LESCO Fairway Fertilizer Study 2007

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A field study was conducted at the Washington State University Turfgrass and Agronomy Research Center (TARC) during the summer of 2007 to evaluate the effects of various LESCO fertilizers compared to other conventional fertilizers on a Kentucky bluegrass (cv. 'Famous') fairway mowed at 0.5". A randomized-complete block design was used with four replications and individual treatment plots were 3' x 7'. Fertilizer treatments were applied 23 May 07 at 2 lbs N/M. All fertilizer treatments were applied with a Scott's SS-2 drop spreader except NUREA 38% N which was applied by hand. The research area was irrigated with 0.5" water immediately following application of fertilizers. The study area was mowed twice per week with a Jacobsen Greens King IV triplex reel mower at 0.5". Each week, beginning at 5 days after treatment (DAT) up to 9 weeks after treatment (WAT)(25 Jul 07), chlorophyll index readings were taken with a Field Scout CM1000 chlorophyll meter (Spectrum Technologies, Inc.). Visual color ratings were also taken, beginning at 3 DAT up to 9 WAT, using a rating scale of 1-9, with 9 equal to dark green. Turfgrass quality was rated weekly throughout the study using a rating scale of 1-9, with 9 equal to excellent turfgrass quality. Turf density was rated weekly using a rating scale of 1-9, with 9 equal to very dense turf. Turf injury (phytotoxicity) was rated weekly beginning at 3 DAT using a rating scale of 0 – 10, with 0 equal to no injury.

By 2 WAT and up to 8 WAT, Urea and GP Nitamin had the highest chlorophyll index (Table 1 and Figure 1). Nurea also had high chlorophyll index levels through 5 WAT. NuGro Nutralene MU, LESCO homogenous 18%N and LESCO homogenous 20%N were in the middle of the pack, with LESCO Poly Plus MINI SCU with the lowest chlorophyll index throughout the 9 weeks of the study. Haifa multicote showed a steady increase in chlorophyll index up to 9 WAT.

Visual turfgrass color followed a similar trend as chlorophyll index (Figures 1 and 2). Urea and GP Nitamin had the best turfgrass color 2 to 8 WAT. Nurea, LESCO homogenous 18%N, LESCO homogenous 20%N, NuGro Nutralene MU, and UMAXX were middle of the road in terms of turfgrass color throughout the study. As with chlorophyll index, LESCO Poly Plus MINI SCU had the worst turfgrass color throughout the study. Haifa multicote, on the otherhand, had low turfgrass color at the beginning of the study but steadily improved over time, very similar to what was seen with chlorophyll index (Figure 1 and 2).

Turfgrass quality was highest following the application of Urea or GP Nitamin up to 7 WAT. Surprisingly, there was a significant difference in turfgrass quality between LESCO homogenous 18%N and LESCO homogenous 20%N up to 5 WAT. As with chlorophyll index and visual color, turfgrass quality increased steadily for the Haifa multicote fertilizer treatment. LESCO Poly Plus MINI SCU had the lowest turfgrass quality among the fertilizer treatments.

There were no significant differences in density until 3 WAT (Table 4 and Figure 4). Again as was seen with the other parameters, Urea and GP Nitamin generally had the highest turfgrass density. Turfgrass density of the Haifa multicote fertilized plots showed a steady increase throughout the study. LESCO Poly Plus MINI SCU had the worst turfgrass density among the fertilizer treatments.

In summary, Urea and GP Nitamin, in general, had the darkest green and most dense turf throughout most of the study. LESCO homogenous 18%N and LESCO 20%N did not perform similarly throughout the study as one would expect. NuGro Nutralene MU ended up in the middle of the pack, in terms of how it performed, compared to the other fertilizers. Haifa multicote, once applied, continually released nitrogen, which showed up as increasing chlorophyll index, color, quality, and density, up to 9 WAT. LESCO Poly Plus MINI SCU was the worst performer among the fertilizer treatments.

Table 1. The effect of several different fertilizers on chlorophyll index of a Kentucky bluegrass fairway.

