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“Filling gaps and removing traps  
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## Comparison between Concrete Floor and Deep Pit System for Production of Crossbred Pigs in Thailand

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### Abstract

Formerly, in Thailand, pigs were kept 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.

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

The experiment comprised 16 crossbred pigs, randomly assigned into two homogenous experimental groups kept on concrete floor (T1) and deep pit system (T2), with an initial weight of 15.6 kg and 15.1 kg, respectively. During the experiment, the weight of all pigs was recorded weekly and average daily gain (ADG) was calculated. Average dry matter feed intake (ADFI) was recorded for individual pigs and feed conversion ratio (FCR) was calculated. The cecal content was collected after the end of the experimental period of 140 days.

Data were analysed by ANOVA, showing that the productive performance of pigs in T1 was significantly ( $\alpha=0.05$ ) higher: ADG was 357.96 g and 310.70 g in T1 and T2, respectively. While no significant differences were found at FCR (T1: 7.73 ( $\text{g g}^{-1}$ ), T2: 8.68 ( $\text{g g}^{-1}$ )), ADFI was significantly higher in T1 (T1: 2798.25  $\text{g day}^{-1}$ , T2: 2692.50  $\text{g day}^{-1}$ ). The population of *E. coli* (T1: 5.40 log CFU  $\text{ml}^{-1}$ , T2: 5.48 log CFU  $\text{ml}^{-1}$ ) and *Lactobacillus* sp. (T1: 6.81 log CFU  $\text{ml}^{-1}$ , T2: 5.98 log CFU  $\text{ml}^{-1}$ ) did not differ significantly, but the beneficial *Bifidobacterium* sp. population in the cecum of the concrete floor group (T1: 7.33 log CFU  $\text{ml}^{-1}$ ) was significantly higher than in the deep pit group (6.51 log CFU  $\text{ml}^{-1}$ ).

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.

**Keywords:** ADFI, ADG, *Bifidobacterium*, cecum, *E. coli*, *Lactobacillus*, microbial composition