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The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, Cook College, Rutgers University in cooperation with the New Jersey Turfgrass Association. The purpose of this document is to provide a forum for the dissemination of information and the exchange of ideas and knowledge. The proceedings provide turfgrass managers, research scientists, extension specialists, and industry personnel with opportunities to communicate with co-workers. Through this forum, these professionals also reach a more general audience, which includes the public. Articles appearing in these proceedings are divided into two sections.

The first section (white pages) includes lecture notes of papers presented at the 1997 New Jersey Turfgrass Expo. Publication of the New Jersey Turfgrass Expo Notes provides a readily

available source of information covering a wide range of topics. The Expo Notes include technical and popular presentations of importance to the turfgrass industry.

The second section (green pages) includes technical research papers containing original research findings and reviews covering selected subjects in turfgrass science. The primary objective of these papers is to facilitate the timely dissemination of original turfgrass research for use by the turfgrass industry.

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Dr. Ann B. Gould, Editor
Dr. Bruce B. Clarke, Coordinator

TURFGRASS COLOR RESPONSES TO SOME COMMERCIAL NATURAL ORGANIC FERTILIZERS

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Soil organic matter is important to soil quality. It acts as a storehouse of nutrients and improves soil water holding capacity. The use of natural organic fertilizers contributes to the buildup of soil organic matter and has the advantage of releasing nutrients slowly to turfgrass. Over time, turf color responses correspond to the application of natural organic fertilizers and provide an indication of the fertilizer's nutrient release characteristics. To compare the turfgrass color responses to various natural organic fertilizers, this fertilizer trial was conducted on an established Kentucky bluegrass (*Poa pratensis* L.) sod.

PROCEDURES

The study was conducted on a Sassafras sandy loam at the Rutgers Horticultural Research Farm II in North Brunswick, New Jersey. The Kentucky bluegrass (cv. Fylking and Eclipse) sod was established in the Fall of 1992. Soil pH and soil fertility test ratings for phosphorus and potassium were optimum to high. The experiment was conducted as a randomized complete block design with four replications. Individual plots were 25 ft².

Four commercial natural organic fertilizers (Table 1) were compared to a non fertilized control. The four fertilizers applied were Fertrell Nitrell (5-4-3), Fertrell Super N (4-2-4), Espoma Plant Tone (5-3-3), and Milorganite (6-2-0). Fertilizers were applied in October 1996, May 1997, June 1997, September 1997, and October 1997. Each treatment was dispersed by hand onto the

treated area in a uniform manner. The rate of nitrogen applied for all treatments was 1 lb N/1000 ft²/application date. Plots were mowed weekly to a uniform height of 2 inches. Clippings were removed with a bagging mower.

Turfgrass shoot color ratings for all treatments were obtained on a weekly basis from April to October 1997 prior to mowing. Visual shoot color ratings were based on a 1 to 10 scale where 10 = excellent; 8 = good; 6 = fair; 4 = poor; and 2 = very poor shoot color. All data were summarized on a monthly basis (Table 2) and were subjected to analysis of variance (ANOVA) and the least significant difference (LSD) multi-comparison test ($\alpha = 0.05$).

RESULTS AND DISCUSSION

Plots treated with organic fertilizers displayed a slow and stable turf color response over time (Figure 1), a characteristic response of turf to natural organic fertilizers. The application of Fertrell Nitrell (5-3-4), Fertrell Super N (4-2-4), and Espoma Plant Tone (5-3-3) resulted in the best initial turf green-up (Table 2). Overall, color ratings in plots treated with experimental fertilizers were significantly greater than the unfertilized control (Table 2). The highest ranked and most effective among the fertilizer treatments was Fertrell Super N (4-2-4). Future research will include synthetic quick release and synthetic controlled release fertilizers in the trial as standards for comparison to the natural organic fertilizers.

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Table 1. List of natural commercial organic fertilizer treatments.

Fertrell Nitrell:	Bone meal, rock phosphate, oyster meal, kelp meal, green sand, sulfate of potash, vegetable protein meal, meat and bone meal, natural nitrate of soda, fish meal
Fertrell Super N:	Bone meal, rock phosphate, oyster meal, kelp meal, green sand, sulfate of potash, vegetable protein meal, meat and bone meal, fish meal
Plant Tone:	Dehydrate poultry manure, animal tankage, coco meal, bone meal, crab meal, dried blood, sunflower hull meal, green sand, rock phosphate, potassium sulfate
Milorganite:	Sewage sludge

Table 2. Influence of commercial natural organic fertilizer treatments on turf color in 1997 at the Rutgers Horticultural Research Farm II, North Brunswick, NJ.

Fertilizer	Color rating ¹							Overall
	April	May	June	July	August	September	October	
Fertrell Nitrell 5-3-4	4.50 b	6.83 b	6.94 a	5.65 a	5.41 ab	4.69 bc	5.40 a	5.61 a
Fertrell Super N 4-2-4	5.19 a	7.42 a	6.35 b	5.55 a	5.19 b	5.25 a	5.70 a	5.74 a
Plant Tone 5-3-3	4.19 b	6.17 c	6.53 ab	5.93 a	5.50 ab	4.75 b	5.35 a	5.48 a
Milorganite 6-2-0	4.06 b	6.17 c	6.53 ab	5.90 a	5.60 a	4.94 ab	5.40 a	5.50 a
Control	2.50 c	3.08 d	4.85 c	4.65 b	4.57 c	4.38 c	4.20 b	4.09 b
Treatment	0.0001	0.0001	0.0001	0.0001	0.0003	0.0030	0.0001	0.0001
LSD (5%)	0.55	0.52	0.45	0.42	0.36	0.37	0.38	0.27
CV%	9	5	5	6	5	5	6	10

¹10 = best turf color (mean)

Figure 1. Turf color response by month of commercial natural organic fertilizers applied to Kentucky bluegrass in 1997 at the Rutgers Horticulture Research Farm II, North Brunswick, NJ.