			Chlorophyll index*									
Fertilizer	Exp. Code#	Rate (lbs N/M)	5/28/07 5 DAT	5/30/07 1 WAT	6/6/07 2 WAT	6/13/07 3 WAT	6/20/07 4 WAT	6/27/07 5 WAT	7/4/07 6 WAT	7/11/07 7 WAT	7/18/07 8 WAT	7/25/07 9 WAT
LESCO Poly Plus MINI SCU 35%N	L-0540	2.0	212.5 ab**	177.9 d	304.4 ef	319.8 e	324.5 de	279.5 d	282.9 cd	288.5 de	338.5 e	344.4 e
LESCO Homogenous 18%N	L-0531	2.0	226.5 ab	219.3 abc	343.9 cd	363.6 d	378.6 b	321.8 c	311.3 bc	318.9 cd	369.3 de	367.0 cde
LESCO Homogenous 20%N	L-0530	2.0	228.4 ab	206.7 bc	336.9 cd	354.9 d	371.7 bc	322.8 c	306.8 bc	315.1 cd	372.3 cd	364.3 de
NuGro Nutralene MU 40%N	L-0533	2.0	225.0 ab	203.2 c	327.3 de	370.0 cd	371.7 bc	330.8 c	312.6 bc	331.1 bc	402.3 abc	396.8 ab
Urea 46%N	L-0532	2.0	228.7 ab	224.5 ab	387.7 a	430.9 ab	442.6 a	374.8 ab	352.4 a	362.5 ab	412.3 abc	388.1 abcd
GP Nitamin 42%N	L-0535	2.0	222.8 ab	227.2 a	382.4 a	449.1 a	464.2 a	396.5 a	336.3 ab	370.5 a	433.0 a	406.3 a
NUREA 38%N	L-0536	2.0	220.2 ab	221.1 abc	373.3 ab	411.7 b	425.8 a	352.4 bc	341.9 ab	334.5 abc	392.7 bcd	378.1 bcd
Haifa Multicote 37%N	L-0537	2.0	206.1 b	178.4 d	281.7 fg	307.9 ef	336.3 cd	317.4 c	324.6 ab	349.1 abc	402.4 abc	392.7 abc
UMAXX (47-0-0)		2.0	234.8 a	224.9 ab	352.5 bc	400.8 bc	375.0 bc	337.5 c	317.3 abc	332.2 bc	403.9 abc	383.7 abcd
CHECK		0	208.4 b	177.2 d	265.6 g	274.0 f	287.4 e	252.6 d	260.7 d	257.9 e	302.4 f	313.9 f

* Chlorophyll index readings from 1 - 999. 999 = high chlorophyll content.

**Values within a column followed by the same letter are not signifcantly different LSD *P* = 0.05.

Figure 1. Chlorophyll index of a 'Famous' Kentucky bluegrass fairway fertilized with LESCO and other commercially available fertilizers.

