

Stop #6: FIELD EVALUATION OF SOIL WATER QUALITY PRODUCTS

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Objective: To evaluate the efficacy of experimental and commercial soil water quality (SWQ) products.

Methods: The study will be conducted at the UCR Turfgrass Research Facility, Riverside, CA. The soil is a Hanford fine sandy loam (pH = 7.7; EC = 1.21; SAR = 1.83) with no pre-existing salinity issues. The plot area was sodded with 'Tifway II' bermudagrass on 6 August 2012 and the turf is mowed three times per week at 0.75 inches. Standard bermudagrass cultural practices will be maintained throughout the study, including 3-6 lbs N/M/yr. Beginning September 2012, the area will be irrigated exclusively with saline water that mimics the ion composition of the Colorado River (Table 1). Initially, irrigation will be scheduled at 75% ETo to encourage salinity conditions. Increased irrigation amounts will likely be necessary later during the study.

Table 1. Composition of salts used to formulate saline irrigation water (EC ≈ 4.6 dS/m; SAR = 6.83) in the UCR salinity experiment.

	<u>meq/L</u>
MgSO ₄ •7H ₂ O	11.3
Na ₂ SO ₄	0.8
NaCl	18.6
CaCl ₂	4.8
KCl	3.4

An initial irrigation water and soil sample will be collected prior to trial initiation and at the end of the experiment.

Treatments: Treatments will be applied by hand or using a calibrated CO₂ sprayer as prescribed by cooperators. Control plots will be treated with water only. Treatments will be watered in with over 2 cm of water immediately following application. This trial will last from Sep 2012 until approximately November 2013 (coinciding with the first significant natural precipitation event).

Data to be Collected: **Turf Quality and Wilt**- Every 7 days- Visual Rating of turf quality based on a 1-9 scale (Best quality = 9) and percentage of plot exhibiting LDS symptoms. First assessment will be made prior to initial treatment application; **% Volumetric Water**-Every 7 days- Percent volumetric water will be collected from each plot using a moisture meter. Five measurements per plot will be collected; **EC**- Every 7 days-Salt concentration will be collected from each plot using an EC meter. Five measurements per plot will be collected; **Leaf Osmotic Potential**- Psychrometer. Readings collected every 14-28 days; **Leachate Collection**- Leachate will be collected every 14-28 days from suction lysimeters; **Soil Sampling**- Soil will be sampled prior to application and at the end of the trial; **Irrigation Water**- Water will be sampled prior to application and at the end of the trial; **Digital Image Analysis**- Digital images taken periodically during the trial.

Reports: The study will be presented at the UCR Turfgrass & Landscape Field Days on 12 Sep 2013. A preliminary report will be provided on 1 April 2013 and a final report on 1 December 2013.

Additional Sites: A similar study with abbreviated data collection will be conducted at Metropolitan Golf Links in Oakland and Monarch Bay Golf Club in San Leandro.