A total of 192 weanling pigs (initially weighing 5.85 kg and 22 ± 2 d of age, PIC) were used in a 42-d growth assay to determine the effects of phytobiotics (Biomin® P.E.P. 125 and 125T) on post-weaning growth performance. Pigs were blocked by initial weight and randomly allotted to one of four treatments: 1) negative control (feed containing no antibiotic or phytobiotic); 2) negative control + phytobiocetic 1 (125 g/ton of Biomin® P.E.P. 125); 2) negative control + phytobiocetic 2 (125 g/ton of Biomin® P.E.P. 125T), and 4) positive control (feed containing 140 g/ton of neomycin sulfate and 140 g/ton of oxytetracycline HCl; Neo/OTC). Each treatment had six pigs per pen and eight replications (pens). Phase 1 and 2 diets were fed from d 0 to 14 and d 14 to 42, respectively. Overall (d 0 to 42), ADG (g), ADFI (g), and G:F was 453, 642, and 0.71 for pigs fed the negative control; 481, 658, and 0.73 for pigs fed phytobiocetic 1; 477, 649, and 0.74 for pigs fed phytobiocetic 2; and 502, 705, and 0.71 for pigs fed the positive control. Pigs fed Neo/OTC had greater (P<0.03) ADG and ADFI than pigs fed the negative control diet and pigs fed diets with phytobiotics. Addition of phytobiotics to the nursery diet also increased (P<0.01) G:F compared to pigs fed diets without antibiotics and improved (P<0.01) G:F compared to pigs fed the positive control diet. No differences (P=0.38) were observed in ADFI between pigs fed the negative control diet and pigs fed either phytobiocetic. Pigs fed diets with Neo/OTC had similar (P=0.28) G:F compared to pigs fed diets without antibiotics. No differences (P=0.52) were observed in ADG, ADFI, and G:F between pigs fed diets with phytobiocetic 1 and 2. In conclusion, phytobiotics in nursery diets improved post-weaning growth performance when added to diets without antibiotics. Further research is needed to elucidate specific modes of action that caused positive effects in post-weaning growth and efficiency.

Key Words: Phytobiotics, Antibiotics, Nursery Pig

Nonruminant Nutrition: Weanling Pig Nutrition

Two experiments compared the effects of feeding organic acids and antibiotic growth promoters (AGP) in weaned pigs. Nursery pigs (N=96, 7.80 ± 0.07 kg) were allotted to a control or supplemented with AGP (200 ppm chlorotetracline plus 60 ppm Lincopectin), 0.5% potassium diformate, or 0.5% dry organic acid blend ACTIVATE Starter DA. During 4 weeks of postweaning, pigs fed AGP or ACTIVATE had better ADG (P<0.03) and GF (P<0.04) than controls. On d 14 postweaning, control pigs had the lowest fecal lactobacilli counts among all treatments (P<0.02), whereas pigs fed AGP or ACTIVATE tended to have lower fecal E. coli counts compared to the controls (P<0.08). Serum IGF-1 levels of pigs fed AGP was greater than control pigs (P<0.03). Weaned pigs (N=24, 5.94 ± 0.33 kg) were used to evaluate AGP and ACTIVATE on performance, gastrointestinal measurements, and immune response of E. coli K88+ challenged pigs. Pigs were fed a control, or supplemented with AGP (100 ppm colistin sulfate, 50 ppm Kitasamycin plus 60 ppm Olaquindox), 0.5, or 1% ACTIVATE. During d 5 to 14 after E. coli K88+ challenge, pigs fed AGP, 0.5, or 1% ACTIVATE had higher gain than controls (P<0.01). Furthermore, control pigs had the lowest GF among all treatments (P<0.03). On d 14, compared to the control pigs, pigs fed 0.5% ACTIVATE had higher lactobacilli in the duodenum, and pigs fed AGP and 1% ACTIVATE tended to have higher lactobacilli in the ileum (P<0.08). Pigs fed AGP, 0.5% or 1% ACTIVATE diets tended to have lower ileal E. coli counts compared to the controls (P<0.08). Serum interleukin-6, cortisol, or digesta pH values were not affected by treatment (P=0.11). These results indicate that AGP and organic acid blend ACTIVATE can improve growth performance of weaned pigs, mainly via modulating intestinal microflora populations or somatotropic axis.

Key Words: Antibiotics, Growth Performance, Organic Acid