



EFFECT OF FOUR DIFFERENT COMMERCIAL FEEDS ON COCKEREL PRODUCTION

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Summary

The effect of four different commercial feeds sold in Minna, Niger State on cockerel production was studied. The feeds designated as diets 1, 2, 3, and 4 were fed to Anak Titan and their average feed intake, average weekly body weight were taken from nine (9) weeks of age for eight (8) weeks. These data were used to calculate the average body weight gain, feed conversion efficiency and production cost. Birds fed diet T3 and T4 had the highest average weekly body weight though without significant difference ($P > 0.05$). However, there were significant differences ($P < 0.05$) in body weight and body weight gain in T3 and T4. Better performance by birds fed diets T3 and T4 in all parameters observed suggest that T3 and T4 diets are more ideal for cockerel production.

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Introduction

Commercial cockerel production unlike broiler in Nigeria has been neglected despite its preference for tougher white table meat in some quarters. This can be attributed to little or no information and research work especially in area of nutrition and feeding cockerels in Nigeria.

Many factors have contributed to the profitability of the poultry industry, none can compete with the provision of the feed in the right quality and quantity (Babatunde, 1987). In recent times, because of the demand for finished feed couple with scarcity of ingredients, many commercial feed manufacturers have substituted large quantities of high quality ingredient for low quality ones. Salami (1999), reviewed the problem of deteriorating quality of commercial feed attributing it to both the farmers (in their non adherence and assumption of standard raw material specifications for feed formulation) and millers who in their feed formulation have no regards for ambient temperature change and non compliance with proximate composition of substitutes. All these combined to give rise to poor and substandard feed usually found in our markets.

This study was undertaken to evaluate the nutrient composition of some readily available commercial feeds sold in Minna, Niger State in relations with the production of cockerels.

Materials and Methods

This research work was carried out at the Teaching and Research Farm of the Animal Production Department, Federal University of Technology, Minna, Niger State. A total of 240 Anak Titan stain cockerel breed were fed 4 different commercial diets for 8 weeks. The birds were gotten from Fortune Ranch Mokwa. The birds

were randomly distributed into four (4) treatments and three (3) replicates of 20 birds per replicate. The commercial feed was gotten from commercial feed sellers in Minna Town. Feed and water were provided *ad libitum*. Additional heat from electricity was provided and concrete floor pen was used. The floor was covered with woodshaving as litter materials to keep the pen dry. All necessary vaccinations and preventive medications were administered at the appropriate time.

The birds were weighed at the start of the trial to obtain their initial weighs prior to investigation and weekly afterwards. Feed presented and leftover the following day were weighed. The difference was determined to realize the feed consumed. At the end of investigation, final body weight, body weight change, feed intake, feed conversion efficiency and production cost were determined. Data collected were subjected to analysis of variance (ANOVA) according to Snedecor and Cochran (1978) and where significant differences were detected, means were separated according to Steel and Torrie (1980)

Results and Discussion

The proximate composition of the diets (Table 1) showed that there were significant differences ($P < 0.05$) in percentage Dry matter (DM), crude fibre (CF), Ether extract (EE), ash and Nitrogen free extract (NFE). There was no significant difference ($P > 0.05$) in the crude protein (CP). There was no clear cut difference in the diets as there are variations in the proximate analysis. T2 had the highest dry matter which is significant ($P < 0.05$) from the other treatments. T3 had highest value in crude fibre and ash content and are significant different ($P < 0.05$). This can be attributed to variation in the quality of the feed ingredient included in the feeds by the millers as reported by Salami and Boorman (1999).

Table 1: Proximate Composition of The Diets Fed to The Cockerels

Parameter(%)	T1	T2	T3	T4	LS
Dry Matter	90.80 ^a	93.41 ^b	89.60 ^a	90.40 ^a	*
Crude Protein	14.14	14.25	15.41	15.83	NS
Crude Fibre	9.00 ^a	12.00 ^b	15.00 ^c	9.00 ^a	*
Ether Extract	10.00 ^b	15.00 ^c	6.10 ^a	4.30 ^a	*
Ash	13.30 ^a	38.45 ^a	18.30 ^b	14.00 ^a	*
Nitrogen Free Extract	44.36 ^b	38.45 ^a	34.78 ^a	47.27 ^b	*
Metabolizable (Kcal/kg)	2,500	2,600	2,800	2,800	NS

a, b = means in the same row with different superscripts differ significantly

** = Significant at 5% probability level, NS = Not Significant, LS = Level of significance*

Table 2 shows the apparent nutrient digestibility. There was significant differences ($P < 0.05$) in dry matter, ether extract only. There were no significant differences ($P > 0.05$) in CP, CF, ash and NFE. The CF digestibility is no significantly different among the treatments group, it is in line with the finding of Onwudike (1986) who related nutrient retention to crude fibre contents of the diets stating that the higher the crude fibre, the lower the digestibility.

