

PSVII-3 Nutritional Value of a New Source of Cheese Co-Product Fed to Weanling Pigs.

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Abstract: Two experiments were conducted to test the hypothesis that the standardized ileal digestibility (SID) of AA, and metabolizable energy (ME) are greater in a new source of cheese co-product (Keys Manufacturing Co., Inc.) than in fish-meal or enzyme-treated soybean meal (ESBM). The second hypothesis was that cheese co-product can replace spray dried plasma (SDP) or ESBM in diets for weanling pigs. In Exp 1, eight ileal-cannulated weanling barrows (11.0 ± 0.4 kg) were allotted to a repeated 4 × 4 Latin-square with 4 diets (cheese co-product, fish meal, ESBM, N-free) and four 7-d periods. In Exp. 2, 32 weanling barrows (14.0 ± 1.1 kg) were placed in metabolism crates and allotted to a corn diet or diets containing corn and cheese co-product, fish meal, or ESBM. Data were analyzed using the MIXED procedure of SAS with diet as fixed effect and pig as random effect. Cheese co-product had greater ($P < 0.05$) SID of most AA and greater ($P < 0.05$) ME compared with fish meal and ESBM (Table 1). In Exp. 3, 128 weanling pigs (6.2 ± 0.6 kg) were allotted to 4 diets, eight pens per diet, and 4 pigs/pen. The 4 phase 1 diets were fed from d 1 to 14 post-weaning and included a control diet containing ESBM and SPD or diets in which 6, 7, or 14% cheese co-product replaced ESBM, SPD, or both ESBM and SPD. Orthogonal-polynomial contrasts were used to determine linear and quadratic effects of including cheese co-product in the diets. Results demonstrated that cheese co-product had no influence on growth performance. In conclusion, cheese co-product has greater SID of most AA and greater ME than fish meal and ESBM, and cheese co-product can replace ESBM and SDP in phase 1 diets without affecting growth performance of pigs.

Table 1. Metabolizable energy (ME) and standardized ileal digestibility (SID) of AA in cheese co-product, fish meal, and enzyme-treated soybean meal^{1,2}

Item	Enzyme-treated soybean meal ¹	Fish meal	Cheese co-product ²	SEM	P-value
ME, kcal/kg	4,245 ^b	4,001 ^{bc}	5,066 ^a	99.89	<0.001
SID of AA, %					
Ile	86.3 ^b	86.5 ^b	92.2 ^a	1.77	0.015
Lys	81.1 ^b	85.2 ^{ab}	90.8 ^a	2.24	0.013
Met	87.7 ^b	87.9 ^{ab}	94.1 ^a	1.32	0.001
Thr	79.5 ^b	85.9 ^{ab}	88.9 ^a	2.03	0.014
Trp	85.4 ^b	89.3 ^{ab}	92.5 ^a	1.57	0.021
Val	83.4 ^b	85.2 ^b	91.6 ^a	1.87	0.005

^{a-c}Least squares within a row lacking a common superscript letter are different ($P < 0.05$).

¹Enzyme-treated soybean meal= HP 300, Hamlet Protein, Finlay, OH.

²Cheese co-product= sourced from Keys Manufacturing Co., Inc., Paris, IL.

Keywords: cheese co-product, digestibility, growth performance

PSVII-7 The Effects on Supplementation of Medium Chain Fatty Acids on Piglet Health and Immune Markers.

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Abstract: A total of 77 mixed parity sows were used from d 28 of gestation until weaning to determine the effects of supplementation of medium chain fatty acids (MCFA) on colostrum composition and serum immunocrit ratios. On d 28 of gestation, sows were weighed, blocked by parity and weight and allotted to either control diets (UNSUP) or control diets plus 0.3% inclusion of MCFA blend in gestation and lactation. After birth of the first piglet, a 40 mL colostrum sample was collected. On d 2 of age, a 1 mL blood sample was collected from the piglet mammary vein and serum was stored. Colostrum samples were analyzed for fat, protein, lactose, and total solids. Piglet serum were analyzed for immunocrit ratios. Piglet fecal samples were collected at 10, 35 and 63 d of age and quantitative rtPCR for *Lactobacillus* were completed. Data were analyzed as a randomized incomplete block with maternal diet as main effect and litter as experimental unit. The MCFA sows had greater ($P < 0.05$) concentration of colostrum protein (17.7 vs 16.5%) and solids not fat (23.4 vs 22.2%), a tendency for greater concentration of total solids (29.9 vs 28.6%, $P=0.07$) and tendency for reduced ($P = 0.07$) concentration of lactose. Overall preweaning survivability was 91.6 and 92.5% in UNSUP and SUP litters, respectively. Serum immunocrit values (0.16 vs 0.14) were greater ($P = 0.01$) in piglets from UNSUP sows compared with supplemented. *Lactobacillus* represented 55 and 49% at day 10, 24 and 57% at day 35 and 9 and 3% at day 63 of age in UNSUP and SUP pigs, respectively and were not different. In conclusion, MCFA supplementation in gestation and lactation diets improved overall colostrum quality.

Keywords: colostrum, health, lactation