

ANIMAL SCIENCE

Title: Comparative Digestibility of energy and nutrients in gestating sows and growing pigs
– NPB #12-180

Investigator: Hans H Stein

Institution: University of Illinois

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Scientific Abstract

The objective of this research was to compare DE and ME values and ATTD of energy and nutrients in 11 diets fed to both growing pigs and gestating sows. Eleven feed ingredients were used. Three ingredients were cereal grains (corn, sorghum, and wheat), 4 were common protein sources [soybean meal, canola meal, distillers dried grains with solubles (DDGS), and low-fat DDGS], and 4 were high-fiber ingredients (corn germ meal, corn bran, wheat middlings, and soybean hulls). Eleven diets were formulated. Three 3 diets were based on corn, wheat, or sorghum, and 8 diets were based on a combination of corn and each of the remaining 8 ingredients. A total of 88 gestating sows (parity 2 to 6) and 88 growing barrows (40.1 ± 4.69 kg BW) were used and randomly allotted to the 11 diets with 8 replicates per diet. Fecal and urine samples were collected for 4 d following a 19-d adaptation period. The DE, ME, and ATTD of ADF, NDF, and CP in all diets were calculated. Gestating sows had greater ($P < 0.05$) ATTD of GE and CP, and DE values (as-fed and DM basis) for all diets compared with growing pigs. Gestating sows had greater ($P < 0.05$) ME values (as-fed and DM basis) for grain diets and protein source diets than growing pigs. No differences were observed in ATTD of ADF and NDF between gestating sows and growing pigs for any of the diets. The ATTD of GE and CP, and DE values in gestating sows may be directly predicted from the values obtained in growing pigs. For both gestating sows and growing pigs, prediction equations can be used to estimate ATTD of GE and CP, and DE and ME values in the diets from the concentrations of nutrients and GE. Results of this research indicate that apparent digestibility values of CP and energy obtained in gestating sows are greater than values obtained in growing pigs, but apparent digestibility of fiber obtained in growing pigs is not different from digestibilities in gestating sows.

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 This report has not been peer-reviewed.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 • PO Box 9114 • Des Moines, IA 50306 USA • 800-456-7675 • Fax: 515-223-2646 • pork.org
