Two experiments were conducted at a commercial research site in order to evaluate the effects of high synthetic lysine inclusion on the growth performance of growing gilts. In Exp. 1, a total of 735 gilts (TR-4 × C22; 32.1 ± 0.15 kg) were used in a RCBD with 7 replicate pens/treatment and 21 pigs/pen (on test 21 d). Pigs were allotted to one of five dietary treatments containing 0.10, 0.20, 0.30, 0.40, and 0.50% added L-Lysine-HCl, respectively. Diets were formulated at a 1.00% true ileal digestible (TID) lysine with supplementation of only L-Thr and Alimet® feed supplement. For Exp. 1, diets supplemented with 0.50% L-Lysine-HCl resulted in decreased (Treatment, P < 0.06; Quadratic, P < 0.05) ADG (942, 951, 942, 966, and 907 g/d) and decreased (Treatment, P < 0.01; Linear, P < 0.001) G:F (0.484, 0.476, 0.478, 0.480, and 0.463) compared to diets with 0.10-0.40% L-Lysine-HCl inclusion. In Exp. 2, a total of 1,029 gilts (TR-4 × C22; 29.5 ± 0.20 kg) were used in a RCBD with 7 replicate pens/treatment and 21 pigs/pen (on test 23-d). Pigs were allotted to one of six dietary treatments containing 0.10, 0.20, 0.30, 0.40, 0.50, and 0.60% added L-Lysine-HCl, respectively. Diets were formulated at a 1.00% TID lysine and additional L-Thr, Alimet®, L-Trp, L-Ile, and L-Val were supplied as necessary to meet minimum amino acid ratios. For Exp. 2, there were no differences in ADG (P=0.21) with increasing L-Lysine-HCl inclusion (935, 948, 922, 929, 942, and 926 g/d). However, diets supplemented with 0.60% L-Lysine-HCl resulted in decreased (Treatment, P < 0.01; Linear, P <0.01) G:F (0.481, 0.481, 0.481, 0.476, 0.475, and 0.468) compared to diets with 0.10-0.40% L-Lysine-HCl inclusion. Collectively, these two experiments indicate that in practical diet formulations, up to 0.40% diets with 0.10-0.40% L-Lysine-P·tively. Diets were formulated at a 1.00% TID lysine and additional L-Thr and Alimet® feed supplement. For Exp. 1, diets supplemented with 0.50% L-Lysine-HCl resulted in decreased (Treatment, P < 0.06; Quadratic, P < 0.05) ADG (942, 951, 942, 966, and 907 g/d) and decreased (Treatment, P < 0.01; Linear, P < 0.001) G:F (0.484, 0.476, 0.478, 0.480, and 0.463) compared to diets with 0.10-0.40% L-Lysine-HCl inclusion. In Exp. 2, a total of 1,029 gilts (TR-4 × C22; 29.5 ± 0.20 kg) were used in a RCBD with 7 replicate pens/treatment and 21 pigs/pen (on test 23-d). Pigs were allotted to one of six dietary treatments containing 0.10, 0.20, 0.30, 0.40, 0.50, and 0.60% added L-Lysine-HCl, respectively. Diets were formulated at a 1.00% TID lysine and additional L-Thr, Alimet®, L-Trp, L-Ile, and L-Val were supplied as necessary to meet minimum amino acid ratios. For Exp. 2, there were no differences in ADG (P=0.21) with increasing L-Lysine-HCl inclusion (935, 948, 922, 929, 942, and 926 g/d). However, diets supplemented with 0.60% L-Lysine-HCl resulted in decreased (Treatment, P < 0.01; Linear, P <0.01) G:F (0.481, 0.481, 0.481, 0.476, 0.475, and 0.468) compared to diets with 0.10-0.40% L-Lysine-HCl inclusion. Collectively, these two experiments indicate that in practical diet formulations, up to 0.40% L-Lysine-HCl can be added in diets if supplemented with additional synthetic amino acids. (Alimet® is a trademark of Novus International, Inc., and is registered in the United States and other countries)

Key Words: Gilts, Lysine-HCl, growth

Efficacy of liquid DL-methionine hydroxy analog free acid and DL-methionine as methionine sources for pigs. B. G. Kim1, M. D. Lindenmann2,1, G. L. Cromwell1, and M. Rademacher1,1 University of Kentucky, 2Degussa AG. The replacement rate of liquid DL-methionine hydroxy analog free acid (MHA-FA, 88%) to DL-methionine (DLM, 99%) is a subject of debate. Most of the studies that have been conducted with pigs have involved diets based on cereals other than corn. Thus, the objective of the present study was to evaluate the efficacy of MHA-FA compared with DLM to support N-retention in pigs fed diets based on corn and soybean meal. A total of 30 weaning barrows (mean initial BW of 16.83 ± 0.51 kg) were used in a metabolism study. There were two periods: a 7-d adaptation period and a 5-d collection period for total collection of feces and urine; feed intake was standardized within replicates. The basal diet was formulated to contain 16.85% CP and 0.212% methionine. Dietary treatments included: 1) basal diet, 2) basal plus 0.03% DLM, 3) basal plus 0.06% DLM, 4) basal plus 0.046% MHA-FA, and 5) basal plus 0.092% MHA-FA. The levels of DLM and MHA-FA used were approximated to provide similar methionine equivalents based upon the commercial products used and literature estimates that MHA-FA would have a relative bioequivalence of about 65% on average compared to the DLM. Analysis of the diets for inclusion of the two products demonstrated actual inclusion rates of 0.627 and 0.058% DLM and 0.644 and 0.088% MHA-FA. There was no difference in fecal N output among the treatments (P>0.05). However, urinary N (g) linearly declined (P=0.03 for DLM and P=0.01 for MHA-FA) with increasing amounts of both products. This resulted in a linear increase (P=0.01) in retained N (g/d) for both DLM and MHA-FA (10.96, 11.34, 12.11, 11.35, and 12.12, respectively). Also, N retention rate (%) increased linearly (P=0.01) with increasing levels of DLM and MHA-FA (63.5, 65.8, 69.9, 65.4, and 68.9, respectively). A slope-ratio procedure for comparison of the responses indicated a relative effectiveness on a weight for weight basis for the relative bioequivalence of about 65% on average compared to the DLM. Analysis of the diets for inclusion of the two products demonstrated actual inclusion rates of 0.627 and 0.058% DLM and 0.644 and 0.088% MHA-FA. There was no difference in fecal N output among the treatments (P>0.05). However, urinary N (g) linearly declined (P=0.03 for DLM and P=0.01 for MHA-FA) with increasing amounts of both products. This resulted in a linear increase (P=0.01) in retained N (g/d) for both DLM and MHA-FA (10.96, 11.34, 12.11, 11.35, and 12.12, respectively). Also, N retention rate (%) increased linearly (P=0.01) with increasing levels of DLM and MHA-FA (63.5, 65.8, 69.9, 65.4, and 68.9, respectively). A slope-ratio procedure for comparison of the responses indicated a relative effectiveness on a weight for weight basis for the optimal true ileal digestible (TID) lysine and total sulfur amino acid (TSAA) ratio for finishing pigs fed Paylean®. Two experiments were conducted at a commercial research site in or-