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CARCASS AND ORGAN CHARACTERISTICS OF BROILER CHICKENS FED DIFFERENT COMMERCIAL FEEDS.

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ABSTRACT

An experiment was conducted to determine the effect of feeding some commercial feeds sold in Bauchi metropolis on carcass and organ characteristics of broiler chickens. Two hundred and forty (240) broiler chickens weighing between 205.68 and213.17g were randomly assigned to four commercial grade broiler feeds 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 7 weeks. Results showed no significant influence on all carcass and organ indices. Live weight ranged between 1762.50 on diet 1 and 2012.50g on diet 3. Carcass weight was from 1603.90 to 1775.50g while dressing percentage was between 64.26 and 70.05% on diets 2 and 4 respectively. Organ weights for gizzard, kidney and liver were 2.28 -3.24%, 0.27 – 0.49% and 1.93 – 2.21% respectively. Abdominal fat weight was between 0.67 and 1.08%. It was therefore concluded that the four commercial feeds did not differ in quality and farmers' choice can be guided by only by price.

Key words: Carcass, Broiler chickens, organ, Commercial feeds.

INTRODUCTION

High cost of feed ingredients used to compound livestock feeds has been impacting negatively on the progress of the poultry industry in Nigeria. Additionally, the behavior of some feed millers which involve cutting corners in feed formulation, where feeds are formulated such that the nutrients are not sufficient to meet the nutritional requirements of the stock, has also been an issue of great concern. Erraticchangesinpriceoffeedmaterialsconstantlyforcefeedmanufacturerstochange formula used to produce feed in order to maintain reasonable gross margin (Edache*et al.*, 2018). The quality of the ingredients may also be of sub-standard grade .Livestock farmers who rely on these feed millers for the supply of their feeds often suffer some losses in terms of reduced performance of their animals fed with such feeds. This has been confirmed from previous studies (Uchegbu*et al.*, 2007; Sogunle*et al.*, 2009 and Olajideand Adeleye,2015). However, most farmers are unaware about the presence of sub-standard feeds in the market. Since animals are the best judge of feeds, this study was designed to investigate the carcass and organ characteristics of four different commercial starter and finisher broiler chickens' feeds sold in Bauchi metropolis.

MATERIALS AND METHODS

Study Area

The experiment was conducted at the Teaching and Research Farm, Abubakar Tafawa Balewa University,(ATBU), Bauchi.

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 diets designated as 1, 2, 3 and 4 in replicates of 4 containing 15 birds each. Feed and water were served *ad libitum* and the study lasted for 7 weeks.

Data Collection

At the end of the finisher phase, thirty-two birds, two from each replicate, were randomly selected from the four treatments (16 replicates) and fasted for 12 hours before slaughter. Each bird was weighed and slaughtered. Weights of carcasses and internal organs were immediately measured using an electronic balance calibrated in grammes. Dressing percentage (DP) was obtained using the relationship.

$$DP = \frac{CW}{LW} X\ 100\%$$

Where DP= Dressing percentage, CW= carcass weight and LW= live weight.

Data Analysis

All data collected was subjected to Analysis of Variance using the SPSS vr 25 statistical software. Where there were significant differences among means , Duncan Multiple Range Test (DMRT) was used to separate them.

RESULTS AND DISCUSSION

The results for carcass and gut characteristics of birds fed 4 different commercial feeds are presented in Table 1. No significant effect of feed was observed for all parameters measured. This disagrees with Sanusi *et al.* (2015) who worked on comparative effect of self formulated and four commercial feeds on growth performance and carcass and hematological parameters of broiler finisher in the tropics and found no significant influence of the feeds on carcass but was at variance with the report of Sogunle*et al.* (2009) who worked on the performance and carcass characteristics of two strains of broiler chickens fed three different commercial feeds and reported lower dressing percentage. live weight ranged from 1762.50g on diet 1 to 2012.50g on diet 3, plucked weight from 1603.90g (diet 1) to 1775.50g (diet 4), eviscerated weight from 1357.10g on diet 1 to 1495.10g on diet 4. Carcass weight, which was also not significantly affected was between 1192.10g on diet 1 and 1346.40g on diet 4. Dressing percentage spanned from 64.26 to 70.05 on diets 2 and 4 respectively. These values were lower than 79.31 – 81.09% reported by Sogunle*et al.*, (2009) but similar to 64.45 – 70.68% (Abdel-Raheem and Abd- Allah, 2011).

The relative weight of head and legs was between 5.48 and 6.65% on feeds 4 and 1 respectively, gizzard weight, 2.28% on diet 4 and 3.24% on diet 1. Liver weight, on the other hand, ranged from 1.93% on diet 2 to 2.21% on diet 1. Spleen weight was between 0.05% (diet 4) and 0.08% (diet 1). Numerical values for large intestine were between 0.10% (diet 3) and 0.20% (diet 4). Relative weights of small intestine ranged from 4.51 % (diet 2) to 5.19% (diet 1) while that of caecum was from 0.75 % 0n diet 3 to 0.91% on diet 1. In the same vein, values for abdominal fat weight were between 0.67% (diet 3) and 1.07% (diet 2). Lung weights ranged from 0.45% (diet

4) to 0.59% (diet 2). Heart weight was between 0.34 and 0.40% on diets 3 and 4 respectively. Kidney weight ranged between 0.27% (diet 1) and 0.49% (diet 3). Relative weight of pancreas which was also not significantly influenced, was between 0.19% (diet 2) and 0.22% (diet 1).and it agrees with the findings of Sogunle*et al.* (2009) who reported values of of range of 0.18% and 0.25% and Sanusi *et al.* (2015) reported values of 0.16% and 0.27%

CONCLUSION AND RECOMMENDATION

Based on the results of this study, it was concluded that the four commercial feeds has no effects on carcass and organs of the broiler chickens ,hence poultry farmers can choose anyone of them.

Table 1: Carcass and Organs Characteristics of Broiler Chickens Fed Commercial Diets

	Diets				
Parameters	**1**	**2**	**3**	**4**	**SEM**
Live weight (g)	1762.5	1937.5	2012.5	1962.5	145.93 NS
Plucked weight(g)	1603.9	1642.3	1775.5	1775.3	118.95 NS
Eviscerated weight(g)	1357.1	1358.9	1439.8	1495.1	115.66^{NS}
Carcass weight(g)	1192.1	1245.9	1311.4	1346.4	111.18^{NS}
Dressing percentage (%)	67.83	64.26	64.82	70.05	2.51^{NS}
Head and legs (%)	6.65	5.78	5.84	5.48	0.41^{NS}
Gizzard (%)	3.24	2.91	2.98	2.28	0.25^{NS}
Liver (%)	2.21	1.93	2.02	2.21	0.22^{NS}
Spleen (%)	0.08	0.06	0.06	0.05	0.01^{NS}
Large intestine (%)	0.15	0.15	0.1	0.2	0.04^{NS}
Small intestine (%)	5.19	4.51	4.94	4.84	0.79^{NS}
Caecum (%)	0.91	0.78	0.75	0.89	0.14^{NS}
Abdominal fat (%)	0.72	1.07	0.67	1.08	0.20^{NS}
Lungs (%)	0.52	0.59	0.49	0.45	0.06^{NS}
Heart (%)	0.38	0.36	0.34	0.4	0.04^{NS}
Kidney (%)	0.27	0.36	0.49	0.35	0.07^{NS}
Pancreas (%)	0.22	0.19	0.21	0.21	0.04^{NS}

NS = Not significant; SEM = standard error of the means.

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