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Farmers' Feeding Practices and Growth Performance of Broilers in Uyo Local Government Area of Akwa Ibom State

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Abstract
The study investigated the effect of feed composition and feeding frequency on the growth performance of broilers. A total of 96 day-old commercial broiler birds were allotted to two dietary treatments (homemade and commercial feeds) and two feeding frequency treatments (12 hourly and 8 hourly) with 48 birds per diet and feeding frequency and 12 birds per replicate in a completely randomized design. Data collected on weight was subjected to preliminary exploratory boxplot and normality analyses. The result revealed that birds on the commercial feed had a significantly superior body weight of 2691g and 1441 weight gain, while those on the homemade feed had 2532g body weight and 1282g weight gain. There was a significant difference (P>0.05) in the body weight, weight gain, and water/feed ratio in the birds fed with commercial feed compared to those fed with homemade feed. The overall mean total weight gain in the entire study was 2801.4 ± 40.5. The source of variation on total weight gain was attributable to the effect of twice daily (12-hourly) feeding which recorded 2859.6g in total weight gain, while the thrice daily (8-hourly) had 2743.1g. Feeding frequency was significant (P<0.05) on total weight gain of broilers in this study. The twice daily feeding treatment outperformed the thrice daily treatment. Based on the findings of it was concluded that commercial feed lead to better growth performance compared to home-made feed, and twice daily (12-hourly) feeding treatment had a better impact over the thrice daily (8-hourly) feeding treatment on the parameters studied. It was recommended among other things that farmers should prioritize the use of commercial feed over home-made feed, as it has resulted in better growth rates and feed conversion ratios, and that broiler birds should be fed twice daily (12 hourly) to optimize growth, reduce labour, cost and frequency of disturbance to the birds.
Keywords: broiler, feeding, growth, performance

Introduction

Broiler farming is a crucial aspect of poultry, focusing on the rearing of broiler chickens for meat production. Broilers are a specific breed of chicken that has been selectively bred for rapid growth and efficient feed conversion, making them ideal for meat production. Broiler farming is a major component of poultry production, providing a significant source of protein-rich food for human consumption, thereby contributing to food security and economic

development in Nigeria. Akwa Ibom State, located in the southern region of the country, has a conducive environment for broiler farming, with a rising demand for poultry products. Uyo Local Government Area, as the capital of Akwa Ibom State, serves as a focal point for agricultural activities, including broiler farming. Feeding practices are crucial in broiler farming as they directly impact the growth performance and productivity of broilers. Despite the potential for growth, broiler farming in Uyo Local Government Area faces challenges related to feeding practices and growth performance. Feeding practices such as feed composition, feed quantity, feeding method, feeding frequency, and duration of feeding vary among farmers, which can significantly impact the growth performance of broilers. These practices influence the growth rate, feed efficiency, and overall health of broilers.

Adeyemi and Oloruntola (2017) saw feeding practices employed by farmers as major determinant of growth performance in broilers. Similarly, Aduku, Ibrahim and Sani (2019) observed that feeding frequency and feeding duration had a significant effect on the growth performance of broilers, where broilers fed with automated feeders and those fed manually by hand display varying body weight gain. Also varying feed conversion ratio was observed among, broilers fed more frequently and for longer durations compare to those that were not. Despite these findings, there is a gap in the literature regarding the specific feeding practices and their impact on the growth performance of broilers in Uyo Local Government Area. This study aims to fill this gap by investigating the relationship between farmers' feeding practices and the growth performance of broilers in the area. By identifying the most effective feeding practices in terms of feed composition and feeding frequency, the study seeks to provide valuable insights for broiler farmers to optimize their feeding strategies and enhance the growth performance of their broilers. Understanding the relationship between feeding practices and growth performance is crucial for improving the productivity and sustainability of broiler farming in Uyo Local Government Area. This study is expected to contribute to the body of knowledge in broiler farming and provide practical recommendations for farmers to enhance their farming practices.

