RESPONSE OF BROILER CHICKENS TO DIFFERENT COMMERCIAL DIETS

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ABSTRACT
One hundred broiler day old chicks were raised and randomly allotted into three different commercial diets coded A, B and C as treatment T_1, T_2 and T_3, each treatment was replicated twice with 11 birds per replicate making 33 birds per treatment in a completely randomized design. The objective of the study was to evaluate the performance of three different commercial feeds in broiler chicken which lasted for seven weeks. Proximate analysis of the feed was carried out to assess any disparity in the composition. Feed and water were supplied ad libitum. At starter phase, the daily feed intake (51.46-52.34g), daily weight gain (22.06-42.90g) and feed conversion ratio (2.17-2.37g) were not significantly influenced (0<0.05) among the treatments. Similarly, at the finisher phase the final weight gain (2,467.00-2,470.08) daily feed intake (108.59-121.35g), daily weight gain (38.42-42.90g) and feed conversion ratio (2.60-3.20g) shows no significant differences within the treatments. Thus, it can be concluded that all the different diets may be suitable for feeding broiler chickens.
Keywords: Broiler, Feeding, Commercial diet, Chickens, Chicks.

INTRODUCTION

Nigeria poultry industries provide employments and job opportunities to the populace (Endacott, 2021).
The human population in the world is predicted to be increase by 70-80 millions. Majority from Africa. Therefore these increase in population lead to high demand of protein from meat source (Coleman and Korver, 2004). Generally, the poultry production in developed countries has witness series of development especially in the field of nutrition but the industrial material which are used to process the feeds are costly due to inflation. Oyediji (2001) reported that feed account for not less than 70% cost of production in livestock enterprises, therefore there is need to focus on efficient utilization of feed to avoid losses and minimize the profit. The nutrition of the birds must be suitable to support such rapid and efficient growth with a 43% increase in the past five years of poultry meat production (Berri., 2000) Unfortunately, there is no international standard dictating what can and cannot be accepted and also no legislation is being enforced for adherence by feed milers to the recommended nutrient levels in Nigeria as reported by Weibe (2002). As suggested by Dick., (2002) harmonization of feed quality can only be achieved by adopting the same quality standard. Therefore, this study becomes imperative to determine the nutritive quality of some poultry commercial feeds, being sold and used in Bauchi and its environs.

MATERIALS AND METHOD

Experimental Site

A feeding trial was conducted at the poultry farm of the Teaching and Research Farm**,** Department of animal production, Abubakar Tafawa Balewa University Bauchi, Nigeria. Bauchi state is located between latitudes 10^0 13' and 10^0 33' North, longitude 9^0 40' East. It has an altitude of 609.5m above sea level (Ovimaps, 2021). The temperature varied from 57^0F to 100^0F and is rarely below or above. climate condition is characterized by five months of raining seasons (June to October) and seven months of dry season which is usually cloudy and hot year-round (November to may).

Sources of experimental chicks

Day old broilers chicks were purchased from Ibadan located in South western Nigeria and used for the experiment.

Management and feeding trial

The birds were subjected to the experimental diets at their second weeks of age. One hundred day old broiler chicks were raised for seven weeks using three different commercial diets coded A, B and C as treatment T_1, T_2 and T_3 and each treatment was replicated twice with 11 birds per replicate making a total of 33 birds per treatment using a completely randomized design. The initial weight of birds was taken at the commencement of the experiment. The different feeds were weighed and supply accordingly. The remnants were also weighed before the next morning feeding to know the actual feed intake. Moreover, the birds were weighed at weekly interval to determine weekly weight gain. Necessary routine management and veterinary care were given to the birds during the experiment and mortality was also recorded as it occurs.

Data collection and statistical analysis

The birds were placed on experimental diets for seven weeks (49days) during which they were fed the experimental diets and data on several parameters were collected. Data was collected on daily and weekly basis and parameters such as daily feed intake, daily weight gain, feed conversion ratio and mortality measured and recorded. The data collected was subjected to analysis of variance and difference among means was separated using Duncan's multiple Range test (Steel and Torrie, 1980).

RESULTS AND DISCUSSION

Table 1: Gross Proximate composition of commercial diets.

