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GROWTH PERFORMANCE OF STARTER BROILER CHICKENS FED DIFFERENT COMMERCIAL DIETS

[1]Sani, A., [1]Mijinyawa, A., [2]Jamaa, N. A., [1]Abubakar, A., [3]Jamilu, H., [1]Nuhu, S. H., [1]Oyeniran, J. O. and [2]Doma, U. D.
[1]Department of Animal Health and production, Federal Polytechnic, Bauchi. Nigeria.
[2]Department of Animal Production, Abubakar Tafawa Balewa University, Bauchi. Nigeria.
[3]Teaching and Research Farm, Faculty of Agriculture, federal University, Dutse, Nigeria.
Corresponding Author: adamusani111@gmail.com Phone no: 08035579706

ABSTRACT

One of the key challenges faced by poultry industry, especially in Nigeria, is the proliferation of substandard commercial feeds. A feeding trial was conducted to determine the growth performance of starter broiler chickens fed different brands of commercial broiler starter diets in Bauchi Metropolis. Two hundred and forty (240) day-old chicks were randomly allotted to four commercial grade broiler diets in replicates of four containing 15 birds each in a completely randomized design. Feed and water were supplied ad libitum and the study lasted for 4 weeks. Results showed that apart from daily weight gain and feed conversion ratio, other parameters were not significantly (P<0.05) affected. Daily weight gain was significantly (P<0.05) higher on diets 4 (47.41g) and 3 (46.94g) which did not differ, than those on diets 2 (40.68g) and 1 (40.54g) which were similar. feed conversion ratio was significant (P<0.05) better on diets 3 (1.58) and 4 (1.48), which were same, and poorer on diets 1 (1.83) and 2 (1.71) which did not differ.Final weight however, did not differ among diets and was in the range of 1060.00 – 1198.33g. It was therefore concluded that diets 3 and 4 which gave higher daily weigh gains and better feed conversion ratio are superior in terms of quality than diets 1 and 2 and thus recommended for starter broiler feeding.

Key words: Starter, Weight gain, Feed intake, Feed conversion ratio, Commercial feeds.

INTRODUCTION

The goal of any poultry farmer is to achieve the highest possible birds' performance within a prescribed period. This could only be possible when feed, feeding and other management practices are adequate. Adequacy of feed is measured both on quality and quantity basis (ILRI, 2021). On quality basis, feed has to be nutritionally adequate. That is, it must contain all the necessary nutrients at recommended levels and proportions. The Nigerian Industrial Standard has made appropriate recommendations for commercial poultry feeds. However, for a desire to make huge profits at the detriment of farmers, some feed milling companies do not adhere to these standards. Thus they produce and market feeds that are nutritionally inadequate. The critical indices for growth performance rating are feed intake, weight gain and conversion ratio(Esonu, 2000). Earlier studies have shown that commercial feeds produced by different companies gave varied results in terms of these indices. This clearly shows that feeds were not of the same quality. However, despite this ugly scenario, most poultry farmers who do not have the requisite knowledge of feed formulation, who are financially weak, have to buy commercial feeds rather than compounding their own (Malebogo*et al.* (2016). The objective of this study is therefore to evaluate the extent to which some of the available commercial feeds sold in Bauchi markets meet the nutrient requirements for optimum performance and production of finisher broiler chickens.

MATERIALS AND METHODS

Study Area

The experiment was conducted at the Teaching and Research Farm, Abubakar Tafawa Balewa University, ATBU, Bauchi., Bauchi Local Government Area of Bauchi state. Bauchi town,is located at

$10^{0}58^{"}N10^{0}20.07^{''}$E.at an altitude of 695.20 meters above sea level(Wikipedia.org,2021).The mean weather data in Bauchi town is shown in Table 1.

