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Performance Evaluation of Some Commercial Broiler Finisher Rations Sold in Nigeria

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Abstract: A study was carried out with one-hundred and twenty 4-week old Hubbard broilers to compare the quality of some commercial feeds by assessing the performance of finisher broilers fed these diets. The commercial feed brands were collected and branded ZF, VF and EF. A formulated Control Feed (CF), T_1 and three other commercial feeds ZF (T_2), VF (T_3) and EF (T_4) were fed to the finisher broilers for 28 days in a completely randomized design experiment. The results showed that CF, VF and EF performed better than ZF in daily weight gain. Among the commercial feeds, however, VF achieved the fastest daily weight gain and therefore promoted the fasted growth rate, hence indicating a better balance in nutrient composition and improved feed quality.

Key words: Feeds, nutrition, poultry, quality of commercial feeds

INTRODUCTION

The general objective of poultry nutrition is to maximize the economic production performance of birds. Diets are formulated by least cost linear programme to provide specified level of nutrients that are needed for optimum performance. The main production criteria are growth rate, feed conversion ratio, health and body composition (Esonu, 2000).

Given the increasing number of people venturing into poultry business and the consequent high demand for commercial feeds, there is increasing tendency for feed manufacturers to produce substandard feeds especially as the quality control agencies in Nigeria are either less concerned or non-functional. It appears the farmer, consumer and the public at large are left at the mercy of commercial feed millers and feed raw materials suppliers and processors. This postulation is not an exaggeration considering the fact that feeding poultry alone accounts for not less than 70% of the cost of production (Adebowale *et al*., 1998; Oyediji, 2001), depending on the region and season of production (Amir *et al*., 2001). It appears the manufacturers are aiming at high profit margins instead of focusing on quality of their products (Jones, 2005).

According to Smith *et al*. (1979) the goal of modern animal nutrition is to provide as economically as possible a diet that will meet nutrient requirements of an animal for specific production function. We know that nutrition affects both productivity and welfare of animals and that delayed performance could mean high cost for the producer-a problem borne ultimately by the consumer.

It is very important that only quality feeds from all angles as listed by Okoli, *et al*. (2009) and Omede (2008) be fed to animals so as to maximize performance and production. While, the poultry farmer aspires to derive the most in terms of animal performance out of the feed and producing at the least possible cost, some feed millers undermine the efforts of the poultry farmers by presenting in the market substandard feeds to unsuspecting farmers. The effect of this is a frustrating poor animal performance.

Therefore, the objective of this study is to investigate the extent to which some commercial feeds we find in the market meet the nutrient requirements for optimum performance of finisher broilers.

MATERIALS AND METHODS

Experimental diets: The materials used for this experiment were 3 commercial finisher broiler feeds produced by different feed millers supplied at Owerri, Imo State, Nigeria. The feeds were coded as ZF, VF and EF and recognized as treatments T_2, T_3 and T_4, respectively. The fourth feed which was the Control Feed (CF) (T_1) is shown on Table 1, indicating its ingredient composition.

Table 1: Ingredient composition of the control diet (T_1)

Ingredients	Percentage
Maize	60.00
Soybean meal	16.00
Wheat offal	10.00
Palm kernel cake	4.00
Fish meal	3.00
Blood meal	3.00
Bone meal	2.00
Oyster shell	1.00
Vit/Min premix	0.25
L-Lysine	0.25
L-Methionine	0.25
Salt	0.25
Total	100.00

Experimental birds: One-hundred and twenty birds 4-week old Hubbard broilers previously receiving a uniform commercial feed (GF) were randomly divided into 4 groups of 30 birds each. Each group was further subdivided into 3 replicates of 10 birds each. The 4 groups were randomly assigned the experimental diets in a Completely Randomized Design (CRD).The birds were housed on a concrete floor covered with wood shavings at the Animal Science Department Teaching and Research Farm, Federal University of Technology, Owerri, Nigeria. Feed and water were provided *ad libitum*.

Data collection and analyses: Data were collected on initial body weight, final body weight and feed intake. Data on feed intake and weight gain were used to calculate Feed Conversion Ration (FCR) by dividing the daily feed intake per bird by the daily weight gain per bird. All data were subjected to Analysis of Variance (ANOVA) and Duncan's New Multiple Range Test was used to detect differences among means (Steel and Torrie, 1980).

RESULTS AND DISCUSSION

Table 1 shows the ingredient composition of the Control Feed (CF) (T_1). Table 2 shows the nutrient composition of the overall experimental diets. Table 3 highlighted the performance of birds placed on the various experimental diets. The results showed that the daily feed intake of the control birds (T_1) compared favourably ($p>0.05$) with those of VF (T_3) and EF(T_4).However, ZF (T_2) birds had the lowest feed intake value of 99 g, while VF (T_3) had the highest feed intake value of 126 g. Out of the 4 treatment diets, VF was the only pelletised feed and this could have accounted for the ease with which it was picked up by the birds and for the minimal loss of the feed observed on litter materials. There was no significant ($p>0.05$) difference in daily weight gain among the control CF, VF and EF treatments. Although ZF compared favourably with VF and EF, it had the least daily weight gain of 22 g. The reason for the outstanding performance of CF over the rest of the treatment diets could be as a result of it being more nutritionally balanced than the commercial feeds. In feed conversion ratio, CF was significantly ($p<0.05$) superior to other diets, however, ZF, VF and EF were similar ($p>0.05$). The implication is that CF was better utilized than the other commercial feeds, a manifestation of better balance in nutrient content than the claims on the labels of the commercial feeds (Table 2).

