

## TURFGRASS SOIL MANAGEMENT RESEARCH REPORT - 1984

P.E. Rieke and S. L. McBurney  
Crop and Soil Sciences, M.S.U.

This report summarizes turf research conducted at the Hancock Turfgrass Center in 1984 and was supported in large part by the Michigan Turfgrass Foundation. The financial and moral support of the Michigan Turfgrass Foundation and its members is gratefully acknowledged.

### IRRIGATION AND NUTRIENT BALANCE EFFECTS ON ADELPHI KENTUCKY BLUEGRASS

The data in Table 1 give the quality ratings on these plots during the growing season. As has been reported in the past the responses to nitrogen were reduced when the plots were irrigated daily at noon. Even the untreated check plot ranked highly under regular irrigation. But higher nitrogen rates were necessary to give acceptable quality ratings when limited moisture was applied. When the entire plot area was subjected to severe moisture stress in late June-early July due to a pump failure, the plots which received the higher N rates gave the highest susceptibility to wilt. If one is growing turf on sand and/or the area is unirrigated, then lower N rates are appropriate to keep the turf less susceptible to wilt. The lower summer quality ratings would be expected on turfs treated with lower nitrogen, even though they are less susceptible to wilt.

A further observation is the lack of response to potassium on these marginally low potash soils. With the clippings returned to the plot area, this may return enough potassium to prevent serious stress induced by the low potassium level in the soil. This is a cooperative project with J. M. Vargas, Jr. and Bruce Branham.

### EFFECT OF NITROGEN FERTILIZATION PROGRAM IN THE TURF QUALITY OF 3 CREEPING BENTGRASSES MAINTAINED AT PUTTING GREEN HEIGHT

After 3 years of treatments shown in Table 2, the quality ratings of Penncross and Penneagle creeping bentgrasses continue to be higher than with Emerald. At the low N rates Emerald provides a very open, poor quality turf, while the others are acceptable. At the higher rates of N all grasses become thatchy and puffy resulting in scalping.

### NITROGEN FERTILITY PROGRAMS ON PENNCROSS CREEPING BENTGRASS

This cooperative study with J.M. Vargas, Jr. was established in 1982. The treatments are outlined in Table 3. Data for 1984 are given in Table 4.

Table 2. Effect of N fertilization program on turfgrass quality ratings of Emerald, Penneagle and Penncross creeping bentgrasses maintained under putting green conditions. Nitrogen applications are made in May, June, July, August and September except as noted. Averages of 3 replications.

Treatment, lbs/1000 yr		Turfgrass quality rating (9 = greenest)			
N	Carrier	May 16	June 5	August 2	Sept 20
<b>Emerald</b>					
1	Urea	3.3 k <sup>x</sup>	3.5 j	2.5 n	3.1 k
2	Urea	3.7 jk	4.6 hi	3.1 mn	3.8 jk
3	Urea	4.2 hj	4.5 i	4.6 jk	5.1 hi
4	Urea	4.4 fj	5.1 ei	5.2 ij	5.5 fh
6	Urea	5.0 di	6.2 bd	6.3 dg	6.6 ce
8	Urea	5.3 cf	6.6 ac	6.6 ce	7.1 bd
4Y	Urea	6.1 ac	5.7 dg	5.5 gi	5.9 eh
4Y	Milorganite	5.7 bd	5.5 dg	5.4 hi	5.3 gh
4Y	Am. Nit.	4.3 gj	5.1 ei	5.3 hj	5.9 eh
<b>Penneagle</b>					
1	Urea	4.1 ik	4.8 gi	3.7 lm	4.1 j
2	Urea	4.3 gj	5.4 dh	4.4 kl	5.4 gh
3	Urea	4.7 ei	5.4 dh	5.7 fi	6.1 dg
4	Urea	4.7 ei	5.6 dg	6.1 dh	6.5 ce
6	Urea	5.2 cg	6.6 ac	6.9 bd	7.4 ac
8	Urea	5.4 ce	6.9 ab	7.4 ab	8.3 a
4Y	Urea	6.4 ab	6.0 ce	6.3 dg	7.1 bd
4Y	Milorganite	6.0 ac	5.9 ce	6.3 dg	6.5 ce
4Y	Am. Nit.	4.7 ei	5.5 dg	6.5 cf	7.0 bd
<b>Penncross</b>					
1	Urea	4.3 gi	4.9 fi	4.2 kl	4.3 ij
2	Urea	4.6 ei	5.3 di	4.6 jk	5.3 gh
3	Urea	5.1 dh	5.6 dg	5.6 gi	6.4 cf
4	Urea	5.2 eg	5.8 cf	6.0 ei	6.5 ce
6	Urea	5.3 cf	6.9 ab	7.2 ac	7.6 ab
8	Urea	5.7 bd	7.3 a	7.8 a	8.3 a
4Y	Urea	6.6 a	6.2 bd	6.3 dg	7.3 bc
4Y	Milorganite	6.1 ac	6.1 bd	6.5 cf	6.6 ce
4Y	Am. Nit.	5.3 cf	5.9 ce	6.3 dg	7.1 bd

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

<sup>Y</sup>Nitrogen program includes 1 pound N per 1000 sq. ft applied on November 5.