

### 236 Dietary Supplementation of Choline and Potassium in Low Crude Protein Diets on Growth and Carcass Performance of Finishing Pigs.

J. A. Soto\*, M. D. Tokach, S. S. Dritz, J. C. Woodworth, J. M. DeRouchey, B. D. Goodband, Kansas State University, Manhattan, KS

Research has shown that reduced SBM concentration in finishing swine fed low CP diets may be the reason reduced growth performance is sometimes observed. By reducing the amount of SBM in the diet, there is a reduction of dietary choline and potassium, among other nutrients. Two experiments were conducted to determine the effects of added choline or potassium in low CP diets in finishing pigs. In Exp. 1, 284 pigs (DNA 600 × 241, initially 112.2 kg BW) were used in a 26-d trial. Pens of 7 or 8 pigs were allotted by BW and randomly assigned to 1 of 4 dietary treatments in a RCBD with 9 replications per treatment. Treatments included a 12% CP, positive control diet with 10.6% SBM, a 10% CP; negative control (NC) diet with 4.0% SBM; NC with added choline (0.03%); or NC with added potassium (0.24%), such that the added choline or potassium matched the amount that is provided in the 12% CP diet. There was no evidence for differences in ADG (0.84, 0.82, 0.82, and 0.82 kg) or ADFI (2.83, 2.93, 2.97, and 2.93 g); however, there was a marginal improvement ( $P=0.085$ ) in G:F (0.298, 0.279, 0.274, and 0.279) for pigs fed the positive control diet with 12% CP compared with the mean of pigs fed the diets with 10% CP. There was no evidence for differences in HCW (101.0, 100.7, 99.3, and 99.9 kg), yield (74.4, 74.9, 74.1, and 74.3%) or other carcass traits. In Exp. 2, 254 pigs (DNA 600 × 241, initially 110.5 kg BW) were used in a 19-d trial. Pens of 7 or 8 pigs were allotted by BW and randomly assigned to 1 of 4 dietary treatments in a RCBD with 8 replications per treatment. Experimental treatments were arranged in a 2 × 2 factorial with main effects of CP (12% or 10%) and added choline (0 or 1,814 mg/kg). Pigs fed diets with 12% CP had marginally increased ( $P=0.076$ ) ADG (0.67 vs 0.62 kg/d) compared with pigs fed diets with 10% CP which resulted in a heavier ( $P=0.036$ ) final BW (123.2 vs 122.2 kg). Pigs fed the diets with 12% CP also had improved ( $P=0.020$ ) G:F (0.264 vs 0.245) compared with pigs fed the 10% CP diets. Addition of choline did not influence performance. In summary, supplementing diets with choline or potassium did not influence growth performance or carcass characteristics of pigs fed low CP diets.

**Key Words:** choline, finishing pigs, potassium

### 237 Umami Sensory Stimulation Improves Nutrient Digestibility in Pigs. G. Tedo\*,<sup>1</sup>, A. Mereu<sup>1,2</sup>, I. Fernandez-Figares Ibanez<sup>3</sup>, M. Lachica<sup>3</sup>, L. González-Valero<sup>3</sup>, F. Bargo<sup>1</sup>, I. R. Ipharraguerre<sup>1,4</sup>, S. Morais<sup>1</sup>, <sup>1</sup>Innovation Division, Lucta S.A., Barcelona, Spain, <sup>2</sup>Current address: Yara International, Oslo, Norway, <sup>3</sup>CSIC - Estación Experimental del Zaidin, Granada, Spain, <sup>4</sup>Current address: Christian-Alberts University, Kiel, Germany

Umami in pigs is a taste that helps the animal to identify protein sources through the stimulation of the *pTIR1/pTIR3* receptor present in oral tissues and along the gastrointestinal tract, where it acts as a nutrient sensor. Performance benefits have been previously described with the use of a high-intensity umami additive (HIU) based on Maillard reaction products. Interestingly, these benefits were not necessarily linked to an increased feed intake, while an improvement in feed efficiency was reported. To further investigate possible mechanisms explaining these results, a study was performed aiming to investigate the effect of a HIU (LUCTA, SA, Spain) added to pig feeds on nutrient digestibility. Twelve pigs ((LW × LD) × Pietrain, initial BW = 22 ± 0.3 kg) were individually fitted with a T-shaped cannula in the distal ileum. After surgery recovery (two weeks), pigs were fed for 14 days with a mash starter diet (18.6% CP, 1.30% Lys, 12.7MJ/kg ME) with HIU (HIU group, 1000 mg/kg, n=6) or without HIU (CONTROL group, n=6) added. Chromic oxide (0.5%) was included in both diets as an inert marker. Animals were placed in individual metabolic cages during the collection period. Ileal contents were collected during 8-h per day throughout the last 3 days, homogenized, freeze-dried and analyzed for the determination of dry matter (DM), gross energy, nitrogen (N), chromic oxide and amino acid content (except for Trp, Met and Cys). The apparent ileal digestibility (AID) was calculated

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**Table 1.** Apparent ileal digestibility of indispensable amino acids in pigs fed a diet with a high intensity umami (HIU group, n=6) or without HIU (CONTROL group, n=6) added

Item (%)	CONTROL GROUP	HIU GROUP	SEM	P value
Arg	85	88	0.7	0.045
His	82	85	1.0	0.077
Ile	82	86	0.9	0.014
Leu	84	87	0.9	0.024
Lys	87	91	0.7	0.002
Phe	84	88	0.9	0.027
Thr	83	86	0.9	0.037
Val	81	85	0.8	0.002