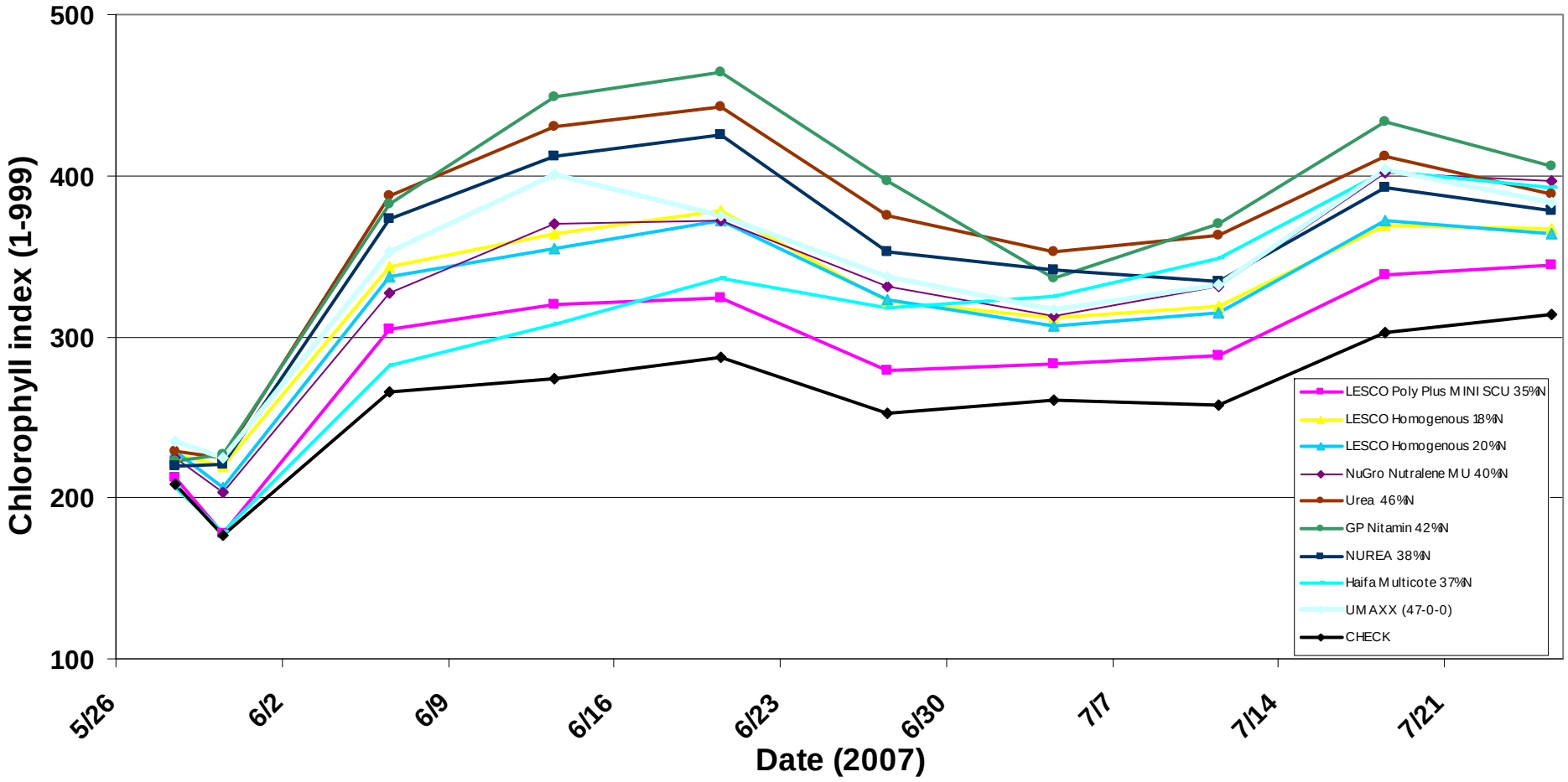

Table 2. The effect of several different fertilizers on visual color of a Kentucky bluegrass fairway.

Fertilizer	Exp. Code#	Rate (lbs N/M)	Visual color* 5/26/07 3 DAT	5/28/07 5 DAT	5/30/07 1 WAT	6/6/07 2 WAT	6/13/07 3 WAT	6/20/07 4 WAT	6/27/07 5 WAT	7/4/07 6 WAT	7/11/07 7 WAT	7/18/07 8 WAT	7/25/07 9 WAT
LESCO Poly Plus MINI SCU 35%N	L-0540	2.0	4.3 ab**	4.3 ab	4.0 c	4.0 d	4.7 cd	4.7 ef	4.7 cd	4.7 cd	5.0 cd	4.7 cd	4.7 bc
LESCO Homogenous 18%N	L-0531	2.0	4.0 bc	5.0 a	5.0 b	5.0 bc	6.0 ab	6.7 abc	6.0 b	6.0 abc	6.0 abc	5.7 bc	5.7 ab
LESCO Homogenous 20%N	L-0530	2.0	4.0 bc	5.0 a	5.3 ab	5.0 bc	5.3 bc	6.0 bcd	5.7 bc	6.0 abc	5.3 bcd	5.7 bc	5.7 ab
NuGro Nutralene MU 40%N	L-0533	2.0	4.0 bc	4.3 ab	5.0 b	5.0 bc	5.3 bc	5.7 cde	5.7 bc	5.7 bcd	6.0 abc	6.0 ab	6.0 a
Urea 46%N	L-0532	2.0	4.0 bc	4.3 ab	6.0 a	6.0 a	6.7 a	7.7 a	7.7 a	7.3 a	6.7 a	6.7 ab	6.0 a
GP Nitamin 42%N	L-0535	2.0	3.7 bc	4.0 bc	5.0 b	6.0 a	6.7 a	7.7 a	7.7 a	7.3 a	6.7 a	7.0 a	6.3 a
NUREA 38%N	L-0536	2.0	3.7 bc	4.3 ab	5.0 b	5.7 ab	5.7 b	7.0 ab	6.3 b	6.7 ab	6.3 ab	6.0 ab	5.7 ab
Haifa Multicote 37%N	L-0537	2.0	3.3 c	3.3c	3.7 c	4.3 cd	4.7 cd	5.3 def	5.3 bcd	5.7 bcd	6.0 abc	6.0 ab	6.0 a
UMAXX (47-0-0)		2.0	5.0 a	5.0 a	5.3 ab	5.7 ab	5.7 b	6.0 bcd	6.0 b	6.0 abc	6.0 abc	6.3 ab	6.3 a
CHECK		0	3.7 bc	3.7 bc	4.0 c	4.7 cd	4.3 d	4.3 f	4.3 d	4.3 d	4.3 d	4.3 d	4.3 c

*Visual color rate 1-9, with 9 = dark green.

