Nitrogen mineralization and ground water nitrate dynamics in a temperate alley cropping system. (A08-jose103439-Poster)

Authors:

- S.C.Allen - *University of Florida*
- S.Jose - *University of Florida*
- P.K.Nair - *University of Florida*

Abstract:

Excessive application of nitrogen fertilizer in commercial agricultural systems can lead to increased nitrification rates and to leaching of nitrate into groundwater. Temperate alley cropping may reduce these problems because tree roots may act as a 'safety net' for capturing N that leaches below crop roots. This hypothesis has been tested in a pecan (Carya illinoensis)-cotton (Gossypium sp.) alley cropping system at the Jay, FL, research farm of the University of Florida. The specific objectives were to determine the effect of trees on N mineralization in soil and N status in groundwater. Monthly N mineralization was determined using the in situ buried bag technique at specific distances (0, 1.5, 4.2 and 8.4 m from tree) in tree and alley rows. Nutrient leaching was quantified from lysimeter water samples collected from two depths (0.3 and 0.9 m) at specific distances (1.5, 4.2 and 8.4 m from tree) in alley rows. The study is shedding light on tree-crop interactions and their effects on N mineralization and groundwater quality, so that better systems can be designed.

Corresponding Author Information:

Shibu Jose
University of Florida
5988 Hwy 90, Bldg. 4900
Milton, FL 32583

phone: 850 983 5216
fax: 850 983 2637
e-mail: sjose@ufl.edu

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