

ANIMAL SCIENCE

Title: Phosphorus digestibility and concentration of digestible and metabolizable energy in corn, corn co-products, and bakery meal fed to growing pigs – **NPB #11-168**

Investigator: Hans H. Stein

Institution: University of Illinois.

Date Submitted: November 21, 2012

SCIENTIFIC ABSTRACT:

Two experiments were conducted to determine the standardized total tract digestibility (STTD) of P and the concentration of ME in corn, hominy feed, bakery meal, distillers dried grains with solubles (DDGS), corn gluten meal, corn gluten feed, and corn germ meal fed to growing pigs. In Exp. 1, 84 barrows (BW: 13.7 ± 2.3 kg) were placed in metabolism cages and allotted to a randomized complete block design with 14 diets and 6 pigs per diet. Fourteen diets were formulated to contain corn, hominy feed, bakery meal, DDGS, corn gluten meal, corn gluten feed, or corn germ meal and either 0 or 500 units of microbial phytase. The STTD of P was greater ($P < 0.01$) in DDGS, corn gluten meal, and corn gluten feed than in corn, hominy feed, bakery meal, and corn germ meal, and the STTD of P was also greater ($P < 0.01$) in bakery meal than in corn and hominy feed. Addition of phytase increased ($P < 0.05$) the STTD of P in corn, hominy feed, bakery meal, and corn germ meal, but not in corn gluten meal, corn gluten feed, and DDGS. In Exp. 2, 56 barrows (BW: 14.6 ± 2.2 kg) were placed in metabolism cages and allotted to a randomized complete block design with 7 diets and 8 pigs per diet. Three diets based on corn, hominy feed, or bakery meal and 4 diets containing corn and DDGS, corn gluten feed, corn gluten meal, or corn germ meal were formulated. The concentration of ME was 3,891, 3,675, 3,655, 3,694, 4,400, 3,169, and 3,150 kcal/kg DM in corn, hominy feed, bakery meal, DDGS, corn gluten meal, corn gluten feed, and corn germ meal, respectively. The ME in corn was greater ($P < 0.01$) than in hominy feed, bakery meal, corn gluten feed, and corn germ meal, but less ($P < 0.01$) than in corn gluten meal. In conclusion, DDGS, corn gluten meal, and corn gluten feed have a greater STTD of P than corn, hominy feed, bakery meal, and corn germ meal, but phytase can be included in diets containing corn, hominy feed, bakery meal and corn germ meal to improve P digestibility. The ME was greater in corn gluten meal than in bakery meal, corn, and corn co-products.

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
