

91 The preference of weanling pigs for diets containing either dried skimmed milk or spray-dried porcine plasma. P. M. Ermer\*, P. S. Miller, A. J. Lewis, and M. A. Giesemann. University of Nebraska, Lincoln.

The preference of 35 weanling pigs (26 d of age; initial weight 6.2 kg) for diets containing either dried skimmed milk (DSM) or spray-dried porcine plasma (SDPP) was investigated in a two-choice preference test for 21 d. The DSM diet contained 20% DSM and 20% dried whey. The SDPP diet contained 8.5% SDPP, 20% dried whey, 10% lactose, and .13% DL-methionine. Diets were equal in lactose content and similar for all nutrients. Pigs were penned individually, and the two diets were presented equidistant from the one nipple waterer in each pen. Position of the diets was alternated daily. Overall experiment means for ADG and gain/feed were 354 g and .599, respectively. Average daily feed disappearance was 371 and 172 g for SDPP and DSM diets, respectively ( $P < .01$ ). Of the 35 pigs in this study, 28 preferred the SDPP diet and seven preferred the DSM diet. Preference for SDPP became apparent on d 2 (60% of total feed disappearance) and increased to d 21 (84% of total feed disappearance;  $P < .01$ ). These data indicate that weanling pigs prefer diets containing SDPP to those containing DSM and that the preference for the SDPP diet increases through 21 d postweaning.

**Key Words:** Spray-dried Porcine Plasma, Weanling Pigs, Feeding Preferences

93 Comparison of protein sources for phase II starter diets. M. D. Tokach\*, R. D. Goodband, J. L. Nelssen and J. A. Hansen. Kansas State University, Manhattan.

A total of 432 weanling pigs (initially 6.9 kg and 21 d of age) were used in a growth trial to compare various protein sources in the phase II starter diet. Pigs were allotted by weight and sex to 6 replicates with 12 pigs/pen. During phase I (0 to 7 d postweaning), all pigs were fed the same diet containing 1.5% lysine, 10% porcine plasma, 10% lactose and 20% dried whey. During phase II (7 to 28 d postweaning), pigs were fed one of six experimental diets. All phase II diets contained 10% dried whey and were formulated to 1.18% lysine. The positive control diet contained 5% select menhaden fish meal (FISH). Synthetic amino acids were used to replace fish meal to form an ideal protein, negative control diet (AA). Spray-dried porcine plasma (SDPP), spray-dried blood meal (SDBM), soy protein concentrate (SPC) and moist extruded soy protein concentrate (ESPC) replaced fish meal on a lysine basis to form the other 4 dietary treatments. During the grower phase (28 to 56 d postweaning), all pigs were fed a common 1.1% lysine, milo-soybean meal diet. During phase I, ADG (g) and G/F were 177 and .71, respectively. During phase II, SPC and ESPC effectively replaced fish meal as a protein source; however, pigs fed diets containing spray-dried blood products (SDPP or SDBM) gained faster ( $P < .06$ ) than pigs fed the other four diets. Pigs fed the diet containing synthetic amino acids had poorer ( $P < .02$ ) feed conversion than pigs fed diets containing the intact protein sources. Pigs fed the diet containing SDBM during phase II gained faster ( $P < .03$ ) during the subsequent grower phase than pigs fed the other diets. Based on the combined nursery and grower results, SDBM appears to be a superior protein source in the phase II diet for pigs that were fed a diet containing SDPP during phase I.

Item	AA	FISH	SDPP	SDBM	SPC	ESPC	CV
Phase II ADG, g	396	396	426	417	394	404	7.4
G/F	.62	.66	.66	.65	.64	.65	4.4
Grower ADG, g	550	545	559	602	567	556	7.0
d 56 wt, kg	31.9	31.7	32.7	33.8	32.3	32.2	3.5

**Key Words:** Starter Pigs, By-products, Protein sources

92 Determination of optimum levels of inclusion of spray-dried porcine plasma (SDPP) in diets for weanling pigs fed in practical conditions. R. Gatnau\* and D. R. Zimmerman. Iowa State University, Ames, IA.

