Stop #4: Evaluation of Fertilizer Products for Turf Quality and Drought Tolerance

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Objective:

Evaluate the ability of fertilizer products to maintain acceptable turf quality under deficit irrigation.

Methods:

The study was conducted on mature bermudagrass 'Princess 77' turf. The 60' x 90' field was divided into six 30' x 30' plots. Beginning August 11, the plots received either 40% or 70% of previous week ET_0, as determined by an on-site CIMIS station. Fertilizer products (see table below) were randomized inside the ET_0 replacement plots and applied monthly beginning August 9, 2014. Each treatment received an equivalent of 1 lb N/M/month except for AgriPower PALB and HGLF. Prior to application of fertilizer treatments, the entire field received a total of 3 lb N/M in 2014. Every two weeks, plots were evaluated for turf quality, volumetric soil water content, and Digital Image Analysis.

Results:

Thus far, no differences have been detected between irrigation levels for the data collected; however, results indicate that adequately fertilized turf maintains color and quality longer under drought or deficit irrigation. Gro-Power showed the highest turf quality, followed Amidas applied as a granular. Lowest quality was observed on plots treated with HGLF and PALB + HGLF. Similar results were detected for Dark Green Color Index, where HGLF and PALB + HGLF showed the lowest color indices.

Treatments:

No.	Treatment	Company	Analysis/Application Rate	Application Intervals
1	Amidas (Granular)	Yara	40-0-0/1 lb N/M	28 days
2	Amidas (Spray)	Yara	40-0-0/1 lb N/M	28 days
3	Turf Royale	Yara	21-7-14/1 lb N/M	28 days
4	Calcinit	Yara	15.5-0-0/1 lb N/M	28 days
5	PALB + HGLF	AgriPower	½ qt/A + ½ qt/A	28 days
6	HGLF	AgriPower	½ qt/A	28 days
7	Best Super Turf	Simplot	25-5-5/1 lb N/M	28 days
8	Gro-Power	Gro-Power	5-3-1/1 lb N/M	28 days

Plot plan North

*	70% ETo		*	40% ETo	*
	2	6		6	2
	3	8		5	3
	7	4		4	7
	5	1		8	1
*	40% ETo		*	70% ETo	*
	3	8		7	2
	4	5		1	6
	2	1		3	4
	7	6		8	5
*	70% ETo		*	40% ETo	*
	4	8		5	2
	1	6		8	1
	7	3		6	3
	5	2		4	7
*			*		*

Table 1. Quality (1-9; 1=worst, 9=best) and Dark Green Color Index (DGCI) of bermudagrass fertilized monthly at 1 lb N/M under 40% and 70% ETo. Data were pooled over irrigation levels. 2014. Riverside, CA.

Trt. No.	**Fertilizer**	**Quality**			**DGCI**		
		8/11	8/23	9/4	8/11	8/23	9/4
1	Amidas (Granular)	5.3	6.2 AB	5.7 AB	0.379	0.419 A	0.391 A
2	Amidas (Spray)	5.2	6.2 AB	5.2 BC	0.374	0.410 AB	0.392 A
7	Best Super Turf	5.2	5.5 BC	5.7 AB	0.373	0.402 B	0.389 A
4	Calcinit	5.3	5.2 C	4.7 BCD	0.371	0.402 B	0.388 A
8	Gro-Power	5.0	6.8 A	6.3 A	0.375	0.420 A	0.394 A
6	HGLF	5.0	4.0 D	3.2 E	0.370	0.373 C	0.370 B
5	PALB + HGLF	5.2	4.0 D	4 DE	0.373	0.372 C	0.371 B
3	Turf Royale	5.0	5.5 BC	4.3 CD	0.372	0.404 B	0.387 A