SOIL PH CONTROL AND PERENNIAL RYEGRASS CULTIVAR EVALUATIONS

Donald Juchartz, Paul Rieke and Kenyon Payne

Soil pH Control

Sulfur and limestone treatments were applied in August, 1981 to the soil surface at the rates given in Table 6. The plots were tilled to the 3 inch depth. Kentucky bluegrass, red fescue and perennial ryegrass were then seeded. There was no short term effect on germination and establishment. During June and July of 1982 and to some degree in 1983, some wilting injury appeared on the Kentucky bluegrass and red fescue plots receiving the highest sulfur applications, but no symptoms were apparent on the perennial ryegrass. Soil pH values for 1982 and 1983 are in Table 6. Note the pH values increased slightly on the more acid plots in the past year, likely due to the water used for irrigation. In Table 7 are some other soil tests from 1982. Acidifying the soil resulted in a significant reduction in available calcium and magnesium levels.

Perennial Ryegrass Cultivar Evaluations

The perennial ryegrass cultivar evaluation was established on August 12, 1981 at the Hancock Research Center. Data taken this year were for snowmold damage on May 13th, general appearance on July 5th and damage from dollarspot and Brownpatch on August 5th (Table 7a).

The three best appearing cultivars on July 5th were Compas, Hunter, and Norlea. Interestingly, these three cultivars sustained fairly high levels of snowmold and dollarspot damage. Since perennial ryegrass has very poor recuperative potential, it is surprising that these three cultivars looked best in mid-July.

The list of recommended cultivars for Michigan include Norlea, Loretta, Yorktown II, Diplomat, Manhattan, Derby, Omega, NK200 and Citation. Of these, Diplomat and Yorktown II looked the best this year when considering all three categories rated. Norlea, Loretta, Derby, Omega, NK200, and Citation also looked fairly good in most categories. A cultivar to keep in mind would be Jackpot which did very well in terms of resistance to snowmold and general appearance. Only one general appearance rating was taken since differences between cultivars were small throughout most of the summer.

Table 6. Soil pH control study on sandy loam at the Hancock Turfgrass Research Center. Treatments applied August, 1981. Averages for 3 replications.

| Treatment | | Depth of sampling, inches | | | |
| Chemical | Rate, tons/A | 0-2 | | 2-4 | |
		1982	1983	1982	1983
Limestone	6.0	7.5a*	7.6a	7.0ab	7.3a
Limestone	3.0	7.6a	7.3ab	6.6bc	6.7b
Limestone	1.5	7.0ab	7.0b	6.1cd	6.5b
Check	----	6.0cd	6.4c	5.5d	5.8c
Sulfur	0.5	4.1ef	4.8d	4.6c	4.6d
Sulfur	1.0	3.4g	4.3e	3.8fg	4.1d

Table 7. Soil pH control study on sandy loam at the Hancock Turfgrass Research Center. Treatments applied August, 1981. Sample taken August, 1982. Averages for 3 replications.

| Treatment | | Depth of | Available nutrient test, pounds/A | | | |
Chemical	Rate, tons/A	sample	P	K	Ca	Mg
Limestone	6.0	0-2	65	183ab	2867a	638a
		2-4	76	98c	1433b	590a
Check	---	0-2	86	188ab	1433b	268b
		2-4	104	123bc	1233b	220b
Sulfur	1.0	0-2	125	206a	433c	90c
		2-4	132	169ac	700c	77c

*Means followed by the same letter are not significantly different. Means separation by Duncan's Multiple Range Test (5%).

Table 7a. 1980 perennial ryegrass cultivar evaluation

	Snowmold Damage (1 = no damage 100 = 100% damage)	General Appearance (9 = best appearance)	Dollarspot and Brownspot Damage (1 = no infection)
Date Evaluated	5-13-83	7-5-83	8-5-83
Cultivar			
Compas	47 ABCD*	7.7 A	4 ABC
Hunter	43 BCDEF	7.7 A	5 ABC
Norlea	50 ABCD	7.7 A	3 BC
Bellatrix	70 AB	7.0 AB	4 ABC
Ensporta	48 ABCD	7.0 AB	7 A
Jackpot	5 FG	7.0 AB	4 ABC
Loretta	32 BCDEFG	7.0 AB	4 ABC
Ranger	20 DEFG	7.0 AB	5 ABC
Acclaim	32 BCDEFG	6.7 ABC	4 ABC
Blazer	20 DEFG	6.7 ABC	4 ABC
Player	67 ABC	6.7 ABC	6 AB
Yorktown II	14 DEFG	6.7 ABC	3 BC
Crown	9 EFG	6.3 ABCD	2 C
Pennfine	12 DEFG	6.3 ABCD	3 BC
Trimmer	30 CDEFG	6.3 ABCD	2 C
Delray	17 DEFG	6.0 ABCDE	4 ABC
Diplomat	7 FG	6.0 ABCDE	3 BC
Venlona	40 BCDEFG	6.0 ABCDE	5 ABC
Belle	12 DEFG	5.7 BCDEF	4 ABC
Princess	34 BCDEFG	5.7 BCDEF	4 ABC
Regal	20 DEFG	5.7 BCDEF	4 ABC
Arno	33 BCDEFG	5.3 BCDEF	6 AB
Dasher	5 FG	5.3 BCDEF	4 ABC
Manhattan	50 ABCD	5.3 BCDEF	7 A
Pennant	29 CDEFG	5.3 BCDEF	5 ABC
Runner	34 BCDEFG	5.3 BCDEF	7 A
Derby	24 DEFG	5.0 CDEF	6 AB
Fiesta	4 G	5.0 CDEF	3 BC
Omega	25 DEFG	5.0 CDEF	5 ABC
CBS	17 DEFG	4.7 DEF	4 ABC
Goalie	21 DEFG	4.7 DEF	4 ABC
Pronto	27 DEFG	4.7 DEF	4 ABC
NK 200	50 ABCD	4.3 EFG	4 ABC
Premier	8 FG	4.3 EFG	2 C
Citation	15 DEFG	4.0 FG	4 ABC
Elka	32 BCDEFG	4.0 FG	5 ABC
Idole	80 A	4.0 FG	2 C
Clipper	13 DEFG	2.7 G	4 ABC

*Treatments having the same letter are not significantly different. Means separation by Duncan's Multiple Range Test (5%).