**Values within a column followed by the same letter are not signifcantly different LSD *P* = 0.05.

Figure 2. Visual turfgrass color of a 'Famous' Kentucky bluegrass fairway fertilized with LESCO and other commercially available fertilizers.

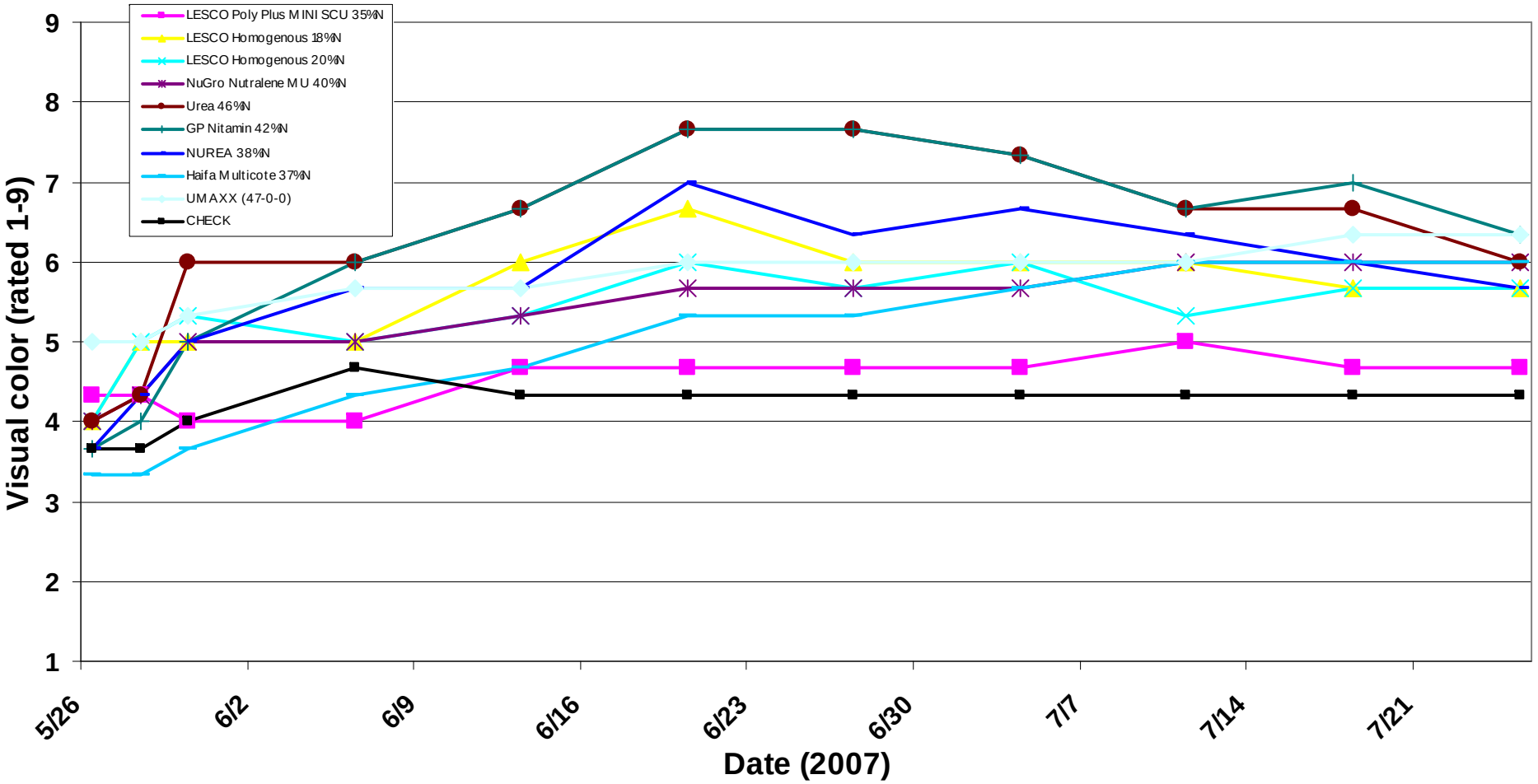

Table 3. The effect of several different fertilizers on turfgrass quality of a Kentucky bluegrass fairway.

