The diets were fed 4 times/d for 14 d. On d 14, pigs were fasted 10 h and injected i.p. with saline or 25 ug LPS (E. coli. 0111:B4)/kg BW. Blood samples and temperature were collected at 0 h (before injection), and at 3, 6, and 24-h post injection (PI). Growth performance from d 0-14 was not affected (P>0.10) by dietary Zn. On d 14 (prior to LPS), plasma Zn concentrations for the 4 dietary treatments were, respectively: 36.1, 1.09, 3.50, and 4.30 mg/L (linear, P<0.01). Increasing dietary zinc decreased (linear, P<0.01) C-reactive protein (CRP), albumin, and cortisol, but increased (linear, P<0.01) triglycerides and urea nitrogen. A biphasic response was observed over time for temperature, white blood cells, neutrophil, and lymphocyte counts in pigs injected with LPS, but no response was noted in control pigs (LPS x time, P<0.01). Body temperature and cortisol increased up to 6 h in LPS-injected pigs, and then decreased to baseline values by 24-hr PI (LPS x time, P<0.01). Plasma Zn and CRP increased with increasing Zn at 0 and 24-h PI, but quadratic responses were noted at 6 h (Zn x time; P<0.01). Increasing Zn decreased insulin in control pigs, but increased it in LPS-injected pigs (Zn x LPS, P<0.01). These results suggest that endotoxin challenge has a marked effect on the acute phase response in weanling pigs. Dietary Zn affected some measures of the acute phase response independent of endotoxin challenge. This suggests that dietary Zn has minimal effects on the response of weanling pigs to endotoxin challenge.

Key Words: Weanling pigs, Zinc, Endotoxin


Four Exp. were conducted to determine the effect of a mannan oligosaccharide (Bio-Mos, BM) on growth of pigs. Treatments were replicated with five to six pens of four to five pigs each. Initial BW ranged from 4.7 to 5.4 kg, and pigs were weaned at 16 to 20 d of age. Experiments 1, 2, and 4, consisted of Phase 1 (7 to 8 d), Phase 2 (12 to 14 d), and Phase 3 (7 to 8 d) periods. Experiment 3 consisted only of Phase 1 (7 d) and 2 (14 d) periods. The diets for Phase 1, 2, and 3 contained 1.6, 1.5, and 1.1% Lys, respectively. In Exp. 1, pigs were fed 0, 0.20, or 0.30% BM in diets containing 3,000 ppm Zn and an antibiotic. Bio-Mos did not affect (P>0.10) growth performance. In Exp. 2, pigs were fed two levels of Zn (0 or 3,000 ppm) and(or) three levels of BM (0, 0.20, or 0.30%), and all diets contained an antibiotic. Growth performance was not affected (P>0.10) during Phase 1. During Phase 2, 3, and overall, excess Zn increased ADG (P<0.08) and ADFI (P<0.01). In the overall data, the 0.20% BM was as effective as excess Zn in increasing ADG and ADFI (Zn x BM, P<0.07). In Exp. 3, pigs were fed two levels of Zn (0 or 3,000 ppm) and(or) two levels of BM (0 or 0.20%), and all diets contained an antibiotic. Excess Zn decreased (P<0.07) ADG in Phase 1, but increased (P<0.09) ADG and ADFI in Phase 2. The BM addition increased ADG and gain/feed during Phase 2 and overall; the response was greater for BM fed unsorted than sorted pigs was similar, but greater (P<0.05) than medium or light sorted pigs; ADFI was unaffected by grouping. All groupings were different (P<0.05) in final body weight and ranked in the following descending order: heavy sorted (123.4 ± 7.4 kg), unsorted (119.9 ± 8.7 kg), medium sorted (117.8 ± 7.6 kg), and light sorted (113.2 ± 9.3 kg). Final weight of unsorted pigs was heavier (P<0.05) than the average weight of all sorted pigs. Differences in body weight variation were not detectable (P>0.05) by the end of the study. The increase in pig weight from not sorting was primarily due to the growth performance of the medium weight pigs in unsorted pens. Medium pigs in these pens grew faster (P<0.05) than the medium weight pigs penned uniformly by weight (-97 versus -92 kg/d, respectively). These data suggest that sorting pigs by weight fails to reduce weight variation, and not sorting pigs may actually increase throughput (amount of pork produced) in a production system.

Key Words: Pigs, Sorting, Variation


Two Exp. were conducted with pigs to evaluate the effects of chromium propionate on growth, carcass traits, pork quality, and fasting NEFA concentrations. Average initial and final BW were 26 and 28 kg, and 111 and 112 kg for Exp. 1 and Exp. 2, respectively. In Exp. 1, the treatments were a corn-SBM diet with 0, 100, 200, or 300 ppb Cr. Each treatment was replicated six times with six barrows each. In the late-finishing period, ADFI was decreased (linear, P<0.01) as Cr concentration increased. Carcass traits were not affected (P>0.10) by Cr in Exp. 1. Plasma urea N (linear, P<0.02) and NEFA (quadratic, P<0.06) concentrations were decreased in pigs fed Cr. Total cholesterol (TC) and high-density lipoprotein (HDL) concentrations were increased (quadratic, P<0.09) in pigs fed 100 or 200 ppb Cr. Low-density lipoproteins, triglycerides, and TC:HDL were not affected by diet (P>0.10).

In Exp. 2, the treatments were a corn-SBM diet with 0, 50, 100, or 200 ppb Cr. Each treatment was replicated six times with four gilts each.