Table 1: mean weather data at Bauchi town

Months	Rainfall(mm)	Relative humidity(%)	Temperature (^{0}C)		
sunshine			Min	max	Hours/
January	00	26.5	15.8	30.4	7.5
February	00	29.4	15.0	31.5	10.8
March	00	24.6	21.5	36.7	7.2
April	20.2	44.7	23.8	36.6	7.5
May	54.1	56.7	24.7	35.5	7.6
June	110.4	63.4	22.5	33.5	7.8
July	232.1	76.1	22.1	31.1	5.4
August	217.7	80.5	20.9	30.0	5.6
September	133.7	78.5	20.9	30.4	6.2
October	40.6	64.9	19.5	32.0	7.0
November	00	37.8	15.9	33.6	9.9
December	00	31.6	13.8	31.1	9.4

Source:(meteorological Department, Federal ministry of Aviation,2019)

Experimental Diets

Four different commercial broiler starter diets were procured from poultry feed vendors in Bauchi town and the diets were designated as 1, 2, 3 and 4.

Experimental Birds and Management

After a two-weeks brooding period. two hundred and forty broiler chickens weighing between 205.68 and 213.17g were randomly allotted to four (4) different commercial dietsdesignated as 1, 2, 3 and 4 in replicates of 4 containing 15 birds each. Feed and water were served *ad libitum* and the studylasted for 4 weeks.

Data Collection

Data was collected for initial weight, daily feed intake, daily weight gain, feed conversion ratio,final weight and mortality. Daily feed intake was obtained by difference between quantity of feed offered and the left-over collected the following morning. Weight gain was determined by the difference between two consecutive weighing carried out on weekly basis. This value was divided by 7 to obtain DFI while FCR was obtained by dividing DFI by DWG. Mortality was recorded as it occurred.

Data Analysis

Except for mortality, all data collectedwas subjected toAnalysis of Variance using the SPSS vr 25 statistical software. Where means differed among diets, Duncan Multiple Range Test(DMRT, 1955) was used to separate them.

RESULTS AND DISCUSSION

The results for performance of broiler chickens fed commercial diet during the starter phase is presented in Table 1. Apart from daily weight gain and feed conversion ratio, other parameters were not significantly affected by the dietary treatments. Initial weight (g) of birds ranged from 250.68g on diet 2 to 213.17g on diet 4. Final weight ranged from 1060.00g on diet 2 to 1198.33g on diet 4. Daily feed intake (g) was from 69.47g on diet 2 to 74.15g on diet 3. This was lower than 84.12 – 96.00g reported by Hafizu*et al.* (2020). However, a significant (P<0.05) effect of diet was recorded in daily weight gain. A higher gain of 47.41g was recorded on birds fed diet 4, which did not differ from diet 3 (46.94kg). Diets 1 (40.54g) and 2 (40.68) were similar.These values are also lower than those reported by Mubarak and Ahmed(2019) in a similar study. Similarly, feed conversion ratio was significant (P<0.05) better on diets 3 (1.58) and 4 (1.48), which were similar, but poorer on diets 1 (1.83) and 2 (1.71) which were the same. Mortality of 1 and 2 birds were recorded on diets 1 and 4 respectively.

Table 1: Performance of Broiler Chickens Fed Four Different Commercial Feeds (1-4 weeks)

	DIETS				
Parameter	1	2	3	4	SEM
Initial weight(g)	210.18	205.68	210.33	213.17	4.02 ^{NS}
Final weight (g)	1061.50	1060.00	1196.00	1198.33	20.20 ^{NS}
Daily feed intake (g)	74.13	69.47	74.15	69.90	1.58^{NS}
Daily weight gain (g)	40.54^{b}	40.68^{b}	46.94^{a}	47.41^{a}	0.710*
Feed conversion ratio	1.83^{b}	1.71^{b}	1.58^{a}	1.48^{a}	0.078*
Mortality (%)	1	0	0	2	-

a,b Means within row with different superscripts differed significantly. *** = (P<0.001), SEM = Standard Error of the Mean, NS = Not significant

CONCLUSION AND RECOMMENDATION

Although no significant influence was observed in final weight of birds, diets 3 and 4 are recommended since they produced broiler chickens with higher values of daily weight gain and feed conversion ratio. Accordingly, they are hereby recommended for broiler chicken farmers.

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