

## PSVI-5 Effects of Added Vitamin Levels on Growth Performance of Finishing Pigs.

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**Abstract:** A total of 1,080 mixed sex growing-finishing pigs (337 × 1050, PIC; initially 28.7 ± 0.39 kg) were used in a 123-d growth trial to determine the effects of vitamin concentrations on finishing pig growth performance and carcass characteristics. Pens of pigs were assigned to 1 of 2 treatments in a completely randomized design. There were 20 replicate pens/treatment and 27 pigs/pen. The experimental diets were corn-soybean meal-based and were fed in 4 phases from 28 to 50, 50 to 73, 73 to 100 and 100 to 133 kg. Pigs were fed 1 of 2 levels of a vitamin premix (control and high) that contained: 1,653,468 IU vitamin A acetate; 661,387 IU vitamin D, vitamin E (17,637 mg dl- $\alpha$ -tocopheryl acetate), 1,323 mg vitamin K (menadione), 13.2 mg vitamin B<sub>12</sub>, 19,842 mg niacin, 11,023 mg pantothenic acid, and 3,307 mg riboflavin per kg. The amount per phase was 1.36, 1.13, 0.91 and 0.07%, respectively, for the control with the added amount doubled for the high vitamin fortification. Overall, (day 0 to 123), there was no evidence for difference ( $P > 0.10$ ) in ADG, ADFI and G:F. Also, no statistical difference was found ( $P > 0.10$ ) for final BW, HCW or any carcass characteristic. In conclusion, the level of vitamins used in this study did not influence growth and carcass traits in finishing pigs.

**Table 1.** Effects of vitamin concentration on growth performance and carcass characteristics of finishing pigs

Item	Control	High	SEM	P =
Body weight, kg				
d 0	28.7	28.6	0.39	0.947
d 123	133.0	132.9	0.77	0.957
Overall (d 0 to 123)				
ADG, kg	0.85	0.84	0.004	0.238
ADFI, kg	2.41	2.42	0.017	0.788
G:F	0.35	0.35	0.002	0.143
Carcass characteristics <sup>1</sup>				
HCW, kg	99.9	99.6	0.55	0.712
Carcass yield, %	75.0	75.0	0.30	0.879
Backfat, mm	16.7	16.3	0.22	0.288
Loin depth, mm	71.1	71.0	0.37	0.782
Lean, %	57.2	57.4	0.10	0.370

<sup>1</sup>HCW was used as a covariate for analysis of backfat, loin depth, and percentage lean.

**Keywords:** carcass, finishing pigs, growth, vitamin.

## PSVI-20 Effects of Adding Potassium Bicarbonate to Diets with High or and Low Crystalline Lysine as a Way to Influence DCAD on Finishing Pig Growth Performance.

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**Abstract:** This experiment was conducted to evaluate the effect of balancing dietary cation-anion difference (DCAD), via added potassium bicarbonate (KHCO<sub>3</sub>), in diets containing low or high levels of L-Lys HCl on growth performance of growing-finishing pigs. A total of 1,944 pigs (PIC L337 × 1050, initially 35.2 ± 0.85 kg) were used in a 120-d study. Pens of pigs were blocked by BW and randomly allotted to 1 of 4 dietary treatments in a randomized complete block design arranged in a 2 × 2 factorial with main effects of KHCO<sub>3</sub> (0 vs 0.4%), and L-Lys HCl level (low vs. high), with 27 pigs/pen and 18 replicates/treatment. Diets were corn-soybean meal-based and formulated in 4 dietary phases (d 0-20, 30-58, 58-86, and 86-120). Diets were formulated in each phase such that the diet containing a low level of L-Lys HCl (0.14-0.21% depending on phase) without KHCO<sub>3</sub> had similar calculated DCAD as the diet containing a high level of L-Lys HCl (0.36 to 0.43% depending on phase) with KHCO<sub>3</sub>. The DCAD for these 2 treatments were approximately 230, 200, 184, and 169 mEq/kg (phase 1, 2, 3, 4, respectively). The diets with low levels of L-Lys HCl with KHCO<sub>3</sub> had the greatest DCAD in each phase (approximately 50 mEq/kg above the low L-Lys HCl without KHCO<sub>3</sub> diet), while the diet with a high level of L-Lys HCl without KHCO<sub>3</sub> had the least DCAD (approximately 50 mEq/kg below the high L-Lys HCl with KHCO<sub>3</sub> diet). Overall, there was no evidence ( $P > 0.10$ ) for a KHCO<sub>3</sub> × L-Lys HCl interaction or main effect for any observed growth responses or carcass characteristics. The results of this study suggest that supplementing KHCO<sub>3</sub> to finishing pig diets with either high or low levels of L-Lys HCl and the corresponding changes in DCAD values did not impact growth performance or carcass characteristics.

**Table 1.** Effects of potassium bicarbonate with high and low crystalline lysine levels on growing-finishing pig performance<sup>1</sup>

Item	L-Lys HCl: Low		High		SEM	P =
	KHCO <sub>3</sub>	Without With	Without With	KHCO <sub>3</sub> × L-Lys HCl		
ADG, g	783	782	782	795	5.0	0.695
G:F, g/kg	385	387	386	384	4.5	0.439

**Keywords:** crystalline lysine, dietary cation-anion difference, finishing pig