GROWTH PERFORMANCE OF PIGS AS INFLUENCED BY DIFFERENT HOUSING SYSTEMS

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ABSTRACT
Housing management of animals in the form of bedding is very necessary for good health and better growth. Thus, an experiment was conducted to evaluate the growth performance of crossbred weaner pigs reared on concrete, wood shaving and clay floors. Twenty-seven (27) weaned pigs obtained from piggery unit of the Teaching and Research Farm, Oyo State College of Agriculture and Technology, Igboora were used for the study. The pigs were assigned into three treatments of nine animals per treatment and three animals per replicate. The treatments were T1 (Concrete floor), T2 (Woodshaving floor) and T3 (Clay floor). The concrete floor was constructed using cement, gravel, sand and water. Wood shavings were collected from sawmills within Ibadan metropolis and dirt, pebbles, iron metals, broken bottles were removed and later spread on the cemented floor to make wood shaving floor and replaced when the wood shavings had been wet. For clay floor,termite hills were collected, ground into powdery form, spread on the cemented floor and water was added then rubbed on the cemented floor to have clay floor. The pigs were acclimatized for a week before the commencement of the study. Performance characteristics measured were initial weight, final weight, average weight gain, Average feed intake and feed conversion ratio. The experiment was a completely randomized design. Results showed that pigs reared on concrete floor had the highest final weight (13.47kg and average weight gain (8.48kg). The average feed intake was not differed across the treatments. Feed conversion ratio (2.95) was better in pigs reared on concrete floor. It can be concluded that rearing of pigs on concrete floor improved pig performance

Keywords: Floors, Housing, Performance, Weaned pigs

INTRODUCTION
Proper housing is important in pig production to obtain optimal production, reproduction, performance and health along with the total comfort of the animal. Good bedding and flooring provide comfortable area for animals to take rest and it also helps to improve health and productive performance. Bedding provides comfort to animals, help in subsidizing injury and fatique and encourage resting. Bedding also prevents bruised knees, elbows, hocks and hips and keeps the animals clean (Randall *et al*., 2016). The type of floors may affect animal performance if the flooring material causes stress to the animal. Proper flooring management and design are important for better health care, longevity, comfort and increased productivity. Molino and Balbino (2010) reported that welfare conditions in swine production should be assessed critically at weaning stage because the performance of the piglets might be affected by behavioural, immunological, physiological and microbiological change. When pigs had urinated and defecated in the concrete floors it becomes slippery and this could lead to serious injuries during aggressive behavioural activities. Gregory, (1998) advocated that pigs kept in concrete floor can contact pneumonia during cold weather condition if the room temperature is not controlled. Pigs in concrete environments also show physiological signs of stress and poor welfare (Bolhuis *et al*., 2005). Proper reviews covering the different bedding materials on performance of pigs are very scanty. Therefore, the present review has been made to cover latest studies done on performance of weanling pigs under different types of bedding materials

MATERIALS AND METHODS
The experiment was carried out at the piggery unit of the Teaching and Research Farm of University of Ibadan, Ibadan, Oyo State, Nigeria. The temperature ranges from 21 to 32^0C, humidity 71.53% to 76.00% and an annual rainfall of about 1250 to 1500mm. Twenty-seven (Large White X Landrace) weaned pigs were used for the study. The animals were kept and monitored for one week for acclimatization and proper adaptability before the commencement of the experiment. Animals were fed with commercial feed (Table 1) and water was provided *ad libitum*. The pigs were raised under

conducive environmental conditions with proper management in an intensive system of management. The study was conducted using one way analysis of variance in a completely randomized design (CRD). Twenty-seven animals were randomly allotted to three treatments with nine animals per treatment and three animals per replicate. T1: Concrete, T2: Wood shavings and T3: Clay. The bedding items were chosen based on their ease of availability.

Table1. Gross composition of experimental diet

Ingredients	KG
Maize	25.00
Corn Bran	35.00
Palm Kernel Cake	25.00
Groundnut Cake	7.00
Bone Meal	3.00
Fish Meal	3.00
Salt	0.50
Lysine	0.50
Methionine	0.50
Premix	0.50
TOTAL	**100.00**
Calculated Analysis	
Metabolize Energy (Kcal /Kg)	2850.00
Crude Protein (%)	20.00

RESULTS AND DISCUSSION

The effect of different bedding materials on performance characteristics of weaned pigs is as shown in Table 2. The average initial weight ranged from 4.90kg to 5.04kg. Pigs reared on concrete floor had the highest (13.47kg) final weight while the lowest final weight was obtained in pigs maintained on clay floor. Average weight gain ranged from 7.74kg in T2 to 8.48kg in T1. There was no significant effect ($P>0.05$) of different bedding on the feed intake. Highest feed conversion ratio was recorded I n T3 (3.23) while the least was in T1 (2.95). In this study, it was observed that pigs reared on concrete floor had higher values for final weight and weight gain this could be as a result of increased energy requirements because the pigs were more susceptible to heat (higher temperature), stress and much of their energy were used in body temperature regulation and manipulative behavior in stress conditions than pigs raised on deep litter floors. This was in consonance with the findings of Morrison *et al.* (2007) who opined that housing treatment in pig production was not influenced by weight gain for pigs reared on deep litter and conventional concrete floor. Also, the findings on final weight and weight gain corroborates the findings of Jordan (2013) who reported that straw and hay did not influence growth rates of pigs. It was also observed in this study that the feed conversion ratio across the treatments for pigs reared on concrete was better compared with their counterparts on wood shaving and clay floors. This was in contrary to the report of Beattie *et al.* (2000) that observed a similar trend in pigs reared on wood shavings as against concrete floor.

Table 2. Performance characteristics of weaned pigs reared on concrete, wood shaving and clay floors

	T1	T2	T3	SEM
Initial weight	4.99	5.04	4.90	0.04
Final weight	13.47^{a}	12.81^{b}	12.64^{b}	0.03
Average Weight gain	8.48^{a}	7.77^{b}	7.74^{b}	0.01
Average Feed Intake	25.00	25.00	25.00	0.00
Feed Conversion Ratio	2.95^{b}	3.22^{b}	3.23^{a}	0.00

CONCLUSION

The current findings revealed that rearing of pigs on concrete floor improved pig performance. This information will be useful to pig farmers in order to increase productivity.

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