Feeding Practices in Broiler Farming

Feeding practices has to do with the methods and strategies used by farmers to provide feed to animals. These practices include decisions about the type of feed to use, the method, frequency and quantity of feeding, and the duration for which feed is made available to the animals. Feeding practices are important in animal agriculture as they directly impact the growth, health, and productivity of the animals. Farmers employ various feeding strategies to ensure optimal growth performance, feed efficiency, and overall health of the birds. Understanding these feeding practices is essential for improving broiler farming operations and maximizing productivity.

One of the key aspects of feeding practices is the composition of the feed given to broilers. Commercial feeds are formulated to provide the necessary nutrients for broiler growth, including proteins, carbohydrates, fats, vitamins, and minerals. These feeds are often preferred for their balanced nutrition and convenience. On the other hand, some farmers opt for home-made feeds, which may include locally available ingredients such as maize, soybean, fish meal, and bone meal. Another important feeding practice is the frequency at which broilers are fed. The frequency can vary depending on factors such as age, breed, and management practices. Typically, broilers are fed two to three times a day to ensure they receive an adequate amount of feed for growth. However, some farmers may feed broilers more or less frequently based on their feeding schedule and the availability of feed.

The amount of feed given to broilers is also a critical factor in their growth performance. Feeding too little can lead to stunted growth and poor development, while overfeeding can result in excess fat deposition and health issues. There is need for farmers to carefully monitor the feeding quantity to ensure that broilers receive enough feed to meet their nutritional requirements without wastage. The duration for which feed is made available to broilers during each feeding session is another important consideration. The duration can vary depending on the feeding method used (e.g., hand feeding vs. automatic feeders). Providing feed for too short a duration may not allow all broilers to consume an adequate amount of feed, leading to uneven growth. Conversely, providing feed for too long may result in feed wastage and overconsumption.

Factors affecting feeding practices in broiler farming

Broiler farming in Uyo Local Government Area, is characterized by a variety of feeding practices adopted by farmers. These practices are influenced by several factors, including the availability and cost of feed, as well as the preferences and goals of individual farmers. Broiler farmers employ different feeding practices based on their resources and preferences. Some farmers use commercial feeds, which are readily available and formulated to meet the nutritional requirements of broilers. Bland (2016) observed that commercial feeds are preferred for their convenience and balanced nutrition, which can contribute to improved growth performance and feed efficiency. Other farmers prefer to formulate their own feeds using locally available ingredients such as maize, soybean, and fish meal. While home-made feeds can be cost-effective, their nutritional content may vary, leading to inconsistent growth performance among broilers (Ogundipe, 2017). The effects of feed on the performance of the birds stand out as the most reliable method of assessing the quality of the feed. Many farmers are looking for alternative ways of boosting their profits, as such change from one commercial feed to another in search of a better feed (Ogundipe, Aduku, and Gwankat, 2016), while a good number have decided to be producing their own feeds. As a matter of fact, feed cost as well as the quality of the feed are among the factors which dictate farmer's preference for commercial or self- compounded feeds

(Adebayo, Salami and Oloyinde, 2018; Umeh and Odo 2020*)*. Many farmers also believe that self-made feeds are cheaper than the commercial feeds (Adesehinwa, Ikani and Dafwang, 2017, Adebayo et al., 2018). Therefore, the types of feed used in feeding the birds also play a significant role in the performance of broilers chickens.

The availability of feed is a key factor influencing the feeding practices of broiler, as farmers must ensure a reliable supply of feed to meet the nutritional needs of their broilers. The cost of feed is another important consideration, as it can impact the profitability of broiler farming operations. Poultry feeding is a major item of cost in poultry production. In Nigeria, feed cost accounts for about 70% of the total cost of producing broilers and egg (Adebayo *et al*., 2018; Kehinde, Babatunde, Ayoola, and Temowo, (2016). Many Commercial poultry farms had collapse while a good number of them experienced slow growth as a result of sudden increases in the cost of poultry feeds (Ogundipe, 2017 and Onimisi, 2019). Hence, in other to increase profitability in the poultry industry, many farmers have resorted to formulating practical rations that will help in reducing the cost of production and still maintain high level of performance in the birds. (Adebayo *et al* 2018). Farmers may choose feeding practices that are cost-effective and sustainable based on their financial resources. According to Doma, Muhammad, Bello and Ugbeh (2021), other factors that influence feeding practices include the availability of resources for feed storage and management, access to information and training on feeding practices, and the goals of the farmers. Some farmers may prioritize maximizing growth performance and profitability, while others may focus on sustainable and environmentally friendly feeding practices. Understanding these practices and the factors that influence them is essential for improving broiler farming operations and promoting sustainable and efficient feed and feeding management practices in the area.

