Table 11.

Nitrogen and Rolling Effects on Dollar Spot Counts - August 20, 1997

Soil Type	Rolled 3x/week		Non-rolled plots	
	0.5 lbs. N/app.	1.0 lbs. N/app.	0.5 lbs. N/app.	1.0 lbs. N/app.
USGA	60 c	60 c	116 a	83 b
80:10:10	5 d	4 d	71 bc	67 c
Native	2 d	2 d	2 d	2 d
probability @ 0.05	0.04			

On June 24 an interaction was recorded regarding potassium rate and green rolling. Data is reported in Table 12. There was no effect of potash on the number of dollar spots on the rolled plots. However, for unrolled plots, the highest rate of potash has more dollar spots that did the lower rates..

Table 12.

Dollar Spot Observations - June 24, 1997

Annual Potassium Rate	Rolled 3x/week	None rolled plots
8 lbs.	11 c	63 a
4 lbs.	13 c	36 b
Soil Test	15 c	47 b
probability @ 0.05	0.03	

Stimpmeter data collected on the fertilized plots is reported in Table 13. For all dates light weight green rolling had a greater impact on green speed than did nitrogen treatment.

Table 13.

Stimp Meter Data - 1997 Data reported in feet.

Soil Type	Rolled 3x/week		Non- rolled	
	June 4, 1997			
	0.5 lbs. N/app.	1.0 lbs. N/app.	0.5 lbs. N/app.	1.0 lbs. N/app.
USGA	10.3	9.9	9.0	8.6
80:10:10	10.2	10.2	8.8	8.4
Native	9.9	9.6	8.7	8.4
	June 20, 1997			
USGA	9.6	9.4	8.1	8.1
80:10:10	9.6	9.8	8.1	8.3
Native	9.3	9.6	8.0	8.3
	July 11, 1997			
USGA	11.5	11.3	10.3	10.4
80:10:10	11.6	11.7	9.8	9.9
Native	10.9	11.2	10.0	10.3

PHOSPHOROUS SOIL TEST CORRELATION ON SAND:PEAT GREEN

This study was established in 1993 on an 85% sand, 15% peat green built to U.S.G.A. specifications. The grass is Penncross creeping bentgrass mowed at 3/16 inch. Not long after establishment a serious phosphorus deficiency developed with the typical purplish/gray green appearance and turf had very little growth. The Bray P[1] phosphorus soil test was 4 lbs of phosphorus per acre. A number of golf course superintendents present at the Turfgrass Field Day have recognized these deficiency symptoms.

Treatment 1 received no phosphorus; treatment 2 received 1 lb. P_2O_5 per 1000 sq. ft. annually;

treatment 3 received 2 lbs. P_2O_5 per 1000 sq. ft. annually, treatment 4 received 4 lbs. P_2O_5 per 1000 sq. ft. annually; treatment 5 received 4 lbs. P_2O_5 per 1000 sq. ft. in 1993 with no further applications; treatment 6 was treated annually at the rate recommended by the Bray P1 phosphorus soil test; and treatment 7 was treated annually at the rate recommended by the Olsen phosphorus test. Plot size was 4 ft. by 12 ft. with 3 replications. In 1996 the plots inadvertently received 0.2 lb. phosphate per 1000 sq. ft. so no further phosphorus was applied that year. No further phosphorus has been applied.

In October of 1997 the soil samples were collected for analysis. Table 14 gives the annual phosphate recommendations based on soil P tests from the MSU Soil Testing Laboratory.

Table 14.

Annual phosphate (P_2O_5) recommendations based on soil P test (Bray P_1 extractable) at the Michigan State University Soil Testing Laboratory.

Soil test, lbs. P/acre ...	....Apply the following rates in pounds per 1000 sq. ft. under the following conditions.	
	Lawns, general grounds, and fairway	Greens, Tees, Athletic Fields, and Establishment
10 or less	3.0	4.0
11-15	3.0	3.5
16-20	2.5	3.5
21-25	2.0	3.0
26-30	1.0	3.0
31-35	0.5	2.5
36-40	0.5	2.0
41-45	0	1.5
46-50	0	1.0
51-55	0	1.0
56-60	0	0.5
61-66	0	0.5
66-70	0	0

In Table 15 are given the P treatments, the Bray soil tests at the end of each season, and the recommended amount of phosphate to apply each season. In 1995, 0.2 lbs. P/M^2 was applied on all plots in a complete fertilizer and in 1997 no P was applied. Soil tests reveal the importance of annual phosphorous on sand based greens, tees, and other intensively maintained turfs. The P tests in October, 1997 indicate that phosphorus levels have decreased compared to 1995 tests on all plots that had reasonably high P soil tests. This reflects removal of phosphorus in the clippings removed from the green. Since there was little growth on the low P plots there was little removal of phosphorus.

Table 15.

USGA Green Phosphorus Correlation Study

	1995		**1997**	
Treatment	P_2O_5 applied lbs./M^2	Soil Test results in lbs./A	P_2O_5 applied lbs./M^2	Soil Test results in lbs./A
1	0	5.0 d	4.3 c	4.0
2	1	9.3 cd	9.3 bc	4.0
3	2	28.3 bc	17.0 b	3.5
4	4	62.0 a	41.3 a	1.5
5	0	10.7 cd	9.3 bc	4.0
6	3*	46.7 ab	37.7 a	2.0
7	3**	47.0 ab	38.3 a	2.0

Means in columns followed by the same letter are not significantly different at the 5% level using the LSD range test.

* Based on Bray soil test recommendations.

** Based on Olsen soil test recommendations.