

Table 173. Effect of increasing BPC supplementation on pig performance, d 0 to 42 after weaning

	Dietary ButiPEARL C, mg/kg					SEM	Contrast ($P <$)	
	0	250	500	750	1000		Linear	Quadratic
ADG, g	389	397	408	414	417	9	0.01	0.01
ADFI, g	546	547	564	563	567	12	0.04	0.11
G:F, g/kg	710	725	721	737	735	15	0.01	0.01
D 42 BW, kg	22.1	22.5	23.0	23.3	23.4	0.4	0.01	0.01

Table 174.

Item:	Control	Low Lys			High Lys			SEM	Probability, $P <$
		Industry AA	95% AA	Max AA	Industry AA	95% AA	Max AA		Low vs. High Lys
d 0 to 14									
ADG, g	369 ^{ab}	346 ^c	361 ^{b,c}	370 ^{a,b}	379 ^a	384 ^a	362 ^b	6.9	0.001
ADFI, g	451 ^b	451 ^b	467 ^{a,b}	465 ^{a,b}	461 ^{a,b}	472 ^a	456 ^{a,b}	9.2	0.692
G:F	0.819 ^{ab}	0.769 ^c	0.774 ^c	0.797 ^{a,b,c}	0.823 ^a	0.814 ^{ab}	0.794 ^{b,c}	0.0099	0.001

^{ab,c} Means within a row with differing superscripts differ $P < 0.05$.

were formulated to Ile requirement with feed-grade Lys, Met, Thr, Trp, and Val added. The control contained less feed-grade AA (0.39% L-Lys HCl vs. 0.50-0.55% in other diets) and 5% fermented soy protein to achieve similar soybean meal level to high SID Lys diets. Experimental diets were formulated using analyzed AA for corn, soybean meal, and dried distillers grains with solubles and fed for 14 d in meal form. Pigs were weighed and feed disappearance was measured on d 0, 7, and 14. Data were analyzed using PROC GLIMMIX. From d 0 to 14, feeding high Lys diets increased ($P < 0.001$) ADG and G:F compared with low Lys diets with no evidence for differences in ADFI between Lys level. Furthermore, for ADG, maximum AA ratios improved ($P < 0.05$) performance compared to industry ratios at low Lys, but not at high Lys levels. In conclusion, higher AA ratios were more critical in diets formulated below the Lys requirement of the pig.

Key Words: AA ratios, lysine, nursery pigs
doi: 10.2527/asasmw.2017.12.174

175 Evaluation of dietary phytonics on growth performance, carcass characteristics, and economics of grow-finish pigs housed under commercial conditions. J. A. Soto^{*1}, M. D. Tokach¹, G. R. Murugesan², S. S. Dritz¹, J. C. Woodworth¹, J. M. DeRouche¹, R. D. Goodband¹, ¹Kansas State University, Manhattan, ²BIOMIN America Inc., San Antonio, TX.

A total of 1245 pigs (PIC 327 × 1050, initially 22.1 kg) were used in a 125-d trial to determine the effects of 2 dietary essential oil mixtures on growth performance, carcass characteristics, and economics of finishing pigs. Pens of 27 or 28 pigs were randomly assigned to 1 of 5 dietary treatments with 9 replications/treatment with treatments fed in 6 phases. Treatment 1 was the control with no feed additives. Treatment 2 contained essential oil mixture 1 (EOM 1) in all phases.

Treatment 3 contained EOM 1 fed from phase 3 to 6 and essential oil mixture 2 in all phases (EOM 1+2). Treatment 4 contained EOM 1 in all 6 phases. Treatment 5 contained Ractopamine HCl (RAC) in phase 6. Treatments 1–3 and 4–5 had 12% and 16% CP (0.66 and 0.90% Standardized ileal digestible Lys, respectively) in phase 6 diets, respectively. Overall (d 0 to 125), pigs fed diets with EOM 1+2 had increased ($P = 0.003$) ADFI compared with pigs fed the control diet. Pigs fed EOM 1 + 16% CP had increased ($P = 0.032$) ADFI compared with pigs fed RAC. Pigs fed RAC had increased ($P = 0.027$) G:F compared with pigs fed EOM 1 + 16% CP. Pigs fed EOM 1+2 had heavier ($P < 0.05$) HCW compared with pigs fed the control treatment or EOM 1 + 12% CP. Pigs fed RAC had reduced ($P = 0.001$) backfat thickness and increased ($P = 0.001$) percentage lean, and greater ($P < 0.030$) income over feed cost (IOFC) compared with pigs fed EOM 1 + 16% CP. In summary, while ADG was not affected in this study, pigs fed RAC had the greatest G:F and IOFC. The addition of EOM 1+2 increased HCW similar to those fed RAC with EOM 1 + 16% CP being intermediate. Additional research to confirm these responses to essential oil additions is warranted.

Key Words: essential oils, feed additives, phytonics
doi: 10.2527/asasmw.2017.12.175

176 Effect of feeding varying levels of *Lactobacillus plantarum* on nursery pig performance.

A. M. Jones^{*}, J. C. Woodworth, J. M. DeRouche, S. S. Dritz, M. D. Tokach, R. D. Goodband, Kansas State University, Manhattan.

A total of 360 pigs (PIC C-29 × 359, initial BW 5.95 ± 0.007 kg) were used in a 42-d trial evaluating the effects of feeding varying levels of *Lactobacillus plantarum* on nursery pig performance. Pigs were weaned at 18 to 20 d and allotted to pens based on initial BW and gender to 1 of 4 dietary treatments in a completely randomized design with 10 pigs