Effect of Feeding practices on growth performance of broilers

Balanced nutrition is crucial for the optimal growth and development of broilers. Khan, Sardar, Anjum, and Ahmad (2017) emphasized the importance of providing broilers with a balanced diet that meets their nutritional requirements. According to these authors, broilers fed with a balanced diet tend to have higher growth rates, better feed conversion ratios, and improved overall health compared to those fed with imbalanced diets. Furthermore, a review by Williams and Toghyani (2019) highlighted the role of specific nutrients, such as amino acids, vitamins, and minerals, in promoting broiler growth and performance. The review emphasized the importance of formulating broiler feed with the right balance of nutrients to support optimal growth and development. Lee, Kim and Park (2019) investigated the effects of different protein sources in broiler feed on growth performance. The study found that broilers fed with feed containing high-quality protein sources, such as soybean meal, had better growth rates and feed efficiency compared to those fed with lower-quality protein sources.

Feeding frequency can affect the efficiency of nutrient absorption and utilization in broilers. More feeding frequency enable nutrients to be distributed more evenly throughout the day, allowing for better absorption and utilization. This results in improved growth rates and feed efficiency. Feeding frequency can also influence the metabolic rate and energy expenditure of broilers. Broilers fed frequently may have a more stable metabolic rate, which allows for more efficient use of nutrients for growth and development. In contrast, lesser feeding frequency may result in fluctuations in metabolic rate, leading to less efficient nutrient utilization. Feeding twice a day allows for better digestion and absorption of nutrients, leading to improved growth performance. Additionally, more frequent feeding may help maintain gut health by providing a more constant supply of nutrients to the gut microbiota. Broilers exhibit more consistent feeding behaviour based on the feeding frequency, leading to better feed intake and utilization (Apantaku, Oluwalana and Adepegba, 2018). This consistent feeding behaviour can contribute to improved growth performance and feed efficiency.

Statement of the Problem

Broiler farming in Uyo Local Government Area faces challenges in optimizing the growth performance of broilers due to varying feeding practices among farmers. The current situation is characterized by a lack of understanding of how different feeding practices, including feed composition, feeding quantity, feeding frequency, and feeding duration among others, impact the growth performance of broilers. This lack of understanding hinders the development of effective strategies to improve broiler farming practices and productivity in the region. Currently, broiler farmers in Uyo Local Government Area employ diverse feeding practices, with some using commercial feed while others prefer home-made feed. There is also variation in feeding quantity, frequency, and duration among farmers. However, the extent to which these feeding practices affect the growth performance of broilers remains unclear.

Ideally, a standardized and optimized practices for broiler farming that maximizes growth performance and minimizes feed wastage is necessary. This would result in improved productivity, profitability, and sustainability of broiler farming operations in the region. This study aimed to address the aforementioned problem by investigating the effect of farmers' feeding practices on the growth performance of broilers in Uyo Local Government Area. By examining the impact of feed composition and feeding frequency among others on broiler growth, the study would enable the understanding of how these feeding practices can be optimized to enhance growth performance. The findings of this study would help inform the development of guidelines and recommendations for broiler farmers in Uyo Local Government Area to improve their feeding practices and ultimately enhance the growth performance of broilers in the region.

Purpose of the Study

The study investigated the effect of farmers' feeding practices on the growth performance of broilers in Uyo Local Government Area of Akwa Ibom State and provide insights on ways to improve broiler farming and productivity in the region in relation to the feeding practices employed. Specifically, the study sought to:

1. examine the effect of feed composition on the growth performance of broilers in Uyo Local Government Area.
2. investigate the effect of feeding frequency on the growth performance of broilers in Uyo Local Government Area.

Research Questions

The following research questions were formulated to guide the study:

1. How does feed composition affect the growth performance of broilers in Uyo Local Government Area?
2. What is the effect of feeding frequency on the growth performance of broilers in Uyo Local Government Area?

