# A Layered Numerical Model to Predict Convective Dispersive Solute Transport. (S01-hill125904-Poster)

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## Abstract:

Solute transport is difficult to visualize and numerically challenging to solve for multi-layered soils with an organic turfgrass thatch layer. The objectives of this study were to develop an easy-to-use computer program that would simulate multi-layered convective dispersive transport and that would visually display the observed versus the predicted results of solute transport. Solutions for equilibrium and non-equilibrium convective dispersive equations were developed using Laplace transforms. A Windows-based program was developed using Visual C++ that would allow the user to select various fitting parameters, input the observed data for pesticide transport, and graphically display comparisons of observed versus predicted solute transport. Accuracy regarding time steps and fitting techniques during simulation (i.e. simplex, Marquardt, or combination methods) are user defined. The user may choose the parameters for up to six layers to be fit during the simulation. The computer code has been optimized to provide solutions in a relatively short time period. The program may be used by research scientists and/or by students to help visualize the impacts of transport parameters on the solute transport process.

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## Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 10:00 am-12:00 pm
Poster Board Number: 2032

**Keywords:**
convective dispersive transport, numerical solutions, layered model, equilibrium and non-equilibrium