

Low Maintenance Grasses for Water Conservation for Golf Course Roughs

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In a continual effort to reduce irrigation amounts applied to golf course turfs, the concept of incorporating low maintenance grasses into secondary roughs is a plausible means of saving water on large acreage golf courses. Instead of totally removing grass and replacing it with hardscapes or other non-playable surfaces, investigating the use of low maintenance grasses which (1) use less water than the standard turfgrass species and (2) which would also yield a playable surface, is warranted. With this in mind, 7 grasses were selected which may be candidates to meet both criteria. From long term observations, bermudagrasses which survive prolonged drought almost always demonstrate the features of large scale rhizome development (in terms of girth) and their pronounced appearance at lower soil depths. Likewise, buffalograss usually demonstrates visible wilt after a greater number of drought days than bermudagrass (acute drought), but it is slower to recover once water is re-applied. Using a linear irrigation gradient field design, 4 low maintenance bermudagrass cultivars (Cheyenne II, Wrangler, Nu-Mex Sahara, and Jackpot) and 3 diverse generational cultivars of buffalograss (Bison, Top Gun and, SunDancer) were established in a replicated field trail (Linear Irrigation with 4 replications). Bison and TopGun were replacements for 'Viva' Galletta Grass and Sand Drop seed, which had either too high a degree of dormant seed (dropseed) or did not tolerate crown compression from mowing equipment (Galletta). During the establishment phase of the experiment, high salinity and sodicity occurred at the top one inch of the plot surfaces, first noticed in the spring of 2015. Plots were treated with gypsum (to reduce soil ESP) and leached (to decrease salinity) in July 2015, followed by seeding of SunDancer and TopGun buffalograsses. Percent plot cover was nominally related to surface soil salinity, both measured in late August. TopGun appears slightly more tolerant of surface soil salinity than SunDancer. TopGun averaged 50% ground cover at 2600 ppm TDS, while SunDancer averaged 50% ground cover at roughly 2100 ppm TDS. Shoot counts were not taken, but cover was estimated on the lack of visible soil present.

In the spring of 2016, the entire field will be irrigated to determine plot width for the applied irrigation levels, and also to achieve field capacity conditions for one month of active growth. The linear irrigation (main center line of heads) will start as the irrigation treatment in late May, and continue through the summer of 2016. This test should produce results which will:

- (1) Identify the minimal amount of irrigation needed to maintain a green cover surface for each individual grass
- (2) Identify which grass will produce an acceptable green cover surface at a low total water application amount
- (3) Provide information on the response of applied water in terms of turfgrass quality and cover at each level of applied water for each grass.

Bullet Point Summaries:

- Four large rhizome-type bermudagrasses and three buffalograsses will be evaluated for grass cover when receiving less than optimum ET replacement irrigation amounts, and mowed at 3.0 inches (secondary rough or low maintenance turf cover).
- TopGun buffalograss is slightly more salinity tolerant than SunDancer, based solely on ground cover estimates correlated with surface soil salinity TDS at the soil surface (0-2.5 cm)

Fig 1.

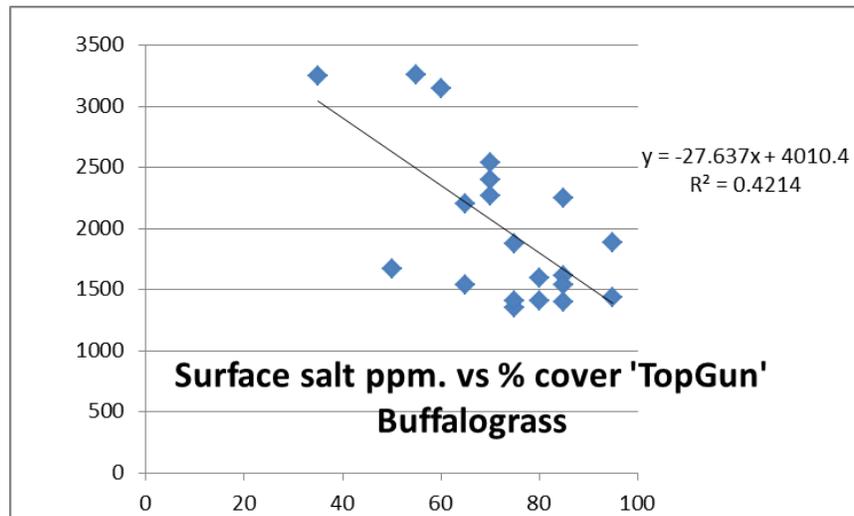


Fig 2

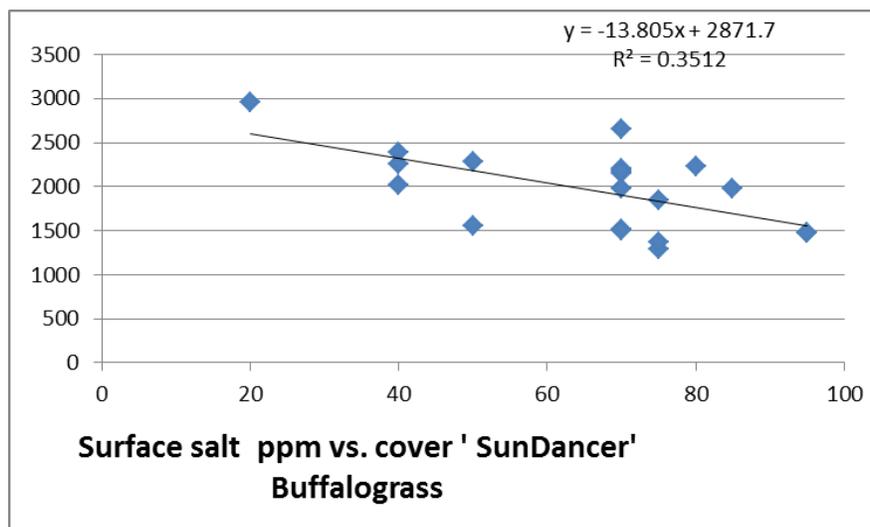




Fig 3. Seeding plots with sand mix.



Fig 4. Carefully hand raking small grass seeds into LIGA plots.



Fig 5. Established plots of low maintenance grasses in a Linear Irrigation design.