Fertilizer	Exp. Code#	Rate (lbs N/M)	Turfgrass quality* 6/6/07 2 WAT	6/13/07 3 WAT	6/20/07 4 WAT	6/27/07 5 WAT	7/4/07 6 WAT	7/11/07 7 WAT	7/18/07 8 WAT	7/25/07 9 WAT
LESCO Poly Plus MINI SCU 35%N	L-0540	2.0	4.0 d**	4.7 cd	5.0 cd	4.7 de	4.7 de	5.0 bc	4.7 bc	4.7 bc
LESCO Homogenous 18%N	L-0531	2.0	5.0 bc	6.0 ab	6.7 ab	7.0 ab	6.3 bc	6.0 ab	5.7 ab	5.7 ab
LESCO Homogenous 20%N	L-0530	2.0	5.0 bc	5.3 bc	6.0 bc	5.7 cd	5.7 cd	5.0 bc	5.7 ab	5.7 ab
NuGro Nutralene MU 40%N	L-0533	2.0	5.0 bc	5.3 bc	5.7 bc	5.7 cd	6.0 c	6.0 ab	6.0 a	6.0 a
Urea 46%N	L-0532	2.0	6.0 a	6.7 a	7.7 a	7.7 a	7.7 a	6.7 a	6.3 a	6.3 a
GP Nitamin 42%N	L-0535	2.0	6.3 a	6.7 a	7.7 a	7.7 a	7.3 ab	6.7 a	6.6 a	6.7 a
NUREA 38%N	L-0536	2.0	5.7 ab	5.7 b	6.7 ab	6.3 bc	6.3 bc	6.0 ab	6.0 a	5.7 ab
Haifa Multicote 37%N	L-0537	2.0	4.3 cd	4.7 cd	5.3 cd	5.3 cde	5.7 cd	6.3 ab	6.3 a	6.0 a
UMAXX (47-0-0)		2.0	5.7 ab	5.7 b	6.7 ab	6.3 bd	6.3 bc	6.0 ab	6.3 a	6.3 a
CHECK		0	4.7 cd	4.3 d	4.3 d	4.3 e	4.3 e	4.3 c	4.3 c	4.0 c

* Turfgrass quality rated 1-9, with 9 = excellent.

**Values within a column followed by the same letter are not signifcantly different LSD *P* = 0.05.

Figure 3. Turfgrass quality of a 'Famous' Kentucky bluegrass fairway fertilized with LESCO and other commercially available fertilizers.

