

**EFFECT OF DEEP-LITTER HOUSING ON PIG PERFORMANCE AND QUALITY OF  
PEN ENVIRONMENT**

**BY**

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## Abstract

A study lasting 90 days was conducted to evaluate pen environment conditions, growth performance and slaughter characteristics of growing pigs housed on either a solid concrete floor or deep Litter treated with indigenous micro-organisms (IMO). A total of 32 Landrace x Large White pigs averaging  $11.5 \pm 0.5$  kg were used in the study. Animals were divided into 8 groups of four each balanced for ancestry, sex, and body weight and the groups were randomly allotted to the two systems of housing in a completely randomized design with four replications. The Litter made of wood shavings was sprinkled with a liquid containing IMO on a daily basis. Animals were fed on a standard maize bran-fish meal diet balanced to supply 16% crude protein, 0.65% Calcium and 0.5% Phosphorus. Pigs were maintained on these floors for 12 weeks and weekly measurements of body weight, feed consumption and pen environment quality parameters were taken. Levels of Carbon dioxide (CO<sub>2</sub>), hydrogen sulphide (SO<sub>2</sub>), particulate matter, noise and number of flies were determined in the seventh week of the study to document environment characteristics. At the end of the feeding period, two pigs per pen were then slaughtered and carcass weighed, back fat thickness measured, dressing percentage and weight of non-carcass were taken. Type of floor did not affect ( $P < 0.05$ ) average daily weight gain or, growth rate. Animals on the

deep Litter floor consumed less ( $P<0.05$ ) feed than those on a solid concrete floor. Difference ( $P>0.05$ ) in the efficiency of feed conversion was observed. Pigs housed on deep Litter exhibited lower ( $P<0.05$ ) back fat thickness than pigs housed on a concrete solid floor system. No differences were observed in carcass weight and dressing percentage. There were higher ( $P<0.05$ ) levels of  $H_2S$ ,  $CO_2$  under solid floor housing. Although the concentration particulate matter of size PM10 and TSP within pens with a deep litter floor was higher ( $P<0.05$ ) than in pens with a solid floor. There was no difference observed for the concentration of particulate matter of size PM2.5. The number of flies counted at a distance of 0-4 m from the pen was significantly ( $P<0.05$ ) lower in pens with a deep litter floor than for the solid concrete floor. The IMO system resulted in better quality of carcass, more acceptable environment conditions and efficiency with which animals converted feed into body tissue and can therefore be of practical application in peri-urban smallholder pig production.