

Manure Production and Composition from Current Swine Genetic Lines

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Small scale group feeding trials and on-farm tests will be conducted to accurately determine the volume and composition of manure from different genetic lines of pigs fed commercial diets and by using mass balance techniques, develop prediction models for different genetic lines on nutrient excretion, pig lean growth and whole animal nutrient mass balance. This information will be used for accurately predicting the nutrient flow from pigs in comprehensive nutrient management planning. This project is partially funded by the 6-state Consortium on Animal Waste Management and the National Center on Manure and Animal Waste Management.

Diet Modifications to Reduce Nutrient Excretions and Enhance Air Quality in Swine Operations

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An integrated multi-state swine nutrition research and extension project will be initiated to determine effective diet modification practices to reduce nutrient excretions and minimize odors while maintaining a viable swine production industry in the United States. Using specialized facilities and methodologies, nutritionists, geneticists, agricultural engineers, and economists will team together to reduce the impact of swine production on the environment. Small-scale group feeding studies will be conducted to study the effects of increased biologically available amino acids and phosphorus, other mineral sources, and use of a new commercial beta-agonist in the pig's diet on odors and nutrient excretions in manure where animal performance, odor emissions and manure nutrient composition can be accurately determined. On-farm studies with commercial operations will validate the most promising diets on producer farms with lean gain curves generated for the genetic lines of the operations to validate whole animal nutrient utilization and excretion models. An economic model for producers to evaluate cost effective and environmentally sound management alternatives will be developed along with the lean growth-nutrient excretion model. Odor analyses by olfactometry, and manure chemical analyses will be conducted. This project is partially funded by a USDA IFAFS grant.



Impact of Intestinal Microbiota on Pig Health and Performance

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The normal intestinal microbial population is important in nutrition and health. We are currently determining the effect of diet and a variety of stressors on the composition and function of the predominant microbiota and the effect that the predominant microbiota has on animal health, performance, odors, and food safety.

