Predicting the Effects of Agricultural Management Practices on Subsurface Drainage:Tile Flow. (S01-ma104757-Oral)

Authors:

- R.W.Malone* - *USDA-ARS, Ames, IA*
- L.Ma - *USDA-ARS, Fort Collins, CO*
- L.R.Ahuja - *USDA-ARS, Fort Collins, CO*
- R.S.Kanwar - *Iowa State University, Ames, IA*

Abstract:

Much of the nitrate in surface waters within the Midwest cornbelt is from subsurface field drainage. Simulation models are tools that can estimate nitrate reduction from BMP's implemented on tile-drained fields. Quantifying nitrate reduction using models may accelerate adoption of BMP's and deepen our understanding of the processes driving water quality improvements. A first step toward using models for these purposes is to assess the model and proposed agricultural systems using a long-term and complete data set. This presentation investigates water transport from the Nashua, IA research farm using the Root Zone Water Quality Model (RZWQM). Observed data included 10 years of tile flow, chemical concentrations in soil and tile flow, and crop growth from 36 one-acre plots under several different agricultural practices and soil types. Modeling results indicate that RZWQM simulates variation in tile flow well compared to observed data, and shows promise in quantifying tile flow under different climate (year to year), soil, and management conditions.

Corresponding Author Information:

Liwang Ma
USDA-ARS
301 S. Howes, P. O. Box E
Fort Collins, CO

phone: 970-490-8339
e-mail: ma@gpsr.colostate.edu

Presentation Information:

Presentation Date: Thursday, November 14, 2002
Presentation Time: 9:30 am

Keywords:

Tile flow, RZWQM, Modeling, Management Practices