Ethylamine additions to milk replacer diets of two-week old pigs. D.A. Nelson, J. Garcia Sirera, J.W. Thomas, E.R. Miller and M.G. Hogberg. Michigan State University, East Lansing.

ree separate trials were conducted to evaluate ethylamine A) additions to milk replacer diets of pigs weaned at two wks age. In each trial, 30 pigs of similar genetics and weight rial 1, 4.55 kg; Trial 2, 4.17 kg; Trial 3, 4.20 kg) were ndomly assigned to treatment, blocked by weight and balanced r litter and sex. A randomized complete block design with peated measurements was used in all trials (3 replications/ eatment, 2 pigs/pen). For the first 10 d of each 17 d trial gs were offered ad libitum access to the powder form of an l milk-protein milk replacer (C), or a milk replacer in which % of the protein was provided by soy concentrate (SC). For e last 7 d all pigs were offered a corn-soybean meal-fish al-whey diet. In all three trials, EA additions were made to e SC diets to d 10 and were continued to d 17 in Trial 3. In l trials, C and SC+0%EA pigs performed similarly. In Trial 1 e EA concentrations used reduced ADFI and ADG of pigs consum-g SC diets. In Trials 2 and 3, the EA concentrations used did t influence ADFI or ADG of pigs consuming SC diets. In Trial when EA additions were continued for an additional 7 d, ADFI d ADG of pigs was not different among treatments at d 17.

Trial 1, kg	C	SC+0%EA	SC+1%EA	SC+2%EA	SC+4%EA	P
DFI d 10	.31	.33	.20	.21	.13	.0027
DFI d 17	.29	.30	.25	.24	.22	.22
DG d 10	.18	.22	.13	.13	.04	.0004
DG d 17	.16	.19	.15	.14	.13	.15
Trial 2, kg	**C**	**SC+0%EA**	**SC+.125%EA**	**SC+.25%EA**	**SC+.5%EA**	**P**
DFI d 10	.27	.28	.30	.27	.32	.85
DFI d 17	.30	.33	.37	.33	.37	.21
DG d 10	.19	.22	.24	.18	.24	.54
DG d 17	.19	.21	.22	.22	.24	.43
Trial 3, kg	**C**	**SC+0%EA**	**SC+.125%EA**	**SC+.25%EA**	**SC+.5%EA**	**P**
DFI d 10	.30	.25	.31	.29	.30	.62
DFI d 17	.33	.30	.35	.33	.36	.56
DG d 10	.14	.18	.20	.20	.19	.59
DG d 17	.17	.18	.21	.19	.20	.70

Key Words: Pigs, Milk Replacer, Ethylamine.

93 Effect of supplemental milk replacer (MR) on litter performance: Seasonal variation in response. M. J. Azain*[1], T. Tomkins[2] and J. S. Sowinski[2]. University of Georgia[1], Athens and Milk Specialties Co[2]., Dundee, IL.

At farrowing, litters were assigned to either control (CON, n=54) or MR supplemented (n=74) treatment groups to examine the effect of MR on weaning weight and pre-weaning survival rate. The study was conducted in 9 farrowing groups over an 18 month period. Commercial MR powder (25% CP, 13% fat) was reconstituted at a rate of 150 g/l in water and was prepared fresh daily. MR was offered ad libitum in the farrowing crate within 24 h of farrowing and was continued through weaning (d 17-21). MR disappearance was recorded daily. Litter performance data was co-varied for initial weight (1.3 kg) and number of pigs per litter (10.4). Average pig weight was increased in supplemented litters at d 7 (CON 2.63, vs. MR 2.75 kg; $P < .05$) and at weaning (CON 5.37, vs. MR 6.31 kg; $P < .0001$). There was a trend for improved survival (CON 90.6, vs. MR 93.2%; $P < .2$). Total litter weight at weaning was increased from 49.0 kg in CON litters to 62.1 kg in MR supplemented litters ($P < .0001$). There was no effect of supplemental MR on sow feed intake, backfat thickness or body weight loss. Among farrowing groups, there was significant variation in the volume of MR consumed. A portion of this variation was related to average barn temperature ($r = .49$) or season ($r = .54$). Average MR intake expressed as liters/pig from birth to weaning was 2.5, 5.4 and 8.4 l/pig (SE = .6; $P < .0001$) in winter, spring/fall and summer months, respectively. The weaning weight advantage conferred by MR was most evident during the summer months. Similarly, sow feed intake was inversely related to temperature ($r = -.60$) and averaged 5.3, 4.7 and 3.6 kg/d over the same periods. These results demonstrate the advantage of MR on weaning weight and survival and also indicate that the greatest benefit from the supplement is during the warmer months when sow feed intake and subsequent milk production is depressed.