Table 2: Apparent Nutrient Digestibility of Cockerel Fed Four Commercial Diets

Parameter(%)	T1	T2	T3	T4	LS
Dry Matter	58.07±0.06 ^b	59.60±0.17 ^c	57.00±0.17 ^b	58.00±0.06 ^b	*
Crude Protein	86.36±3.46	89.40±2.65	86.73±3.47	89.17±4.23	NS
Crude Fibre	11.87±5.31	11.85±12.64	26.20±10.41	16.07±11.14	NS
Ether Extract	81.03±2.48 ^c	81.03±3.00 ^c	71.20±4.16 ^b	64.97±8.31 ^a	*
Ash	73.33±2.52	71.73±4.69	73.73±1.23	73.33±3.46	NS
Nitrogen Free Extract	51.70±1.14	54.20±2.62	51.80±3.12	53.30±1.41	NS

a, b = means in the same row with different superscripts differ significantly

** = Significant at 5% probability level, NS = Not Significant, LS = Level of significance*

The performance characteristics of cockerels fed four different commercial diets as shown in Table 3 indicates significant differences in final body weight, body weight gain, average feed intake, feed conversion efficiency and protein efficiency ratio.

Table 3: Performance Characteristics of Cockerels Fed Four Different Commercial Diets

Parameter	T1	T2	T3	T4	LS
Initial body weight (g/bird)	546.67±4.72 ^a	583.33±38.19 ^a	525.00±0.00	615.33±50.08	NS
Final body weight (g/bird)	1222.00±13.23 ^a	1375.00±17.32 ^b	1490.00±13.23 ^{bc}	1545.00±12.31 ^c	*
Body Weight Gain (g/bird)	673.33±36.86 ^a	791.67±44.82 ^b	965.00±13.23 ^b	929.6±70.95 ^{bc}	*
Average Feed Intake (g/bird/day)	116.34±27.11 ^c	114.87±16.57 ^c	99.70±37.23 ^b	89.76±16.45 ^a	*
Feed Conversion Efficiency	1.21±0.07 ^c	1.02±0.08 ^b	0.73±0.04 ^a	0.72±0.04 ^a	*
Protein Efficiency Ratio	0.73±0.00 ^a	0.95±0.03 ^b	1.09±0.03 ^c	1.07±0.03 ^c	*

a, b = means in the same row with different superscripts differ significantly

** = Significant at 5% probability level, NS = Not Significant, LS = Level of significance*

The birds at the 10th week weigh between 1200-1545g. this shows that the cockerels reached market size at the end of the experimental period. Treatment 4 had the highest weight gain. This might be attributed to high energy value as seen in Table 1. Patrick and Schaible (1986) reported that as the energy value of feed increases the body weight gain also increase. The average feed intake was highest in T1, however, the highest body weight gain was in T3. The highest feed intake in T1 can be related to the form of the feed, T1 feed is pelleted. The cockerels were able to pick the feed whole unlike the other that were in mash form. This is in line with the report of salami (1999). The body weigh gain might be linked to the energy content of the feed. T1 had the least energy value while T3 and T4 had the highest as shown in Table 1. Ogunidipe (1987), reported that energy, protein efficiency ratio and form of feed contributed to the rate of consumption by birds.

The significant differences observed in the fed conversion efficiency might be due to better nutrient balance in these diets. Caharar *et al* (1987) reported that as the protein level of fed increases the body weigh gain also increase without proportional increase in feed intake, thus resulting in improving feed conversion efficiency. The protein efficiency was highest in T3 and T4 while T1 had the least.

Conclusion

The result obtained showed that different types of commercial feed in Minna affect the nutrient digestibility and performance of the birds. The final body weight gain, average feed intake, feed conversion efficiency, protein efficiency ratio were all affected by the type of the feed given to the birds.

References

Babatnde, G.M. (1987). The tottering Nigerian livestock sector, its problems and responsibilities. Inaugural Lecture, University of Ibadan, 5th June, 1987.

Cahaner, A. Dunnington, E.A. Jones D.E., Cherry, J.A. and Siegel, P.B. (1987). Evaluation of two commercial male lines, differing in efficiency of feed utilization. *Poultry science* 66:101-110.

Ogunidipe, S.O. (2002). Techniques for ration formulation for Poultry production in Nigeria. NAPRI, