NONRUMINANT NUTRITION


A total of 390 pigs (initially 4.2 kg and 13 ± 2 d) was used in a 26 d growth assay to evaluate different protein sources as replacements for spray-dried plasma. Dietary treatments (d 0 to 14 postweaning) were arranged in a 2 × 6 factorial with an additional control treatment. All diets contained 25% dried whey, 5% lactose, and 6% select menhaden fish meal (SMF). All experimental diets were formulated to contain 1.7% lysine and at least 48% methionine. The control diet contained 7.5% protein and 15.7% soybean meal (SBM). Main effects included six protein sources (spray-dried blood meal (SDBM), spray-dried wheat gluten (SDWG), extruded soy protein concentrate (ESPC), SMF, and SBM and two protein source levels. The protein sources replaced 2.5 or 5.0% plasma in the control diet on a lysine basis except in the diets containing SDWG. In these diets, plasma was replaced on a protein basis and synthetic lysine was added to compensate for the lysine difference. From d 0 to 14, pigs fed diets containing SMF or ESPC had increased (P < .05) ADG compared to pigs fed diets containing SDBM, SDWG or ESPC. In addition, pigs fed SBM showed similar ADG to pigs fed other protein sources, but greater (P < .05) than pigs fed diets containing SDEP. Protein source level did not affect ADG or feed efficiency (G/F). A protein source x level interaction (P < .05) was observed for ADFI. Pigs fed increasing levels of SDBM, SDWG, or SBM had increased ADFI, however, increasing levels of SMF, ESPC, and SDWG had no influence or increased ADFI. Feed efficiency (G/F) was decreased (P < .05) for pigs fed diets containing SDEP as compared to pigs fed diets containing SDBM, SMF, or ESPC. For the high-health pigs used in this trial, SMF, ESPC, and SBM appear to be effective in replacing a portion of the spray-dried plasma in the SEW diet.

Key Words: Protein source. Weaning pigs.

252 Effect of dietary carbohydrate source and level on early-weaned pig growth performance. B. T. Richert1, K. R. Cara2, A. P. Schinckel1, 1Purdue University, West Lafayette, IN. 2Countrymark Cooperative, inc., Indianapolis, IN.

Five hundred thirty-one pigs weaned between 10 and 14 d of age were used in two experiments. Experiment 1 (n = 441) evaluated the effects of level of a simple sugar (either lactose (lact) or lact+ dextrose (dext)), a cereal (corn), a starch, wheat flour, rice, or grain sorghum without or with yeast extrusion processing. From d 0 to 7 postweaning, all diets contained 42% of the respective carbohydrate source; 20% dried whey, 10% extruded soy protein concentrate, 6.7% spray-dried plasma protein, and 6% select menhaden fish. Fish were supplemented with 1.7% lactose with all other amino acids except lysine. The carbohydrate sources contained 5% soybean meal, 10% dried whey, 5% select menhaden fish meal, and 3% soy protein concentrate. The carbohydrate sources contained 5% soybean meal, 10% dried whey, 5% select menhaden fish meal, and 3% spray-dried plasma protein. Diets were formulated to contain 1.7% lysine. Surprisingly, from d 0 to 7 postweaning, pigs fed diets containing corn had decreased (P < .01) ADG compared to pigs fed other carbohydrate sources. Moist extrusion processing of the carbohydrate sources did not improve growth performance. For the cumulative study (d 0 to 21 postweaning), pigs fed corn had decreased (P < .01) ADG and G/F compared to those fed other carbohydrate sources. There were no differences in growth performance among pigs fed the other carbohydrate sources. Moist extrusion processing had no effect on growth performance. Over the conditions used in this study, moist extrusion processing of carbohydrate sources did not influence pig performance.

Key Words: Pigs, Extrusion, Carbohydrates.

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