Measurement of Beef, Poultry, and Swine Manure Composition by Near-Infrared Spectroscopy. (A00-roberts161725-Oral)

Authors:

- T.L.Roberts* - *Oklahoma State University*
- J.A.Hattey - *Oklahoma State University*

Abstract:

Advances have been made in the area of animal waste analysis and Near Infrared Spectroscopy (NIRS), but the demand for a rapid waste analysis method has been answered with new procedures and NIRS instrumentation. Current laboratory methods provide managers with valuable information, but the incorporation of NIRS has reduced animal waste analysis time by 80 percent over traditional methods, while reducing the sample size and amount of equipment. The objective of this experiment was to evaluate the the potential of NIRS to predict various organic and inorganic constituents in manure with high variability in water content. Animal waste samples were obtained from CAFO units in IA, MO, and OK. Approximately 100 samples were scanned using an NIRS system with a wavelength range of 1100-2498 nm and analyzed using traditional laboratory methods. The correlation between NIRS reflectance and concentrations of NO3-N, NH4, TKN, H20, P and Cu. Results show a strong ability to predict P, H2O, NO3-N, and Cu in samples with <90 percent water, but lacked the ability to effectively correlate the scans for samples with >90 percent water content. The continued success of NIRS in animal waste management will allow managers to make informed decisions with less time needed for laboratory analysis.

Corresponding Author Information:

Trenton Roberts
Oklahoma State University
PO Box 532
Bloomfield, NM 87413

phone: (405) 269-6860
e-mail: fmb56@hotmail.com

Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 8:45 am

Keywords:
Animal Waste, Manure, NIR