

NITROGEN CARRIER EFFECTS ON ANNUAL BLUEGRASS ENCROACHMENT INTO A PENNCROSS CREEPING BENTGRASS PUTTING GREEN

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A study is underway to evaluate the effects of different nitrogen carriers on encroachment of annual bluegrass (Poa annua) into a putting green which was established to Penncross creeping bentgrass (Agrostis palustris) in 1981. Treatments were initiated in 1987. The nitrogen carriers used in this study were calcium nitrate, urea and Milorganite.

Calcium nitrate and urea were applied at 1, 2 and 4 pounds of nitrogen per 1000 sq. ft. per year (lbs N/M/YR). Milorganite was applied at 2 and 4 lbs N/M/YR. All eight treatments are applied in four equal amounts approximately six weeks apart.

Calcium nitrate was applied at .25, .5 and 1 pound of nitrogen per 1000 sq. ft. with burn occurring at all rates. When using this material it is important to irrigate immediately after application.

The 2 and 4 pound rates of Milorganite produced the highest percentage of annual bluegrass (Table 7). The urea treated plots had less annual bluegrass than Milorganite plots but the differences were not significant. The calcium nitrate treated plots produced the lowest amount of annual bluegrass. A significant difference was shown between Milorganite and calcium nitrate. No statistical significance was shown between urea and calcium nitrate.

Orthogonal comparisons (Table 7) show that there were no nitrogen rate effects. That is the amount of nitrogen, 2 or 4 pounds per year had no influence on the percent invasion of annual bluegrass.

Milorganite is a very fine fertilizer for use on greens that are primarily annual bluegrass. Superintendents with bentgrass greens may wish to use an inorganic source of nitrogen.

TABLE 7. Nitrogen carrier effect on encroachment of annual bluegrass into a Penncross creeping bentgrass green. Hancock Turfgrass Research Center, June 1989.

Treatment	Rate (lb N/M/YR)	Annual bluegrass percentage
Urea	1	16
Urea	2	22
Urea	4	14
Calcium Nitrate	1	4
Calcium Nitrate	2	8
Calcium Nitrate	4	6
Milorganite	2	28.0
Milorganite	4	32
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2 lb all carriers		19.3
4 lb all carriers		17.4
Milorganite 2 and 4 lb		30.2
Calcium nitrate and Urea 2 and 4 lb		12.4
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<u>Comparisons</u>		
2 lb N vs 4 lb N		n.s.
Calcium nitrate and Urea vs Milorganite		**
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** - denotes significance at the 1% level