Determining the effects of diet complexity and body weight categories on growth performance of nursery pigs. Raquel Lunedo1, Dani Perondi1, Carine Vier2, Uislei Orlando2, Gustavo Lima3, Ademir Junior1, Rafael Kummer1, 1Master Agroindustrial, 2Genus PIC, 3Agroceres PIC

Our objective was to determine the effects of feeding complex or simple diets to nursery pigs sorted by body weight (BW) on growth performance. A total of 1,296 pigs (PIC 337×Camborough, initially 5.8±0.10 kg) were used in a 35-d study. Pens of pigs were blocked by gender and randomly allotted to 1 of 6 treatments. Treatments included three BW categories: light (4.7±0.10 kg), medium (5.8±0.10 kg), and heavy (7.1±0.10 kg); and two dietary strategies: simple (SD) or complex (CD) diets. Treatments were fed in two phases from d 0-10 and 10-20, followed by 15-d with common diet. Simple diets had greater soybean meal (20/26 vs 12/20%) and phytase levels (2,000 vs 500FTU/kg), lower specialty protein (8.1/4.2 vs 12.0/6.8%) and lactose levels (12/5.3 vs 18/11.5%) compared to CD. There were 8 or 11 pens per treatment and 24 pigs per pen. Data were analyzed using the GLIMMIX procedure of SAS with pen as the experimental unit. There was no evidence of interaction for any response criteria. During the treatment period (d 0-20), pigs fed CD had greater (P<0.05) average daily gain (ADG), average daily feed intake (ADFI), and improved (P<0.10) feed efficiency (G:F) compared to pigs fed SD. During the common period (d 20-35), pigs fed SD had greater (P<0.05) ADG and ADFI compared to pigs fed CD. Overall (d 0-35), there was no evidence of differences in ADG, ADFI, G:F, and final BW between SD or CD. Heavy pigs had the greatest (P<0.05) ADG and ADFI followed by medium and light pigs. In conclusion, pigs fed SD after weaning had poorer performance compared to pigs fed CD but were able to recover the loss in performance when switched to a common diet. This indicates nursery nutrition programs can be simplified without negatively affecting performance from 5.8 to 16.6 kg.

Keywords: compensatory growth, diet complexity, nursery pigs

Dietary strategies in diets without zinc oxide for nursery pigs. Fernanda Laskoski1, Wade M. Hutchens1, Mike D. Tokach1, Jason C. Woodworth1, Robert D. Goodband1, Steve S. Dritz1, Joel M. DeRouchey1, 1Kansas State University, 2Department of Animal Sciences & Industry, College of Agriculture, Manhattan, KS 66506

A total of 300 pigs (DNA 241 × 600; initially 4.2 kg) were used to evaluate the effects of different nutritional strategies to replace zinc oxide (ZnO) in nursery diets. Treatments consisted of A) Positive control (21% CP; ZnO providing 3,000 ppm Zn from d 0 to 7, and 2,000 ppm Zn from d 7 to 25); B) Negative control (NC; no ZnO); C) NC plus 1.2% Na diformate; D) NC with 4% coarse ground wheat bran; E) NC with low crude protein (18%) by adding high levels of feed grade amino acids; and F) the combination of NC with 18% crude protein (CP), 1.2% Na diformate, and 4% coarse ground wheat bran. There were 5 pigs per pen and 10 pens per treatment in a completely randomized design. Data were analyzed with the Proc Mixed procedure in SAS. For the overall period (d 0 to 46), pigs fed diets containing ZnO had greater (P < 0.001) ADG, ADFI, and final BW than other treatments, with pigs fed the NC with 18% CP having the lowest performance. Pigs fed the NC diet without any nutritional alternative had the lowest fecal dry matter (DM; P < 0.050) and highest fecal scores (P < 0.050). Pigs fed diets with ZnO had similar fecal DM and scores as pigs fed the diet containing the combination of 1.2% Na diformate, 4% coarse ground wheat bran, and low (18%) CP, but greater (P < 0.023) fecal DM than pigs fed the alternatives used individually. This study suggests none of the strategies used alone were effective at replacing ZnO while the use of low CP and amino acids reduced performance further. Combining the three alternatives tested as a replacement to ZnO improved fecal DM content and fecal score but did not result in improved growth performance.

Keywords: acidifier, wheat bran, zinc oxide