A Comparison of Bromide and Nitrate Transport in Soils. (S02-alva154428-Oral)

Authors:

- A.K.Alva* - *USDA-ARS, Prosser, WA*
- S.Paramasivam - *Savannah State University*
- H.P.Collins - *USDA-ARS, Prosser, WA*
- K.S.Sajwan - *Savannah State UNiversity*
- R.A.Boydston - *USDA-ARS, Prosser, WA*

Abstract:
Sandy soils (with sand content 95-98%) are used for agricultural production, which require careful management of water, chemicals, and nutrients to minimize leaching below the rooting zone. Bromide is used as an indicator of downward transport of soluble nutrients in soils. A leaching column study was conducted using a Quincy fine sand with application of 112 kg/ha Br (as KBr) and 112 kg N/ha as urea. All of Br applied was leached rapidly through 120 cm depth soil column in one pore volume of leachate. After leaching of five pore volumes of water, the ammonium and nitrate in the leachate was somewhat equally distributed over the five PV. A study conducted in a sandy Entisol which received 112 kg/ha Br (as KBr). The applied Br leached entirely from the top 2.4 m depth soil profile within 42 days with cumulative water application (rainfall plus irrigation) of 308 mm. Within this time period, soil extractable nitrate also decreased to background concentrations (<1 mg/kg) regardless of application of different rates of N, i.e. 28 to 112 kg/ha, as ammonium nitrate.

Corresponding Author Information:

Ashok Alva
USDA-ARS, Prosser
24106 N Bunn Road
Prosser, WA 99350

phone: 509-786-9205
fax: 509-786-9277
e-mail: aalva@pars.ars.usda.gov

Presentation Information:

Presentation Date: Tuesday, November 12, 2002
Presentation Time: 10:00 am

Keywords:

Pollutant transport, Vadose zone, Groundwater contamination, Surficial aquifer