

Original Research Article

PERFORMANCE OF BROILER FINISHER FED DIETS CONTAINING VARYING CRUDE PROTEIN LEVELS

ABSTRACT

Performance of broiler finisher fed diets containing varying crude protein levels was determined. Diets were compounded and tagged T1, T2 and T3 with percent crude protein levels of 21, 23 and 25 respectively. Two hundred and ten (210) Ross 308 four (4) week old birds were randomly allocated into one of the three dietary treatment groups with 70 birds each and replicated seven times each replicate had 10 birds. Feed intake, water intake and body weight of the birds were determined and compared. Result of weight gain, feed conversion ratio were significantly different ($P < 0.05$), for all the treatment while feed intake, water intake, mortality showed no significant difference ($P > 0.05$). Feeding birds with crude protein level of 25%CP at finisher phase enhance their growth.

Key Words: Broilers Finisher, Diets, Crude Protein, Performance

Comment [SM1]: There should be comma after times

Comment [SM2]: Research like this, author must include the statement that tell us that the birds were exposed to similar treatment during their prestarter phase. Also there is need to include the cost per kg feed and cost per kg weight gain.

INTRODUCTION

High cost of feeding is the greatest problem of the Nigerian poultry farmers, feed cost represent over 66% of the total cost of production. (1) There are many reports that poultry feeding constitute about 70 – 80% of the recurrent cost of production, hence there is a need to utilize the alternative feed ingredients that are removed from human and ~~industria-industry interest~~ in order to reduce feed cost and cost of poultry products (1).

Compared to other livestock, poultry have by far the quickest and highest rate of turnover (2). Estimates from consumption and demand surveys in Nigeria indicate that the consumption of poultry meat is gradually out-stripping that of most other kinds of meat, ~~expect-except~~ beef (2). It is therefore not

26 surprising that funds invested in poultry production are recovered faster than any other livestock
27 enterprise.

28 Poultry are kept mainly as a source of meat and eggs. Chicken meat is very popular, being classified as
29 white meat with low cholesterol; thus making it superior to red meat health wise. The farmer has the
30 choice of producing broilers, layers, or day old chicks (3). Broilers are usually produced for meat, layers
31 for eggs and day old chicks for restocking of the farm (3). The traditional system of poultry rearing in the
32 tropics is characterized by small scale operation, low productivity of indigenous breeds, poor feed
33 conversion efficiency; as well as heavy parasitic and disease infections (4).

34 For any efficient production, nutrition is very important. Thus in any locality, it is important to determine
35 the optimum level of nutrients required for efficient production. In the north – west zone of Nigeria,
36 temperatures are high for most part of the year. This makes it necessary to determine the nutrients
37 requirements most suitable for this environment.

38 This work was aimed at evaluating performance of broiler finisher birds feed diets containing various
39 levels of crude protein, in terms of feed intake, water intake, body weight gain and feed conversion ratio.

40 **MATERIALS AND METHODS**

41 This experiment was conducted at the Sokoto State Veterinary Centre, Aliyu Jodi Road in Sokoto
42 Metropolis. Sokoto is located in the Sudan Savannah Zone, in North Western Nigeria, between longitudes
43 4°E and $6^{\circ}54'\text{E}$ and latitude $12^{\circ}\text{O}'\text{N}$ and $13^{\circ}54'\text{N}$ (5). The state has a total land area of 32,000 square
44 kilometers, with a population of 3,666,999 million people. The state is characterized by 3 – 4 months of
45 rainfall: from June to September or October, and 7 – 8 months dry season: from October to April. (5).

46 **Experimental Diets**

47 Three diets were formulated with different crude protein levels: 21%, 23%, and 25% designated as T_1 , T_2
48 and T_3 respectively. The diets contained same levels of energy and other nutrients. The gross and
49 chemical composition of the experimental diets is shown in table 1

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53 Table 1: Gross and chemical composition of the experimental diets

