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CARCASS CHARACTERISTICS AND QUALITY OF WEANED PIGS FED GRADED LEVELS OF DRIED CABBAGE-BASED DIETS

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ABSTRACT

This experiment was conducted to evaluate the carcass yield and carcass quality of pigs fed graded levels of cabbage-based diets. Forty five (45) pigs were used for this experiment. They were randomly divided into 5 treatments having 3 replicates each in a Completely Randomized Design. The treatment one (1) which was the control had 0 % cabbage, while the other treatments 2, 3, 4 and 5 were fed diets supplemented with cabbage waste leaf meal (CWLM) at inclusion levels of 2.5, 5.0, 7.5, and 10.00 % respectively. A total number of 45 pigs were reared over a period of eight (8) weeks. Pigs on control and 2.5 % CBD had the highest live weight with the least live weight recorded in pigs fed 7.50 % cabbage-based diet. The pigs were slaughtered and parameters taken were bleed weight, scalded, eviscerated weight and carcass weight which was significantly higher in pigs fed 5.0 % CBD. Dressing percentage was higher in pigs fed 10.0 % CBD with least value in Pigs fed 2.5 % CBD. Pigs fed 5.0 % CBD were significantly ($P < 0.05$) higher in heart girth, body length, estimated live and carcass weight with least values in pigs fed 7.5 % CBD. pH, carcass temperature and hot carcass weight was higher in pigs fed 10.0% CBD inclusion

Keywords: Carcass performance, carcass quality, pigs, cabbage-based diet and meat

INTRODUCTION

The scarcity of conventional feeds has hindered the growth of the livestock industry in Nigeria. The food deficit problem is indeed more serious with protein supply when compared with the availability of calories. Shortage of protein, particularly those of animal origin is prevalent in most parts of Africa where it is estimated that on the average 10 g of animal protein is consumed per day compared to a recommended daily intake of 35 g (ILCA, 1980, FAO, 1997). Therefore, there is need, to increase the production of such domestic animals such as pigs and poultry which are conventional sources of animal protein. Pig production in particular represents one of the fastest ways of increasing animal protein, since pigs grow at a faster rate and are highly more prolific than cattle, sheep and goats. In growth rate the pig is only surpassed by broilers (Holness, 2015). Apart from their high rate of reproduction, pigs and poultry are characterized by the best efficiency of nutrient transformation into high quality animal protein (Smith, 2001; Holness, 2015).

The alternative cheap and available feedstuff to be considered in this study is cabbage (*Brassica oleracea var*) which do not attract competition between man and animals. Cabbage dried leaf is readily available when compared to other alternative sources of feed ingredient. Cabbage dried leaf has estimated feeding value of 74 - 80 % of that of maize when included in moderate to high quantity in maize based diets (Esonu, 2001). Therefore, the aim of this experiment is to evaluate the carcass yield and carcass quality of pigs fed graded levels of cabbage-based diets.



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MATERIALS AND METHODS

Study Location

The research was carried out at Piggery Unit Dagwom Farm Division, National Veterinary Research Institute (NVRI), Vom, Plateau State is located in Northern Guinea Savannah zone of Nigeria, which has two distinct (dry and rainy) seasons. The dry season starts in October and ends in March with a temperature range of 13°C - 26°C. The rainy season is from April-September, and the temperature also ranges from 16°C - 28°C. The geographical location of Vom is 8° 45' E, 9° 43' N and 4200 feet (1280m) above sea level. Mean relative humidity ranges from 14-17% (Knudsen and Sohel, 1970 and NVRI, 2006). The environmental temperature ranges from 13.8°C - 28.5°C (Knudsen and Sohel, 1970). Then temperature rises up gradually to as high as 38°C early in April just before the on-set of the rains (NVRI, 2006).

Experimental Animals, Design and their Management

Forty-five (45) crossbred weaned pigs were used for this experiment and they were obtained from a reputable commercial farm and were reared over a period of eight (8) weeks. Pigs were randomly assigned to five treatments and three (3) replicates. Treatment one (1) was control while the other treatments were fed with basal diet supplemented with cabbage residue leaf meal at different inclusion levels 0.0, 2.5, 5.0, 7.5, and 10.00 % respectively. Fresh water and feed were available to all pigs *ad-libitum* throughout the experiment. All diets were in mash form and formulated to meet NRC (2012) nutrient requirements.

Carcass Evaluation: At the end of the experiment, 3 pigs from each treatment were selected, weighed and starved overnight to clear the gut. Each pig was stunned and slaughtered by cutting the jugular vein with a sharp knife and weighted. The slaughtered pig was scalded with hot water and washed for evisceration. Bled weight, scalded weight, eviscerated weight, carcass weight were taken into record. The dressed carcass weight was taken and expressed as a percentage of the live weight.

Carcass quality: the carcass quality was taken such as heart girth, body length, estimated live weight, estimated carcass weight, carcass pH and temperature and hot carcass weight.

RESULTS

Figure 1 shows the carcass performance of pigs fed graded levels of dried cabbage-based diet (DCBD). Pigs on control and 2.5 % DCBD had the highest live weight with least live weight in pig fed 7.50 % cabbage-based diet. Bled weight, scalded, eviscerated weight and carcass weight was significantly higher in pigs fed 5.0 % DCBD. Dressing percentage was higher in pigs fed 10.0 % DCBD with least value in Pigs fed 2.5 % DCBD.

Figure 2 shows the carcass quality of pigs fed graded levels of cabbage-based diet. Pigs fed 5.0 % DCBD was significantly higher in heart girth, body length, estimated live and carcass weight with least values in pigs fed 7.5 % DCBD. pH, carcass temperature and hot carcass weight was higher in pigs fed 10.0 % DCBD.

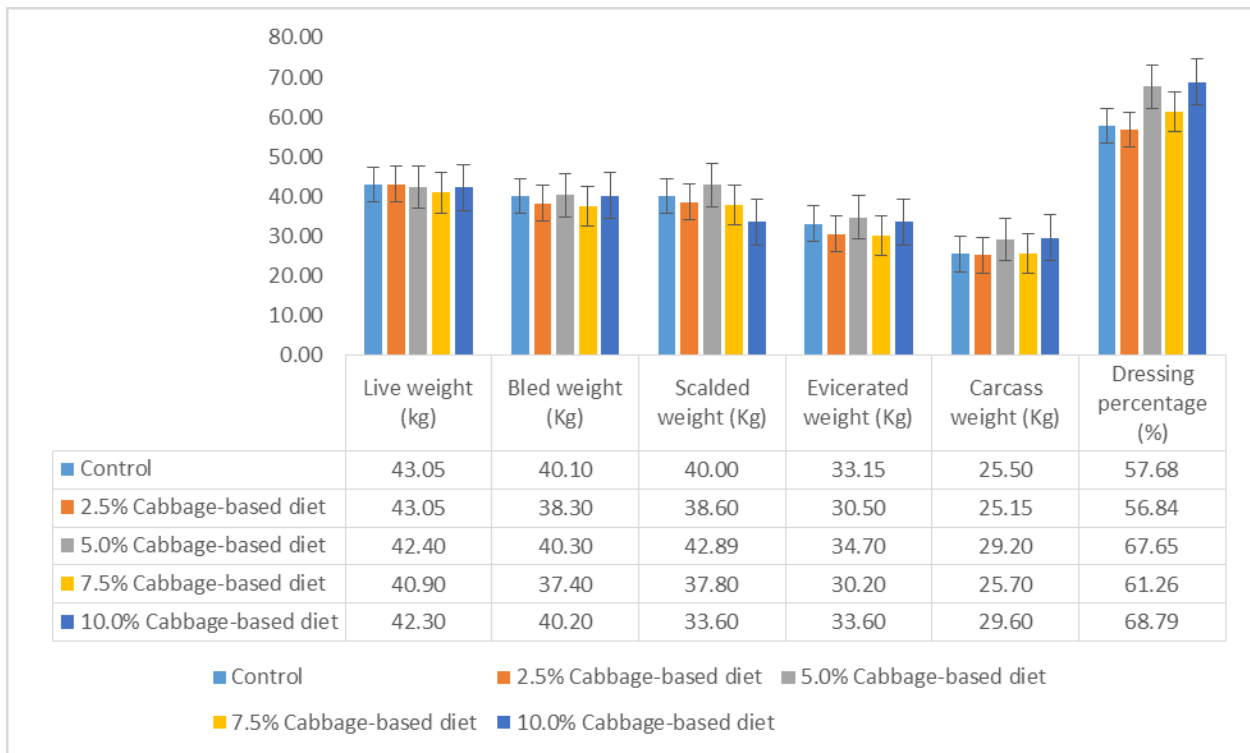
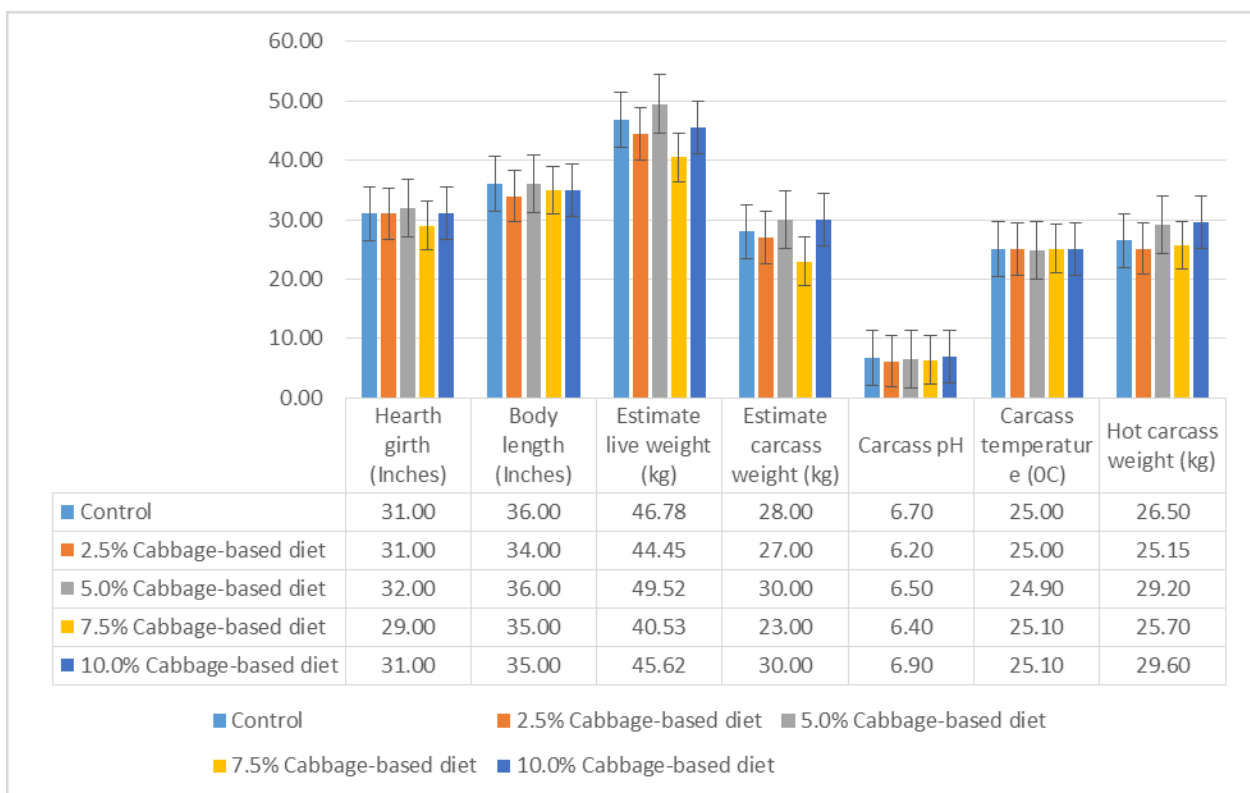


Figure 1: Carcass yield of pigs fed graded levels of dried cabbage-based diets





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Figure 2: Carcass quality of pigs fed graded levels of dried cabbage-based diets (DCBD)

DISCUSSION

The results of the carcass yield and carcass quality indicated that cabbage residue was excellent ingredient inclusion in weaned pig diets. Carcass analysis result was similar to the findings of Oluyemi and Roberts (1988) and Deschepper and Degroote, (1995) for 8-week-old pig dressing percentage which was significantly affected by dietary treatments. Meat quality depends solely on the nutritional status and pre-slaughtering of an animal (Oshibanjo *et al.*, 2019). Iheukwumere *et al* (2008) reported no significant differences ($P>0.05$) in dressing percentages of weaned pigs fed diets containing cabbage meal. However, dressing percentage were numerically (29.60 – 25.15) different ($P>0.05$) when compared with dietary treatments.

CONCLUSION

The results from this experiment show that cabbage meal can be added by up to 10.0 % in pig weaner diets to obtain high dressing percentage, pH, carcass temperature and hot carcass weight with least scalded weight.

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