Hypotheses

The following null hypotheses were formulated to direct the study:

1. There is no significant effect of feed composition on the growth performance of broilers in Uyo Local Government Area.
2. There is no significant effect of feeding frequency on the growth performance of broilers in Uyo Local Government Area.

MATERIALS AND METHODS

Location of the Experimental Site

The study was conducted in Uyo Local Government Area of Akwa Ibom State, which is known for its active agricultural practices and suitable climate for broiler farming.

Experimental procedure

A total number of 96 day-old commercial broiler birds were obtained from a reputable commercial hatchery in Uyo, Akwa Ibom State. The birds were of similar age and health status to ensure uniformity in the study population. On arrival, all birds were tagged with an ID and weighed on arrival. The animals were kept in four clearly delineated and demarcated plots on a deep litter system, filled with wood shavings, the birds were reared from day old to eight weeks on the litter. The litters were replaced bi-weekly with new ones to protect the birds from

infections and microbial invasion. Management practices on the farm followed standard procedures for semi-intensive deep litter rearing, for broiler breeding and management in line with breeders' recommendations (Kareem-Ibrahim, Abanikannda, and Nwadialo, 2021).

The selected broilers were divided into two groups based on feeding frequency: twice a day, and three times a day. Each group consisted of 48 birds. Each feeding frequency group was further divided into two sub-groups based on feed composition (commercial feed and home-made feed). This allowed for an assessment of the combined effects of feeding frequency and feed composition on broiler growth performance.

Feeds and Feeding

In order to assess the effect of feed composition on broiler growth performance, two feed treatments (homemade feed and commercial feed) were used. Also, to determine the effect of feeding frequency on growth performance, two feeding frequency treatments were used (12 hourly and 8 hourly). Birds in the twice a day group were fed twice a day, with equal amounts of feed provided in the morning and evening, while birds in the three times a day group were fed three times a day, with equal amounts of feed provided in the morning, afternoon, and evening. Daily feed intake based on average body weight for each treatment group was weighed, and equally shared into two or three portions, and offered either twice or thrice at 12 or 8 hourly intervals respectively. There were two replicates for each treatment groups (12-hourly and 8-hourly), and the birds were randomly selected and assigned to each of the replicates within and between the treatment groups. All birds were subjected to the same environmental conditions except the difference in feeding frequency and feed composition which were being investigated. The animals were randomly assigned to each treatment to ensure that variation in initial weight within and between the treatment groups was fairly homogenous, thus eliminating any difference at the commencement of the study.

Table 1: Composition of Homemade Broiler diet used for the experiments

Constituents	Starter	Finisher
Maize	30.00	34.00
Soya/FF	36.10	32.00
Blood meal	3.00	2.00
Fishmeal	5.00	0.00
Maize offal	17.10	23.10

Rice Offal	0.00	0.00
PKC	5.00	5.00
Bone meal	3.10	3.10
Common Salt	0.30	0.30
Methionine	0.10	0.20
**Premix	0.30	0.30

Table 2: Proximate composition of the commercial feed used as treatment

Constituents	Hybrid Super Starter	Hybrid Broiler Finisher
Crude Protein	22%	19.5%
Fat	5.1%	5.5%
Crude Fibre	4.3%	3%
Calcium	1.2%	1.2%
Available Phosphorus	0.45%	0.44%
Methionine	0.56%	0.5%
Lysine	1.3%	1.2%
Metabolizable Energy	3000Kcal/kg	3100Kcal/kg

Data Collection

Aside from the initial body weight of the birds taken at hatch, subsequent weekly body weights of the birds were taken and recorded by their identification number, using a 0.00g sensitive digital scale for 8 weeks. Also, indices such as final weight gain (FWG), weekly weight gain (WWG) and average daily weight gain (ADWG) were computed from measured variables as follows:

FWG = (Wt_f – Wt_0), WWG = (Wt_p – Wt_c), and ADWG = (Wt_f – Wt_0)/length (days)

Where Wt_f is final weight, Wt_0 is initial weight, Wt_p = previous week weight and Wt_c is current week weight.

