636 **Influence of spray-dried plasma source on growth performance of weanling pigs.** M.M. Rantanen*, J.W. Smith II, B.T Richert, K.G. Friesen, J.L. Nelssen, R.D. Goodband, M.D. Tokach, and L.E. Russell[1]. Kansas State University, Manhattan and [1]American Protein Corporation, Ames, IA.

A total of 626 pigs (initially 4.1 kg and 13.2 d of age) was used in a 28 d growth trial to determine the effect of spray-dried porcine (SDPP), bovine (SDBP), and low ash porcine plasma (LAPP) on growth performance in the early weaned pig. Pigs were blocked by weight in a randomized complete block design resulting in 8 to 10 pigs per pen and 7 replications per treatment for a total of 10 treatments. Experimental diets were fed from d 0 to 14 post-weaning (phase I). The control diet was formulated to contain 1.5% lysine and .42% methionine and included 33% corn, 16% soybean meal, 25% dried whey, and 14% dried skim milk. Spray-dried plasma sources (2, 4, and 6%) and lactose (2, 4, and 6%) replaced dried skim milk in order to maintain equal lactose and lysine levels in all diets. On d 14, all pigs were switched to a common phase II (d 14 to 28 postweaning) diet formulated to contain 1.25% lysine, 2.5% spray-dried blood meal, and 10% dried whey. During wk 1, ADG, ADFI, and feed efficiency (G/F) were improved for pigs fed the plasma diets compared with the control diet ($P < .01$). Average daily gain and ADFI increased for pigs fed LAPP (linear, $P < .06$) and SDPP (linear, $P < .05$), while ADG and G/F increased (linear, $P < .01$) for pigs fed SDBP. During phase I (d 0 to 14), ADG and ADFI improved ($P < .01$) for pigs fed plasma diets compared to the pigs fed the control diet. Pigs fed SDPP had greater ADG ($P < .08$) and ADFI ($P < .01$) than pigs fed SDBP. During phase I, ADFI increased linearly as SDPP ($P < .07$), SDBP ($P < .05$), and LAPP ($P < .08$) increased in the diet. Also in phase I, G/F was improved with pigs fed SDPP (quadratic, $P < .08$) and SDBP (quadratic, $P < .07$). Cumulative (d 0 to 28) ADG and ADFI improved for pigs fed diets containing plasma during phase I compared to pigs fed the control diet ($P < .08$). Overall G/F also was improved (quadratic, $P < .06$) for pigs fed LAPP during phase I. These data confirm that spray-dried plasma protein improves growth performance from d 0 to 14 post-weaning. However, the magnitude of response was greatest when feeding SDPP compared to SDBP.

		LAPP, %			SDPP, %			SDBP, %			
Item	Control	2	4	6	2	4	6	2	4	6	CV
d 0 to 7											
ADG, g[acg]	91	124	123	145	124	136	150	109	141	145	17.0
ADFI, g[acg]	150	175	176	200	177	186	195	173	186	182	11.3
G/F[ac]	.28	.34	.32	.34	.33	.35	.35	.31	.35	.40	17.0
d 0 to 14											
ADG, g[ad]	163	195	204	212	195	215	209	182	204	200	11.1
ADFI, g[acd,f]	186	217	234	236	222	237	241	204	219	227	8.9
G/F[acd]	.40	.41	.39	.41	.40	.41	.39	.40	.42	.40	6.4
d 0 to 28											
ADG, g[b]	268	282	281	286	291	288	287	277	291	288	7.8
ADFI, g[b]	381	397	404	396	404	410	410	390	400	407	7.0
G/F[e]	.32	.32	.31	.33	.33	.32	.32	.33	.33	.32	4.2

[a,b]Control vs all plasma sources ($P < .01$) and ($P < .08$), respectively.
[c,d]SDBP vs SDPP ($P < .01$) and ($P < .08$), respectively.
[a,c]Linear effect of LAPP ($P < .06$) and ($P < .08$), respectively.
[a,d]Linear effect of SDPP ($P < .05$) and ($P < .07$), respectively.
[c,d]Linear effect of SDBP ($P < .01$) and ($P < .05$), respectively.
[b]Quadratic effect of LAPP ($P < .06$); [e]Quadratic effect of SDPP ($P < .08$).
[d]Quadratic effect of SDBP ($P < .07$).

KEY WORDS: Pigs, Plasma, Growth

638 **Effects of spray-dried plasma of different sources and processes on growth performance of weanling pigs.** R. Gatnau* and D. R. Zimmerman, Iowa State University, Ames.