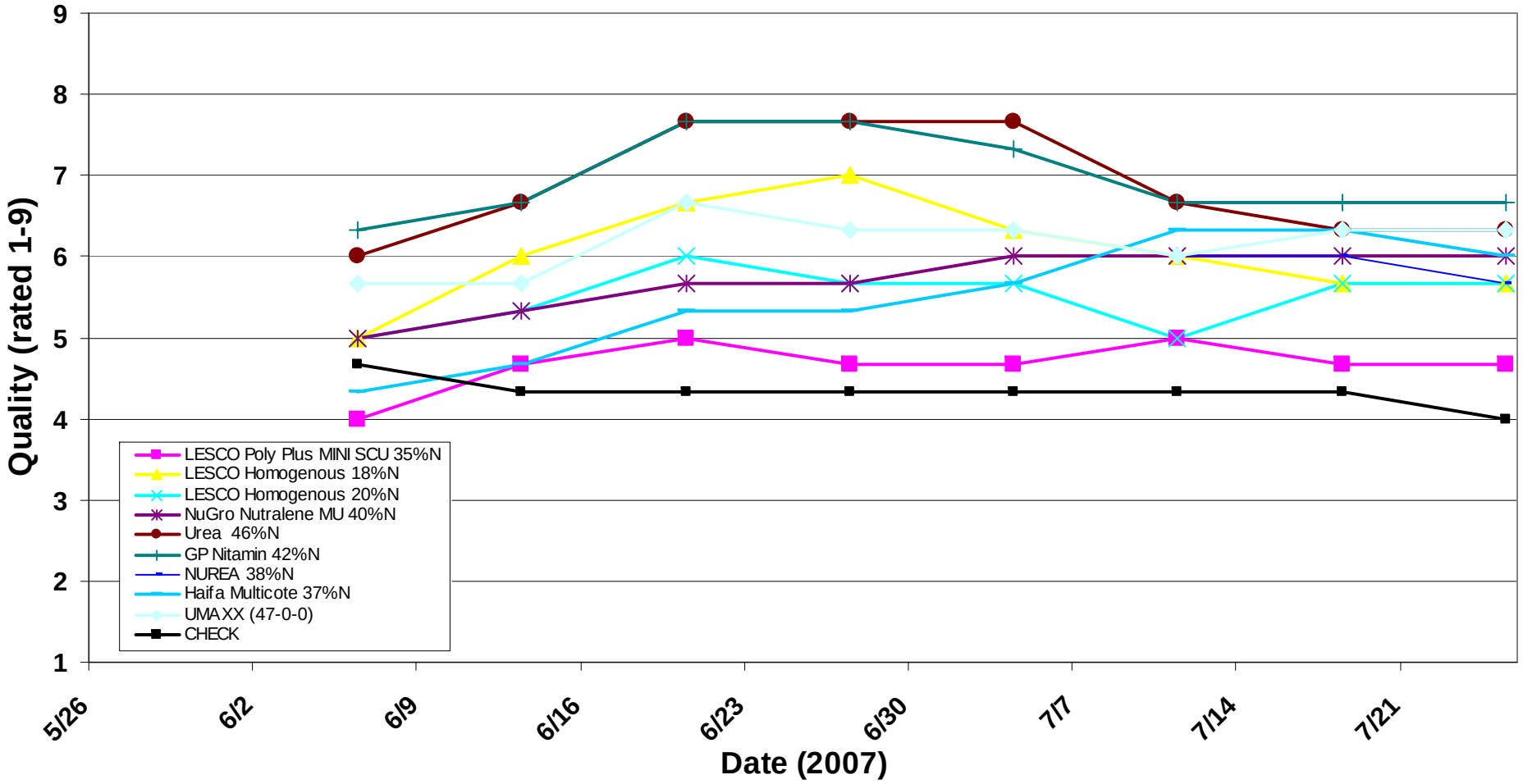

Table 4. The effect of several different fertilizers on turfgrass density of a Kentucky bluegrass fairway.

			Turfgrass density*								
Fertilizer	Exp. Code#	Rate (lbs N/M)	5/30/07 1 WAT	6/6/07 2 WAT	6/13/07 3 WAT	6/20/07 4 WAT	6/27/07 5 WAT	7/4/07 6 WAT	7/11/07 7 WAT	7/18/07 8 WAT	7/25/07 9 WAT
LESCO Poly Plus MINI SCU 35%N	L-0540	2.0	4.3	4.3	4.7 d	5.0 cd	4.7 cd	4.7 cd	4.3 cd	4.0 c	4.0 c
LESCO Homogenous 18%N	L-0531	2.0	5.3	5.3	5.7 bc	6.7 ab	6.7 ab	6.3 ab	5.7 abc	5.7 ab	5.7 ab
LESCO Homogenous 20%N	L-0530	2.0	5.0	5.3	5.0 cd	5.3 cd	5.3 bcd	5.3 bcd	4.7 bcd	4.7 bc	5.0 bc
NuGro Nutralene MU 40%N	L-0533	2.0	6.0	6.0	5.3 bcd	5.7 bcd	6.3 ab	5.7 bc	5.7 abc	5.7 ab	5.7 ab
Urea 46%N	L-0532	2.0	5.7	5.7	6.0 ab	7.0 a	7.0 a	7.0 a	6.7 a	6.7 a	6.7 a
GP Nitamin 42%N	L-0535	2.0	5.7	6.0	6.6 a	7.0 a	7.0 a	7.0 a	6.3 a	6.3 a	6.3 ab
NUREA 38%N	L-0536	2.0	5.3	5.3	5.7 bc	6.0 abc	6.0 abc	6.0 ab	5.7 abc	5.7 ab	5.3 abc
Haifa Multicote 37%N	L-0537	2.0	4.3	4.3	4.7 d	5.3 cd	5.3 bcd	5.3 bcd	6.3 a	6.3 a	6.3 ab
UMAXX (47-0-0)		2.0	6.0	6.0	5.7 bc	6.7 ab	6.7 ab	6.3 ab	6.0 ab	6.0 ab	6.0 ab
CHECK		0	5.0	4.7	4.7 d	4.7 d	4.3 d	4.3 d	4.0 d	4.0 c	4.0 c

* Turfgrass density rated 1-9, with 9 = very dense.

**Values within a column followed by the same letter are not signifcantly different LSD *P* = 0.05.

Figure 4. Turfgrass density of a 'Famous' Kentucky bluegrass fairway fertilized with LESCO and other commercially available fertilizers.