

were placed in metabolism crates. Four diets were formulated using a 2 × 2 factorial arrangement with diets containing a low or high amount of phytate (0.98 and 2.94%, respectively) and 0 or 500 units/kg of microbial phytase. Diets were based on corn, soybean meal, limestone, and dicalcium phosphate, and high-phytate diets also contained 40% full fat rice bran. A Ca-free diet and a P-free diet were formulated to determine basal endogenous loss (BEL) of Ca and P, respectively. Feces and urine were quantitatively collected for 4 d after 4 d of adaptation. Supplementation with microbial phytase increased the ATTD, STTD, and retention of Ca and P if gestating sows were fed the low-phytate diet, but for growing pigs, the microbial phytase increased the ATTD, STTD, and retention of Ca and P only in the high-phytate diet (3-way interaction, $P < 0.01$; Table 1). The BEL of Ca was 1.58 and 0.43 g/kg DMI (unpaired t -test: $P < 0.001$) for gestating sows and growing pigs, respectively, and BEL of P was 0.78 and 0.16 g/kg DMI (unpaired t -test: $P = 0.011$) for gestating sows and growing pigs, respectively. In conclusion, gestating sows have reduced digestibility and retention of Ca and P, but increased BEL of Ca and P, compared with growing pigs. Effect of microbial phytase depended on feed ingredient in the diets and physiological state of the animals.

Key Words: gestating sow, digestibility, retention

157 Comparative Digestibility and Retention of Calcium and Phosphorus By Gestating Sows and Growing Pigs Fed Low- and High-Phytate Diets without or with Microbial Phytase. S. A. Lee^{*1}, C. L. Walk², H. H. Stein¹, ¹University of Illinois at Urbana-Champaign, Urbana, IL, ²AB Vista, Marlborough, United Kingdom

Objectives were to test the hypothesis that no differences between gestating sows and growing pigs exist for apparent total tract digestibility (ATTD), standardized total tract digestibility (STTD), and retention of Ca and P or for the Ca and P releasing efficiency of microbial phytase. Forty-eight gestating sows (BW: 245.9 ± 23.7 kg; parity: 3.48; d of gestation: 40) and 48 growing barrows (BW: 19.8 ± 1.05 kg)

Table 1. Digestibility and retention of Ca and P in diets fed to gestating sows and growing pigs

Item ¹ ,%	Gestating sows				Growing pigs				SEM
	Low-phytate		High-phytate		Low-phytate		High-phytate		
Phytase units/kg	0	500	0	500	0	500	0	500	
STTD of Ca, % ^{***}	25.59	39.52	29.91	24.73	77.82	79.47	44.32	58.05	5.44
Ca retention, % ^{***}	1.22	16.16	7.37	2.17	68.80	72.99	32.34	51.75	5.40
STTD of P, % ^{**}	27.80	39.32	12.04	12.81	62.63	65.39	26.91	38.14	3.99
P retention, % ^{***}	1.23	11.15	-1.15	-4.07	58.40	56.22	23.96	33.10	3.73

¹Three-way interaction (^{***} $P < 0.001$; ^{**} $P < 0.01$).