



# Creeping Bentgrass Response To New Nitrogen Carriers

By Richard A. Schmelzer

**Editor's Note:** Rick Schmelzer is a May, 1994 graduate of the University of Wisconsin Turf and Grounds Management Program. Rick entered the program late in his academic studies and graduated with only one season of golf course experience. Thus, he has elected to spend the summer of 1994 as an intern at the Cordillera Resort Golf Club in Vail, Colorado.

Turf fertilizer manufacturers are continually developing new products. Two that came onto the market this year are Scott's new methylene urea formulation, "Triaform", and "Hou-Actinite", a dried activated sewage sludge product produced in Houston.

In order to use new fertilizers successfully, turf managers need to know how turfgrass responds to the new products in relation to fertilizers with which they are already familiar. The purpose of this study was to compare bentgrass uptake from Triaform and Hou-Actinite with fertilizers that have been in use for some time.

## EXPERIMENTAL METHODS

This was a greenhouse study in which several fertilizers were applied

at the rate of 1.0 lb N/M to pots of 'Penncross' creeping bentgrass established in an 87:13 rootzone mix blended from Greensmix sand and Dakota reed sedge peat. A total of 4 sets of clippings were removed over the 34 days following fertilizer application. The clippings were oven-dried, weighed, ground and analyzed for their N concentration. A control treatment, one with no fertilizer N applied, was included in the study so that N uptake from the fertilized pots could be corrected for any N that may have come from the rootzone mix or the starter fertilizer applied when the bentgrass was seeded.

## OBSERVATIONS

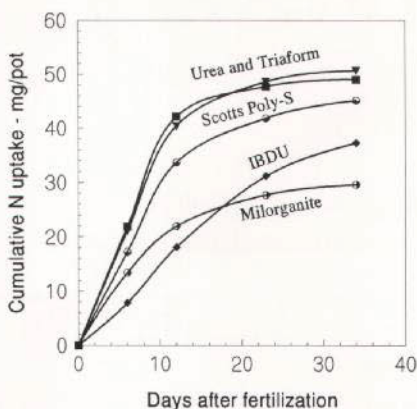
Scott's Triaform, which is high in short-chain dimethyltriurea, produced the most clippings among the 9 fertilizers tested (Table 1). It out-yielded the older Scott's methylene urea formulation by nearly 20% and Nutralene by 33%. Bentgrass growth response to Hou-Actinite was intermediate that of Milorganite and Sustane. On average, the synthetic N carriers produced 22% more clippings than did the natural

organic fertilizers.

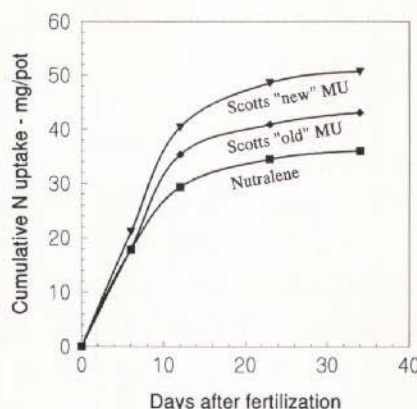
As expected, fertilizer N uptake was pretty much in accord with the amounts of clippings produced (Table 1). Fertilizer N uptake was essentially the same from urea and Triaform and higher than for any other N carriers. The lowest N uptake was from Milorganite, but this was not statistically different from the amounts of N taken up from IBDU, Nutralene, Hou-Actinite, or Sustane.

The N fertilizer recovery values ranged from 33.1 to 56.8% (Table 1). The latter value is high for such a short-term study. This probably reflects the near ideal growing conditions under which the study was conducted and the fact that no leaching loss of N was allowed. Nitrogen N recovery from the three natural organic fertilizers was similar and averaged 37%. In comparison, N recovery from the synthetic N carriers averaged 49%. Effective use of different N carriers requires some knowledge of how rapidly their N is made available to turfgrass. In this study, urea and Triaform were inseparable with regard to the pattern of N uptake by the creep-

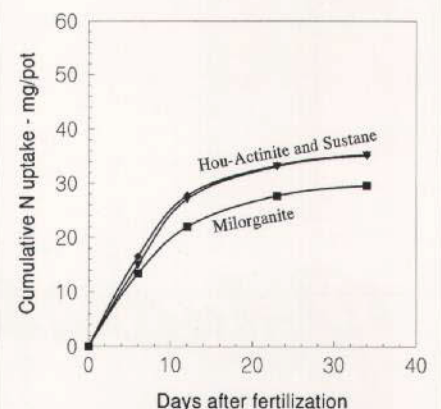
**FIGURE 1**  
Bentgrass N uptake from various types of N carriers.



