

left femur was removed and analyzed for ash, Ca, and P. Orthogonal polynomial contrasts were used to determine linear and quadratic effects of increasing levels of phytase. Final BW (28.4 vs. 21.5 kg), ADG (600 vs. 383 g), ADFI (1,028 vs. 847 g), G:F (0.58 vs. 0.48), apparent total tract digestibility (ATTD) of Ca (66 vs. 52%), ATTD of P (54 vs. 41%), bone ash (42.7 vs. 33.48% and 14.8 vs. 7.5 g), bone Ca (5.1 vs. 2.6 g) and bone P (2.5 vs. 1.2 g) were greater ($P < 0.05$) in PC fed pigs than in NC fed pigs. The ADG, G:F, ATTD of Ca and P, and bone measurements increased (quadratic, $P < 0.05$; Table 1) by increasing concentrations of phytase in the diets. Results demonstrate that GraINzyme is an effective phytase that may be used to replace inorganic Ca and P in diets for growing pigs.

Key Words: phytase, growing, pigs

303 Effects of a Novel Phytase on Growth Performance, Bone Measurements, and Ca and P Digestibility in Diets Fed to Growing Pigs.

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An experiment was conducted to determine effects of a novel phytase (GraINzyme, Agrivida, Boston, MA) on growth performance, bone parameters, and Ca and P digestibility. Sixty pigs (initial BW: 10.78 ± 0.67 kg) were randomly allotted to 6 diets and housed individually in pens with 10 replicate pens per treatment. Treatments included a positive control (PC) that met requirements for all nutrients (0.70% Ca and 0.60% P; NRC, 2012), a negative control (NC) in which Ca and P were reduced by 0.20 and 0.18%, respectively, and NC plus 500, 1,000, 2,000, or 4,000 units of phytase per kg of diet. Diets were fed for 28 d and on the last d of the experiment, all pigs were euthanized and the

Table 1. Growth performance, apparent total tract digestibility (ATTD) of Ca and P, and bone mineralization of pigs fed diets containing 0, 500, 1,000, 2,000 or 4,000 phytase units (FTU)/kg diet

Item	NC	500 FTU	1,000 FTU	2,000 FTU	4,000 FTU	P-value, linear	P-value, quadratic
Final BW, kg	21.5	24.4	26.6	26.9	29.4	0.001	0.027
ADG, g/d	383	480	562	576	637	0.001	0.009
ADFI, g/d	848	956	1025	1070	1118	0.001	0.054
G:F	0.48	0.53	0.55	0.55	0.57	0.001	0.020
ATTD Ca, %	51.6	65.5	72.4	75.0	73.5	0.001	0.001
ATTD P, %	40.8	52.5	50.3	63.8	63.1	0.001	0.001
Bone ash, g	7.5	8.9	10.6	12.3	14.3	0.001	0.018
Bone Ca, g	2.6	3.1	3.6	4.3	4.9	0.001	0.025
Bone P, g	1.2	1.5	1.8	2.1	2.4	0.001	0.029