STOP 12

James Timmerman

Pesticide-Soil Nitrogen Interactions. Pesticides are frequently applied to turf to control specific diseases, insects, or weeds. Others are used for broad spectrum controls. Very little is known about effects on non-target species, particularly on soil microorganisms. Since microorganisms play a major role in the decomposition of organic nitrogen carriers in the soil, pesticides may theoretically affect soil nitrogen relations.

Greenhouse studies on Pennlawn red fescue indicate differences in growth as affected by certain insecticides and fungicides. Clipping weights were increased as much as 50% during a three month period with application of one fungicide as compared to no pesticide. It is necessary to determine if this response is caused by disease control (or insect control), direct effect on the physiology of the plant, or if some effect is created which influences soil nitrogen relations. Field plots of bentgrass have been established to further study these relationships.

STOP 13

Dr. Paul Rieke

Soil Mixes for Putting Greens. Forty-eight soil mixtures with 2 replications were established. Most of these mixes are very coarse in texture with coarse sand being a major component.

Water was withheld during the drouthy period in early June to subject the plots to moisture stress. Note the recovery upon adequate irrigation. Table (13) gives a brief summary of the drouth susceptibility as determined by visual quality.

TABLE 13. DROUTH TOLERANCE OF SEVERAL SOIL MIXES

East Lansing, June 5, 1967

Soil Mix				Quality Rating*
Course Sand	Fine Sandy Loam	Peat	Other	
-	1	-	-	1.5
X	1	1	-	4.7
X	1	2	-	4.4
X	2	1	-	4.3
1	X	X	-	2.4
2	X	X	-	3.5
3	X	X	-	4.2
4	X	X	-	4.9
6	X	X	-	5.3
8	X	X	-	5.7
4	1	1	1cc**	6.2
4	1	0	1cc	6.8
4	1	0	2cc	7.1
4	1	1	-	4.2
4	1	2	-	5.7
4	2	1	-	5.5

*Visual quality rating: 1-best; 9-poorest. Average of 2 replications.
**cc = calcined clay.

Data not included indicate that screened cinders provide a more drouth tolerant mix than crushed brick and tile. Fine vermiculite is slightly better than coarse vermiculite. No attempt has been made to subject these plots to traffic or compaction. This will be done in future studies.

There is no apparent difference between Turface and Terragreen. The mixtures which include these calcined clays are too coarse to compare against existing soil mixes in this experiment.

STOP 14

John King

Sod Rooting Studies. The purpose of these studies is to investigate the potential rooting capability of sod grown on mineral and organic soil. Four tests have been completed. The fifth test was initiated on June 29. Clipping weight, number of roots observed on the glass front, and root organic matter data were collected. Part of the root organic matter data are summarized in Table 14.

TABLE 14. ROOT ORGANIC MATTER PRODUCTION (IN GRAMS) UNDER SELECTED MANAGEMENT TREATMENT

Treatments	Test Period			
	July 22 to Aug. 9	Aug. 14 to Aug. 30	Sept. 19 to Oct. 10	May 29 to June 19
Mineral Sod	0.95**	0.46**	0.96	0.58
Organic Sod	2.72	1.30	1.11	0.77
Sandy Loam Topsoil	2.43*			
Clay Subsoil	1.24			
1:1 S. Loam-Clay Mix		0.96*		0.75
Clay Subsoil		0.79		0.60

*Significant at the 5% level.
**Significant at the 1% level.

The organic sod produced more roots than mineral sod in all tests. The sod rooted as well during the summer as in the fall and spring. Sod roots better over topsoil or topsoil incorporated into the subsoil than over subsoil alone.

Proper watering is a key factor in good sod rooting. In general watering at 0.2 inch daily has given the best rooting. Either overwatering or underwatering is detrimental. Rate of watering is more critical with either mineral sod or clay subsoil. More data are being gathered on watering practices. Fertilizer placement and sod cutting depth have also been studied, but the results are inconclusive.