

Nonruminant Nutrition: Minerals and Vitamins

554 Effects of phytase supplementation on apparent and standardized total tract digestibility of P in corn, soybean meal, and distillers dried grains with solubles (DDGS) fed to growing pigs. F. N. Almeida* and H. H. Stein, *University of Illinois, Urbana*.

An experiment was conducted to measure the apparent total tract digestibility (ATTD) and the standardized total tract digestibility (STTD) by growing pigs of P in corn, soybean meal (SBM), and distillers dried grains with solubles (DDGS) without and with supplementation of microbial phytase. Seven diets were prepared. Two diets were based on corn, 2 diets were based on SBM, 2 diets were based on DDGS, and 1 diet was a P-free diet. Corn, SBM, or DDGS were the only sources of P in the diets. One of the diets with each ingredient contained no microbial phytase while the other diet contained 500 units/kg of phytase (Optiphos, Enzyvia LLC, Sheridan, IN). A total of 42 growing barrows (initial BW: 13.5 ± 3.9 kg) were randomly allotted to the 7 dietary treatments with 6 pigs per treatment. All pigs were fed experimental diets for 10 d with the initial 5 d being an adaptation period to the diet, whereas feces were collected quantitatively during the final 5 d of the experiment using the marker to marker procedure. The ATTD of P was calculated for corn, SBM, and DDGS and the effect of microbial phytase was calculated as well. The basal endogenous losses of P (ELP) were measured from pigs fed the P-free diet and values for ATTD of P in the 6 P-containing diets were corrected for the basal ELP to calculate STTD values for P in each of these diets. Results showed that the addition of phytase increased ($P < 0.001$) ATTD of P from 19.9 to 57.8% in corn and from 41.5 to 68.4% in SBM, but the ATTD of P in DDGS without phytase (68.6%) was not different from the ATTD of P in DDGS with phytase (71.0%). The ELP was 199 mg/kg DMI. The addition of phytase also increased ($P < 0.001$) STTD of P in corn and SBM (from 26.4 to 64.4% and from 48.3 to 74.9%, respectively), but the STTD values of

P in DDGS without and with phytase (72.9 and 75.5%, respectively) were not different. In conclusion, the addition of phytase increased the ATTD and STTD of P in corn and SBM, but had no influence on the ATTD and STTD of P in DDGS.

Key Words: digestibility, pigs, phosphorus