

WEANER PIGS PRODUCED OUTDOORS OUTPERFORM COUNTERPARTS PRODUCED INDOORS

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Pigs produced in outdoor farrowing systems can outperform those produced in intensive indoor systems (Gentry *et al.* 2002). In this experiment we hypothesised that outdoor pigs would experience less of a growth check at weaning regardless of the post-weaning housing system (conventional or deep-litter pens).

Two groups of 80 (n=160) female crossbred pigs were obtained at weaning (~21 days, 5.6 ± 1.1 kg liveweight, mean \pm SD) from an indoor (IP) and an outdoor (OP) production system of similar health status and genetic composition. In a 2 x 2 factorial experiment, IP and OP piglets were allocated to either conventional (C) or deep-litter (DL) rearing treatments. 'C' pigs were housed in part-slatted weaner pens (10 pigs/pen, 0.4 m²/pig) equipped with a heated kennel, two nipple drinkers, and 115 mm/pig of feeding space. After seven weeks, they were transferred to another building into part-slatted grower/finisher pens (10 pigs/pen, 0.77 m²/pig) equipped with a single space feeder, two nipple drinkers, and spray cooling. 'DL' pigs were housed in deep-litter pens (10 pigs/pen, 4.6 m²/per pig) in two EcoShelters[®], each containing four pens equipped with 160 mm/pig of feeder space, four drinkers, and spray cooling. After 47 days, DL pigs were moved into diagonally opposite pens, and feeders replaced to simulate environmental changes experienced by C pigs at this time. Although floor space, feeders and drinkers differed between C and DL pens, allowances liberally exceeded requirements and were not considered limiting. Pelleted feed was offered ad libitum in a six-diet, phase-feeding program. The phase 1 diet (6 kg/pig) contained olaquinox at 100 ppm and zinc oxide at 3000 ppm. Barley straw was added to DL pens as necessary to maintain 50% of the bedded area clean and dry. Pigs were weighed weekly and slaughtered in the week that they reached 105 kg liveweight. The experimental unit was the pen and differences between treatments tested by analysis of variance.

Table 1. Performance of piglets from indoor (IP) and outdoor production (OP) systems reared in conventional (C) or deep-litter (DL) pens from weaning to market (5–105 kg)

	Production (P)		Rearing (R)			Significance (Pvalue)		
	IP	OP	C	DL	SED	P	R	PxR
Gain 0–47 d (g/d)	416	467	423	460	9.13	<0.001	<0.001	0.73
Gain 0–market (g/d)	740	744	727	758	8.67	0.60	<0.001	0.52
Feed intake (g/d)	1772	1773	1711	1834	37.6	0.99	0.007	0.81
Feed:gain ratio	2.38	2.36	2.32	2.42	0.03	0.56	0.01	0.90
Carcass weight (kg)	79.2	81.0	79.1	81.0	0.24	<0.001	<0.001	0.44
Dressing %	74.6	75.8	74.4	76.0	0.24	<0.001	<0.001	0.58
Carcass P2 (mm)	13.6	14.2	14.2	13.6	0.43	0.16	0.21	0.09

Overall, growth rate was similar although OP pigs initially grew faster than IP pigs, perhaps indicating a greater tolerance of OP pigs to multiple stressors that occur at weaning (e.g. diet change). OP pigs had opportunity to ingest soil, pasture, straw, and sow feed before weaning, possibly enhancing gut development. OP pigs may also have developed beneficial foraging behaviours resulting in decreased post-weaning anorexia. DL pigs ate more and grew faster than C pigs at all stages. OP and DL pigs had higher dressing percentages but not fat levels, suggesting that environmental enrichment affected the physiological development and lean tissue deposition of OP and DL pigs.

References

GENTRY, R.G., McGLONE, J.J., MILLER, M.F. and BLANTON, J.R. (2002). *Journal of Animal Science*. **80**:1707-1715.