Evaluation of Seeded and Vegetative Buffalograss Under Simulated Traffic and Nitrogen Fertility

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With decreasing fresh water resources and increasing water use restrictions on landscapes, the turf industry and general public are increasingly seeking alternative and low maintenance turfgrasses. Recently, there has been a lot of interest in using buffalograss [*Buchloe dactyloides* (Nutt.) Engelm.] on lawns and landscapes in Southern California. Buffalograss is a warm-season, stoloniferous turfgrass species native to North America. Of particular importance in areas where water availability is an issue, buffalograsses have a comparatively low water use rate. As importantly, buffalograsses exhibit a drought induced dormancy survival characteristic, with certain cultivars (e.g., 'UC Verde') demonstrating a very quick recovery once water is available. Buffalograsses also perform very well with little or no mowing.

Although buffalograss does have a place in the Southern California landscape, it is important to understand its weaknesses as well as its strengths. Like other warm-season turfgrasses with lower water use requirements, buffalograss will go dormant or turn straw brown color during the colder periods of winter except perhaps in coastal environments where temperatures are moderated by the ocean. In general, buffalograss also exhibits weak sod strength, and poor tolerance to shaded conditions and traffic.

UC Verde is a vegetatively-propagated buffalograss cultivar that resulted from a turfgrass improvement program at the University of California Davis and Riverside campuses. It was found that the new diploid female buffalograss cultivar exhibited superior drought tolerance, stolons of fine texture, and a competitive growth habit. Also, relative to other buffalograsses, it had shorter winter dormancy with superior color retention, and high turf density with a rapid stolon spreading rate and short plant height that provided a low maintenance turf of good quality. Although UC Verde is well adapted to our region, it is sold as plugs only. This can be both expensive and time-consuming to establish a stand of turf.

In this experiment, we sought to compare establishment rates, traffic tolerance, and other turf quality characteristics of UC Verde and three experimental seed-propagated lines of buffalograss from the University of Nebraska. These experimental lines were developed from parental materials that exhibited improved turfgrass performance and greater seed yield. All three lines are hexaploid. They have exhibited excellent heat tolerance and drought resistance characteristics. The lines will be named and limited seed of these releases will be available in 2011 or shortly thereafter.

Location:	UCR Turf Facility
Soil:	Hanford fine sandy loam
Experimental Design:	Randomized complete block with 3 replications
Plot Size:	12’ by 12’
Plugs and Seed Established:	9 July 2010
Seeding Rate:	2 lbs/1000 ft^2
Plug Spacing:	18-inch spacing of UC Verde plugs
Fertility:	Once fully established in August 2011, plots were split by 2 and 4 lbs N/1000 ft^2/Yr
Traffic:	Two passes twice/week using Brinkman Traffic Simulator beginning in August 2011
Mowing Height:	2 inches
Irrigation Regimes:	Established for 8 weeks at 160% ET_o replacement, then irrigation was lowered to warm season historical crop coefficient values (ET_o*K_c)/DU
Data Collection:	turf quality, percent brown canopy tissue cover, color quality, percent cover, winter color retention, spring green up, response to simulated traffic
Acknowledgments:	Special thanks to Florasource, LTD for donating UC Verde plugs and the University of Nebraska for the experimental seed lines.

Preliminary Results:

- ✓ Residual herbicide leftover from a previous experiment hindered establishment of some of the plots; hence it was difficult to evaluate turf establishment. In general, UC Verde established much more rapidly from plugs compared to the seeded types.
- ✓ UC Verde retained its color much longer in the fall compared to the seeded types; however, the opposite was true for spring green up.
- ✓ In general, UC Verde provides a denser turf compared to the seed types. Thus far, we have not seen a lot of separation in turf performance and quality among the seeded types.

