A modular approach to modeling phosphorous in crop systems. (A03-bostick091042-Poster)

Authors:

- W.M.Bostick* - *University of Florida*
- S.H.Daroub - *University of Florida*
- J.T.Ritchie - *University of Florida*
- J.W.Jones - *University of Florida*

Abstract:

Soil phosphorous (P) limits crop yield in many regions of the world. Analysis of cropping systems in these regions can be enhanced with accurate simulation of soil and plant P dynamics. Many cropping system models do not simulate P dynamics, and are limited for use in soils with P limitations. In this work, soil and plant P models were integrated into the new modular DSSAT using the CROPGRO model for initial implementation and evaluation. Published data for soybean grown in the Midwest United States were used for initial evaluation of the ability of the model to simulate plant P concentrations during the growing season and the effects of soil P on yield of soybean. Comparisons of experimental data with simulated results indicate that the models are effective in simulating yield as affected by soil P. However, simulated plant P concentrations and P uptake were always higher than observed. Further work is needed to: link the P models with other crops in DSSAT, develop approaches for estimating soil P parameters, and evaluate the model in different regions and cropping systems. Initial results are promising, and the modular DSSAT simplifies the process of adding P components.

Corresponding Author Information:

McNair Bostick
University of Florida
1 Frazier Rogers Hall
Gainesville, FL 32611-0570

phone: 352-392-1864 ext. 292
fax: (352) 392-4092
e-mail: mcnair2@ufl.edu

Presentation Information:

Presentation Date: Wednesday, November 13, 2002
Presentation Time: 9:00-11:00 am
Poster Board Number: 133

Keywords:
soil and plant phosphorous, modular modeling, cropping system model, DSSAT