

## EVALUATION OF BIO-ORGANIC FERTILIZERS

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To cope with increasing complexity in turf management strategies, new fertility products are constantly being marketed. Several of these formulations, produced by the Ringer Corporation, are being investigated to determine N response and thatch decomposition potential.

Studies 1 and 2 compare Ringers material, Lawn Rx Restore and Lawn Keeper, with conventional carriers, such as urea, ammonium nitrate, sulfur coated urea (SCU) and Milorganite for measurement of nitrogen response. Data averaged over dates for 1984 is presented in tables 1 and 2. Visual quality scoring data for 1985 (for both studies) is presented in table 3. Study 1 was initiated at the HTRC in spring 1984 on a seeded blend of kentucky bluegrass (Poa pratensis L.). Irrigation was supplied as necessary to prevent wilting. Plots were mowed 3-4 times weekly at 5.0 cm. Treatments were applied 4 times yearly at rates of 2, 4 and 6 #N/M/yr and were arranged as a randomized complete block design with 3 replications. Study 2 was initiated in July 1984 on seeded, established kentucky bluegrass (Poa pratensis L. var Adelphi). Cultural practices for study 2 were similar to study 1. Treatments yielded rates of 2, 4 and 8 #N/M/yr. SCU was not included in study 2. Lawn Rx Restore was deleted from both studies in 1985.

Values from study 1 in 1984 show no differences between Lawn Keeper (LK) and SCU, regarding leaf tissue N content and quality rating. Differences do exist statistically for clipping weights at the 4 pound annual rate and in chlorophyll content at the 6 pound annual rate. 1985 visual quality scores show no differences comparing LK to SCU. Discernible differences to urea are apparent over both years for study 1. Study 2 shows differences, when comparing LK to Urea, in greater than 50% of the comparisons made for both years. LK at the 2 pound rate scored significantly higher than non fertilized check plots on all variables over both year in study 1. However, variability in study 2 was great enough that even 4 pound rates of LK did not differ significantly from the check plots. This trend has not been observed in 1985.

Lawn Keeper fared slightly better than Lawn Rx Restore in 1984 for study 1 but study 2 displayed no differences between the two products. Again, variability must play a factor.

Field data for thatch decomposition will be collected this fall, but laboratory studies have generated some data. Measurements of CO<sub>2</sub> as an indication of microbial thatch decomposing activity showed no differences 4 days after thatch treatment with Lawn Keeper, when compared with untreated thatch. Lab studies are as of yet incomplete and data is inconclusive.

It can be concluded at this point that 1) Lawn Keeper provides essentially the same degree of N response as SCU while response from urea is generally more favorable; 2) Both Lawn Keeper and Lawn Rx Restore are no different in initial response when compared to Milorganite.

TABLE 8.

Lawn Restore Study 1 data averaged over dates for 1984.

RATE	CARRIER	CHL	%N	V.R.	CLP.
2#N/M/yr	Rx	7.1 FG	3.4 FG	6.9 H	42.9 DE
	LK	7.8 DE	3.5 EF	7.2 G	54.2 DE
	Ur	7.5 EF	3.6 DE	7.5 EF	54.3 DE
	SCU	7.6 G	3.5 EF	7.1 G	49.9 DE
4#	Rx	7.6 DEF	3.5 EF	7.3 FG	56.0 D
	LK	7.9 CDE	3.7 DE	7.6 E	75.5 C
	Ur	8.6 ABC	4.0 BC	8.3 B	85.0 BC
	SCU	7.7 DEF	3.7 DE	7.5 EF	58.1 D
6#	Rx	8.0 CDE	3.8 CD	7.8 DE	74.8 C
	LK	9.0 A	4.1 B	8.1 BC	97.9 AB
	Ur	8.8 AB	4.4 A	8.8 A	100.4 A
	SCU	8.3 BCD	4.0 BC	7.9 CD	84.5 BC
CHECK		6.8 G	3.2 G	6.5 I	39.2 E

CHL = Mg Chlorophyll A and B/gram turf; Averaged over 7 dates.

%N = Tissue percent N content; Averaged over 7 dates.

Vr = Quality Scores; Averaged over 12 dates.

CLP = Clipping Yield Weight; Averaged over 7 dates.

Significance denoted by DMRT  $P = 0.05$ 

Means within columns followed by same letter are not significantly different.

Rx = Lawn Rx Restore

LK = Lawn Keeper

Ur = Urea

SCU = Sulfur Coated Urea

Table 9.

Lawn Restore Study 2 data averaged over dates for 1984.

RATE	CARRIER	VR	CHL	%N
2#N/M/yr	Rx	6.8 F	7.9 C	3.5 D
	LK	6.8 F	8.2 BC	3.7 CD
	Ur	8.2 BC	8.9 ABC	3.8 BC
4#	Rx	7.4 DE	8.0 C	3.6 CD
	LK	7.1 EF	8.6 BC	3.7 CD
	Ur	8.6 AB	9.3 AB	3.9 B
8#	Rx	7.9 CD	9.1 ABC	3.8 BC
	LK	7.8 CD	9.0 ABC	3.8 BC
	Ur	9.0 A	10.1 A	4.4 A
CHECK		6.9 EF	8.2 BC	3.5 D

VR = Quality Scoring; Averaged over 12 dates.

CHL = Mg Chlorophyll A and B/gram turf; Averaged over 2 dates.

%N = Tissue percent N content; Averaged over 2 dates.

Means followed by same letter within columns are not significantly different by DMRT P = 0.05.

Rx = Lawn Rx Restore

LK = Lawn Keeper

Ur = Urea

TABLE 10.

Visual Quality Scores for Study 1 and Study 2 averaged over dates for 1985  
(up to 8-11).

RATE	CARRIER	STUDY 1	STUDY 2
2#N/M/yr	LK	7.0 E	6.5 D
	Ur	7.3 DE	7.0 C
	SCU	7.1 E	-
4#	LK	7.5 CD	7.3 C
	Ur	8.3 B	8.0 B
	SCU	7.7 C	-
6#	LK	8.1 B	-
	Ur	8.9 A	-
	SCU	8.3 B	-
8#	LK	-	8.2 B
	Ur	-	8.7 A
	SCU	-	-
CHECK		6.0 F	5.9 E

Means within columns followed by same letter are not significantly different by  
DMRT P = 0.05.

LK = Lawn Keeper

Ur = Urea

SCU = Sulfur Coated Urea