

## **Stop #4a: Evaluation of Fertilizer Products and Formulations on Bermudagrass Turf**

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### **Objectives:**

This study was conducted to evaluate granular and liquid formulations of products from Anuvia Plant Nutrients alone or in combination with industry standards for longevity and quality on bermudagrass turf maintained as a golf course fairway or athletic field.

### **Materials and Methods:**

The study was conducted on mature 'GN-1' bermudagrass turf mowed 3 days/wk at 0.5 inches. Soil was a Hanford fine sandy loam. Turf received no fertilizer in 2017 before the study began. Fertilizer treatments were initiated on 9 June 2017. Granular treatments were applied twice in 8-wk intervals and liquid formulations were sprayed every 14 days for a total of 8 applications. Liquid treatments were applied using a CO<sub>2</sub>-powered backpack sprayer with TeeJet 8004VS nozzles calibrated to deliver 2 gal/1000 ft<sup>2</sup>. Experimental design was a randomized block with 4 replications. Plot size was 4 ft x 10 ft with 3-ft alleys. Plots were evaluated for turf quality, NDVI, and DIA every two weeks. Clipping yield was determined every 4 weeks.

### **Results:**

Two weeks after initial application, GreenTRX granular fertilizer and the 50/50 mix of GreenTRX with Signature showed the fastest response in terms of turf quality and NDVI (Table 2). There were no significant differences in turf quality among all treatments during subsequent rating dates with the exception of August 14, when quality of turf treated with 20% Green TRX + 80% GAL-XE ONE 41, LFCH 170304A and UMAXX 46-0-0 decreased significantly in comparison to GreenTRX alone or mixed with Signature. After 4 weeks, NDVI of GreenTRX was significantly lower than in treatments with GAL-XE ONE 41 (both - alone and mixed with Green TRX) and there were no significant differences among the other treatments. No other significant differences were found during other rating dates for turf quality, NDVI, or DIA.

One month after initial application, clipping yield of the GreenTRX treatment was significantly higher compared to Replenish, LFCH 170228A, LFCH 170304A and UMAXX 46-0-0 treatments, but not significantly higher than other treatments containing GreenTRX. Two months later, 20% GreenTRX + 80% GAL-XE ONE 41 treatment provided significantly lower clipping yield than 50% GreenTRX + 50% Signature, but there were no significant differences among the other treatments in comparison to GreenTRX.

**Acknowledgments:**

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Table 1. Fertilizer treatments applied in study. Riverside, CA. 2017.

Trt	Product	Company	Analysis	Rate (lb N/M)	Total Applications (Frequency)
1	GreenTRX	Anuvia	16-1-2-17S-3Fe	1.5	2 (8 wks)
2	GAL-XE ONE 41 Mini	Simplot	41-0-0	3.0	1
3	20% GreenTRX: 80% GAL-XE ONE 41	Anuvia Simplot	16-1-2-17S-3Fe 41-0-0	3.0	1
4	50% GreenTRX: 50% Signature	Anuvia Loveland	16-1-2-17S-3Fe 40-0-0	1.5	2 (8 wks)
5	Replenish	EarthWorks	10-2-5	1.5	2 (8 wks)
6	LFCH 170228A	Anuvia	8-0-1-7S	0.25	8 (2 wks)
7	LFCO 170304A	Anuvia	8-0-1-7S	0.25	8 (2 wks)
8	UMAXX 46-0-0	Simplot	46-0-0	0.25	8 (2 wks)

Fertilizer granules of both products blended together before application of Treatments 3 and 4.

