

RESPONSES TO NITROGEN FERTILIZERS AND IRON

Greg Patchan, Paul Rieke, Allen Muir and Shawn McBurney

Frequently, questions are raised about what response can be expected to a given nitrogen fertilizer, particularly slow release N sources. To understand the type of response one should have some knowledge of the nature of the mechanism of slow release for the fertilizer. These plots were established to compare responses to several N carriers as outlined in Table 5. Each material was applied to a Loretta perennial ryegrass on July 7 at the rate of 1.6 pounds N per 1000 square feet. Note the rapid response of the soluble N sources while slow release formulations responded more slowly, as would be expected.

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 5. Nitrogen carrier study on Loretta perennial ryegrass. N applied at 1.6 pounds per 1000 square feet on July 7. Averages for 3 replications.

Formulation	Days After Application					
	5	11	17	22	27	32
Visual Turf Rating (9 = Greenest)						
18-5-9 (Lebanon)	4.7 df*	5.3 de	5.3 df	5.7 de	5.7 cg	6.3 bc
32-0-16 (Turf King)	6.0 ac	6.3 bc	6.0 bd	7.0 bc	7.3 bc	7.0 bc
25-0-25 (Turf King)	6.7 ab	6.7 b	6.3 bc	7.5 b	7.5 b	6.8 bc
13-0-44 (Turf King)	6.3 ac	6.7 b	6.3 bc	7.0 bc	7.0 bc	6.8 bc
22-4-10+DCD (Lebanon)	5.7 bd	5.7 cd	6.3 bc	7.0 bc	6.3 be	6.0 be
41-0-0 (Scotts)	4.0 ef	4.7 e	4.7 fh	5.7 de	6.2 be	6.0 be
X Milorganite	2.7 ij	2.7 gi	4.0 hi	5.2 ef	6.2 be	5.7 cf
X Urea	5.7 bd	6.3 bc	6.0 bd	6.7 bd	6.5 bd	6.7 bc
X Ammonium Nitrate	5.3 ce	6.3 bc	6.3 bc	6.7 bd	6.7 bc	6.8 bc
X IBDU (Estech)	2.3 h	2.0 i	2.0 l	2.7 hi	4.7 ei	4.8 dg
X Oxamide (Estech)	2.0 h	2.0 i	2.3 kl	2.7 hi	4.2 gi	4.7 dg
S. Coated Urea (CIL)	2.0 h	3.7 f	4.7 fh	5.5 e	6.7 bc	6.8 bc
14-0-0+Fe (Scotts)	3.0 gh	7.0 b	6.7 b	7.7 b	7.0 bc	7.0 bc
Powder Blue (BFC Chem)	2.7 gh	3.0 fh	3.0 jk	3.3 gh	4.3 fi	4.5 fg
X Powder Blue + Urea	2.7 gh	5.0 de	5.0 eg	5.3 e	5.7 cg	5.8 cf
FLUF (Cleary)	4.7 df	5.0 de	5.3 df	5.7 de	6.0 be	6.2 bd
20-0-2 (Agrochem)	4.7 df	6.3 bc	6.0 bd	7.0 bc	7.5 b	7.0 bc
Strand Restore (Agrochem)	7.0 a	6.3 bc	6.0 bd	7.0 bc	6.7 bc	7.3 b
20-0-0 (FAN-Cleary)	6.3 ac	5.7 cd	5.7 ce	6.7 bd	6.7 bc	7.3 b
16-2-4 (Cleary)	5.7 bd	5.0 de	5.0 eg	5.7 de	5.7 cg	5.7 cf
S. Coated Urea (Lakeshore)	4.7 df	3.0 fh	4.0 hi	4.0 g	4.8 dh	4.5 fg
24-4-12 (IBDU-Estech)	2.7 gh	3.3 fg	3.7 ij	4.3 fg	5.8 bf	6.0 be
Ureaformaldehyde (BFC Chem)	2.3 h	2.0 i	3.0 jk	3.3 gh	3.2 ik	3.8 gh
31-3-10 (Scotts)	4.7 df	5.0 de	5.0 eg	6.0 cde	6.3 be	6.3 bc
X Check	2.7 gh	2.0 i	2.0 l	2.3 hi	2.2 jk	2.5 hi

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