VARIATION IN SOIL CHEMICAL ANALYTICAL RESULTS AMONG GRADUATE STUDENTS

Russell D. Briggs, Donald H. Bickelhaupt, and Eric O. Young

SUNY College of Environmental Science and Forestry, 358 Illick Hall, 1 Forestry Drive, Syracuse, NY 13210

rdbriggs@esf.edu

Variability in soil chemical analyses results from spatial and temporal effects in the field as well as laboratory technique. We assessed the reliability of soil chemical analytical results among graduate students recently trained in laboratory procedures. Soil samples were collected in November 2003 from A and B horizons of three pits excavated from two different map units under agricultural management. Each of the 12 samples was processed through a 2-mm sieve, thoroughly mixed, and stored in five individual containers (60 total). Beginning January 2004, five students (each provided with 12 sample containers) analyzed their samples for pH, organic carbon, CEC, extractable P, total N, and exchangeable cations. An experienced (30+ yr) technician analyzed each of the 60 samples for the same variables. Analysis of variance (split-split plot) showed significant differences among students for all variables examined. However paired t-tests showed no consistent significant differences between four of five students and the experienced technician for most variables. We conclude that data from recently trained graduate students are reliable.