

## Slow Release Nitrogen Fertilizer Demonstration Trials

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**Summary:** The turfgrass response to the fertilizers was variable and strongly influenced by time of application and condition of the turfgrass at each golf course. None of the products demonstrated improved color at 10 or 12 weeks after treatment (WAT). Only 23-5-10 applied at 1.5 or 2.5 lbs N/1000 sq ft demonstrated color improvement at 6 or 8 WAT and only at the Arrowhead location. The initiation of the trial at Virginia Country Club on April 5th was too early and bermudagrass had not fully begun to grow. Future trials should be scheduled to begin no earlier than the middle of May or later in the summer to ensure that the

bermudagrass has fully transitioned and is healthy. The early trial initiation date and cool spring confounded trial ratings. Recommendations are provided to help avoid these problems in the future.

**Materials and Methods:** The materials, rates and Gandy applicator settings are listed in Table 1. The demonstrations were repeated at three locations with the intent of using each location as a replicate in more detailed analysis. Unfortunately, the early trials did not produce sufficient growth stimulation to warrant detailed analysis.

Table 1. Fertilizer treatment list. The treatment numbers correspond to the numbers listed on plot plans for each location, summary data and photographs.

Treatment Number	Product	Gandy setting	% active	Desired Active/M
1	Turf Supreme 15-5-7	40	15	1.0
2	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> 21-0-0	27	21	1.0
3	Turf Gold 21-3-5	40	21	1.5
4	SCU 39-0-0	30 x 2	39	2.0
5	Island Supreme 23-5-10	37	23	1.5
6	Island Supreme 23-5-10	45	23	2.5
7	Turf K 23-3-10	40	23	1.5
8	Polygon 42-0-0	32 x 2	42	2.0
9	Polygon 42-0-0	35 x 2	42	3.0
10	Scotts 25-3-10	35	25	0.9

**Results and Discussion:** Environmental conditions in 1994 resulted in later growth and development of common and hybrid bermudagrass than had occurred in 1993. The slow development of hybrid bermudagrass at San Luis Rey Downs resulted in no observable differences in any of the test plots at any of the evaluation dates. Arrowhead Country Club and Virginia Country Club locations provided some results for early ratings only. The best treatments based upon photographs are listed in Table 2.

Table 2. List of location and treatment numbers showing the best response compared to other treatments based upon photographic images. WAT refers to rating at 2,4,6,8,10 or 12 Weeks After Treatment. **Treatment numbers are in order of best response to lowest response with treatments demonstrating no response being omitted.** The symbol "\*" indicates the rating times in WAT do not apply to the application and rating dates.

Location	Treatment Numbers With Improved Color Response					
(app. date) (rating date)	2 WAT	4 WAT	6 WAT	8 WAT	10 WAT	12 WAT
Arrowhead app 5/3 rate 6/15	*	*	6,5	*	*	*
Arrowhead app 5/3 rate 6/30	*	*	*	6,5		
Arrowhead app 6/15 rate 6/30	6,2,3,1,4,5 7,9,8,10	*	*	*	*	*
Virginia app 4/5 rate 5/2	*	9,4,3,2,1,7 8,5,6,10	*	*	*	*
Virginia apply 4/5 rate 6/15	*	*	*	*	NONE	*
Virginia app 5/2 rate 6/15	*	*	*	NONE	*	*
Virginia app 4/5 rate 6/30	*	*	*	*	*	NONE
Virginia app 5/2 rate 6/30	*	*	*	*	NONE	*
Virginia app 6/15 rate 6/30	4,3,7,6,1,2	*	*	*	*	*

The plots at Virginia never revealed a strong fertilizer effect. Virginia Country Club is irrigated with reclaimed water and some nitrogen is provided with irrigation. In addition, tractor mounted PTO leaf blowers are used to move clippings and leaves from the fairway and some of the granules could have been blown out of the application strip resulting in poor plot delineation. Combined, these two factors make Virginia a poor choice for fertilizer demonstrations in the future.

The Arrowhead plots were rated by collecting clippings and by visual inspection of the first 12 feet of each plot after mowing. The results of the visual ratings taken on the field day date conflict with the photographs. In particular, treatments 5 and 6 (23-5-10 at 1.5 and 2.5 lbs N/1000 sq ft respectively) were the best color plots but they were rated with the lowest plots for quality. The plots were rated following mowing and the turf had not been previously mowed for several days. It is possible that the low rating is a result of scalping. Regardless of the cause, the visual ratings do not accurately represent the best performing fertilizer as illustrated in the photographs when color is the only component of the rating.

#### **Recommendations:**

1. Do not initiate fairway fertilizer trials until the bermudagrass has transitioned out from it's overseeding and is in strong condition. Initiate trials after May 15th.
2. Do not initiate fertilizer trials on courses that utilize reclaimed water or that can not withhold fertilizers. Soil plant available nitrogen should be below 3 ppm for best results.
3. Rating systems are extremely subjective and inadequate for evaluating fertilizers under field conditions. Photographs or video tapes will be used in the future to demonstrate performance. Do not attempt to demonstrate longevity effects under conditions where the products may not perform as expected.
4. Continue to evaluate the response of the 23-5-10 to determine if the increase in color is a result of product formulation or a response to the phosphorous and potassium provided in the product, or both.