24 Determining the phosphorus release of Smizyme TS G5 2,500 phytase in nursery pigs.

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Two nursery trials (DNA 241×600) with 320 or 280 pigs, respectively (initially 10 kg) were used to determine the available P (aP) release curve for Smizyme TS G5 2,500 (Origination, Inc., Saint Paul, MN). Pigs were weaned at approximately 21-d of age, randomly allotted to pens based on initial body weight (BW) and fed a common diet. On d 21 post-weaning, pens were blocked by BW and randomly allotted to 1 of 8 (Exp. 1) or 7 (Exp. 2) dietary treatments with 5 pigs/pen and 8 pens/treatment. Treatments were formulated to include increasing aP from either inorganic P (0.12%, 0.18%, or 0.24% in Exp. 1 and 0.11%, 0.19%, or 0.27% in Exp. 2 from monocalcium P) or increasing phytase (150, 250, 500, 750, or 1,000 FTU/kg in Exp. 1 and 250, 500, 1000, or 1,500 FTU/kg in Exp. 2). Prior to beginning the 21-d studies, all pigs were fed the lowest inorganic P diet for a 3-d period. At the conclusion of the experiments, the pig closest to the pen mean BW was euthanized and the right fibula was collected to determine bone ash. In both experiments, pigs fed increasing aP from inorganic P had increased (linear, $P < 0.01$) ADG, G:F, and final BW. Additionally, pigs fed diets with increasing phytase had increased (Exp. 1 linear, $P < 0.01$, Exp. 2 linear and quadratic, $P < 0.05$) ADG, ADFI, and G:F. The aP release increased for ADG (Exp. 1 linear, $P < 0.01$; Exp. 2 linear and quadratic, $P < 0.01$), G:F (linear, $P < 0.01$), and bone ash percent (Exp. 1 linear and quadratic, $P < 0.05$; Exp. 2 linear, $P < 0.01$) up to the highest phytase inclusion. When combining the release values from Exp. 1 and 2, the release equations for Smizyme TS G5 2,500 are aP=(0.197×FTU)÷(584.956+FTU), aP=(0.175×FTU)÷(248.348+FTU), and aP=(0.165×FTU)÷(178.146+FTU) for ADG, G:F, and bone ash percent, respectively.

Table 1. Calculated aP release (%) values based on different response criteria[1]

Exp. 1	Phytase, FTU/kg 150	250	500	750	1,000	SEM	Probability, *P* < Linear	Quadratic
ADG	0.031	0.052	0.094	0.109	0.139	0.019	<0.001	0.184
G:F	0.098	0.058	0.117	0.148	0.166	0.022	<0.001	0.096
Percentage bone ash	0.095	0.102	0.114	0.142	0.149	0.015	<0.001	0.028

Exp. 2	Phytase, FTU/kg 250	500	1,000	1,500			
ADG	0.057	0.107	0.112	0.136	0.013	<0.001	<0.001
G:F	0.083	0.123	0.100	0.154	0.022	<0.001	0.066
Percentage bone ash	0.088	0.091	0.143	0.152	0.024	<0.001	0.055

[1] ADG = average daily gain; ADFI = average daily feed intake; G:F = gain-to-feed ratio.

Keywords: pig, phosphorus, phytase,

38 Effects of combining nose flap weaning with short-term creep feeding of beef calves on cow and calf performance.

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One hundred four Angus calves were ranked by gender, BW, age, and dam parity, and assigned to 1 of 4 pre-weaning treatments: 1) nose flaps for 7-d prior to weaning (NF), 2) traditional weaning (TRAD), 3) traditional weaning and creep feed for 3-wk prior to weaning (TRADC), or 4) nose flaps for 7-d prior to weaning and creep feed for 3-wk prior to weaning (NFC). Cow-calf pairs were housed in dry lot pens on d -28. From d -21 to 0, calves in creep treatments were provided free choice access to creep feed. Nose flaps were placed on d -7, and calves were weaned on d 0. Calves were vaccinated and dewormed on d -21 and 0. There was no difference ($P \geq 0.97$) in calf BW on d -28 or -21. During the 7-d period that nose flaps were placed, NFC calves had greater ($P \leq 0.0001$) ADG than NF and TRAD calves, and tended to have greater ($P \leq 0.10$) ADG than TRADC calves. At weaning on d 0, TRADC and NFC calves tended to have greater BW ($P = 0.07$) and had greater overall change in BW ($P < 0.0001$) during the pre-weaning period than TRAD and NF calves. Additionally, there was a greater ($P \leq 0.001$) increase in BW of NFC and TRADC cows during the pre-weaning period compared to NF and TRAD cows. From d -21 to 0 there was no differences ($P > 0.41$) in plasma concentrations for Bovine Viral Diarrhea Virus (BVD). By d 14, the TRADC calves had the greatest plasma concentrations for BVD ($P < 0.04$). Therefore, providing short-term creep feed prior to placing nose flaps can improve pre-weaning calf and cow performance compared to traditional and nose flap weaning without creep feed supplementation, however, did not improve response to vaccination.

Table 1. Nutrient profile on a dry matter basis of alfalfa and grass hay offered ad libitum to pairs daily throughout the pre-weaning period.

Item	Alfalfa Hay, % DM	Grass Hay, % DM
Nutrient		
Moisture, %	16.5	16.6
Crude Protein, %	17.4	11.1
ADF, %	39.6	41.5
NDF, %	55.3	65.6
Fat, %	2.4	2.7
Calcium, %	1.0	0.2
Phosphorus, %	0.3	0.2
Magnesium, %	0.3	0.1
Potassium, %	2.7	2.1
Sulfur, %	0.2	0.1

Keywords: calves, stress, weaning

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