed.

A molecular geneticist with an interest in crop improvement, McHughen has helped to develop U.S. and Canadian regulations covering the environmental release of plants with novel traits. He has also served on recent Organization for Economic Cooperation and Development (OECD) panels investigating the health effects of genetically modified foods.

Previously, McHughen was a professor and senior research scientist at the University of Saskatchewan. He received his D. Phil. at Oxford University.

McHughen can be reached at UCR via e-mail at [alanmc@citrus.ucr.edu](mailto:alanmc@citrus.ucr.edu).

Alan McHughen



**Better Turf Thru Agronomics** is prepared for the delegates and membership of the University of California, Riverside Turfgrass Research Advisory Committee (UCRTRAC). Member organizations are the Southern California Golf Association; California Golf Course Superintendents Association (GCSA); GCSA of Southern California; San Diego GCSA; Hi-Lo Desert GCSA; California Sod Producers Association; Southern California Section, Professional Golfers Association; Southern California Turfgrass Council; Southern California Turfgrass Foundation; United States Golf Association; and UCR. The intent is to present summaries of turfgrass research results and topical information of interest to the Southern California turfgrass industries. The newsletter is written by Deborah Silva and edited by Dr. Vic Gibeault and Dr. Robert Green and designed by Jack Van Hise, UCR Printing and Reprographics.