were allocated in a two-period cross over design (n = 8) and were fed at 2.8 × maintenance energy requirement. Each period was 9 d; 5 d for adaptation, d 6 and 7 for grab fecal collection and d 8 and 9 for 8 h continuous ileal digesta collection. The diet was considered fixed effect whereas pig and period were considered random effects in statistical analysis. Pigs fed F-SBM had higher (P<0.05) apparent ileal digestibility (AID) of CP (82.7 *vs.* 79.6%) and ash (46.3 *vs.* 43.0%) compared with pigs fed UF-SBM. There was no treatment effects (P> 0.10) on AID of NDF and ATTD of acid detergent fiber (ADF), neutral detergent fiber (NDF) and gross energy (GE). In conclusion, fermentation of SBM by a novel *Bacillus subtilis* CP-9 increased ileal utilization of crude protein and minerals suggesting improved nutritive value in pigs.

Key Words: Bacillus subtilis, Digestibility, Fermentation

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112 Effects of Vitamin A, Trp and Tre, and Omega-3 on Performance and Viral-Load in Growing Gilts Challenged with Porcine Reproductive and Respiratory Syndrome Virus. L. Fabà*[,1], D. Solà-Oriol[1], M. D. Tokach[2], E. Mateu[3], E. Varella[4], J. Gasa[1], *[1]Animal Nutrition and Welfare Service, Department of Animal and Food Science, Universitat Autònoma de Barcelona, Bellaterra (08193), Spain, [2]Kansas State University, Manhattan, KS, [3]Centre de Recerca en Sanitat Animal CReSA, Department of Animal Health and Anatomy- Universitat Autònoma de Barcelona, Bellaterra, Spain, [4]Tecnología & Vitaminas S.L., Alforja, Spain*

Gilts on rearing and quarantine often suffer immune stress that can modify metabolism, decrease ADFI and performance. The objective of this study was to assess the effect of different nutritional strategies on gilt performance and infection dynamics under porcine reproductive and respiratory syndrome virus (PRRSV) infection. One hundred gilts (46.5 ± 3.5 kg) were blocked as light (L) and heavy (H), and distributed into 10 pens (10 gilts/pen) and two replicates (L and H) randomly allotted to five groups: control (C-), high dose (40,000 UI/kg) of vitamin A (vitA), increased ratios Trp (1.4 g/kg) and Thr (2.3 g/kg) (AA), adding omega 3 (10 g/kg fish oil) (Ω3) groups; that were infected through intra muscular injection (IM); and, the positive control (C+) in a separate facility none-infected. Gilts were fed ad libitum to meet or exceed nutrient requirements for growth (10.2 g/kg Lys, 2.1 g/kg Trp and 6.8 g/kg Thr). Gilt BW (individually) and ADFI (by pen) were recorded weekly. The trial lasted 89 days (d) although for logistic issues C+ was only followed up to d 40. Viral load (VL) was quantified as the area under the curve for 0–40 d post infection (PI) of the log of PCR-based serum viremia. In the statistical analysis, the procedures ANOVA for performance traits, and Fisher Exact test for the proportions of PCR-positive gilts over time were used. Infection was at d 11 and by d 15 all IM inoculated gilts showed viremia. At d 20, C+ was 7.8 kg above infected groups (P < 0.001). An interaction showed that this difference was 12.6 kg at d 40 while L and H were equal in BW for C+, however L were smaller than H for the other groups (P = 0.032). Only comparing infected groups, gilts from AA group showed a trend to do not lose BW after 9 d PI while other groups lost at least 1 kg (P = 0.085). Moreover, AA group showed a higher ADG than group Ω3 (P = 0.081) until d 70. The VL of the infected gilts did not show differences among groups. Therefore, amino acids requirements may be higher under a PRRSV infection and show a potential to modulate infection dynamics and this can have an effect on gilt performance during the rearing period.

Key Words: Rearing gilts, Immunity, Quaranine

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113 Implications of Piglet Birth Weight for Survival Rate, Subsequent Growth Performance, and Carcass Characteristics of Commercial Pigs. Z. K. Zeng*[,1], P. E. Urriola[1], J. R. Dunkelberger[2], J. M. Eggert[2], R. Vogelzang[3], G. C. Shurson[1], L. J. Johnston[4], *[1]Department of Animal Science, University of Minnesota, St. Paul, MN, [2]Topigs Norsvin USA, Burnsville, MN, [3]Topigs Norsvin Research Center, Beuningen, Netherlands, [4]West Central Research and Outreach Center, University of Minnesota, Morris, MN*

The objective of this study was to analyze the effect of piglet birth weight on preweaning mortality, subsequent growth performance, and carcass characteristics. Individual records collected on 8,193 commercial crossbred pigs were used for analyses. A segmented regression model was used to analyze the effect of piglet birthweight on preweaning survival and a series of mixed models were used to analyze the effect of birth weight group on weights recorded at: weaning (n = 6,777), nursery exit (n = 4,806), and marketing (n = 1,417); HCW, and quantity of lean meat produced (n = 4,806). The effect of growth rate group defined during suckling (< 225 or ≥ 225 g/d) or the nursery phase (< 424 or ≥ 424 g/d) and the effect of growth group by