**FIGURE 2**  
Bentgrass N uptake from three different methylene urea N carriers.



**FIGURE 3**  
Bentgrass N uptake from three natural organic N carriers.



ing bentgrass (Fig. 1). Scott's Poly-S released N at a slightly lower rate. Initially, the slowest N release rate was from IBDU. But after about 15 days, IBDU began to release N at a faster rate than did Milorganite, but considerably slower than from urea, Triaform or Poly-S.

The comparative N release patterns for the three methylene urea products tested are shown in figure 2. All released the same amount of N during the first 6 days after fertilization, but pronounced differences showed up after that. From then on, the amounts of N released followed the order Scott's "new" MU (Triaform) > Scott's "old" MU (applied as 32-3-10) > Nutralene.

Among the three natural organic N carriers, the patterns of N uptake were the same for Hou-Actinite and Sustane (Fig. 3). Starting about 6 days after fertilizer application, N was released at a somewhat slower rate from Milorganite than from Hou-Actinite and Sustane.

## CONCLUSIONS

Scott's Triaform clearly has higher activity than its older methylene urea

formulation, which is much like their Poly-S product in terms of the rate of N release. Thus, Triaform should perform better at cooler times during the season. During periods of warm weather, it may prove necessary to apply Triaform at somewhat lower rates than the older methylene urea products or

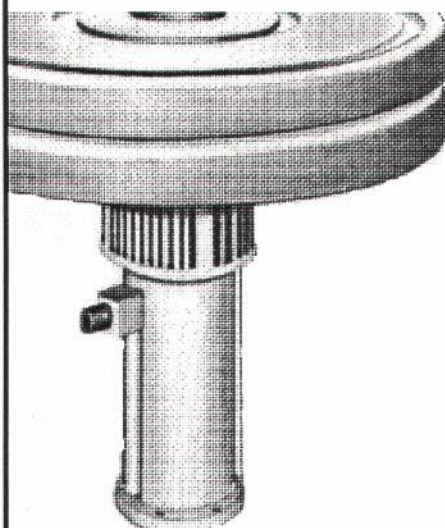
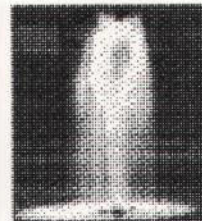
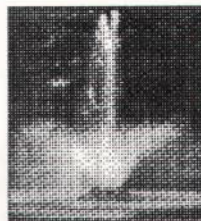
Poly-S to minimize surges in turfgrass growth.

In this study, Hou-Actinite behaved very much like Sustane. Its N release was a bit faster than from Milorganite, but the difference between the two may be difficult to detect under field conditions. ♣

**Table 1. Creeping bentgrass responses to various N carriers during 34 days of growth in the greenhouse**

N Carrier	Total clipping weight mg/pot	Fertilizer N uptake mg/pot	Fertilizer N recovery percent
IBDU	842	37.2	41.7
Nutralene	714	36.0	40.4
Scott's "old" meth. urea	794	43.0	48.2
Scott's "new" meth. urea (Triaform)	950	50.7	56.8
Scott's Poly-S	884	45.1	50.7
Milorganite	621	29.5	33.1
Hou-Actinite	708	35.3	39.6
Sustane	731	35.1	39.3
Urea	882	49.0	54.9
Duncan's LSD (p=.05)	189	8.1	7.2

# Troubled waters



## OTTERBINE AERATORS

The prescription for troubled breathing, poor circulation and changing temperatures in ponds and lakes is practical engineering that is aesthetically pleasing. These aerators range in power, circulating from 600,000 to 20 million gallons of water in a 24-hour period. Each complete, turnkey system is delivered fully assembled; no special pumps or foundations are required.

Striking patterns begin with the Starburst, Rocket, Sunburst, Constellation, or Phoenix working alone or mingled together. Add the Otterbine Fountain

Glo™ lighting system for spectacular evening display as well as security or the Rock Float Cover for the illusion of natural spray.



Otterbine Aerators meet the water management needs of golf courses, parks, recreational lakes, office developments, and residential condominiums.

*Reinders*

**IRRIGATION SUPPLY**  
13400 Watertown Plank Rd.,  
Elm Grove WI 53122-0825

800-782-3300