

1996–2004 ACCUMULATIVE RESEARCH SUMMARY

**UNIVERSITY OF CALIFORNIA, RIVERSIDE
TURFGRASS RESEARCH ADVISORY COMMITTEE (UCRTRAC)**

**CALIFORNIA GCSA
CALIFORNIA SOD PRODUCERS ASSOCIATION
GCSA OF SOUTHERN CALIFORNIA
HI-LO DESERT GCSA
SAN DIEGO GCSA
SOUTHERN CALIFORNIA GOLF ASSOCIATION
SOUTHERN CALIFORNIA SECTION PGA
SOUTHERN CALIFORNIA TURFGRASS COUNCIL
SOUTHERN CALIFORNIA TURFGRASS FOUNDATION
UNIVERSITY OF CALIFORNIA, RIVERSIDE
UNITED STATES GOLF ASSOCIATION
WOMEN'S SOUTHERN CALIFORNIA GOLF ASSOCIATION**

DECEMBER 7, 2004

<http://ucrturf.ucr.edu/>

**UNIVERSITY OF CALIFORNIA RIVERSIDE TURFGRASS
RESEARCH ADVISORY COMMITTEE (UCRTRAC)**

Mission

The mission of UCRTRAC is to focus on southern California turfgrass research issues and be a leader in educational dissemination and public awareness.

Vision

The vision of UCRTRAC is to provide leadership through an industry-university partnership with the purpose of addressing turfgrass issues in southern California. The organization enhances the collaborative efforts of researchers, educators, and practitioners to identify and solve challenges that face the turfgrass industries. UCRTRAC focuses on environmental stewardship and provides a central clearinghouse for factual, forward-thinking turfgrass research and policy-making decisions. The organization is active in identifying and providing funding support to achieve mutually agreed upon goals.

Goals (in priority)

1. To maintain a leadership role in influencing turfgrass research in southern California.
2. To continue to strengthen the communication process between UCR and turfgrass organizations by identifying researchable issues and implementing focused research to answer current and emerging issues. Also, it is to enhance the dissemination of results and information widely.
3. To provide an objective resource for decision makers regarding the public perception of the value of turfgrass and its culture.
4. To expand funding for turfgrass research by acting as an "umbrella" group that fosters cooperation, coordination and broader participation among turfgrass interests.

October 2003

Research and Educational Needs Assessment of the Southern California Turfgrass Industries

Research and Education Industry Needs		General Turfgrass and Sod Production	Golf Course Turfgrass
<u>Research Needs</u>			
1.	Irrigation Water Use Efficiency Including Utilization of Effluent Water	✓	✓
2.	Impact of Turfgrass Chemicals and Fertilizers on the Environment	✓	✓
3.	Unbiased Product Testing (fertilizers, pesticides, equipment, etc.)	✓	✓
4.	Unbiased Cultivar Evaluations	✓	✓
5.	Production of Quality Putting Greens <ul style="list-style-type: none"> • Annual bluegrass/creeping bentgrass summer decline • Managing/controlling annual bluegrass • Wear/traffic issues • Pest control • Soil compaction and salinity issues • Spring transition of overseeded bermudagrass 		✓
6.	Wear/Traffic Issues Including Safety and Playability	✓	✓
7.	Management/Control of Kikuyugrass	✓	✓
8.	Pest Control Including IPM and Biological Control	✓	✓
<u>Education Needs</u>			
1.	Articles that Would be In-Depth, Unbiased Specific Issue-Analysis Reports	✓	✓
2.	Accessible, User-Friendly Research/Education Reports	✓	✓
<u>Other</u>			
1.	The Ability to Respond to Sudden Research and Education Industry Needs	✓	✓

June 1996

***Purpose of the Accumulative Research Summary and Comments
Concerning its Organization***

The purpose of this Accumulative Research Summary is to provide the most recent reporting on past and current studies that are under the UCRTRAC umbrella in a brief outline format. Associated Final Reports also are included for those seeking more detail. This report is composed of the following: 1997, 1998, 1999, and 2000 Annual Research Summaries; 2001-2002 Research Summary; and the 1996-2004 Accumulative Research Summary.

Please note that the 42 studies included in this report ([pg. iv](#)) are organized into topical sections according to a list, "Research and Educational Needs Assessment of the Southern California Turfgrass Industries," that was developed in 1996 when UCRTRAC was formed ([pg. ii](#)). It also should be noted that the index of [Better Turf Thru Agronomics](#) is organized in the same fashion.

It is hoped that the Accumulative Research Summary will help strengthen our ability to achieve the Mission, Vision, and Goals of UCRTRAC ([pg. i](#)). Not only does this summary provide a reporting on individual research studies, it also provides readily-accessible reference links for future articles that would be in depth, unbiased specific issue analysis reports and also more popular articles. Currently, there is considerable reporting on this web site (<http://ucrturf.ucr.edu>) in [publications](#) such as *California Turfgrass Culture*, *Better Turf Thru Agronomics*, DANR turfgrass publications, and more recently, Reports on Topical Issues and News from the UCR Turf Program. All of this activity is consistent with leadership, communication, and educational goals.

