

increasing levels of corn gluten meal used as SBM was decreased to maintain the 12% CP. Data was analyzed with PROC GLIMMIX procedure in SAS with pen as the experimental unit and initial BW as a blocking factor. For growth performance, decreasing SBM while maintaining 12% CP marginally decreased (linear, $P=0.06$) ADG (0.95, 0.94, 0.93, 0.90, and 0.90 kg/d), increased (linear, $P=0.01$) ADFI (3.36, 3.37, 3.43, 3.56, and 3.50 kg/d), worsened (linear, $P<0.01$) G:F (0.284, 0.278, 0.273, 0.253, and 0.257) and marginally worsened (linear, 0.07) final BW (136.2, 135.7, 135.7, 134.9, 134.9 kg). Feed intake was lowered ($P<0.01$) in pigs fed the diet with 12% CP and 10.6% SBM compared with pigs fed the NC diet (3.36 vs 3.60 kg), resulting in a marginal improvement ($P=0.06$) in G:F for pigs fed the 12% CP, 10.6% SBM diet (0.284 vs 0.267). For carcass characteristics, decreasing SBM decreased (linear, $P=0.03$) carcass ADG (0.73, 0.72, 0.71, 0.69, and 0.69 kg/d) and worsened (linear, $P<0.01$) carcass feed efficiency (0.218, 0.213, 0.209, 0.193, and 0.197). Pigs fed the diet with 12% CP and 10.6% SBM had improved ($P=0.04$) carcass G:F compared with pigs fed the NC diet (0.218 vs 0.204). Reducing the concentration of SBM worsened ADG, G:F, BW, carcass ADG, and carcass feed efficiency. Additionally, pigs fed the 12% CP and 10.6% SBM had improved G:F and carcass G:F compared with pigs fed the NC diet. These results suggest that reduced SBM concentration could be one of the reasons finishing pig performance is decreased when low CP diets are fed.

Key Words: crude protein, finishing pigs, soy-bean meal

207 The Ideal Dietary Protein Profile for Finishing Pigs in Precision Feeding Systems and Phase Feeding Systems: Threonine. A. Remus^{*1}, M. P. Létourneau-Montminy², L. Hauschild³, C. Pomar¹, ¹*Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada*, ²*Université Laval, Québec, QC, Canada*, ³*FCAVIUNESP, Jaboticabal, Brazil*

Optimal AA ratios have been established for conventional group phase feeding (GPF) systems, but these ratios may differ in finishing pigs when fed with precision feeding systems (IPF). The aim of this study was to evaluate the response of different levels of threonine (Thr; 70, 85, 100, 115 and 130% of the 0.65 Thr: Lysine ideal protein ratio) in pigs raised in GPF or IPF systems. A 110 finishing pigs (110 kg BW \pm 7.02; 11 pigs per treatment) were housed in the same pen and fed for 21 days using automatic feeders. Individual pigs were the experimental units. Five pigs per treatment were

slaughtered at the end of the trial. Data were analyzed in a 2x5 factorial arrangement by the mixed model procedure of SAS. During this finishing phase, G: F presented a quadratic effect for Thr levels ($P<0.05$) and was not affected by feeding programs. The intake of SID Lys and Thr were greater ($P<0.05$) in GPF (Lys: 24 g/d; Thr: 18 g/d) than IPF (20 g/d; Thr: 15 g/d) pigs. Protein deposition (PD) was higher in GPF (130 g/d) than IPF pigs (122 g/d; $P<0.05$), while the level \times feeding system interaction for protein in gain presented a quadratic effect of Thr level for GPF (average minimum: 10.7%, maximum: 12.4%; $P<0.05$) and a no effect of Thr level for IPF (average minimum: 10.3%, maximum: 11.7%; $P<0.10$). Pigs in IPF systems consumed 14% less crude protein and excreted 17% less nitrogen than GPF pigs ($P<0.05$). Pigs in IPF retained 9% more nitrogen than GPF pigs ($P<0.05$) and the Thr level effect was quadratic in both systems ($P<0.05$). Threonine concentration in plasma presented a linear increase ($P<0.05$) as Thr in the diet increased and Thr in plasma was 8% higher in the plasma for GPF (203 μ mole/L) pigs than IPF pigs (187 μ mole/L). Dietary Thr levels had a cubic effect on arginine and histidine, as well, quadratic effect on valine in the liver of pigs in both systems ($P<0.05$). Pigs in IPF had a different response to Thr levels than pigs in GPF system, the last had higher PD at Thr: Lys ratio of 0.85 while in IPF Thr: Lys ratio had no impact on PD.

Key Words: precision feeding, amino acids, nitrogen retention

208 Evaluation of the Standardized Ileal Digestible Total Sulfur Amino Acid:Lysine Requirement for 14-27 Kg PIC Nursery Pigs. A. Graham^{*1}, B. Knopf¹, M. A. D. Goncalves², U. A. D. Orlando², L. Greiner¹, ¹*Carthage Innovative Swine Solutions, LLC, Carthage, IL*, ²*Genus PIC, Hendersonville, TN*

One thousand two hundred PIC (337 \times Camborough; PIC, Hendersonville, TN) barrows and gilts were used to further evaluate the Standardized Ileal Digestible (SID) total sulfur amino acid (TSAA) ratio relative to lysine requirement in 14-27.5 kg nursery pigs. Prior to the start of the study, pigs were fed a basal diet that contained 1.45% SID lysine for one week. At the start of the study, the pigs averaged 14.0 kg. The lightest 10% of pigs were sorted off to form one replication and the remaining pigs were sorted by gender and placed into blocks with 25 pigs per pen. Blocks were set for the 5 treatments (52.0, 56.5, 61.0, 65.5, 70.0 SID TSAA:Lys) within gender of similar weights with the