STOP 3

John King

Sod Heating. The heating of sod during shipment limits the distance that Michigan sod can be marketed and the number of loads that can be shipped to one customer at one time. The purpose of these investigations is (1) to describe the heating process in relation to management factors and (2) to compare methods of reducing the rate of sod heating in the load. In the summer of 1966, stacking procedures were studied. It was found that two by two foot sod pieces stacked 2.5 feet high gave a representative rate of heating. This summer the sod heating process is being studied using boxes 20 x 20 x 30 inches kept in a 75°F room. A recording potentiometer and an infrared gas analyzer are being used to measure and record the temperature, CO_2 and O_2 levels at various locations in the stack. The effect of nitrogen nutrition, watering rate, clipping height, fungicides, and respiration inhibitors are being studied.

STOP 4

Dr. Paul Rieke

Nitrogen and potassium fertilization on stress survival of turf. Nitrogen rates of 0, 4, 8, 12, and 16 and potassium rates of 0, 2, 4, 6, and 8 pounds per 1000 square feet per year were applied in all combinations. The treatments were initiated in 1965 on Common Kentucky bluegrass and Toronto creeping bentgrass.

Low temperature survival studies during the 1965-66 winter indicate that a balance is necessary between nitrogen and potassium for hardiness of common Kentucky bluegrass. Under these conditions maximum survival occurred when the ratio was 2 or 3 parts nitrogen to 1 part potassium even under the high nitrogen levels. These responses resulted in spite of available soil potassium tests of 356 pounds per acre as shown in Table (3), well above the level considered high for potassium. Because of the low temperature hardiness of Toronto bentgrass no effects of treatment were observed under low temperature stress.

TABLE 3. EFFECT OF RATE OF POTASSIUM APPLICATION ON AVAILABLE SOIL POTASSIUM TESTS

East Lansing, Michigan

K rate	Soil potassium tests (lbs/A) Spring, 1966	
(lbs/1000 sq. ft./yr.)	Bluegrass	Bentgrass
0	356	69
2	432	118
4	480	201
6	614	236
8	655	288

1966-67 data did not show any significant responses probably because of heavy rainfall and resultant high crown moisture content. This study will be continued for Common Kentucky bluegrass and bentgrass to determine effects of nitrogen versus potassium levels on low and high temperature survival, turf quality, and turf wear.

On sandy soils especially, it is important to apply potassium regularly. Soil test data from the Traverse City plots shown in Table (4) indicate the effect of irrigation on this soil.

TABLE 4. EFFECT OF IRRIGATION AND NITROGEN LEVEL ON SOIL TESTS
Traverse City, October, 1966

Treatment	Nitrogen Rate Per Year (lbs/1,000 sq. ft.)	Soil Tests (lbs/Acre)				
		pH	P	K	Ca	Mg
Unirrigated Merion	4	6.4	130	256	1629	59
Irrigated Merion	8	7.2	88	87	2392	171
Irrigated Red Fescue	3	7.3	115	100	2351	168

STOP 5

Dr. Milton Erdmann

Turfgrass Mixture Ecology Study. Turfgrass community studies with 18 mixtures in the fifth year of observation. North half of plots received 3# of N per 1,000 sq. ft. per year and the south half 6#. Mixtures which originally contained a ryegrass or tall fescue component have not yet achieved the quality level of the Kentucky bluegrass-red fescue mixtures (Table 5). A small percentage of ryegrass still persists after four winters causing a lower quality. The degree of low temperature kill of ryegrass and tall fescue is greater under the higher nitrogen level. Mixtures containing redtop or roughstalk bluegrass are generally inferior.

TABLE 5. PERFORMANCE OF SIX SELECTED MIXTURES

(5 x 9' plots in 3 reps; planted August 20, 1962)

Percent composition on a seed number basis				Turf quality rating* (1-best; 9-poorest)	
Kentucky Bluegrass	Creeping Red Fescue	Perennial Ryegrass	Tall Fescue	1966	1965
50	50			3.0	2.9
75	25			3.7	2.8
25	75			3.7	3.0
33	33	33		4.4	4.2
20			80	4.5	3.8
60	20	20		4.9	4.1

*Average of the monthly quality ratings.