

## Effect of body weight at weaning on piglet feeding behaviour immediately post weaning and selection for two levels of dietary lysine

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**Introduction** Feeding behaviour and performance of individual piglets is highly variable immediately post weaning influenced by many factors such as litter size and weaning weight with some studies concluding that heavier piglets take longer to establish eating than smaller piglets (Brunninx *et al.* 2001). The variation in piglet performance post weaning is of significant importance to the pig industry. Lawlor *et al.* (2003) stated that the benefit from a choice of weaner foods could be the reduction in pen variation as the individual requirements of each piglet would be more effectively catered for. Indeed, Lawlor *et al.* (2003) observed that larger piglets selected a less nutrient dense diet when provided with a choice. Food choice experiments have shown that pigs are capable of selecting a diet which is appropriate to their nutritional needs (Morgan *et al.* 2003). This experiment aimed to test the hypothesis that body weight at weaning has an effect on the feeding behaviour of piglets immediately post weaning and the food selection for two different levels of lysine.

**Materials and methods** 136 piglets (JSR Healthbred) were weaned at  $26.9 \pm 0.92$  (s.e.m.) days of age into 34 flat deck pens (4 pigs per pen). Piglets were assigned at weaning to four weight categories: small (6 kg:  $5.9 \text{ kg} \pm 0.48$ ), medium (8 kg:  $8.1 \text{ kg} \pm 0.36$ ), large (10 kg:  $9.9 \text{ kg} \pm 0.25$ ) or mixed weight (control (1 small, 2 medium and 1 large piglets):  $8.1 \text{ kg} \pm 1.48$ ). Pen groups were balanced for sex and litter origin. Piglet feeding behaviour was constantly recorded by a multi-spaced feed recording system (Leeds University Feeding Behaviour System (LUFBS)) in each pen. Piglets were identified by LUFBS using an individual transponder ear tag. Each pen of four piglets was offered *ad-libitum* access to feed (16.45 MJ DE) in two troughs per pen. The control group was offered a control food in both troughs (1.55 g lysine/kg). The small, medium and large groups were offered a choice of two foods, one food in each of two troughs per pen. The two foods differed in their lysine level: Low Lysine (LL: 8 g lysine/kg) and High Lysine (HL: 18 g lysine/kg). Piglets were weighed at weaning and at d7 and d14. The experiment ran for 14 days. Preference for one food was defined as being significantly different from 50% of total feed intake. All data were analysed using the GLM procedures of SPSS 16.

**Results** Table 1 shows the performance, feed intake and HL intake and proportion during the experimental period. There was no difference between any of the performance measures of the four weight groups in either week. Large, medium or small piglets did not choose different levels of dietary lysine. Mixed piglets with no choice had the same performance as sized piglets with a choice. Large piglets had the same latency to start eating as all other weight groups post weaning, although smaller piglets were faster to initiate feeding than both the medium and the mixed groups ( $P < 0.05$ ). Figure 1 shows the weekly food choice selection by all piglets. There was no difference between the intake of either of the two foods and 50% of total intake concluding no preference for either of the foods overall.

**Table 1** Individual ADG, ADFI, FI and HL FI data for large (L), medium (M), small (S) and mixed (X) weight treatments.

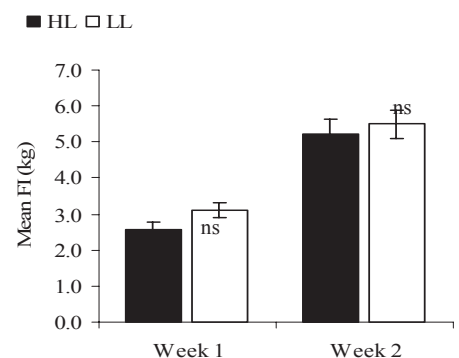
(n=34)	L	s.e.m.	M	s.e.m.	S	s.e.m.	X	s.e.m.	P
Week 1									
ADFI (g/d)	203	21.7	217	23.6	190	20.7	169	21.7	NS
ADG (g/d)	177	26.7	160	29.0	169	25.5	134	26.7	NS
FCR	1.31	0.266	1.73	0.289	1.18	0.254	0.92	0.266	NS
FI (kg)	5.81	0.578	5.87	0.622	5.26	0.604	4.70	0.630	NS
FI HL (kg)	2.64	0.324	2.78	0.350	2.27	0.339	*	*	NS
FI HL (%)	39	(08-77) <sup>†</sup>	38	(06-78)	43	(09-81)	*	*	NS
Week 2									
ADFI (g/d)	456	28.0	444	30.3	379	26.6	375	27.9	NS
ADG (g/d)	382	23.3	38.1	25.3	315	22.2	343	23.3	NS
FCR	1.26	0.085	1.21	0.093	1.23	0.082	1.11	0.085	NS
FI (kg)	11.53	0.725	11.23	0.781	9.40	0.758	9.29	0.791	NS
FI HL (kg)	5.26	0.689	5.84	0.745	4.64	0.723	*	*	NS
FI HL (%)	34	(24-48)	46	(34-52)	46	(35-57)	*	*	NS

Proportional means are reported with a 95% confidence interval rather than s.e.m.

**Conclusion** Latency to first feed was influenced by body weight at weaning, with smaller piglets eating sooner than medium and mixed piglets, supporting our hypothesis that body weight would influence post weaning feeding behaviour. However, the latency of larger piglets was not different to the other weight categories. Additionally, the growth performance of each weight group did not differ and there was no difference in the feed intake or the proportion of each of the two feeds consumed in either week giving no indication of selection for a dietary requirement. There also appeared to be no disadvantage to single feed over a choice, with control pigs performing the same as choice fed pigs. Piglet variation in the immediate post weaning period warrants further research.

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**Figure 1** Weekly pen feed intake per food (kg).