Two 28-d trials were conducted with pigs (initially 6 kg and 21 d of age) to compare spray-dried plasma (SDP) products. In Exp. 1, 120 pigs were allotted at random within blocks from groups based on ancestry and weight (6 blocks of 4 treatments (5 pigs/pen). Treatments were 6% unfiltered SDP from porcine and bovine sources and 5.25% filtered (salts reduced) plasma from porcine and bovine sources in diets equalized for lysine (1.4%), energy, calcium and phosphorus. In Exp. 2, 60 pigs were allotted as in Exp. 1 to 5 blocks of 3 treatments (4 pigs/pen). Treatments were control and 5.25% of filtered porcine and bovine SDP. In both trials, treatments were fed for 14 d and then a common corn-soybean meal-10% dried whey diet was fed for an additional 14 d. Growth performance of pigs in Exp. 1 was not different among treatments in the first 14 d. For 14-d post-treatment, however, pigs that had been previously fed bovine SDP ate more ($P < .09$) feed and grew faster ($P < .05$) than those that had been fed porcine SDP. For the 28-d period, pigs fed bovine SDP consumed more ($P < .09$) feed and grew faster ($P < .07$) than those fed porcine SDP. In Exp. 2, pigs fed SDP sources grew much slower during the 14-d treatment period than did pigs in Exp. 1 (116 vs 258 g/d, respectively). Compared with control pigs, feed intake was increased in the 14-d treatment period by feeding porcine SDP ($P < .003$) and bovine SDP ($P < .06$) and for the 28-d period by feeding porcine SDP ($P < .05$). SDP of both sources increased ($P < .02$) rate of gain in the treatment period but not in the post-treatment period or the 28-d period. Pigs fed porcine SDP grew faster ($P < .09$) and more ($P < .05$) efficiently than those fed bovine SDP in the treatment period. In the post-treatment period, control pigs utilized feed more efficiently than pigs fed porcine ($P < .06$) and bovine ($P < .10$) SDP. In summary, reduced salts in SDP had no effect on performance. The difference between experiments in growth responses to porcine and bovine SDP may be related to the large difference between experiments in growth rates of pigs for the first 14 days.

Key Words: Spray-dried Plasma, Weanling Pigs, Growth.

637 **Effect of plasma source and processing method on postweaning performance of pigs.** L. E. Russell. American Proteins Corp. Ames, Iowa.

Three experiments were conducted to evaluate the effect of plasma sou (bovine, B; or porcine, P) and processing method (plasma, AP 820; low ash plasma, AP 920; or low ash defibrinated plasma, AP 920 df) on growth of pigs immediately post weaning. Diets in experiment (Exp) I contained corn, soybear meal, whey (20%) and were formulated to 1.45% lysine. Treatmet (Trt) I wes / 820 P, Trt 2 was AP 920 df P, Trt 3 was AP 820 B, Trt 4 was AP 920 df B. Plasma was included at 7.5% and diets were pelleted. Eight replicate pens of 5 pigs (24 d, 5.74 kg) were on test for 21 days. The first week postweaning daily gain (ADG), feed intake (ADF) and feed efficiency (G/F) were improved ($P < 0$; when pigs consumed diets with bovine plasma. There were no significant differences between source of plasma by day 21 postweaning ($P > .30$). Process method made no impact on growth parameters ($P > .20$) at any time point. Exp I involved eight replicate pens of 5 pigs each (25 d, 6.04 kg). Trt 1 was AP 920 Trt 2 was AP 920 df P, Trt 3 was AP 920 B and Trt 4 was AP 920 df B. Diets were formulated as in Exp I except 1.40% lysine. There were no treatment differences the first week post weaning ($P > .20$). Over the 21 day teast period p offered diets containing bovine plasma had higher ADG ($P < .10$) and G/F ($P < 0$. compared to that of pigs consuming procine plasma. Fibrin removal resulted in improved G/F ($P < .08$). Diets in Exp III included Trt 1, Control, contained corn soybean meal, 20% whey and 12 % skim milk. Trt 2, 3, 4 and 5 contained 3%, 6%, AP 820 P; 2.5% or 5% AP 920 B, respectively, replacing skim milk. All diets were isolactose (using crystaline lactose) and isolysine (1.4%). Six replica of 5 pigs each (21 d, 5.44 kg) were used. The first week post weaning ADG wa improved linearly with the addition of AP 820 P ($P < .05$) or AP 820 B ($P < .07$) with no difference between sources ($P < .25$). Feed conversion was not affected b dietry treatment ($P > .40$). There were no treatment differences over the 21 d test period. In conclusion, bovine plasma is as effective as porcine plasma in the die of young pigs. Furthermore, removal of either ash, or fibrin did not reduce the feeding value of plasma, indicating that these fractions do not contribute to the growth promoting properties of plasma.

Key Words: Plasma, source, processing method.

Mode of action?

? At lower performance source is important but not higher levels! How do you explain this