Table 2: Nutrient composition of the experimental diets

Nutrients (%)	T_1* (Control)	T_2 (ZF)**	T_3 (VF)**	T_4 (EF)**
Crude protein	20.48	20.57	19.00	18.00
Crude fibre	4.24	8.43	5.40	5.5
Ether extract	4.12	6.91	8.60	5.0
ME (Kcal/kg)	2887.01	3012.50	0.2900	0.3000
Calcium	1.26	0.92	1.20	1.0
Phosphorus	0.83	0.50	0.41	0.42

*Calculated values, **Label values from feed manufacturers

Table 3: Performance of finisher broilers fed different commercial finisher feeds

Parameters	T_1 (Control)	T_2 (ZF)	T_3 (VF)	T_4 (EF)	SEM
Initial body wt (kg)	0.53^a	0.52^a	0.54^a	0.53^a	0.047
Final body wt (kg)	1.55^a	1.29^b	1.45^{ab}	1.38^{ab}	0.0636
Daily wt gain (g)	29.14^a	22.0^b	26.0^{ab}	24.29^{ab}	1.7393
Daily feed intake (g)	113.0^{ab}	99.0^b	126.0^a	115.0^{ab}	6.4119
FCR (g feed/g gain)	3.88^b	4.50^a	4.85^a	4.73^a	0.2497

Conclusion and Recommendation: On-farm formulated diets by the farmer himself seems to be a better and reliable alternative in overcoming the problem of poor quality feed and nutrition in poultry production, especially for farmers who want their birds to reach market weight at the shortest possible time and possibly at a very reduced cost. However, VF (T_3) is recommended for a farmer who must go for any of the three commercial poultry feeds. There is a clear evidence of variability in nutrient content of the commercial feeds as manifested in the varied performance of the birds on these feeds. This calls for quality control measures to ensure that ethics and standards in feed manufacturing are maintained and held at high esteem much more than the feed manufacturers making profit at the expense of quality. There is need for continuous evaluation of commercial feeds world-wide. This will to some extent provide a local solution to the global problem of world animal protein supply.

REFERENCES

Adebowale, E.A., A.M. Bamgbose and F.C. Nworgu, 1998. Performance of Broilers fed different Protein Sources. Proc. Silver Ann. Conf. of Nig. Soc. for Ani. Prod., 21-25 march, 1998, Abeokuta, Nigeria, pp: 596-597.

Amir, H.N., Y. Mojtaba and D.B. Gary, 2001. How nutrition affects immune responses in poultry. World Poult. Elsevier, 17: 6.

Esonu, B.O., 2000. Animal Nutrition and Feeding: a functional approach. Published by Rukzeal and Ruksons Associates Memory Press, Owerri, Imo State, Nigeria.

Jones, T.P., 2005. Quality control in feed manufacturing, Avitech Technica bulletin, http://www.thepoultrysite.com/articles/526/quality-control-in-feed-manufacturing. Assessed on 17th July, 2007.

Okoli, I.C., A. A., Omede, I.P. Ogbuewu and M.C. Uchegbu, 2009. Physical Characteristics As Indicators Of Poultry Feed Quality: A Review. Proceedings of the 3rd Nigeria International Poultry. Summit. S.I., Ola., Fafiolu, A.O. and Fatufe, A.A. (Edn). 22-26 February 2009. Abeokuta, Ogun State, Nigeria, pp: 124-128.

Omede, A.A., 2008. Critical Issues in Poultry Feed Quality Evaluation in Nigeria. Book of Abstracts and Congress Proceedings, XXIII World's Poultry Congress, Volume 64, supplement 2, pp: 455. 29th June-4th July, 2008, Brisbane, Australia.

Oyediji, G.O., 2001. Improving poultry feed production and supply in Nigeria. In: Proc. of a 1-day workshop organized by World's Poultry Science Association-Nigeria Branch in conjunction with Department of Animal Science, Faculty of Agriculture, Obafemi Awolowo University, Ile-Ife, Nigeria.

Smith, G.E., G.E. Muir and L.A. Muir, 1979. Some Regulations and Laws Governing Feed Sales.Church D.C.O and B. Books. In: Livestock Feeds and Feeding. Inc, Oregon, USA.

Steel, R.G.D. and J.H. Torrie, 1980. Principles of Statistics. A biometric approach. 2nd Edn. McGraw Hill Book Co. Inc. New York, USA.