

**225 Standardized total tract digestibility of P in blood products fed to weanling pigs.** F. N. Almeida\* and H. H. Stein, *University of Illinois, Urbana.*

An experiment was conducted to measure the apparent (ATTD) and the standardized (STTD) total tract digestibility of P in spray dried plasma protein (SDPP), in porcine blood meal, and in avian blood meal when fed to weanling pigs. Each blood product was used in the amount of 20% as the sole source of P in a cornstarch-based diet that also contained sucrose, vitamins and minerals other than P. A P-free diet that was used to measure the basal endogenous loss of P was also formulated. Twenty 4 pigs (initial BW:  $18.8 \pm 3.2$  kg) were randomly allotted to the 4 dietary treatments with 6 pigs per treatment. Pigs had 5 d of adaptation to diets followed by 5 d of total collection of feces. The ATTD of P was greater ( $P < 0.01$ ) for pigs that were fed SDPP (91.91%) than for pigs that were fed either porcine blood meal (76.46%) or avian blood meal (57.67%), and pigs that were fed porcine blood meal also had greater ( $P < 0.01$ ) ATTD of P than pigs that were fed avian blood meal. The basal endogenous loss of P was 219 mg/kg of DMI. There were no differences in the STTD of P between pigs that were fed porcine blood meal (89.74%) or avian blood meal (86.11%), but the STTD of P in these 2 ingredients was less ( $P < 0.05$ ) than the STTD of P in SDPP (104.39%). In conclusion, results of this experiment demonstrated that blood products are excellent sources of digestible P in diets fed to weanling pigs, but SDPP has a greater STTD of P than porcine or avian blood meal.

**Key Words:** blood meal, phosphorus digestibility, pigs, spray dried protein plasma

**226 Standardized total tract digestibility and relative bioavailability of phosphorus in dicalcium phosphate and corn distillers dried grains with solubles fed to growing pigs.** S. R. Baker,\* B. G. Kim, and H. H. Stein, *University of Illinois, Urbana.*

Two experiments were conducted to compare values for the standardized total tract digestibility (STTD) and the relative bioavailability of P in dicalcium phosphate (DCP) and corn distillers dried grains with solubles (DDGS) when fed to growing pigs. In Exp. 1, the apparent total tract digestibility (ATTD), the basal endogenous P loss (EPL), and the STTD of P in DCP (PCS Sales Inc., Northbrook, IL) and DDGS (Lincolnland Agri Energy LLC, Palestine, IL) were determined. Eighteen pigs (initial BW:  $34.93 \pm 1.04$  kg) were allotted to 3 cornstarch-based diets in a randomized complete block design and housed individually in metabolism cages. Two diets contained DCP and DDGS, respectively, as the sole source of P and the last diet was a P-free diet that was used to measure EPL from the pigs. Results indicated that the ATTD of P in DCP and DDGS were 86.1 and 58.8%, respectively, and the STTD of P in DCP and DDGS were 93.1 and 63.1%, respectively. The EPL was determined at 174 mg/kg DMI. In Exp. 2, 40 2 pigs (initial BW:  $29.02 \pm 2.03$  kg) were allotted to 7 dietary treatments in a randomized

complete block design. Pigs were housed individually and allowed ad libitum access to feed and water. A basal diet (0.22% P) based on corn, casein, cornstarch, and potato protein concentrate was formulated. Three additional diets were formulated by adding 0.04, 0.08, or 0.12% P from DCP to the basal diet to create diets containing 0.26, 0.30, or 0.34% P. The last 3 diets were formulated by adding 0.04, 0.08, or 0.12% P from DDGS to the basal diet at the expense of cornstarch. Pigs were fed experimental diets for 28 d. They were then killed and the third and fourth metacarpals from the right front foot were collected. Metacarpal bone ash was regressed against P intake for each ingredient, and via slope ratio methodology it was determined that the bioavailability of P in DDGS was 60% relative to that in DCP. It was concluded from this work that there is good agreement between values for the STTD of P and the relative bio-availability of P in DDGS.

**Key Words:** bioavailability, phosphorus, pigs, standardized digestibility