**Plot Plan**

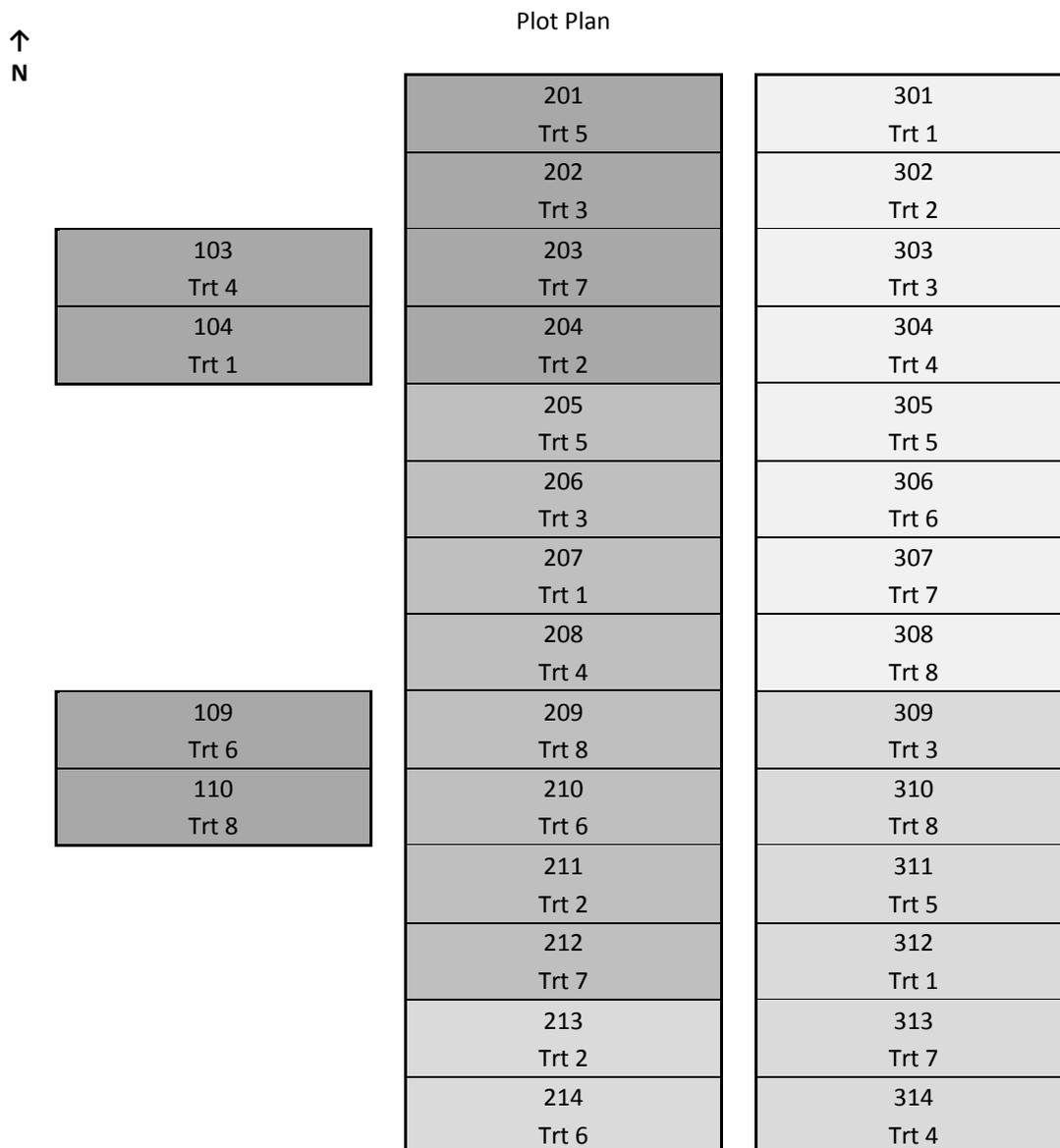


Table 2. Effects of fertilizers on turf quality, clipping yield, and NDVI of bermuda-grass. Riverside, CA. 2017.

No.	Treatment	Turf quality [1-9] 06/19/2017	Turf quality [1-9] 08/14/2017	Clipping yield [g] 07/03/2017	Clipping yield [g] 08/28/2017	NDVI 06/19/2017	NDVI 07/03/2017
1	GreenTRX	6.8 A	7.5 AB	17.4 A	44.5 ABCD	0.77 A	0.69 B
2	GAL-XE ONE 41 Mini	3.8 C	6.5 BC	8.8 AB	31.3 AB	0.72 CD	0.71 A
3	20% GreenTRX: 80% GAL-XE ONE 41	5.5 B	5.8 C	7.8 AB	26.0 D	0.73 C	0.71 A
4	50% GreenTRX: 50% Signature	6.2 AB	7.8 A	7.9 AB	61.4 A	0.77 AB	0.68 BC
5	Replenish	4.2 C	6.8 ABC	5.9 B	56.7 AB	0.74 BC	0.67 C
6	LFCH 170228A	4.0 C	6.5 BC	6.0 B	33.5 BCD	0.69 D	0.68 BC
7	LFCO 170304A	4.2 C	6.2 C	6.8 B	55.9 ABC	0.72 CD	0.68 BC
8	UMAXX 46-0-0	4.0 C	6.2 C	7.3 B	52.9 ABC	0.71 CD	0.68 BC

Means followed by the same letter in a column are not significantly different ( $P \leq 0.05$ ).