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Agewean – The effect of weaning age on growing pig health and performance in the absence of antibiotic growth promoters

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Introduction The immediate postweaning period in pigs is often characterised by a reduced and variable food intake, digestive disorders and poor growth and development. Historically such effects were reduced by the use of in-feed antibiotic growth promoters (AGPs), copper sulphate and zinc oxide to enhance the efficiency of feed conversion and hence maximise nutrient capture. However from January 2006 the routine use of in-feed AGPs was banned and, due to concern over environmental pollution, levels of inclusion of heavy metals are limited by regulation and likely to be further reduced in the future. Weaning pigs at a later age has been suggested as an approach to reduce the potentially negative effects of the AGP ban on the national herd. The objective of the AGEWEAN programme of research was to investigate the effects of weaning age (4, 6 and 8 weeks) in both an indoor and outdoor lactation environment on the biological and economic efficiency of production where diets contain no AGPs and lower levels of copper (<25ppm added) and zinc (<100ppm added).

Materials and methods The research was carried out at 6 separate experimental sites, chosen to represent a range of diverse geographical locations and production systems within the UK. Two sites were used to provide an outdoor lactation environment (total of 100 sows per weaning age treatment) and four sites to provide the indoor environment (total of 90 sows per treatment). The three weaning age treatments were 4 weeks (21-28 days of age), 6 weeks (35-42 days of age) and 8 weeks (49-56 days of age). On any given site gilts were introduced at the point of farrowing and were followed through four consecutive parities (Edge *et al*, 2007). All progeny were monitored to weaning, at least 50% were monitored to 30kg live weight and at least 25% were monitored through to slaughter weight. The statistical significance of the weaning age effects was assessed using REML analyses (in Genstat), allowing residual variances to differ between sites, treating site as a random effect, and parity and weaning age as fixed effects.

Results There were significant differences between the three weaning age treatments in terms of DLWG, feed intake and FCR during the immediate postweaning period. Pigs weaned at 8 weeks of age had significantly higher DLWG and feed intakes. However their feed conversion efficiency was poorer, possibly due to them being offered a lower quality diet appropriate to their age. Conversely, from 30kg to the point of slaughter pigs weaned at 4 weeks of age had significantly higher DLWG and feed intake than pigs weaned at either 6 or 8 weeks of age. There was no significant difference in feed conversion efficiency (by 30kg all pigs were offered the same specification diet). There were significant effects of weaning age on the back fat thickness (P2 mm) of the pigs at the point of slaughter. In terms of overall lifetime performance, pigs weaned at 4 weeks of age had a significantly higher DLWG when calculated from birth to slaughter. Whilst there was no effect of weaning age on the number of pigs requiring veterinary treatments from weaning to slaughter, there was a significant increase in the number of 4 week weaned pigs being removed from trial during this period (5.71, 4.36 and 3.88 removals and deaths per 100 pigs for 4, 6 and 8 week weaning P=0.05)

Table 1 The mean physical performance of pigs weaned at 4, 6 and 8 weeks of age (DLWG – Daily liveweight gain, FCR – Feed conversion ratio).

	Weaning Age				
	4 weeks	6 weeks	8 weeks	sed	P
Wean–30kg					
Wean weight (kg)	8.21	12.11	17.39	0.17	***
DLWG (kg)	0.47	0.51	0.59	0.007	***
Feed/pig/d (kg)	0.78	0.88	1.01	0.013	***
FCR	1.67	1.76	1.76	0.023	***
30-90kg					
DLWG (kg)	0.80	0.78	0.77	0.011	*
Feed/pig/d (kg)	2.21	2.15	2.14	0.031	*
FCR	2.84	2.84	2.86	0.048	NS
Lifetime Performance					
Backfat at slaughter (mm P2)	11.15	10.77	10.72	0.073	***
DLWG birth-slaughter (kg)	0.61	0.60	0.60	0.002	**

Conclusion Whilst there were significant benefits to later weaning in terms of piglet performance during the immediate postweaning period, this was not associated with improved clinical health status. When physical performance was considered over the period from birth to slaughter, there were no benefits of later weaning.

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References Edge, H.L., Breuer, K., Hillman, K., Morgan, C.A., Stewart, A.H., Strachan, W.D., Taylor, L., Theobald, C.M., Edwards, S.A. 2007. Proceedings of the British Society of Animal Science 85