

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- α -tocopheryl acetate), 1,323 mg vitamin K (menadione), 13.2 mg vitamin B₁₂, 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 ¹				
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

¹HCW 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 (KHCO₃), 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 KHCO₃ (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 KHCO₃ had similar calculated DCAD as the diet containing a high level of L-Lys HCl (0.36 to 0.43% depending on phase) with KHCO₃. 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 KHCO₃ had the greatest DCAD in each phase (approximately 50 mEq/kg above the low L-Lys HCl without KHCO₃ diet), while the diet with a high level of L-Lys HCl without KHCO₃ had the least DCAD (approximately 50 mEq/kg below the high L-Lys HCl with KHCO₃ diet). Overall, there was no evidence ($P > 0.10$) for a KHCO₃ × L-Lys HCl interaction or main effect for any observed growth responses or carcass characteristics. The results of this study suggest that supplementing KHCO₃ 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 performance¹

Item	Low L-Lys HCl		High L-Lys HCl		SEM	P =
	KHCO ₃	Without	Without	With		
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