TABLE 13. AVERAGE VISUAL TURFGRASS QUALITY RATINGS FOR SEEDED VS SODDED MERION KENTUCKY BLUEGRASS, 1968-70. AVERAGES FOR 3 REPLICATIONS. (1=best on a 1-10 scale).

Nitrogen Treatment (lbs N/1,000 sq. ft./Yr)	Establishment Method	
	Seeded	Sodded
0	7.8	6.2
2	5.2	4.3
4	3.8	3.1
6	2.7	2.1
8	2.0	1.7
10	1.8	1.6
12	1.6	1.4
14	1.6	1.3

STOP 12

P. E. Rieke

Nitrogen Movement and Turfgrass Fertilization.

Because of the present concern for nitrate pollution of ground water sources, the existing nitrogen fertility turfgrass plots at both East Lansing and Traverse City were sampled during 1970. The objective was to observe the movement of nitrates in the soil profile from selected nitrogen treatments.

The plots were sampled approximately every 2 weeks at depths of 0-6, 6-12, 12-18, and 18-24 inch depths. The treatments studied at East Lansing are shown in Table 14. Similar treatments were sampled at Traverse City on a Kalkaska sand.

Nitrate data for the East Lansing site are given in Table 15. Although the treatments utilized in this study are not those that would normally be recommended because the nitrogen was applied in the spring (except for treatment 28), some suggestions can be offered to keep the potential for nitrate leaching under turf at a minimum:

1. For water soluble nitrogen carriers, use a minimum of 4 to 6 applications per year when applying 6 pounds nitrogen or more per 1000 square feet annually.

TABLE 14. NITROGEN TREATMENTS SAMPLED FOR 1970 NITRATE ANALYSIS. EAST LANSING. CONOVER FINE SANDY LOAM.

Treatment No.	Nitrogen Treatment		
	N rate/1,000 sq. ft./Yr.	Carrier	Date of Application
17	0	---	---
25	6	33-0-0	May 5
28	6	33-0-0	May 5, May 29, Aug. 14
30	6	Milorganite	May 5
32	6	Ureaformaldehyde	May 5

2. Apply no more than 1 pound of nitrogen per 1,000 sq. ft. at one time in late summer.

3. Apply nitrogen only to actively growing turf if water-soluble sources are utilized.

4. For slow release nitrogen carriers, a minimum of three applications per year is preferred at these nitrogen rates to obtain optimum quality turf as well as to reduce nitrate losses.

5. Use irrigation judiciously, especially on sandy soils.

6. Utilize turfgrass species and varieties on sandy soils that have a low nitrogen requirement.

7. When clippings are returned to the turf, nitrogen requirements may be reduced by at least 25%. This applies to mid-summer applications particularly.

Turfgrass quality ratings for these plots and other nitrogen treatments are given in Table 16. These data are averaged for the three year period of 1968 through 1970.

TABLE 15. 1970 SOIL NITRATE LEVELS FOR THE EAST LANSING PLOTS, PPM. AVERAGES FOR 3 REPLICATIONS.

Soil Depth (inches)	Treatment No.	Date of Sampling 5/1	5/15	5/29	6/12	6/24	7/11	7/24	8/6	8/23	9/9	10/8
0-6	17	5.5	8.4	6.5	7.1	9.4	13.9	12.4	13.4	6.3	7.2	4.9
	25	5.4	44.2	41.2	31.0	10.2	14.1	16.6	18.2	13.8	9.4	4.7
	28	5.0	14.2	9.4	11.2	10.1	14.2	14.7	16.2	66.3	8.1	4.9
	30	4.3	8.9	10.2	6.6	9.1	15.1	14.6	15.3	9.3	7.0	6.0
	32	5.5	13.6	10.0	4.7	9.8	14.2	17.8	16.5	13.2	8.4	5.0
6-12	17	6.9	4.6	6.6	7.6	8.3	11.2	11.8	13.0	8.6	6.8	6.2
	25	3.8	16.4	32.1	11.4	14.7	14.2	13.5	15.3	12.2	6.8	5.1
	28	5.7	9.3	9.4	5.2	8.7	13.9	12.8	13.3	11.5	8.2	3.2
	30	6.1	7.1	10.8	3.6	9.2	12.9	20.5	15.6	14.9	7.5	5.7
	32	6.1	4.5	8.1	5.4	9.9	14.1	12.2	16.3	10.2	9.0	6.8
12-18	17	8.3	5.7	8.9	4.6	8.4	10.3	12.9	15.5	9.7	5.5	9.0
	25	6.1	10.2	15.0	5.7	13.7	13.0	14.0	15.6	13.9	7.6	6.6
	28	5.3	6.5	16.8	7.8	8.7	14.0	14.4	14.0	9.1	6.1	2.6
	30	4.7	5.0	10.9	5.2	10.0	12.4	12.1	21.9	10.4	6.1	6.3
	32	6.6	7.1	10.3	5.6	8.4	13.9	13.3	16.8	10.2	7.8	2.3
18-24	17	4.7	7.3	8.2	4.1	8.7	12.7	11.9	17.5	12.2	7.4	9.7
	25	5.8	7.8	10.3	4.6	10.9	13.8	18.3	17.6	13.0	7.4	7.2
	28	4.9	7.5	8.8	7.2	12.0	11.5	13.0	19.1	12.3	7.9	2.3
	30	5.7	5.7	6.9	5.7	9.3	12.5	12.6	19.3	10.7	6.5	3.7
	32	5.0	5.8	8.1	6.1	10.3	11.9	13.2	18.4	20.7	6.8	7.8

TABLE 16. AVERAGE VISUAL TURFGRASS QUALITY RATINGS FOR MERION KENTUCKY BLUEGRASS UNDER SEVERAL NITROGEN FERTILITY TREATMENTS, 1968-70. AVERAGES FOR THREE REPLICATIONS (1=best on a 1-10 scale).

No.*	Nitrogen Treatment		Time of Application	Visual Turfgrass Quality Rating
	Rate, lbs N/1,000 sq. ft./Yr.	Carrier		
25	6	33-0-0	April	3.0
--	6	33-0-0	May	3.2
--	6	33-0-0	April, Aug.	3.3
28	6	33-0-0	Apr, May, Aug	2.8
--	6	33-0-0	Apr, Aug, Sept	3.6
--	6	33-0-0	May, Nov	2.9
--	6	33-0-0	May, Feb	2.9
--	6	33-0-0	Monthly	2.7
30	6	Milorganite	April	3.5
--	6	Milorganite	Apr, May, Aug	3.5
32	6	Ureaformaldehyde	April	3.9
--	6	Ureaformaldehyde	Apr, May, Aug	4.1
--	12	Ureaformaldehyde	Apr, May, Aug	2.4
--	12	33-0-0	Monthly	1.6
17	0	--------	------	7.8

*Treatments used on Table 14.

STOP 13

J. M. Vargas and P. E. Rieke

Fusarium Blight-Cultural Control Study.

This study was initiated to determine the effect of nitrogen fertility, vertical mowing, and soil compaction on the development and control of Fusarium blight. Fusarium blight infected Merion Kentucky bluegrass sod was removed from a home lawn and placed on the experimental area in the fall of 1969. Differential treatments were started in the spring of 1970. They consisted of (a) yearly application rates of 3, 6, and 12 lbs of nitrogen per 1,000 square feet applied April through September at monthly intervals, (b) vertical mowing in the spring, and rolling for soil compaction at bi-weekly intervals, and in all possible combination. The results in 1970 were inconclusive. It is hoped that differential disease responses will be evident by field day.