

SCTM STOP 5

Twenty Nitrogen Protocols On Commercial Lawn Turf

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Virtually all lawn care companies market an early spring application of nitrogen (N), which they view as a critically essential income source. However, this practice has been shown to be agronomically detrimental in that the turf becomes predisposed to summer stresses such as heat, drought, diseases, and insects (4). MSU Extension specialists recommend that the first spring application of N be delayed to help limit the heavy top growth usually associated with late April and early May (1). Lawn care companies sell a variety of programs that result in 1 to 6 pounds of N per 1,000 ft² (N/M) being applied annually. The purpose of this study is to assess most of these regimes as well as some that may be acceptable to both commercial and academic standards.

A significant dimension of this study is that the plots are mowed weekly in order to accurately mimic the mowing practices of both commercial cutters as well as most homeowners. This is different from typical turf studies where mowing follows the one-third rule, which is to not remove more than one-third of the total leaf surface at any one mowing (2). Clippings are returned by a mulching rotary mower as recommended by MSU specialists (3). The actual mowing height is 2.5-inches.

Irrigation is applied as needed to avoid late morning wilt. Broadleaved weeds have been managed with Trimec Classic. Fungicides, insecticides, or preemergence herbicides have not been used.

The plot area was established in 1992 with Spartan Grade A Mix, which was 40% Kentucky bluegrasses, 40% fine fescues, and 20% perennial ryegrass. There are 20 treatments arranged in a randomized complete block with 4 blocks. Within each block, plots are separated with two-foot wide buffer strips that are not fertilized. Treatments occurred in 1995, 1996, and are continuing in 1997. Ten programs are each split for quick-release N (100% urea) and slow-release N (50% urea and 50% sulfur coated urea). Therefore this experiment has twenty treatments (protocols) as detailed below:

Treatments (Protocols)

(Odd numbers are all quick-release N and even numbers are 50% slow-release N.)

Date	1 & 2	3 & 4	5 & 6	7 & 8	9 & 10	11 & 12	13 & 14	15 & 16	17 & 18	19 & 20
April 7						1	1/2	1	1/2	1
May 21	1		1	1	1	1	1	1	1	1
July 7					1	1	3/4	1	3/4	1
Aug 21								1	3/4	1
Sept 7				1	1	1	1			
Oct 7								1	1	1
Nov 15		1	1	1	1		3/4		1	1
Total lbs N/M/yr	1	1	2	3	4	4	4	5	5	6
Apps/yr	1	1	2	2	4	4	5	5	6	6

Treatments 1 and 2 represent those who only want to fertilize once and think that late spring is best. Please note that the odd numbered treatments are 100% quick-release N as urea, and the even numbers are 50% N as urea and 50% N as sulfur coated urea. Treatments 3 and 4 follow the advice that says, "If you're only going to fertilize once, then do it in the fall after you quit mowing." The two practices above are combined with treatments 5 and 6. Treatments 7 and 8 include an early fall application with 9 and 10 adding a mid-summer app. These treatments follow the "Holiday Schedule" that is often recommended.

The rest of the treatments include the early spring application of N commonly practiced by nearly all lawn care companies. Treatments 11 and 12, 15 and 16, and 19 and 20 represent 4, 5, and 6 rounds, respectively. The rest of the treatments use a 1/2 lb N/M in the early spring. Some of these hybrid programs may be the middle ground between industry needs and university standards.

Visual quality, visual wilt and color have been assessed since the beginning of the experiment. This year we've also measured clipping yields at 1, 2, and 4 weeks following the April and May applications. Partial findings will be discussed at this year's Field Day with a more detailed reporting to follow at one of the upcoming Michigan Turf Conferences.

REFERENCES

1. Lyman, G.T. and P.E. Rieke. (1995) *Fertilizing home lawns*. MSU Turfgrass Environmental Education.
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3. Rieke, P.E. and G.T. Lyman. (1995) *Managing yard waste*. MSU Turfgrass Environmental Education.
4. Turgeon, A.J. (1996) *Turfgrass Management*. 4th ed. Prentice Hall, Upper Saddle River, NJ.