UNIVERSITY OF CALIFORNIA
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Turfgrass & Landscape Research Field Day

September 11, 2014

University of California Agriculture and Natural Resources

UCR | Turfgrass Science

CA TURFGRASS & LANDSCAPE FOUNDATION
"Keeping California Green and Growing"

UNIVERSITY OF CALIFORNIA
UC RIVERSIDE

College of Natural and Agricultural Sciences
UC Division of Agriculture and Natural Resources
Agricultural Experiment Station and Cooperative Extension

Department of Botany and Plant Sciences-072
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Welcome to Field Day!

On behalf of the entire UCR Turfgrass and Landscape Team, welcome (back) to the 2014 UCR Turfgrass and Landscape Research Field Day. This marks the seventh consecutive year of this event under my watch. We continue to strive to make Field Day one of the pinnacle events of our industry – a place where all come together annually to see old friends, share ideas, and learn about world-class research activities at UCR.

Field Day continues to evolve to meet the interests and needs of our industry. For the third consecutive year, we welcome several of our industry partners under the Exhibitor's Tent. Please take the time to visit them and learn more about new products and services while enjoying complimentary food and beverages. On the research side, you will see several new state-of-the-art research areas designed to study water and salinity management issues on turf and landscapes. Last but not least, while this handout serves to give you a brief synopsis of our current research activities for the research tours, you can read or print our full research reports in their entirety from the Field Day website, **http://ucanr.org/sites/turfgrassfieldday**.

What is the California Turfgrass & Landscape Foundation (CTLF)? The CTLF is a 501(c)(3) organization made up of industry partners and individual stakeholders whose primary mission is to fund and support focused research and educational outreach in the areas of turfgrass, landscape, and related water use for the betterment of the stakeholders, conservation of resources and sustainability of the environment. In today's economic and environmental times, our industry needs statewide cohesiveness not fragmentation and the same is true among researchers and extension specialists. The Foundation is such a vehicle to make that happen. Please stop by the CTLF booth and visit with Bruce Williams, CTLF Executive Director, and learn more about how you can make a difference in making our industry stronger than ever before. Also stay tuned for more information including past and present turfgrass and landscape research findings (including Field Day reports) on the Foundation's website, **www.CAtlf.com**.

As you enjoy today's tours, please take a moment to thank those folks, mostly wearing blue shirts with our Turfgrass Science logo, who assisted with preparation for this event. Special thanks go to my fellow Field Day planning committee members including Peggy Mauk, Sue Lee, Steve Ries, Sherry Cooper, Saundra Wais, and Lauren McNees. Production of this publication, signs, and online reports would not have been possible without assistance from Ms. Magali Lopez (UCR Class of 2010). Staff and students from Agricultural Operations and my lab have worked tirelessly to make this event possible and are deserved of your appreciation. Last but not least, very special thanks to all of our industry partners for their generous donations to our turf and landscape programs throughout the year, and especially for today's delicious food and beverages under the shade of tents!

Enjoy Field Day! And we hope to see you again next year on **Thursday, September 17, 2015.**

Sincerely,

James H. Baird, Ph.D.
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Stop #5: Groundcover Establishment Under Saline Irrigation

Marco Schiavon, and Jim Baird

Objectives:

The objectives of this research were to determine how seven vegetatively propagated groundcover species (Kurapia, plugged buffalograss 'UC Verde', *Rhagodia spinescens, Carex praegracilis, Frankenia salina, Frankenia thymifiola*, and inland saltgrass) are affected by increasing salinity levels in irrigation water during establishment.

Methods:

A line-source gradient experiment was designed to alternate distribution of potable and saline water to establish an irrigation salinity gradient, identifying 5 different Electrical conductivity (EC) levels (2, 3, 4.5, 5.5, and 7 dS/m). Groundcover species were plugged on 2 July 2014. Soil is a Hanford fine sandy loam. Irrigation was set to 100% ETo. Percent ground cover is assessed weekly throughout the experiment using Digital Image Analysis.

Results:

On September 2, 2014, 'UC Verde' buffalograss reached the highest percent ground cover (90%) when irrigated with the lowest EC level. However, buffalograss had the most dramatic drop in ground cover when salinity levels increased, reaching only 1% ground cover when EC of irrigation water was 7 dS/m. Similar drops in percent ground cover with increasing salinity levels in irrigation water were observed in *Rhagodia spinescens, Carex praegracilis* and inland saltgrass. Conversely, Kurapia was a fast establisher when irrigated with 2 and 3 dS/m (81% and 88% respectively), and also was the best performer when irrigated with water EC of 7 dS/m (Table 1).

Plot Plan of The Study Area (North)

6	5	1	3	2	7	4	**Potable Irrigation Line**
6	5	1	3	2	7	4	
6	5	1	3	2	7	4	
6	5	1	3	2	7	4	
6	5	1	3	2	7	4	**Saline Irrigation Line**
5	4	6	1	7	3	2	
5	4	6	1	7	3	2	
5	4	6	1	7	3	2	
5	4	6	1	7	3	2	
5	4	6	1	7	3	2	**Potable Irrigation Line**
3	2	7	5	6	4	1	
3	2	7	5	6	4	1	
3	2	7	5	6	4	1	
3	2	7	5	6	4	1	
3	2	7	5	6	4	1	**Saline Irrigation Line**

1 *Carex praegracilis*

2 *Frankenia salina*

3 *Frankenia thymifiola*

4 Kurapia

5 Inland saltgrass

6 *Rhagodia spinescens*

7 'UC Verde' buffalograss

Table 1. Percent ground cover affected by species and EC levels.

Species	EC (dS/m)	Ground Cover (%)
Carex praegracilis	2	22 EFGHI
Carex praegracilis	3	24 EFGHI
Carex praegracilis	4.5	18 FGHI
Carex praegracilis	5.5	23 EFGHI
Carex praegracilis	7	3 HI
Frankenia salina	2	73 ABCD
Frankenia salina	3	43 CDEFGHI
Frankenia salina	4.5	39 CDEFGHI
Frankenia salina	5.5	46 ABCDEFGH
Frankenia salina	7	42 CDEFGHI
Frankenia thymifiola	2	64 ABCDE
Frankenia thymifiola	3	48 ABCDEFG
Frankenia thymifiola	4.5	43 CDEFGHI
Frankenia thymifiola	5.5	52 ABCDEF
Frankenia thymifiola	7	49 ABCDEF
Kurapia	2	81 ABC
Kurapia	3	88 AB
Kurapia	4.5	53 ABCDEF
Kurapia	5.5	44 BCDEFGHI
Kurapia	7	60 ABCDEF
Rhagodia spinescens	2	51 ABCDEF
Rhagodia spinescens	3	46 ABCDEFGH
Rhagodia spinescens	4.5	24 EFGHI
Rhagodia spinescens	5.5	44 BCDEFGHI
Rhagodia spinescens	7	29 DEFGHI
Inland Saltgrass	2	49 ABCDEFG
Inland Saltgrass	3	40 CDEFGHI
Inland Saltgrass	4.5	48 ABCDEFG
Inland Saltgrass	5.5	39 CDEFGHI
Inland Saltgrass	7	28 EFGHI
'UC Verde' buffalograss	2	90 A
'UC Verde' buffalograss	3	44 BCDEFGHI
'UC Verde' buffalograss	4.5	31 DEFGHI
'UC Verde' buffalograss	5.5	5 GHI
'UC Verde' buffalograss	7	1 I

Means followed by same letter are not significantly different (P = 0.05).