

Table 198.

Item	Treatments			SEM	P-value
	Ctrl	RCP-ME	RCP-NE		
Overall ADG, kg	0.46	0.44	0.47	0.02	0.403
Overall ADFI, kg	0.73	0.70	0.72	0.03	0.651
Overall Gain:Feed	0.64	0.64	0.65	0.02	0.765
Final BW, kg	24.4	23.8	24.7	1.0	0.404

198 Effects of aggressive feed-grade amino acid supplementation in reduced CP diets formulated on ME or NE basis on growth performance of nursery pigs. H. J. Kim^{*1}, T. C. Tsai¹, J. J. Chewning², J. K. Apple³, K. J. Touchette⁴, J. E. Thomson⁵, J. Less⁶, C. V. Maxwell¹, ¹Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville, ²Swine Research Services, Inc., Springdale, AR, ³Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, ⁴Ajinomoto Heartland, Inc., Chicago, IL, ⁵Evonik Degussa Corp, Kennesaw, GA, ⁶ADM Animal Nutrition, Decatur, IL.

Barrows and gilts (PIC 29 × 380, $n = 147$) were blocked by initial BW (6.42 ± 1.21 kg) at weaning (21 ± 3 d) and allotted to pens (7 pigs/pen) within each of 7 blocks to evaluate the effects of aggressive feed-grade AA supplementation with reduced CP (RCP) diets formulated on either a ME or NE basis on growth performance of nursery pigs. Pens within blocks were randomly assigned to 1 of 3 treatments: 1) corn-SBM-corn DDGS-based diets formulated to meet the Trp requirement without addition of feed-grade Trp (feed-grade Trp was added in phase 3 to increase the Trp:Lys ratio from 17 to 19; Ctrl); 2) RCP diets formulated to meet the His:Lys ratio requirement (His:Lys = 32) without added feed-grade His and formulated on a ME basis (RCP-ME); or 3) RCP diets to meet the His:Lys requirement without feed-grade His and formulated on a NE basis (RCP-NE). Feed-grade AA were added to diets to meet all SID AA:Lys ratio requirements (M+C:Lys, 58; Thr:Lys, 60; Trp:Lys, 17 in phase 1 and 2 and 19 in phase 3; Ile:Lys, 55; Val:Lys, 65 in phase 1 and 2 and 70 in phase 3; His:Lys, 32) during each phase. During phases 1 and 2, feed-grade AA in RCP diets completely replaced poultry byproduct and partially replaced SBM in Ctrl diets. In phase 3, feed-grade AAs were included at the expense of SBM. Poultry fat was reduced in NE compared to ME-based diets. Neither ADG, ADFI, G:F, nor

BW at the end of phases 1 and 2, as well as the end of the study, were affected ($P \geq 0.40$) by high inclusion levels of feed-grade AA in either ME- or NE-formulated diets. These results indicate that similar performance can be achieved with either ME- or NE-based nursery diets formulated to meet the His:Lys ratio without adding feed-grade His when supplemented with high levels of essential feed-grade amino acids to meet the AA:Lys ratios.

Key Words: Reduced crude protein, Feed-grade amino acids, Nursery pigs

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199 Effect of fish meal source on nursery pig performance. A. M. Jones^{*}, J. C. Woodworth, R. D. Goodband, M. D. Tokach, S. S. Dritz, J. M. DeRouchey, Kansas State University, Manhattan.

A total of 350 pigs (DNA Line 200 × 400; initially 6.5 ± 0.09 kg BW; 21 d of age) were used in a 14-d experiment to determine the effects of fish meal source on nursery pig performance. Pigs were randomly allotted to pens at weaning (d 0) and were fed a common starter diet for 7 d. On d 7, pens of pigs were randomly allotted by BW to 1 of 7 dietary treatments (10 pens/treatment and 5 pigs/pen) in a $2 \times 3 + 1$ factorial. Diets were corn-soybean meal-based that contained 10% dried whey and none (Control) or 3 or 6% fish meal from 1 of 3 sources (IPC 790 Fish Meal, The Scoular Company, Minneapolis, MN; Special Select Menhaden Fish Meal, Omega Proteins, Houston, TX; and Daybrook LT Prime Menhaden Fish Meal, Daybrook Fisheries, Morristown, NJ). All fish meal sources were from the 2014 catch year. All samples of fish meal contained less than 0.15% total volatile N suggesting high quality. A source × level interaction ($P < 0.05$) for ADG and final BW was observed as increasing levels of IPC 790 improved ADG; however, pigs fed Special Select and LT Prime fish meal only saw improvement when 3% was included. While no differences were observed between treatments for ADFI, there was a source × level interaction for G:F (Linear $P = 0.005$). This was a result of G:F linearly improving as IPC 790 increased, with pigs fed 3% Special Select or LT Prime having similar performance to 6% IPC 790, but no further improvement thereafter. In conclusion, adding 3% of any fish meal source improved ADG and G:F; however, only pigs fed IPC 790 had a further improvement in ADG when 6% was fed.

Key Words: fish meal, growth, nursery pig

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Table 199.

Item	CTRL	IPC 790		Special Select		LT Prime		Source × Level	
		3%	6%	3%	6%	3%	6%	Lin.	Quad.
D 0-14									
ADG, g	249	266	288	279	239	268	264	0.003	0.059
ADFI, g	329	344	354	353	330	332	335	0.247	0.323
G:F	0.76	0.78	0.81	0.79	0.73	0.81	0.79	0.005	0.130
Final BW, kg	9.98	10.23	10.52	10.40	9.87	10.26	10.19	0.034	0.192