

Nitrogen fertilizer programs on Penncross creeping bentgrass

The nitrogen fertilizer programs outlined in Table 3 have been applied to Penncross creeping bentgrass. Treatment 9 which receives 8 pounds N per 1000 square feet annually ranks consistently high because of the higher N rate. Other treatments gave responses as expected. The check plots received 1 pound N per 1000 square feet each in July and September to maintain minimal density of turf.

A similar study was conducted on annual bluegrass maintained under fairway conditions. Because of variability in the composition of annual bluegrass and fine fescue in these plots, treatment responses were not as marked as on the Penncross creeping bentgrass plots.

Nitrogen carrier comparisons on Loretta perennial ryegrass

The nitrogen carrier treatments outlined in Table 5 were applied to Loretta perennial ryegrass on July 7 by Al Muir, an undergraduate, fulfilling the requirements for a special project. The N rate was 1.6 pounds per 1000 square feet. This was a short term study. The more soluble N carriers tended to rank higher, especially in the first 2 to 3 weeks. These responses should be similar to what would be expected on a Kentucky bluegrass turf. Because of an error in fertilizer application, at a rate too high, there was not a top ranking (rating) on most dates. The data from those plots is not included in Table 5.

Nitrogen carrier comparisons on Penncross creeping bentgrass

A study comparing several greens fertilizers was initiated August 1 as outlined in Table 6. There were small differences among carriers when applied at similar N rates. The 25-0-25, 13-0-44 and 32-0-16 fertilizers are from Turf Chemicals, Inc., 22-4-10 from Lebanon and 22-0-16 from Scott's.

Nitrogen and iron responses of grasses

A series of treatments with urea and iron sources were applied to perennial ryegrass, Kentucky bluegrass and annual bluegrass in different locations here at the Hancock Turfgrass Research Center. Responses to foliar applications of iron (3 gallons water per 1000 square feet) were more apparent at low N rates (1/2 pound or none) than when 1 pound N was applied per 1000 square feet. Foliar iron applications can be used cosmetically to improve turf color when modest N rates are appropriate. The response to foliar iron applications will be of limited duration since iron is relatively immobile in the plant and will be removed when the turf is mowed. Still the iron can be used to give a short term green color effect when this is desired if lower N rates are being applied. At higher N rates the iron response will tend to be masked by the response to soluble N.

Table 3. 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. Averages for 4 replications.

Treatment		Month of application						
No.	N carrier	Nov	Apr	May	June	July	Aug	Sept
-----Pounds N per 1000 sq. ft.-----								
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	---	---	0.25	0.25	0.25	0.5
		0.5	---	---	0.25	0.25	0.25	0.5
4	Powder blue Urea	---	---	0.5	0.75	---	---	1.0
		---	---	0.5	0.5	---	---	1.0
5	Urea	1.0	---	---	0.5	0.5	0.5	1.0
6	Check ^y	---	---	---	---	---	---	---
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	0.75	---	---	1.0
		---	0.5	0.5	0.5	---	---	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

^yCheck plots received 1 pound N per 1000 square feet as urea in July and September.

Table 4. Effect of nitrogen carriers on quality of a Penncross creeping bentgrass green at the Hancock Turfgrass Center. Averages for 4 replications.

Treatment ^z		Turfgrass Quality Rating (9 = best)						
No.	Carrier	Dec. 15	Apr. 18	May 24	June 26	Aug. 1	Sept. 29	Nov. 10
1	IBDU	6.9 ad ^x	4.9 fg	5.0 ce	4.1 j	5.4 af	4.9 ce	4.0 ce
2	S.C. urea	7.1 ac	4.9 fg	4.5 df	5.4 gh	5.9 af	4.6 df	3.8 cg
3	P.B. + urea	7.4 ac	5.3 ef	5.6 bd	3.4 k	6.5 ae	5.5 bd	4.0 ce
4	P.B. + urea	4.9 ce	6.9 bc	5.1 ce	5.5 g	4.0 ef	5.3 cd	3.5 dh
5	Urea	8.3 a	6.8 bc	5.5 bd	4.4 ij	6.5 ae	5.1 cd	4.2 cd
6 ^y	Check	4.5 de	3.3 h	2.3 h	2.4 l	3.5 f	2.9 i	3.5 dh
7	Urea	5.8 ae	5.4 ef	3.6 fg	4.1 j	4.4 df	3.9 fh	3.0 h
8	Urea	6.2 ae	6.1 ce	6.4 b	7.5 cd	5.6 af	6.3 b	3.4 eh
9	Urea	7.6 ab	8.7 a	8.9 a	8.8 a	7.9 a	8.8 a	6.9 a
10	IBDU	4.3 e	4.2 gh	4.5 df	7.1 de	6.4 ae	4.3 ef	3.5 dh
11	S.C. urea	6.1 ae	4.8 fg	4.0 eg	7.0 e	5.9 af	4.1 eg	3.4 eh
12	P.B. + urea	7.5 ac	6.4 ce	5.5 bd	7.5 cd	6.9 ad	5.3 cd	3.3 fh
13	Urea	5.9 ae	6.3 ce	6.1 bc	5.9 f	5.3 bf	6.3 b	4.4 c
14	Am. Nit.	8.3 a	7.3 b	5.8 bc	6.0 f	6.9 ad	5.6 bc	3.9 cf
15	Am. Nit.	5.3 be	5.8 df	5.4 bd	8.0 b	6.4 ae	5.5 bd	3.2 gh
16	Milorg.	4.9 ce	5.4 ef	5.6 bd	5.0 hi	4.6 cf	3.9 fh	5.0 b
17	Milorg.	6.1 ae	5.2 ef	3.0 gh	7.0 e	7.1 ac	3.3 gi	3.8 cg
18	Oxamide	5.9 ae	3.4 h	3.5 fg	4.3 ij	4.6 cf	3.8 fh	4.3 c
19	Oxamide	5.0 ce	3.4 h	3.0 gh	4.6 ij	5.2 bf	3.1 hi	3.5 dh

^xMeans in columns followed by the same letter are not significantly different from each other at the 5% level using Duncan's Multiple Range Test.

^yCheck plots received 1 pound N per 1000 square feet as urea in July and September.

^zFor treatment details, see Table 3.