Treatments:

1. ‘UC Verde’ Buffalograss
2. Seeded Buffalograss NEBFG 07-4E
3. Seeded Buffalograss NEBFG 07-01
4. Seeded Buffalograss NEBFG 07-03

Plot Map:

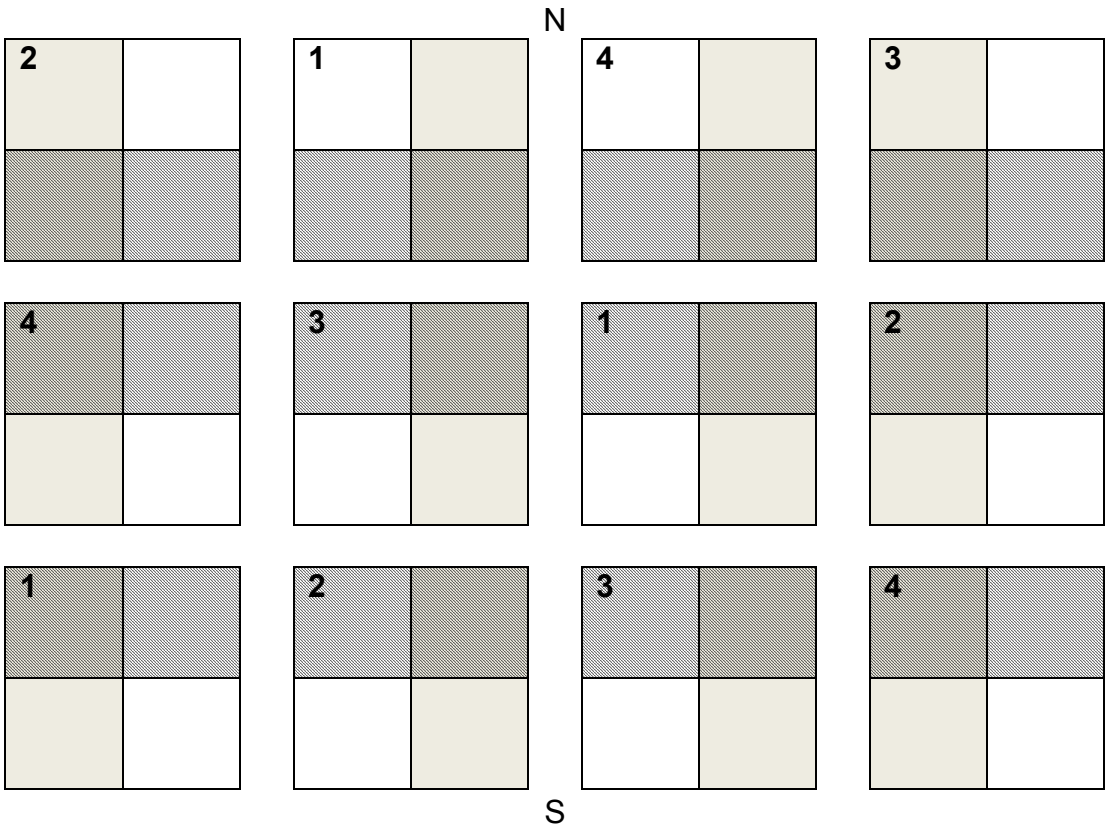

Table 1. Buffalograss turf quality (1-9, 9 = best) in 2010. Riverside, CA.

	9/2/10		10/6/10		11/4/10		12/23/10	
Treatment								
UC Verde	6		6		6		3.3	a
NEBFG 07-4E	6		6		5		1	b
NEBFG 07-01	6		6		5		1	b
NEBFG 07-03	6		6		5		1	b
LSD (P=0.05)	NS		NS		NS		0.6	

Means followed by the same letter do not significantly differ (P=0.05). NS = Not significant.

Table 2. Buffalograss color quality (1-9, 9 = best) in 2010.

	9/2/10		10/6/10		11/4/10		12/23/10	
Treatment								
UC Verde	6.3		6.3		6		3.33	a
NEBFG 07-4E	7		7		5		1	b
NEBFG 07-01	7		7		5		1	b
NEBFG 07-03	7		7		5		1	b
LSD (P=0.05)	NS		NS		NS		0.58	

Means followed by the same letter do not significantly differ (P=0.05). NS = Not significant.

Table 3. Buffalograss cover (0-100%) in 2010.

	9/2/10		10/6/10		11/4/10		12/23/10	
Treatment								
UC Verde	56.7		91.7		97		97	
NEBFG 07-4E	42.3		60		70		70	
NEBFG 07-01	34.7		55.7		61.7		61.7	
NEBFG 07-03	28.3		41.7		50		50	
LSD (P=0.05)	NS		NS		NS		NS	

Means followed by the same letter do not significantly differ (P=0.05, LSD). NS = Not significant.