

### Nitrogen Fertility Programs for a Penncross Creeping Bentgrass Green

A study evaluating the effect of several nitrogen fertility programs on the turf quality of Penncross creeping bentgrass was established in the fall of 1981. This is a joint study with J. M. Vargas, Jr. Treatments are outlined in Table 5 and data for 1982 are given in Table 6. Note the dollarspot ratings taken in November.

A similar study was initiated on annual bluegrass in the fall of 1982 mowed at fairway height. Since the study was just started, no data were taken.

### Effect of Nitrogen Fertilization and Topdressing Programs on the Quality of Penneagle Creeping Bentgrass

A study on the effect of annual rate of nitrogen application (3 or 6 pounds N per 1000 square feet annually) and topdressing program on the quality of the turf and the putting surface of Penneagle creeping bentgrass was established in July, 1982. The topdressing treatments included applications of a) 3 cubic feet sand per 1000 square feet every 3 weeks; b) 6 cubic feet and every 6 weeks; c) 12 cubic feet sand spring and fall; and d) 12 cubic feet of a sand loamy sand topdressing mix, spring and fall, as well as e) a plot which receives no topdressing. The objective is to determine if nitrogen rate affects the frequency and rate of topdressing required in a sand topdressing program.

Through 1982 no major responses occurred except for the color and growth response from the higher nitrogen application. Preliminary stimpmeter readings did not reveal any differences due to treatments. This study will be continued for several years to determine the effect of treatments on the development of layers in the green.

### Wetting Agent Effects on a Penncross Creeping Bentgrass Green

A long-term study on the effect of monthly use of 2 wetting agents (Aqua-Gro and Hydro-Wet) at 3 rates (0, 4 and 8 ounces per 1000 square feet) was established in July, 1982 at the Hancock Turfgrass Research Center on three soils: a) a sand-peat mix; b) a Purr-Wick (dune sand) green; and c) an unmodified sandy loam soil. No differences occurred during 1982.

### Potash Rate Effects on the Quality of a Penncross Creeping Bentgrass Green on Three Soils

A study on the effects of varying the rate of potash on the quality of Penncross creeping bentgrass was established in July, 1982 at the Hancock Turfgrass Research Center on three soils: a) a sand-peat mix; b) a Purr-Wick green (dune sand); and (c) an unmodified sandy loam soil. All plots receive 4 pounds of nitrogen annually and 1 pound of P<sub>2</sub>O<sub>5</sub> per square feet. The potash treatments are 0, 1, 2, 4, 6 and 8 pounds K<sub>2</sub>O per 1000 square feet annually as well as potash rates based on soil test and two times soil test recommendations. No differential responses occurred in 1982. Soil tests showed that little potassium was held in the sandy soils even at the very high rates of application. This is because of the lack of cation exchange capacity in the sandy soils. This has also been observed at Traverse City on sandy soils.

Table 5. Treatments applied in Penncross bentgrass nitrogen carrier fertility study at the Hancock Turfgrass Research Center. Treatments initiated in 1982. Plot size is 6 feet by 6 feet. Three replications.

No.	Treatment N carrier	Month of application, pounds N per 1000 sq ft						
		Nov	Apr	May	June	July	Aug	Sept
1	IBDU (coarse)	1.0	---	---	0.5	0.5	0.5	1.0
2	Sulfur coated urea	1.0	---	---	0.5	0.5	0.5	1.0
3	Powder blue + urea	0.5 0.5	---	---	0.25 0.25	0.25 0.25	0.25 0.25	0.5 0.5
4	Powder blue + urea	---	---	0.5 0.5	0.75 0.5	----	----	1.0 1.0
5	Urea	1.0	---	---	0.5	0.5	0.5	1.0
6	Check	---	---	---	----	----	----	---
7	Urea	---	1.0	---	----	----	----	1.0
8	Urea	---	1.0	1.0	1.0	----	----	1.0
9	Urea	---	2.0	2.0	2.0	----	----	2.0
10	IBDU (coarse)	---	1.0	1.0	1.0	----	----	1.0
11	Sulfur coated urea	---	1.0	1.0	1.0	----	----	1.0
12	Powder blue + urea	---	0.5 0.5	0.5 0.5	0.75 0.5	----	----	1.0 1.0
13	Urea	---	1.0	1.0	----	----	1.0	1.0
14	Ammonium nitrate	1.0	---	---	0.5	0.5	0.5	1.0
15	Ammonium nitrate	---	1.0	1.0	1.0	----	----	1.0
16	Milorganite	1.0	---	---	0.5	0.5	0.5	1.0
17	Milorganite	---	1.0	1.0	1.0	----	----	1.0
18	Oxamide	1.0	---	---	0.5	0.5	0.5	1.0
19	Oxamide	---	1.0	1.0	1.0	----	----	1.0

Table 6. Effect of nitrogen carriers on quality of a Penncross creeping bentgrass green at the Hancock Turfgrass Research Center.

No.	Treatment Carrier	Turfgrass quality rating (9=best)			Relative dollarspot density (1=least)
		July 2	Nov 2	Dec 15	Nov 2
1	IBDU	4.1j <sup>y</sup>	5.1fg	6.9ad	5.4ce
2	S.C. urea	5.4gh	5.1fg	7.1ac	5.5cf
3	P.B. + urea	5.0hi	5.5ef	7.4ac	5.0be
4	P.B. + urea	5.5g	7.1bc	4.9ce	3.9ac
5	Urea	3.4k	6.5ce	8.3a	4.3ad
6	Check	1.6l	3.6h	4.5de	4.8be
7	Urea	4.1j	5.6ef	5.8ae	3.6ac
8	Urea	8.0b	6.3ce	6.2ae	5.3ce
9	Urea	9.0a	8.9a	7.6ab	2.5a
10	IBDU	7.1de	4.3gh	4.3e	7.5g
11	S.C. urea	8.0b	5.0fg	6.1ae	6.5eg
12	P.B. + urea	7.5cd	7.6b	7.5ac	3.1ab
13	Urea	4.9i	6.4ce	5.9ae	3.1ab
14	Am. nit.	6.0f	7.0bd	8.3a	3.6ac
15	Am. nit.	8.0b	6.0df	5.3be	4.5ae
16	Milorg.	5.0hi	5.6ef	4.9ce	4.6be
17	Milorg.	7.0e	4.9fg	6.1ae	6.0dg
18	Oxamide	6.3f	3.5h	5.9ae	7.5g
19	Oxamide	7.8bc	3.3h	5.0ce	7.4fg

<sup>x</sup> - for specific treatment descriptions see Table 5 .

<sup>y</sup> - means in columns followed by the same letter are not significantly different from each other at the 5% level using the Duncan's Multiple Range Test.