

## ENVIRONMENT

**Title:** Application of Near-Infrared Technology to Swine Manure Analysis  
**NPB# 98-243**

**Investigator:** Jeffery Lorimor

**Institution:** Iowa State University

**Co-Investigator:** Charles Hurburgh

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### Abstract

*Ninety seven samples were obtained from swine finishing manure pits. The samples were used to test and compare two NIR machines for prediction capabilities of manure nutrients. An NIRSystems 6500 provided good predictions of total solids and phosphorus, and fair predictions of total Kjeldahl nitrogen and ammonia. A Bruker machine provided poor predictions for the liquid manure samples. Different machines will have to be individually calibrated and evaluated to be used for NIR predictions of manure nutrients.*

*Nutrient concentrations were examined. In general nitrogen and phosphorus concentrations were lower than current state estimates. TKN averaged 39.5 and P<sub>2</sub>O<sub>5</sub> 32.6 lb/1000 gal, respectively. Ammonia constituted nearly 80% of the total nitrogen in the samples.*

*Statistical methods were used to define the accuracy of predictions based on the number of buildings sampled. For a single sample from a single building nitrogen can be estimated to within + 7.5, and P<sub>2</sub>O<sub>5</sub> to within 10.7 lb/1000 gal. respectively.*

*These research results were submitted in fulfillment of checkoff funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer reviewed*

#### For more information contact:

**National Pork Board, P.O. Box 9114, Des Moines, Iowa USA**

800-456-7675, Fax: 515-223-2646, E-Mail: [porkboard@porkboard.org](mailto:porkboard@porkboard.org), Web: <http://www.porkboard.org/>