The Fate of Nitrogen Applied to a 10 Year Old Kentucky Bluegrass Stand. (C05-oreilly162431-Oral)

Authors:

- K.M.O'Reilly* - *Michigan State University, East Lansing, MI*
- K.W.Frank - *Michigan State University, East Lansing, MI*
- R.N.Calhoun. - *Michigan State University, East Lansing, MI*
- S.M.Redwine. - *Michigan State University, East Lansing, MI*
- J.H.Baird. - *United States Golf Association, Easton, PA.*

Abstract:

Extensive research on nitrate-nitrogen (NO3-N) leaching in turfgrass systems indicates that in most cases there is little risk for groundwater contamination from fertilizer applications. However, most of the research was conducted on research sites that were either recently disturbed or established. For this research the fate of N was examined in a mature Kentucky bluegrass stand using monolith lysimeters and microplots. From 1998 through 2002, half of the lysimeters and plot area were treated annually with urea at a high N rate of 245 kg ha-1. The remaining lysimeters and plot area were treated annually with urea at a low N rate of 98 kg ha-1, except in 2000 when only 73.5 kg ha-1 was applied. On October 17, 2000, 10 atom % 15N urea was applied to the microplots and lysimeters to facilitate fertilizer identification. Between 1998 and 2001, NO3-N concentrations in leachate at the low N rate averaged 2.76 mg L-1. At the high N rate, NO3-N concentrations in leachate averaged 11.58 mg L-1 and exceeded 20 mg L-1 on several sampling dates. Initial results indicate that total yearly applications of urea at 245 kg N ha-1 over several years may be excessive and lead to high NO3-N concentrations in leachate.

Corresponding Author Information:

Kevin O'Reilly
Michigan State University
A175A PSSB Michigan State University
East Lansing, MI 48824

phone: 517-432-0729
e-mail: oreillyk@msu.edu

Presentation Information:

Presentation Date: Thursday, November 14, 2002
Presentation Time: 8:15 am

Keywords:

Nitrogen Fate, nitrate, mass balance, Kentucky bluegrass