Statistical Analyses

Statistical analyses were conducted using various modules of Minitab® 17 statistical software for exploratory (boxplots, descriptive, normality), general linear model analysis of variance (ANOVA) and further post-hoc tests were done with a significant ANOVA using the Tukey's Honestly Significant Difference (HSD).

The statistical model describing the final analysis of variance is given as:

$Yijk = \mu + Fi + eijkl$

Where:

Yijkl =the measure or index on each bird

μ = the overall mean

Fi = the ith effect of the feeding frequency (i = 2; 12-hourly, 8-hourly)

eijkl = the residual error assumed to be normal, independent and random

Result

Table 3: Performance of broilers fed with homemade feed compare to those fed with commercial feed during the starter phase

	Treatments/Metabolisable Energy (Kcal/kg)			
	Homemade feed	Commercial feed		
Parameters	**3000**	**2800**	**SEM**	**Diff**
Initial weight (g)	125.43	125.43	1.18	
Final weight (g)	897.10^{b}	968.86^{a}	13.42	*
Weight gained(g)	760.56^{b}	843.21^{a}	12.37	*
Feed Intake (g)	1504.72^{ab}	1551.99^{a}	24.86	*
Feed/Gain	1.90^{ab}	1.77^{a}	0.05	*
Water Intake (ml)	3374.62^{c}	4739.59^{a}	47.38	*
Water/Feed	2.42^{b}	3.76^{a}	0.12	*
Mortality	0	0		*

$^{a, b, c, d}$ on the same row means with different superscript differ significantly (P< 0.05)

Table 4: Performance of broilers fed with homemade feed compare to those fed with commercial feed during the finisher phase

	Treatments/Metabolisable Energy (Kcal/kg)			
	Homemade feed	Commercial feed		
Parameters	**3000**	**2800**	**SEM**	**Diff**

Initial weight (g)	1250	2200	1.18	
Final weight (g)	2532[b]	2691[a]	13.42	*
Weight gained(g)	1282[b]	1441[a]	12.37	*
Feed Intake (g)	3932[b]	4057[ab]	24.86	*
Feed/Gain	3.20[ab]	2.88[a]	0.05	*
Water Intake (ml)	7.98[d]	9.67[a]	47.38	*
Water/Feed	3.60[b]	4.06[a]	0.12	*
Mortality	0	0		*

[a, b, c ,d] on the same row means with different superscript differ significantly (P< 0.05)

Broiler performance when fed on-farm versus commercial feeds

Starter Phase

Table 3 shows the performance of broiler starter fed with homemade feed compared to those fed with commercial feed. The birds on the commercial feed had a significantly superior body weight of 2691g, 1441 weight gain and a lower feed/gain ratio of 2.88, while those on the homemade feed had 2532g body weight, 1282g weight gain and a higher feed/gain ratio of 3.20. The feed intake for boilers on homemade and commercial feed were 1504.72g and 1551.99g respectively. Water intake was significantly higher for the birds fed on the commercial feed which is a pelletized feed with 4739.59ml per bird compared to those fed with homemade feed which had a water intake of 3515.47ml. Water/feed ratio was higher among birds fed with commercial feed than the homemade feed. No mortality was recorded in all the six treatment during the experiments.

Broiler performance when fed on-farm versus commercial feeds

Finisher phase

Table 4 shows the growth performance of broiler finisher fed with homemade feed compared to those fed with commercial feed in terms of body weight. There was a significant difference (P>0.05) in the body weight, weight gain, and water/feed ratio in the birds fed with commercial feed compared to those fed with homemade feed. Feed intake was similar for both treatments. The birds on commercial feed had higher water/feed ratio of 4.06. There were significant differences (P<0.05) between the homemade feed and the commercial feed. No mortality was recorded during the experiments.

