Soil Amendment to Reduce Phosphorus Leaching in a Sandy Soil. (S11-he153216-Poster)

Authors:

- Z.L.He* University of Florida, IFAS, IRREC, Fort Pierce
- D.V.Calvert University of Florida, IFAS, IRREC, Fort Pierce
- P.J.Stoffella University of Florida, IFAS, IRREC, Fort Pierce
- Y.C.Li University of Florida, IFAS, Tropical REC, Homeste

Abstract:

Leaching of phosphorus (P) in sandy soils has been considered as a nonpoint source of P that affects surface water quality. Column leaching studies were conducted to evaluate effects of soil amendments on P leaching in a sandy soil. The soil was a Riviera fine sand (loamy, siliceous, hyperthermic, Arenic Glossaqualf) from a commercial citrus grove in Florida. The soil amendments were: (1) cellulose (organic carbon; C), (2) clinoptilolite zeolite (CZ), (3) lime (CaCO3), (4) gypsum (CaSO4), (5) Remix (a commercial product made from slag out from steel manufacture), and (6) C plus CZ. The application rate was 15 g kg-1 for all the additives. For low P soil (14 mg kg-1 Olsen-P), addition of cellulose was most effective, reducing leachate P concentration from 1.2 mg L-1 to below 0.3 mg L-1 in the first volume of leaching and from 0.9 mg L-1 to <0.1 mg L-1 in the 6th volume of leaching. The cumulative amount of P leached by the six volumes of leaching decreased among the different amendments in the order of control, zeolite > gypsum > cellulose + zeolite > Remax, lime > cellulose. For high P soil (amended with 100 mg P kg-1 soil), Remax was the most effective, which reduced leachate P from >60 mg L-1 to below 0.5 mg L-1 in the first volume of leaching, followed by cellulose and lime amendment. Z. L. He, 772 468 3922, zhe@mail.ifas.ufl.edu

Corresponding Author Information:

Zhenli He University of Florida 2199 S. Rock Road Fort Pierce, FL 34945-3138 phone: 561-468-3922 fax: 561-468-5668 e-mail: zhe@mail.ifas.ufl.edu

Presentation Information:

Presentation Date: Monday, November 11, 2002 Presentation Time: 9:00-11:00 am Poster Board Number: 1320

Keywords:

column leaching, phosphorus, sandy soil, soil amendment