	Starter phase			Finisher phase		
Parameters	A	B	C	A	B	C
CP	21	20	21	19	19	18.0
Fat	3.0	10	NA	3.0	10	6.0
Fiber	5	9	6	6.0	10	5.0
ME(Kcal/kg)	2,700	2,800	2,700	2,900	2,900	2,900

Table 2: Performance of broiler chickens at the starter phase (1-4weeks)

Parameters	COMMERCIAL DIETS			SEM
	A	B	C	
Initial weight (g)	123.00	128.00	132.00	4.5
Final weight (g)	1,230.02	1,231.0	1,234.01	1,12.41
Daily feed intake(kg)	52.34	52.20	51.46	5.60^{NS}
Daily weight gain (g)	23.50	22.45	22.06	4.50^{NS}
Feed conversion ratio	2.3	2.17	2.37	0.34^{NS}
Mortality	3	2	0	-

[ab] Means within a row with different superscript are significantly ($p<0.05$) different.

The growth performance of the broiler chickens fed three commercial diets at the starter phase from (2-6weeks) is presented in Table 2. It was observed that daily feed intake (DFI) varied from 51.46 to 52.34g on diets C and A respectively. however, at the starter phase the daily feed intake observed value are similar. while daily weight gain (DWG) value obtained ranges between 22.06 and 23.50g in diets C and A respectively. The treatments did not significantly ($p<0.05$) differ in the daily weight gain at the starter phase. Feed conversion ratio (FCR) varied from 2.17 to 2.37 on diets B and C respectively. However, the dietary treatment did not significantly affect ($p>0.05$) the chicks at the starter phase. During the starter phase about 3 and 2 mortalities were recorded in treatment A and B respectively.

Table 2: Performance of broiler chickens at the finisher phase (5-7weeks)

Parameters	COMMERCIAL DIETS			SEM
	A	B	C	
Initial weight (g)	1230.02	1231.0	1234.01	112.41
Final weight (g)	2470.08	2467.0	2468.2	192.65
Daily feed intake(kg)	117.61	121.35	108.59	8.30^{NS}
Daily weight gain (g)	42.90	38.42	41.09	5.70^{NS}
Feed conversion ratio	2.84	3.20	2.60	0.47^{NS}
Mortality	2	1	3	-

[ab] Means within a row with different superscript are significantly ($p<0.05$) different.

The growth performance of broiler chickens fed three commercial diets at the finisher phase is presented in table 3. The values range from 108.59 and 121.35g for daily feed intake in treatment C and B respectively. While the daily weight gain varied from 38.42 to 42.90g on dietary treatment B and A respectively. Then feed conversion ratio varied with value 2.84 to 3.20 on diets A and B respectively. However, despite the differences, the values obtained did not ($p<0.05$) differ. During the finisher phase six mortalities were recorded with 2, 1 and 3 on diets A, B and C respectively.

The daily feed intake varied from 80.03 to 86.88g in dietary treatment C and B respectively while 30.94 to 33.0g on diet B and A respectively daily weight gain, then followed by feed conversion ratio with value 2.56 and 2.80 on diet C and B respectively. However, all the values observed in this study did not differ. The daily feed intake varied from 80.03 to 86.88g in dietary treatment C and B respectively while 30.94 to 33.0g on diet B and A

respectively daily weight gain, then followed by feed conversion ratio with value 2.56 and 2.80 on diet C and B respectively. However, all the values observed in this study did not differ.

CONCLUSION

Based on the results of this experiment, the three different commercial feeds seem to be suitable for feeding broiler chickens.

REFERENCES

Berri, C. (2000): Variability of sensory and proceeding qualities of poultry meat. World poultry science journal, 56(3): 209-224.

Coleman, R.A. and Korver, D.R. (2004): Amino Acid Requirements of Broilers: Relationship with growth and meat quality from www.thepoultrysite.com Accessed on 4th December, 2005.

Dick, z. (2002): Ensuring safe feed with the iodex Alumentarius. Feed Technology, 6(1),2002, pp.19.

Endacott, I. C (2021): Poultry production, pharmaceutical product use, and related challenges on commercial poultry flock in Kano and Oyo states of Nigeria. Veterinary Science. (8) Pp. 315-319

Oyediji, G.O. (2001) improving poultry feed and supply in Nigeria. Proceedings of a one-day workshop organized by worlds poultry science association, Nigeria Branch in conjunction with the department of Animal Science, Faculty of Agriculture, Obafemi Awolowo University, Ile-Ife, Nigeria.

Steel, R.G. and Torrie, J.H (1980). Principles and procedures of statistics. MM Graw Hill, New York, Pp 137-269.

Weibe, E.A. (2002): castor, sesame and sunflower: Leonard Hill, London Pp. 901