Facilities

• Mead (1974)
  250 sows
  farrow-to-finish

• Lincoln
  Metabolism room (12 crates)
  Nursery (18 pens)
  Individual feeding rooms
    36-pen room
    24-pen room
  18-sow farrowing capacity with adjoining nurseries
Graduate Students

• Justin Bundy
• Erin Hinkle
• Huyen Tran
• Yanshuo Li
• Katie Wortman
Research Focus Areas

• Nutrient management and nutrient constraints of lean growth in swine
• Nutrient/energy effects on gilt development and sow longevity
• Interactions among nutrient intake, gastrointestinal physiology/metabolism, and nutrient uptake in nursery pigs
• Effects of sow parity and nursery pig nutrient intake on the diversity of gut microbial populations
Nutrient Management
Interests

• Reduced protein, amino acid supplemented diets (growing-finishing pigs) – impacts on N balance and efficiency of N utilization

• Phosphorus balance - Phytase
N Utilization

Excess N

First limiting amino acid (lysine)

Amino acid

Requirement, %

100

Corn + SBM
Reduced CP

First limiting amino acid (lysine)

Excess N
Reduced CP + Synthetic amino acids

First limiting amino acid (lysine)

Supplied by crystalline amino acids

Requirement, %

100

Excess N
Reduce N Excretion

Adapted from Figueroa et al., 2000
From: Knowlton et al., 2004
Figure 2. Apparent P digestibility response curve adapted from Kornegay et al. (1998). (Data used to derive the response curve were obtained from Eeckhout and de Paepe, 1991; Nasi, 1991; Beers et al., 1992; Jongbloed et al., 1992, 1996; Lei et al., 1993a,b; Mroz et al., 1993, 1994; Adeola and Sutton, 1995; Cromwell et al., 1995; Kornegay and Qian, 1996; Han et al., 1997; Harper et al., 1997; Liu et al., 1997; Murry et al., 1997; and Kornegay, et al., 1998.)
Past and Current Collaborations

• Brian Kerr, USDA ARS (Ames)
• John Gilley, Dennis Schulte, Rick Koelsch
• Brian Wienhold
• NCCC-042 Swine Nutrition Committee
• National Academy of Science, NRC revision of Swine Nutrient Requirements

... Strategies to increase nutrient retention and thus reduce fecal and urinary excretions that could contribute to environmental pollution will be reviewed ...
Questions