

Lesco Greens Fertilizer Field Trial

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Introduction:

The purpose of this study was to evaluate various nitrogen fertilizers with regard to Turf Burn/Injury, Turf Green Up, Turf Density and Turf Color Duration on greens height creeping bentgrass. This trial was located at the Iowa State University research station near Gilbert, Iowa.

Materials and Methods:

The study was conducted on Penncross creeping bentgrass maintained at a 3/16 in. mowing height on a USGA (United States Golf Association) style sand green constructed at the Iowa State University turfgrass research area. This study was arranged as a randomized complete block design with three replications. The trial had 11 treatments including the untreated control (Table 1). The products were applied June 27, 2006 with hand-held shakers. Data were collected for 10 weeks after treatment (WAT), at which time treatment effects were no longer visible. There were 5 different products, each product was applied at 1 lb nitrogen (N)/1000 ft² and 2 lb N/1000 ft². Ratings were taken for turf color, turf injury, turf density, and NDVI ratings. Color ratings were taken on a scale of 9 to 1, with 9 being the highest and 6 being acceptable color. Turf injury was taken on a scale of 9 to 1, with 9 being turf with no injury and 1 being dead turf. Turf density was taken on a scale of 9 to 1, with 9 being the turf with the highest density and 1 being lowest density. NDVI ratings were taken with a TCM 500 "NDVI" turf color meter from Spectrum Technologies, Inc. The NDVI readings reflect a combination of color and density, where a higher reading can be interpreted as a superior color and density.

Results:

Turf Injury (Table 2).

No unsatisfactory turf injury was observed at any time during the 10 weeks of the study. Some slight injury was observed 3 WAT on plots treated with the 1 and 2 lb N rates of L-0530 and at the 2 lb N level of L-0531. This had recovered by 4 WAT. The increase in injury ratings may have been due to somewhat faster growth in these plots that resulted in some scalping damage. Some of the lower ratings in weeks 7 and 8, are likely not true turf injury, but reduced color due to a lack of N.

Turf Density (Table 3.)

L-0530 and L-0531 at both the 1 and 2 lb N level/1000 ft² provided superior turf density throughout 9 weeks of the study. The L-0530 at 2 lbs N was the only treatment to provide superior density at 10WAT.

Turf Color (Table 4).

L-0530 and L-0531 at both the 1 and 2 lb N level/1000 ft² provided superior turf color throughout 9 weeks of the study. The L-0530 at 2 lbs N was the only treatment to provide superior color at 10WAT.

NDVI (Table 5)

The same trends observed in Turf Density and Color were substantiated by the NDVI readings, with L-0530 and L-0531 at both the 1 and 2 lb N level/1000 ft² showing higher readings later in the study period than those observed for most other treatments.

Conclusion:

The L-0530 and the L-0531 appeared to have advantages over the other materials tested for color and density. They did slightly injure turf at 3 WAT, but the injury was not unsatisfactory at any time during the study.

Table 1. Treatment, Material, Product/M,Lb N/M,g/25 sq ft plot

Treatment	Material	Product/M	Lb N/M	g/25 sq ft plot
1	L - 0530 Lesco 20% N	5	1	56.8
2	L - 0531 Lesco 18% N	5.5	1	65.4
3	L - 0533 Nutralene Mu 40% N	2.5	1	28.4
4	L - 0535 GP Nitamine 42% N	2.4	1	27.2
5	L - 0534 Lesco Poly Plus SCU 29% N	3.4	1	38.6
6	L - 0530 Lesco 20% N	10	2	113.5
7	L - 0531 Lesco 18% N	11	2	124.9
8	L - 0533 Nutralene Mu 40% N	5	2	56.8
9	L - 0535 GP Nitamine 42% N	4.8	2	54.5
10	L - 0534 Lesco Poly Plus SCU 29% N	6.4	2	72.6
11	Control	-	-	-

Table 2. Turf Injury rating over the 10 weeks of the Lesco fertilizer study.

Trt	Material	3 DAT	5 DAT	1 WAT	2 WAT	3 WAT	4 WAT	5 WAT	6 WAT	7 WAT	8 WAT	9 WAT	10 WAT
1	L - 0530 Lesco 20% N	9	9	9	9	7	8	8	8	8	7	9	8
2	L - 0531 Lesco 18% N	9	9	8	8	8	9	8	9	9	7	9	8
3	L - 0533 Nutralene Mu 40% N	9	9	9	9	9	9	8	8	8	6	8	8
4	L - 0535 GP Nitamine 42% N	9	9	9	9	9	9	9	9	7	6	8	8
5	L - 0534 Lesco Poly Plus SCU 29% N	9	9	9	9	9	9	8	9	7	7	8	8
6	L - 0530 Lesco 20% N	9	9	8	8	7	8	8	8	9	7	9	9
7	L - 0531 Lesco 18% N	9	9	9	9	7	9	8	8	9	7	9	9
8	L - 0533 Nutralene Mu 40% N	9	9	9	8	8	9	9	9	8	6	7	8
9	L - 0535 GP Nitamine 42% N	9	9	9	9	8	9	8	8	8	6	8	8
10	L - 0534 Lesco Poly Plus SCU 29% N	9	9	9	9	9	9	8	9	8	6	7	8
11	Control	9	9	9	9	9	9	8	9	9	6	9	8
	LSD 0.05	1	NS	NS	1	1	NS	NS	NS	NS	NS	1	NS

Table 3. Turf Density ratings over the 10 weeks of the Lesco fertilizer study.

