Soil Nutrient Accumulation and Movement from Long-term Poultry Broiler Litter Applications. (A04-mitchell084921-Poster)

Authors:

- C.C.Mitchell* - *Auburn University*
- S.Tu - *University of Florida*

Abstract:

Poultry broiler litter (BL) has been applied to crops of cotton and corn on a Coastal Plain soil (fine-loamy, siliceous, thermic Typic Kandiudults) since 1991 in Central Alabama and to a Tennessee Valley soil in North Alabama (clayey, kaolinitic, thermic, Rhodic Paleudults) in 1990-1992. Variable N rates from 0 to 269 kg/ha were applied based upon the total N content of BL and compared to fertilizer N rates as ammonium nitrate. Periodically during the experiments deep soil samples were taken to a 1 m depth in 15-cm increments in selected treatments in order to evaluate the effect of treatments on nutrient accumulation and movement. The results indicated that BL applications maintained surface soil pH whereas, as expected, pH and Mehlich-1 extractable Ca levels dropped when ammonium nitrate was used as an N source. Long-term application of BL resulted in accumulation of total C, total N, Ca, Mg, P, K, B, Zn, and Cu as the rates of BL increased. No significant accumulation of heavy metals was observed in the soil tested during the experiment. Nitrogen mineralization and leeching below the rooting zone was rapid.

Corresponding Author Information:

Charles Mitchell — phone: 334-844-5489
Auburn University — fax: 334-844-3945
201 Funchess Hall — e-mail: cmitchel@acesag.auburn.edu
Auburn, AL 36849

Presentation Information:

Presentation Date: Tuesday, November 12, 2002
Presentation Time: 9:00-11:00 am
Poster Board Number: 635

Keywords:

Nitrate leaching, Poultry litter, Phosphorus accumulation, Poultry manure