A 28-d trial was conducted involving 96 pigs that were 25-d old and averaged 6.1 kg BW. Diets consisted of a basal corn-soybean meal-dried whey (C-SBM-DW) diet to which increasing levels (0, 2, 4, 6, 8, 10 %) of SDPP were added. Adjustments were made in corn and soybean meal content to achieve similar levels of lysine (1.2 %). Pigs were transferred to a common C-SBM-DW diet for the last 2 wk of the trial. Pigs were allowed ad libitum access to feed and water. They were housed in flat-deck pens in an all-in-all-out nursery. Room temperature was 24°C. Pigs were randomly assigned to pens within replication from outcome groups based on litter and initial weight. Each treatment had four pens, with four pigs in each pen. ADG, ADFI and gain to feed ratio (G/F) were:

Item	Week	SDPP (%)						CV, %	P <	
		0	2	4	6	8	10		L	Q
ADG, g	1+2	151	150	236	254	269	188	29	.04	.03
	0-4	316	340	390	360	383	349	12	.16	.06
ADFI, g	1+2	387	447	526	528	547	445	16	.08	.01
	0-4	614	633	701	665	651	608	15	.97	.08
G/F, g/kg	1+2	376	339	444	482	491	409	19	.08	.12
	0-4	513	539	557	544	590	570	8	.04	.60

\*L=linear, Q=quadratic.

For the first 2 wk, ADG increased linearly ( $P < .04$ ) and quadratically ( $P < .03$ ) and ADFI increased quadratically ( $P < .01$ ). Overall, ADG increased quadratically ( $P < .06$ ) and G/F ratio increased linearly ( $P < .04$ ). Estimated from quadratic relationships ADG (1+2 and 0-4 wk) and ADFI (1+2 wk) maximized at 6 % SDPP.

**Key Words:** Spray-dried porcine plasma, growth, piglets

94 Influence of protein source fed to the early-weaned pig during phase I (d 0-9) on the response to various protein sources fed during phase II (d 9-28). L. J. Kats\*, M. D. Tokach, R. D. Goodband, and J. L. Nelssen. Kansas State University, Manhattan.

A total of 468 weanling pigs (initially 6.0 kg and 21 d of age) were used in a 28-d growth trial to determine the influence of protein source fed during phase I on the response to various protein sources fed during phase II. Pigs were allotted by weight and sex to 6 replicates with 13 pigs/pen. The trial was arranged in a 2 X 3 factorial based on protein sources fed in the phase I and II starter diet. Phase I diets contained either 10% spray-dried porcine plasma (SDPP) or 14.8% moist extruded soy protein concentrate (ESPC), while phase II diets contained either 3.9% SDPP, 2.5% spray-dried blood meal (SDBM) or 5.7% ESPC. Protein sources were substituted on an equal lysine basis. Both phase I diets contained 20% dried whey, 10% lactose and were formulated to 1.5% lysine. All phase II diets contained 10% dried whey and 1.25% lysine. During phase I, pigs fed SDPP had improved ( $P < .001$ ) ADG (138 vs 74 g), ADFI (183 vs 134 g) and G/F (.74 vs .48) compared to pigs fed ESPC. Phase I protein source did not influence phase II performance and there were no interactions ( $P > .10$ ) between protein sources fed during phase I and II. During phase II, pigs fed diets containing SDPP had higher ( $P < .02$ ) ADG and ADFI than pigs fed diets containing SDBM and higher ( $P < .03$ ) ADFI than pigs fed diets containing ESPC. Although there were no interactive effects, protein sources in both phase I and II influenced ( $P < .05$ ) pig weight at the end of the starter period (d 28). These results indicate that growth responses attributed to protein source in phase I and II are additive.

Phase I Phase II	SDPP			ESPC			CV
	SDPP	SDBM	ESPC	SDPP	SDBM	ESPC	
d 7-28 ADG, g	337	292	306	334	297	320	10.6
G/F	.77	.73	.73	.71	.76	.79	8.5
d 0-28 ADG, g	269	242	255	250	222	236	9.9
G/F	.76	.73	.75	.69	.73	.75	5.8
d 28 wt, kg	13.7	12.9	13.1	13.1	12.5	13.0	4.0

**Key Words:** Starter Pigs, Protein sources, Growth performance.