Trt	Material	3 DAT	5 DAT	1 WAT	2 WAT	3 WAT	4 WAT	5 WAT	6 WAT	7 WAT	8 WAT	9 WAT	10 WAT
1	L - 0530 Lesco 20% N	6	7	7	7	7	7	6	7	8	7	7	6
2	L - 0531 Lesco 18% N	6	6	7	7	7	7	6	7	8	8	8	6
3	L - 0533 Nutralene Mu 40% N	6	7	6	6	7	7	6	6	6	7	6	6
4	L - 0535 GP Nitamine 42% N	6	6	6	6	6	7	7	6	6	6	6	6
5	L - 0534 Lesco Poly Plus SCU 29% N	6	6	7	7	7	7	7	7	7	7	6	6
6	L - 0530 Lesco 20% N	7	7	8	7	8	8	7	7	8	8	7	7
7	L - 0531 Lesco 18% N	6	6	7	7	7	7	7	7	8	8	7	6
8	L - 0533 Nutralene Mu 40% N	6	6	6	6	7	7	7	7	7	6	5	6
9	L - 0535 GP Nitamine 42% N	6	7	6	6	7	7	6	6	7	7	6	6
10	L - 0534 Lesco Poly Plus SCU 29% N	6	7	6	6	6	8	7	6	6	7	6	6
11	Control	6	6	6	6	6	6	6	7	6	6	6	6
	LSD 0.05	1	NS	1	1	1	NS	NS	NS	1	1	1	1

Trt	Material	3 DAT	5 DAT	1 WAT	2 WAT	3 WAT	4 WAT	5 WAT	6 WAT	7 WAT	8 WAT	9 WAT	10 WAT
1	L - 0530 Lesco 20% N	7	7	7	7	7	7	6	6	7	7	6	6
2	L - 0531 Lesco 18% N	7	6	7	8	7	7	6	6	8	7	7	6
3	L - 0533 Nutralene Mu 40% N	6	7	6	7	7	7	6	6	7	6	5	5
4	L - 0535 GP Nitamine 42% N	6	6	6	7	6	7	7	6	6	6	5	5
5	L - 0534 Lesco Poly Plus SCU 29% N	6	6	7	7	7	7	5	6	7	7	6	6
6	L - 0530 Lesco 20% N	8	7	8	8	7	7	5	6	7	7	8	7
7	L - 0531 Lesco 18% N	7	6	7	7	7	7	5	6	8	7	7	6
8	L - 0533 Nutralene Mu 40% N	6	7	6	7	7	7	6	6	7	6	5	5
9	L - 0535 GP Nitamine 42% N	6	7	6	7	7	7	6	6	6	6	5	5
10	L - 0534 Lesco Poly Plus SCU 29% N	6	7	6	7	7	7	6	6	7	6	4	5
11	Control	6	6	6	6	7	6	5	6	6	6	6	6
	LSD 0.05	1	NS	1	1	NS	NS	NS	NS	1	NS	1	1

Trt	Material	1 WAT	2 WAT	3 WAT	4 WAT	5 WAT	6 WAT	7 WAT	8 WAT	9 WAT	10 WAT
1	L - 0530 Lesco 20% N	0.7453	0.7630	0.7363	0.7247	0.7320	0.7573	0.7393	0.6950	0.7133	0.7087
2	L - 0531 Lesco 18% N	0.7300	0.7553	0.7267	0.7363	0.7500	0.7650	0.7600	0.7040	0.7146	0.7240
3	L - 0533 Nutralene Mu 40% N	0.7420	0.7497	0.7200	0.7213	0.7333	0.7553	0.7406	0.6803	0.6950	0.7057
4	L - 0535 GP Nitamine 42% N	0.7423	0.7500	0.7307	0.7220	0.7376	0.7580	0.7243	0.6683	0.6893	0.6947
5	L - 0534 Lesco Poly Plus SCU 29% N	0.7377	0.7453	0.7277	0.7237	0.7363	0.7570	0.7443	0.6933	0.6950	0.7060
6	L - 0530 Lesco 20% N	0.7550	0.7657	0.7330	0.7300	0.7366	0.7593	0.7466	0.6900	0.7053	0.7137
7	L - 0531 Lesco 18% N	0.7570	0.7617	0.7380	0.7417	0.7400	0.7513	0.7503	0.6906	0.7070	0.7147
8	L - 0533 Nutralene Mu 40% N	0.7340	0.7533	0.7303	0.7290	0.7326	0.7550	0.7350	0.6670	0.6720	0.6957
9	L - 0535 GP Nitamine 42% N	0.7233	0.7433	0.7310	0.7203	0.7266	0.7410	0.7226	0.6666	0.6763	0.6903
10	L - 0534 Lesco Poly Plus SCU 29% N	0.7437	0.7477	0.7327	0.7233	0.7390	0.7513	0.7350	0.6750	0.6813	0.6933
11	Control	0.7347	0.7370	0.7220	0.7113	0.7306	0.7463	0.7280	0.6780	0.6946	0.7023
	LSD 0.05	NS	0.0123	NS	NS	NS	0.0116	0.0143	0.0145	0.0146	0.0158