

Evaluation of Natural and Hybrid Turf for Water Conservation

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Project Overview

This study was designed to evaluate CoverLawn hybrid turf for potential water savings and other turf quality characteristics such as winter color retention. CoverLawn is produced by EZ Hybrid Turf, and consists of a netted polyester and latex material with a polyethylene artificial turf pile. This design allows natural turf to grow up through spaces in the material, blending with the synthetic turf. Coverlawn avoids the use of infill material, which is often involved in synthetic turf use. Additionally, runoff can be avoided as water infiltrates the soil and follows the natural water cycle. Here we also evaluate different installation strategies and material types.

Study Design

This study will evaluate the use of CoverLawn with both tall fescue (New Millennia) and bermudagrass (Princess 77) turf, and their performance at a reduced level of irrigation. In order to evaluate establishment and reclamation with the product, turf was either scalped or completely removed and seeded before installation. Tall fescue was seeded at a rate of 5 lbs/M, while bermudagrass was seeded at 1 lb/M. Tall fescue will be maintained at 2.5 inches, while bermudagrass will be maintained at 0.5 inches. One or two materials were evaluated for each grass type, and each treatment consists of a 6' x 60' strip of fabric overlain on turf or bare soil. Installation was completed on 3 September 2014. Full integration of turf with the material is expected after 5 weeks.

Beginning in April 2014, each lane will be split into 3 sections and subjected to varying degrees of ETo replacement representing minimal irrigation and reductions of 20 and 40% ET_o to evaluate performance under extreme water deficit. Measurements will be taken bi-weekly or monthly throughout the study including: rate of turfgrass establishment; cover; surface canopy temperature; drought stress; color (visual/digital image analysis/NDVI); winter color retention; and spring green-up. In addition, effects on the carbon fixation rate of turf will be estimated for each treatment. It is expected that the reduced density of living turf resulting from Coverlawn presence will reduce irrigation requirements to maintain acceptable turf quality.

Tall Fescue Plot (Northern) Plan and Treatment List

(North)

Trt	ET Replacement		
1	60% ET _o	80% ET _o	100% ET _o
2			
3			
4			
5			
4	80% ET _o	60% ET _o	100% ET _o
2			
1			
3			
5			
4	100% ET _o	80% ET _o	60% ET _o
1			
2			
3			
5			

1	Coverlawn CL6003 Bareground
2	Coverlawn CL2003 Bareground
3	Coverlawn CL6003 Renovation
4	Coverlawn CL2003 Renovation
5	Tall fescue Control

Bermudagrass Plot Plan and Treatment List

(North)

Trt	ET Replacement		
1	40% ET _o	60% ET _o	80% ET _o
2			
3			
4			
5			
4	60% ET _o	80% ET _o	40% ET _o
2			
1			
3			
5			
4	80% ET _o	40% ET _o	60% ET _o
1			
2			
3			
5			

1	Coverlawn CM2003 Bareground
2	Coverlawn CM2003 Renovation
3	Bermudagrass Bareground
4	Bermudagrass Renovation
5	Bermudagrass Control