

122 Effects of dietary Cr supplementation on the retention of Cu and Zn in stressed baby pigs. V. Sibarío*, G. Hill, D. Rozasboom, M. Hogberg, R. Bull and M. Yokoyama, *Michigan State University, E. Lansing.*

Previous studies have suggested that dietary Cr supplementation may prevent stress induced loss of several microminerals including Cu and Zn. A trial was conducted to determine the effect of supplemental Cr on Cu and Zn retention in stressed baby pigs. Twelve 21 d crossbred barrows (6.02 Kg BW) were assigned to 3 treatment and 4 blocks by weight and litter in a 15 d trial. A whey-corn-soybean basal diet (22, 140 and 1.44 ppm of Cu, Zn and Cr respectively) was supplemented with: 0 (T1), 0.50, (T2) or 1(T3) ppm Cr as a high Cr yeast. During the first 5 d pigs were fed the basal diet. Deionized water was provided. At d 6 pigs were moved to metabolic pens. The meal at d6 and d16 were mixed with 50 mg of brilliant blue dye to identify feces by visual examination. Feces and urine were collected every 24 h for 10 d. To avoid contamination of feces and urine with feed, pigs were moved to separate pens 3 times a day to be fed. Duplicate samples of feed, refusals, feces and urine were digested with both nitric and perchloric acid and Cu and Zn concentration were determined. On average the consumption of Cu was 0.82, 0.84, and 0.94 mg/Kg BW and 6.57, 7.39 and 8.15 for Zn in T1, T2 and T3 respectively. Cu and Zn retention was variable from day to day for the 3 treatments. Pigs in T1 had a greater retention of Cu than pigs in T2 and T3. However, pigs in T3 had a greater retention of Zn compared to T1 and T2. These differences were not significant ($P > .10$). Pigs in T2, and T3 had 1 and 2 d of negative Cu balance. In contrast pigs in T1 had a positive Cu balance. No negative balance was observed for Zn. In summary dietary Cr supplementation as provided from high Cr yeast had no apparent effect on Cu or Zn retention of stressed baby pigs. Copper needs of this stressed pig may not be met by 22 ppm.

Key Words: Pig, Chromium

123 Spray dried poultry byproduct with or without spray dried wheat gluten replaces spray dried animal plasma in weanling pig diets. T. L. Veum¹, A. K. M. A. Haque², and S. Bassi³, ¹University of Missouri, Columbia, ²American Dehydrated Foods, Inc., Springfield, MO., ³Midwest Grain Products, Inc., Atchison, KS.

Crossbred pigs (n=126) weaned about 2.5 wk of age (avg. 5.6 kg BW) were used to evaluate the complete replacement of spray dried animal plasma (AP, AP920[®]) with spray dried poultry byproduct (PB, NC70) or PB + spray dried wheat gluten (WG) in a 50:50 ratio. Six Phase 1 (d 0-14) treatments (2x3 factorial arrangement) were made by replacing 9.0% AP with 10.93% PB or 12.46% PB + WG, and by replacing 6.0% AP with 7.29% PB or 8.31% PB + WG. Replacements were made on a total lysine basis. Diets contained 1.5% lysine and .44% methionine. Other ingredients were 20% spray dried whey, 10% lactose, corn, soybean meal, lard, .25% L-lysine.HCl, DL methionine, and mineral and vitamin supplements. During Phase 2 (d 14-28), treatments were reduced to three by using one level of each protein source. Thus, 2.5% AP was replaced by 3.04% PB or 3.46% PB + WG. Diets contained 1.35% lysine and .40% methionine. Lactose was deleted and 2% spray dried animal blood cells was added. No interactions ($P > .2$ to $.9$) occurred between protein source and protein level for ADFI, ADG or gain:feed ration (G:F) for Phases 1, 2 or overall. There were no differences ($P > .2$ to $.9$) between protein sources (AP vs PB vs PB + WG) in ADFI, ADG or G:F for Phases 1, 2 or overall. The higher levels of the protein sources fed in Phase 1 did not improve ($P > .1$ to $.6$) pig performance. In conclusion, performance of weanling pigs fed diets containing PB or PB + WG was equivalent to that of pigs fed diets containing AP. Performance was not improved by feeding a higher level of the protein sources during Phase 1 (i.e. 6 vs 9% AP).

