

SOILS RESEARCH REPORT

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There is growing interest in liquid application of nitrogen fertilizers to turf. A study was initiated at Traverse City to compare ammonium nitrate and urea, rate of nitrogen application and rate of dilution of the fertilizer. Data on injury to Kentucky bluegrass are given in Table 1. The injury from the ammonium nitrate treatments was evident within a few minutes after application. The initial injury occurred as a darkening of the foliage and developed a somewhat "greasy" appearance within an hour. Three days later the typical foliar burn symptoms were evident. There was much more injury with ammonium nitrate than with urea, both short term (1 hour) and three days later. The injury was reduced slightly by using the higher rate of water (12 gallons water per 1000 square feet) but this higher rate of water is not normally practical especially for the slight benefit gained. It must be remembered that these treatments were applied under conditions where maximum potential for injury might occur - on a hot dry day in late July. But this points out the caution which must be exercised in applying soluble nitrogen sources during stress periods. Note also that there was much less injury apparent from comparable rates of these two nitrogen carriers when applied in dry form. There is the potential, however, that injury from a dry application could cause more damage to the crown of the turf plant and thus have a longer influence than the foliar injury experienced from a liquid application. The latter is more striking but the plant could grow out of the foliar injury condition faster.

Table 1. Nitrogen carrier, rate and method of application effects on injury to Kentucky bluegrass at Traverse City. Treatments applied July 30, 1975.

Averages of 3 replications.

Carrier	Treatment		Relative injury rating (1=none; 10=severe)	
	N rate lbs/1000 sq ft	Method of application*	7/30/75	8/2/75
---	0	---	1.0	1.0
nitrate	1	3	6.8	6.3
urea	1	3	1.7	2.0
am. nitrate	1	12	5.3	4.3
urea	1	12	1.0	1.0
am. nitrate	2	3	8.7	8.0
urea	2	3	2.0	3.0
am. nitrate	2	12	7.0	6.3
urea	2	12	1.7	2.3
am. nitrate	1	Dry	1.0	2.0
am. nitrate	2	Dry	1.0	2.3
urea	2	Dry	1.0	1.0

*Gallons water per 1000 square feet applied with the nitrogen unless applied in dry form.