Table 5: Mean ± Standard Error (S.E.) of effects of feeding frequency on growth performance of chickens

Feeding frequency	N	Initial Weight (g)	TWG (g)	WWG (g)	ADG (g)
Twice Daily	48	37.35 ± 0.37	2859.6 ± 62.3a	285.96 ± 6.23a	40.85 ± 0.89a
Thrice Daily	48	36.69 ± 0.39	2743.1 ± 51.9b	274.31 ± 5.19b	39.19 ± 0.74b
Overall	96	37.02 ± 0.27	2801.4 ± 40.5	280.14 ± 4.05	40.02 ± 0.58

[ab]Means with different superscript within the same column are statistically different (P<0.05)
N = Sample Size, TWG (g) = Total Weight Gain, WWG = Weekly Weight Gain, ADG = Average Daily Gain

Table 6: Least Squares Analysis of Variance of effect of feeding frequency on growth performance of chickens

	df	Mean Squares Initial Weight	Mean Squares Final Weight	Mean Squares TWG	Mean Squares ADWG
Feed Frequency	1	35.60[ns]	1011066*	999102*	203.90*
Error	94	9.286	233625	233788	
Eta Squared (%)		40.19	34.53	34.22	34.22

* = P < 0.05; [ns]=P>0.05

Table 5 shows the Mean ± Standard Error (S.E.) of effects of feeding frequency on growth performance of broiler chicken in Uyo Local Government Area. The result revealed that the Initial weight of birds when assigned to the 12-hourly and 8-hourly feeding frequency ranged from 28g to 43g and 27g to 46g respectively with mean values and standard error of 37.35 ± 0.37 and 36.69 ± 0.39. The overall mean initial body weight was 37.02 ± 0.27g with a coefficient of variation of 10.52%. There was no statistical (P>0.05) difference in the initial weight of the four replicates, along the two treatment lines. This indicated that whatever difference is observed later in the study is due to differences in the treatments. The total weight gain in the study ranged from 1417g – 4408g with a coefficient of variation of 21.03%. The overall mean total weight gain in the entire study was 2801.4 ± 40.5. The source of variation on total weight gain is attributable to the effect of Twice daily (12-hourly) feeding recorded 2859.6g in total weight gain, while the thrice daily (8-hourly) had 2743.1g. Feeding frequency was significant (P<0.05) on total weight gain of broilers in this study (Table 6) accounting for 1.38% of the total variation observed in total weight gain. The twice daily feeding treatment outperformed the thrice daily treatment (Table 5) with 4.25 percent over and above the latter mean values.

Weekly weight gain in the eight-week period of the study ranged from 141.70g to 440.80g with an overall mean of 280.14 ± 4.05g and a coefficient of variation of 21.03% (Table 5). Weekly weight gain progressively increased up to the fourth week before a decline at the fifth and sixth week and it peaked again at the seventh week. The twice daily feeding frequency was superior at weekly intervals.

Feeding frequency was significant ($P<0.05$) on weekly weight gain of broilers in this study (Table 6) accounting for 1.37% of the total variation observed in weekly weight gain. Twice daily (12-hourly) feeding recorded 285.96g in weekly weight gain, while the thrice daily (8-hourly) had 274.31g (Table 5). There was a 4.25 percent superiority in weekly weight gain of the twice daily feeding frequency over the thrice daily feeding frequency (Table 5).

Twice daily (12-hourly) feeding recorded 40.85g in weekly weight gain, while the thrice daily (8-hourly) had 39.19g (Table 5). There was a 4.24 percent improvement in average daily gain of the twice daily feeding frequency over the thrice daily feeding frequency (Table 5). Feeding frequency was significant ($P<0.05$) on weekly weight gain of broilers in this study accounting for 1.37% of the total variation (Table 6).

Discussion

The reason that can be adduced to the superiority of the twice daily feeding frequency may be due to the fact that the larger portion allotted to the animals on each of the twice feeding was more to allow them feed to satiation and allow enough time to digest the feed before the next feeding (Spradley, Brown and McCartney, 2018). This 12-hourly feeding has the advantage of well-defined and clearly delineated period of feeding, digestion and resting of the birds, resulting in improved physiological processes and ultimately improved growth. This observation corroborates previous research on feeding frequencies who all reported that birds fed twice daily out performed those fed thrice daily (Vandegrift, Cravener, Hulet, and Roush, 2013).

Derivation of the weekly weight was predicated on the total weight gain and as such factors affecting the former will also affect the latter. There was progressive superiority of the twice daily (12-hourly) feeding method over the thrice daily (8-hourly) method throughout the weekly weight recordings, except for week 5 and week 7 where the later marginally recorded higher values. This is an indication that the twice daily method was superior at almost every stage of development of the birds. This corroborates previous research on feeding frequencies who all reported that birds fed twice daily out performed those fed thrice daily on weekly gain (Vandegrift, Cravener, Hulet, and Roush, 2013).