Ingredients	Treatments		
	T1	T2	T3
Maize	50.10	46.00	41.95
GNC	28.90	35.00	41.10
Wheat offal	17.60	15.70	13.75
Bone meal	2.00	2.00	2.00
Vitamin and mineral premix	0.25	0.25	0.25
Salt	0.35	0.35	0.35
Methionine	0.35	0.35	0.35
Lysine	0.45	0.36	0.28
Total	100	100	100
Chemical composition			
ME (Kcal/kg)	3000	3000	3000
Crude protein (%)	21	23	25
Lysine (%)	1.1	1.1	1.1
Methionine (%)	0.6	0.6	0.6
Ca (%)	0.8	0.8	0.8
Available phosphorus	0.5	0.5	0.5
Fibre	4.0	4.0	4.0

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55 **Experimental Birds**

56 Two hundred and ten (Ross 308) 4 weeks old chickens were used in the experiment. They were
57 randomly divided into three treatment groups of 70 birds each. Each treatment was further divided into 7
58 replicates with ten chicks per replicate. All the treatments were fed one of the experimental diets for four
59 weeks. Feed and water were offered *ad-libitum*.

60 **Data Collection**

61 Feed and water intake was recorded daily. Body weight gain and ratio was monitored weekly.

62 **Statistical Analysis**

63 The data collected were subjected to analysis of variance (ANOVA) using the Stat View Statistical
64 Package (6). Treatment means were separated by Duncan multiple range test of the same package.

65 **RESULTS AND DISCUSSION**

66 Initial live weights of the birds were 550.1, 588.2 and 648g/b for T1, T2 and T3 respectively ($P=0.05$). The
67 initial weights differed significantly because the birds were hitherto fed diets varying in protein levels (23,
68 25 and 27%CP for T1, T2 and T3 respectively). Thus, final body weight also increased 1,505g/b for T1 to
69 1859g/b for T3 ($P=0.05$) (table 1). Body weight gain also increased from 955g/b T1 to 1211g/b for T3.
70 Feed intake was however not significantly affected by the treatments, even though it increased slightly
71 with increasing levels of protein in the diets i.e from 84g/b/d for T1 to 88g/b/d for T3 (table 4.1). Water
72 intake followed a similar pattern as it increased slightly ($P=0.05$) from 209mls/b/d for T1 to 219mls/b/d.
73 ~~for~~ FCR was significantly better for T3 (0.54) followed by T2 (0.59) and T1 (0.65) ($P=0.05$). Mortality was
74 similar across the treatment (4.3%) ($P=0.05$).

75 Table 2: Performance of broiler finishers diets containing different levels of protein

Parameters	Treatments		
	T ₁ 21% CP	T ₂ 23%CP	T ₃ 25%CP
Initial weight (g/b)	550.079 ^b	588.173 ^b	647.983 ^a
Final body weight (g/b)	1504.777 ^a	1691.919 ^b	1858.999 ^c
Body weight gain (g/b)	954.699 ^a	1103.764 ^{bc}	1211.016 ^c
Total feed intake (g/b)	2349.048	2413.016	2473.33
Feed intake (g/b/d)	83.897	86.179	88.33
Total water intake (ml/b)	5863.190	5973.429	6140.857
Water intake (ml/b/d)	208.400	213.337	219.316
F.C.R	2.46 ^a	2.18 ^b	2.04 ^c
Mortality (%)	4.286	4.286	4.286

76 ^{abc} Means in the same row followed by different superscripts are significantly different ($P=0.05$).

77 In broilers, growth rate and feed utilization efficiency is greatly influenced by dietary protein level. The
78 result obtained in this study are similar to the earlier findings of (7) who reported increases in body
79 weights of broilers when the protein levels of the diets were increased from 17 (1, 402g/b) to 26% (1,
80 867g/b). (8) also reported that weight gain was responsive to dietary protein levels.

81 (9). Also reported that low CP levels in diets depressed body weight gain and (GFR) by 8 – 11%
82 ($P=0.05$). (10; 11) also concluded that the level of digestible protein in feed influences broiler weight gain.

83 (12) examined the effects of low protein diets having constant energy – to – protein ratio on the
84 performance of broiler finishers and reported that weight gain decreased linearly ($P=0.05$) whereas feed
85 intake and feed conversion ratio increased ($P=0.05$) linearly as dietary protein and energy decreased.

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87 This work is too shallow a single table. Number 2, the main issue that would have attracted the attention
88 of farmer was not even addressed. That is feed cost per kg and the feed cost per kg weight gain.

89 CONCLUSION

90 It is concluded that feeding 25%CP to at finisher phase positively influences the performance of broiler
91 finisher in the study area.

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