Key Words: Pigs, litter performance, milk replacer

94 Optimal dried whey level in starter pig diets containing spray-dried blood meal and comparison of avian and bovine spray-dried blood meals. S. S. Dritz*, M. D. Tokach, J. L. Nelssen, R. D. Goodband, and L. J. Kats. Kansas State University, Manhattan.

our hundred-twenty weanling pigs (initially 6.2 kg BW and 21 d of age) were used in growth trial to evaluate the optimal dried whey level in phase II (d 7 to 28 ostweaning) nursery diets containing spray-dried bovine blood meal. Also, spray-dried vian blood meal was compared to bovine spray-dried blood meal as an alternative rotein source. A randomized complete block design with six replicates of five dietary reatments was used. Pigs were fed a common high nutrient density diet formulated to ontain 1.5% lysine, 7.5% spray-dried porcine plasma, 1.75% spray-dried bovine blood neal, and 20% spray-dried edible whey from d 0 to 7 postweaning. Pigs were reallotted n d 7 postweaning within replicates to equalize pen weights. Diets in phase II were ormulated to contain 1.25% lysine and 2.5% spray-dried blood meal. The diets ontained 5, 10, 15, or 20% spray-dried edible grade whey substituted for corn and oybean meal on a lysine basis. The fifth diet contained avian spray-dried blood meal ubstituted for bovine spray-dried blood meal and a dried whey level of 10%. Pig weight nd feed disappearance were recorded on d 7, 14, and 28 postweaning to determine ADG, ADFI, and feed efficiency (G/F). There were no differences in ADG, ADFI, or G/F between the 10% dried whey diets containing either avian or bovine spray-dried lood meal for the phase II period. These data suggest bovine and avian spray-dried lood meal are of similar nutritional value. Cumulative results for the dried whey ortion of the experiment are reported below for the phase II period. There was a uadratic improvement in ADG, ADFI, and G/F as dried whey level increased. owever, there also was a quadratic increase of cost per kilogram of gain. Although ADG was maximized by 20% dried whey, current economics dictate 10% whey as the ptimal inclusion in phase II starter pig diets containing 2.5% spray-dried blood meal.

	Spray-dried whey, %				
Item[a]	5	10	15	20	CV
ADG, g[b]	300	372	386	409	4.9
ADFI, g[b]	531	581	572	613	4.4
G/F[b]	.565	.640	.675	.667	3.0
Cost/kg gain, $[bc]	.405	.405	.422	.473	3.1

Each value is the mean of six pens containing 13 or 15 pigs per pen.
Linear and quadratic effect ($P<.01$).
Ingredient costs: corn, $.086/kg; soybean meal, $.198/kg; edible whey, $.726/kg.

Key words: Starter Pigs, Whey, Spray-dried Blood Meal

95 Influence of spray-dried porcine plasma on starter pig performance. L. J. Kats*, R. D. Goodband, J. L. Nelssen, M. D. Tokach, J. A. Hansen, K. G. Friesen, and S. S. Dritz. Kansas State University, Manhattan.

A total of 596 weanling pigs was used in three experiments to evaluate the effects of spray-dried porcine plasma (SDPP) in the high nutrient density diet on starter pig performance. In Exp. 1, 534 weanling pigs (initially 6.4 kg and 21 d of age) were used to evaluate increasing levels of SDPP. Pigs were assigned to one of 6 experimental diets containing either 0, 2, 4, 6, 8, or 10% SDPP replacing dried skim milk. Diets were formulated to contain 1.5% lysine and .41% methionine. Experimental diets were fed from d 0 to 14 postweaning at which time they were switched to a common phase II diet (d 14 to 28). During phase I (d 0 to 14) and the overall trial (d 0 to 28) there was a linear ($P < .01$) and a tendency ($P < .11$) for a quadratic improvement in ADG and ADFI (results below). There were no significant differences in feed efficiency (G/F) for any phase of the trial. In Exp. 2, 68 weanling pigs (initially 5.7 kg and 21 d of age) were used to determine if added methionine is needed for diets containing high levels of SDPP. Pigs were fed identical diets containing 20% dried whey, 7.5% SDPP and 1.75% spray-dried blood meal (.29% methionine) except that one diet contained .1% added DL-methionine (.39%). Pigs receiving diets containing added methionine had improved ADG ($P < .05$) and ADFI ($P < .03$) for the first week postweaning. Pigs receiving diets with added methionine had improved ($P < .05$) feed efficiency for the 21-d trial. The results of these experiments indicate that starter pig performance is improved with increasing levels of SDPP through 10% of the diet and DL-methionine must be added to diets containing high levels of SDPP to obtain optimal performance.

	Spray-dried Porcine Plasma, %						
Item	0	2	4	6	8	10	CV
d 0 to 14							
ADG, g[ab]	163	204	213	236	245	254	13.64
ADFI, g[ac]	204	240	254	286	299	299	9.64
G/F	.79	.84	.84	.82	.81	.84	7.85

[a] Linear response ($P < .01$).
[b] Quadratic response ($P < .11$).
[c] Quadratic response ($P < .04$).

Key Words: Spray-dried porcine plasma, Starter Pig, Growth Performance.