
A total of 150 weaning pigs was used (average initial BW of 5.6 kg) in a 23-d growth assay to determine the optimal blend of spray-dried wheat gluten (WG) and spray-dried porcine plasma protein (SDPP). The SDPP was added as 8% of the control diet and the WG was substituted on a protein basis to yield the desired SDPP:WG blends. All Phase I (0 to 14) diets were formulated to 1.5%, lysine, 0.5% methionine, 9% Ca, and 8% P. Treatments were: 1) SDPP; 2) 75% SDPP and 25% WG; 3) 50% SDPP and 50% WG; 4) 25% SDPP and 75% WG; and 5) 75% WG. The same corn-soybean meal-wheat-based diet (with 15% blood meal and 1.2% lysine) was fed to pigs during Phase II (14 to 23) of the experiment. For Phase I, ADG and ADFI increased with up to 50% replacement of the SDPP diet and decreased when more of the SDPP was removed from the diet (quadratic effects, P < 0.04 and 0.02, respectively). Apparent digestibilities of DM and N (at d 12) were not affected by treatment (P > 18). For 14 to 23, treatment did not affect ADG (P > 2), although there were quadratic responses in ADFI (with the greatest ADFI for pigs fed the 50:50 blend, P < 04) and G/F (with the lowest G/F for pigs fed the 25:75 blend, P < 0.03). Overall (d 0 to 32), ADG and ADFI increased as the WG was used to replace 50% of the SDPP quadratically, P < 0.04 and 0.02, respectively. In conclusion, the optimum ratio of WG and SDPP for maximum rate of gain and feed intake in nursery pigs was the 50:50 blend. However, maximum efficiency of gain was still achieved with the highest (8%) inclusion of SDPP.


An experiment was conducted using 144 pigs initially weighing 4.2 kg to examine the response of the pigs to lactose and animal plasma (AP920) in the diet. The experiment was designed as a randomized complete block of 48 pens with 6 pigs/pen. A 2 x 2 factorial arrangement of the two levels of plasma (0 and 6.75%) and four levels of lactose (0, 15, 30, and 45%). Diets contained corn, extruded soy protein concentrate, 5% soybean meal (48%), 21.3% blood meal (9.0%), and 1.5% minerals and vitamins to meet or exceed recommendations (ARA, 1990). Diets were formulated to provide 1.56% lysine and 0.86% sulfur amino acids. ADG increased linearly with increasing levels of the plasma in the diet and showed a quadratic effect in the second week and for the entire study (P < 0.05). ADFI showed a quadratic effect in the second week and increased linearly for the entire study (P < 0.05). Feed efficiency (G/F) improved linearly in the first week and quadratically for the entire study (P < 0.05). Plasma addition resulted in increased ADG (242 vs. 175 g, P < 0.05) and ADFI (33% vs. 249 g, P < 0.05) in the first week. There were no significant differences in growth or feed intake in the second week. For the entire study ADG and ADFI were higher (P < 0.05) in pigs fed plasma. G/F was not affected by added plasma. There were interactions between plasma and lactose in the first week for G/F (P < 0.05) and ADG and ADFI (P < 0.05). Pigs receiving plasma reached their peak performance between 5% and 45% added lactose while pigs not fed plasma reached their peak performance between 30% and 45% added lactose. These results suggest that plasma added to the diet may improve feed efficiency by increasing voluntary feed intake. It also shows that the lactose response is dependent on plasma in the diet.


An experiment involving 90 pigs was conducted to assess the performance of spray-dried porcine plasma (SDPP) and the immunoglobulin G (IgG) fraction of SDPP in diets for early-weaned pigs. The SDPP (AP 902™) contained 17.9% IgG and the IgG fraction contained 65.3% IgG (both were provided by American Protein Corp., Ames, IA). Pigs were weaned at 14 to 16 days old, and a 4 x 4 factorial arrangement of the diet (4 x 4) consisted of corn, dehulled soybean meal, soy protein concentrate (SPC), Proline (Em™), Central Soya, Decatur, IN, dried whey, corn oil, minerals, vitamins, antibiotics and CuSO. The IgG fraction was included in Diets 2, 3, and 4 to approximate 64%, 128% or 192%, respectively, of the IgG in the SDPP. In Diet 5, SDPP was added at 8% and was substituted for SPC. Lysine, methionine, Na, and ME were maintained at 1.50%, 0.45%, 49%, and 3.24 Meg ME/kg in all diets. Daily gain, daily feed intake, and feed:gain ratios for pigs fed the five diets were, respectively, (wk 0-1) 117, 146, 190, 168, 102 g/d; 178, 196, 225, 204, 187 g/d; 1.57, 1.46, 1.29, 1.24, 1.59; (wk 0-2) 170, 228, 264, 258, 228 g/d; 243, 326, 373, 356, 356 g/d; 1.44, 1.45, 1.42, 1.39, 1.58; (wk 0-4) 327, 364, 395, 341, 335 g/d; 474, 527, 554, 524, 515 g/d; 1.45, 1.45, 1.40, 1.55, 1.53. Growth rate and feed intake increased linearly (P < 0.01) with increasing levels of IgG in the diet during wk 1, and the response to IgG continued through wk 2 (quadratic, P < 0.05). Increased growth rate with increasing dietary IgG level continued through wk 4 (quadratic, P < 0.01). Inclusion of SDPP improved growth rate and feed intake at wk 2 (P < 0.01) but not at wk 1 or wk 4. The beneficial effects from the IgG fraction appear to be maximized near the level of IgG found in SDPP.