Comparison Between Concrete Floor and Deep Pit System for production of Crossbred Pigs in Thailand

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Background: Formerly, in Thailand, pigs were raised by small holder farmers. Native Thai pigs were adapted to these conditions. Meanwhile, production patterns have changed and native Thai pig breeds have been improved by crossing with exotic breeds for a higher share of lean meat, resulting in more efficient production for the domestic market. This means, that production systems need to be changed to suit the necessities of the new pig breeds.

The objective of this study was to compare crossbred pigs (Thai native x Meishan x Duroc) raised on concrete floor to those raised in a deep pit system with respect to productive performance and microbial composition of the cecum content.

Table 1: Performance indicators of 16 crossbred pigs (Thai native x Meishan x Duroc), raised in deep pit and concrete flooring

	Deep pit		concrete flooring	
Initial weight (kg)	**15.08** n.s.	(2.54)	**15.55** n.s.	(0.99)
Final weight (kg)	**58.58** *	(4.18)	**65.67** *	(6.91)
Average Daily Gain (ADG, g)	**310.70** *	(39.63)	**357.96** *	(47.12)
Average Dry matter Feed Intake (ADFI, g)	**2692.13** **	(37.67)	**2798.25** **	(35.42)
Feed Conversion Ratio (FCR, g/g)	**8.81** n.s.	(1.33)	**7.93** n.s.	(0.97)

Numbers are mean values of n=8 pigs, figures in brackets represent standard deviation. Differences between the groups were analysed by ANOVA at a level of significance of α=0.05 (*) and α=0.01 (**)

Experimental design: The experiment comprised 16 crossbred pigs randomly split into two groups raised on concrete floor and deep pit system. During the experiment, the weight of all pigs was recorded weekly and ADG was calculated. ADFI was recorded for individual pigs and FCR was calculated. The cecal content was collected at the end of the experimental period of 140 days.

Conclusions: In order to exploit their full potential, new pig breeds require more energy-rich feed, improved hygiene and adapted keeping facilities.
Even though the deep pit system is accepted among farmers for generation of good manure, this study shows that in terms of hygiene and productive performance of crossbred pigs, concrete floor systems are superior to deep pit systems. Significant differences observed in ADFI are attributed to the better health and fitness of the pigs raised on concrete flooring.

Table 2: Bacterial count (logCFU/g) in the cecum of 16 crossbred pigs (Thai native x Meishan x Duroc) raised in deep pit and concrete flooring

	Deep pit	Concrete	SEM	P-value
E. Coli	5.48 n.s	5.40 n.s.	0.97	0.931
***Bifidobacterium* spp.**	6.51 *	7.33 *	0.06	0.006
***Lactoacillus* spp.**	5.98 n.s	6.81 n.s.	0.51	0.199

Numbers represent mean values of n=4 analyses, differences between treatments were analysed by t-test

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