Calculated versus proximate analysis of experimental feeds – Broiler starter

The low Crude Protein values observed in the homemade and the commercial feeds for the proximate analysis contradicts the report given by Teguia and Beynen (2014) who reported that

the Protein values of the calculated analysis were lower than the proximate values. Crude Fiber in the homemade feed declined with increase in energy levels as expected. Surprisingly, the Crude Protein was similar in all the treatments.

Broiler performance (starter phase)

There was a significant (P< 0.05) difference in the growth performance of the birds across the treatments. The birds on the commercial feed performed better than those on the homemade feed. The superior performance observed in term of body weight, weight gain and feed/ gain ratio of the commercial feed may be due to the high energy level or bioavailability of the nutrients in these diets this is similar to the report of Leland (2012) who reported that feed quality affects the growth performance of chickens. This observation also agreed with Summer (2013), who reported that birds eat less of high density feed but perform better. The significantly higher water/ feed ratio observed on the birds fed on the commercial feed may be as a result of the high water intake since feed consumption is directly proportional to water intake. It may also be because of the pelletized nature of the feed; from observation the birds on the pelletized feed consumed more water during the period of the experiments.

Calculated versus proximate analysis of experimental feeds –finisher phase

Crude Fiber in homemade feed declined with increase in energy levels as expected. Surprisingly, the crude protein was similar in both treatments. The crude protein values observed in the proximate analysis are similar in both treatments and were close to the calculated values, this may be the reason for the similarity in feed intake observed among the birds the treatments. This contradict with Teguia and Beynen (2014) who reported that the Protein values of the calculated analysis were lower than the proximate values

Broiler Performance (finisher phase)

The birds on commercial feed (Pelletized) consumed more water this is similar to the observation made during the starter phase of the study, this may be the reason for the watery stool excreted by these birds this observation is in agreement with the report of Bland (2016) who observed that birds on pelleted feed void moisture-laden faeces. However, the poor feed /gain observed in the low energy diet in homemade feed also agrees with Steve (2014) who reported that low energy diets lead to poorer feed efficiency.

Also, the growth performance of the birds fed on the homemade feed was comparable to those fed on commercial diets despite the none inclusion of maize in one of the homemade feed. The reason could be that the on- farm feed is more fresh than the commercial diets. It is expected therefore to have unaltered nutrients particularly vitamins and amino- acids as against commercial feeds whose nutrients (vitamins and amino- acids) must have diminished or altered

through oxidation/ reduction reactions because of long period of storage before reaching the end users i.e. the poultry farmers.

Conclusions

Based on the findings of the study, the following conclusions were drawn. Both feed composition and feeding frequency play important roles in determining broiler growth performance. Commercial feed may lead to better growth performance compared to home-made feed, and twice daily (12-hourly) feeding treatment is superior to the thrice daily (8-hourly) feeding regime in all parameters studied. This may further enhance growth rates. These findings have implications for broiler farmers in Uyo Local Government Area, emphasizing the importance of selecting the right feed composition and feeding frequency to maximize growth performance and profitability.

Recommendations

1. On the basis of the conclusion drawn, the following recommendations are made.
2. Farmers should prioritize the use of commercial feed over home-made feed, as it has been shown to result in better growth rates and feed conversion ratios.
3. The twice daily feeding regimen should be encouraged in broiler production for improved growth parameters on one hand for reducing labour cost occasioned by the additional feeding on the other hand.
4. Broiler farmers in Uyo Local Government Area should consider feeding broilers two times a day with commercial feed to maximize growth performance and feed utilization efficiency.
5. Proper nutritional management, including regular monitoring of feed intake and body weight, is essential for ensuring optimal growth performance in broilers.
6. Future studies should explore the long-term effects of feeding frequency and feed composition on broiler health and productivity, as well as investigate other factors that may influence growth performance.
7. Continuous training and education programs should be provided to broiler farmers on best practices in feeding management to enhance productivity and profitability.

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