Key Words: Protein Sources, Weanling Pigs

124 Performance of two-week old piglets fed phase I and phase II starters containing deoiled lecithin. M. R. McMurtry*, E. L. Stephas, R. M. DeGregorio and B. L. Miller. *Land O'Lakes, Inc., Webster City, IA.*

One hundred twenty, two-week weaned piglets were used to study the effects of deoiled lecithin in phase I and phase II starters on piglet performance. Treatments were arranged employing a complete random design. Pigs were assigned to individual pens by weight and sex. The pigs averaged 4.31 kg at the initiation of the study. Pigs were fed a SEW (1.7% Lysine) diet for one week followed by a high nutrient dense diet (1.6% Lysine) for one week, followed by a transition diet (1.4% Lysine) for 2 weeks. Diets were offered *ad libitum* for 28 days. The inclusion rate of deoiled lecithin in each diet was .6%. The four treatments offered were no deoiled lecithin, deoiled lecithin during week 1, deoiled lecithin during weeks 1 and 2 or deoiled lecithin during weeks 1 through 4. Pigs were weighed weekly and performance measured. During week one, piglets fed the SEW with deoiled lecithin had decreased weight gains (48%, $p < .05$), feed consumptions (34%, $p < .05$) and feed efficiencies (29%, $p < .10$). Nonetheless, pigs previously fed the SEW with deoiled lecithin treatments had improved ($p > .10$) average daily gains during week two when compared to pigs previously fed the SEW treatment without deoiled lecithin. Yet, overall, pig performance was similar ($p > .10$) across regime, with pigs fed the deoiled lecithin treatments having numerically inferior gains and feed intakes. Results from this trial suggest that further investigation of deoiled lecithin is required before its use in phase I or phase II starters can be justified.

Key Words: Deoiled Lecithin, Pig, Starter

125 Combinations of select menhaden fish meal and spray-dried plasma protein in the transition diet (fed to pigs from 5 to 7 kg) for the early-weaned pig reared in a one-site production system. J. R. Bergstrom*, J. L. Neissen, M. D. Tokach, R. D. Goodband, K. Q. Owen, W. B. Nessmith, Jr., B. T. Richert, J. W. Smith II, S. S. Dritz. *Kansas State University, Manhattan.*

A 28 d growth trial, utilizing 326 10 to 14 d old pigs (PIC, C15 X 326, initially $3.9 \pm .4$ kg), was conducted to determine the degree of complexity required in a transition diet (fed to pigs from 5 to 7 kg) to maximize growth performance in the early weaned pig. Pigs were housed in an on-site, environmentally-regulated nursery. There were 7 to 11 pigs/pen (depending upon the block) and 6 pens/treatment. Pigs were blocked by weight and placed on a common high-nutrient dense diet from d 0 to 7 postweaning. From d 7 to 21, pigs (4.8 ± 1.2 kg) were fed one of six experimental diets. Pigs were fed a common diet from d 21 to 28. Experimental diets were arranged in a 2 x 3 factorial arrangement, with main effects including spray-dried plasma protein (SDPP; 0 and 2.5%) and select menhaden fish meal (SMFM; 0, 2.5, and 5%). A corn-soybean meal basal diet containing 20% dried whey and 2.5% spray-dried blood meal was formulated to 1.6% lysine and at least .44% methionine. Select menhaden fish meal and SDPP replaced soybean meal in the basal diet on a lysine basis. There were no SDPP x SMFM interactions observed. From d 7 to 14 postweaning, ADG and G/F were improved ($P < .02$) with 2.5% SDPP in the transition diet. Increasing SMFM reduced ADFI (linear, $P < .10$), and improved G/F (quadratic, $P < .05$). For the entire d 7 to 21 period, no differences in ADG were observed, but pigs fed diets containing 2.5% SMFM had lower ADFI and improved G/F (quadratic, $P < .09$). These data suggest that replacing a portion of the soybean meal in a transition diet with 2.5% SDPP and 2.5% SMFM improves the growth performance of pigs reared in a conventional one-site production system.

Key Words: Pigs, Fish meal, Plasma