In terms of future UCRTRAC Research Summaries, our plan is to publish annual updates to the Accumulative Research Summary.

Irrigation Water Use Efficiency Including Utilization of Effluent Water

1. Influence of irrigation scheduling on tall fescue performance ■
2. Water use rates among tall fescue cultivars ■
3. Water use rates among bermudagrass and zoysiagrass cultivars ■●
4. Tall fescue morphological characteristics associated with evapotranspiration rates and clipping yields ■
5. Influence of Primo on the water stress relations of tall fescue during the warm season ■●
6. Influence of irrigation frequency when irrigating bermudagrass and zoysiagrass below ET crop during the warm season ■●
7. Evaluation of water conservation surfactants on two warm-season grasses in southern California ■●
8. The development of irrigation and nitrogen fertilization programs on tall fescue to facilitate irrigation-water savings and fertilizer-use efficiency ■
9. Characterization of markers for leaf firing resistance among turf-type bermudagrasses ■●
10. Irrigation water banking on tall fescue maintained in the inland climatic conditions of Riverside ■
11. Heat tolerant bluegrass, Kentucky bluegrass, and tall fescue visual ratings during short-term drought and recovery ■●

Impact of Turfgrass Chemicals and Fertilizers on the Environment

1. Measurement and model prediction of pesticide partitioning in field-scale turfgrass plots ●■
2. Nitrogen leaching and best management practices for overseeded bermudagrass fairways ●■
3. Further evaluation and modeling of pesticide data from the UCR putting green lysimeters ●■
4. A survey of professional turfgrass managers of southern California concerning their use of turfgrass best management practices ■●
5. Development of BMPs for fertilizing lawns to optimize plant performance and nitrogen uptake while reducing the potential for nitrate leaching ■
6. Degradation of N-nitrosodimethylamine (NDMA) in landscape soils ■●

Unbiased Product Testing (fertilizers, pesticides, equipment, etc.)

1. 1996 Vigoro consumer and polymer coated fertility trial on tall fescue ■●
2. 1996 Vigoro coated urea fertility trial on tall fescue ■●
3. Two-year evaluation of nitrogen products applied on tall fescue in Riverside, CA: 1995-1997 ■●
4. 1996-1997 evaluation of slow-release and fast-release nitrogen fertilizer products applied on an overseeded common bermudagrass during the cool season ●■
5. One-year evaluation of iron applications applied with three nitrogen fertility rates on tall fescue in Riverside, CA: 1996-97 ■
6. Annual evaluation of bio-feed fertilizer on tall fescue ■
7. Evaluation of experimental coated urea fertilizers on Kentucky bluegrass during the cool season ■
8. Evaluation of the phytotoxicity of six experimental Aqueduct formulations applied on a creeping bentgrass putting green in August ●
9. Influence of Primo on the total nonstructural carbohydrate partitioning of tall fescue ■●
10. Effect of soil conditioner on physical properties in a golf course putting green ●■
11. 1997-1998 Agrium coated urea fertility trial applied on tall fescue in Riverside, CA ■●
12. 1998 Agrium slow-release nitrogen product trial on Bonsai tall fescue ■●
13. The evaluation of slow-release nitrogen fertilizers applied on Arizona common bermudagrass during the warm season ●■
14. Test of Nutrismart on established tall fescue ■●

Unbiased Cultivar Evaluations

1. UCR bentgrass variety trials, 1995-1999 ●
2. USGA, GCSAA, and NTEP on-site testing program for bentgrass and bermudagrass cultivars on USGA specification golf course putting greens, 1997-2001 ●
3. USGA, GCSAA, and NTEP on-site testing of grasses for overseeding of bermudagrass fairways, 1999-2001 ●■
4. USGA, GCSAA, and NTEP on-site testing of grasses for overseeding of bermudagrass fairways, 2004-2006 ●■

Production of Quality Putting Greens

1. The evaluation of summer cultivations with a Toro HydroJect on a creeping bentgrass putting green located in the Coachella Valley ●
2. Maintaining putting green soil aeration and leaching capabilities during the summer with a Toro HydroJect ●
3. Improvement of the spring transition of overseeded bermudagrass putting greens in the Coachella Valley ●
4. Management of annual bluegrass putting greens in California ●
5. The effect of endoROOTS and ROOTS 2 on creeping bentgrass establishment and maintenance on a newly constructed sand rootzone ●■

Pest Control Including IPM and Biological Control

1. The effect of nitrogen rates and source on perennial ryegrass quality and susceptibility to gray leaf spot ●■

The Ability to Respond to Sudden Research and Education Industry Needs

1. The effect of fall renovation treatments on PM₁₀ emissions during raking of debris following scalping of common bermudagrass fairways prior to overseeding ●■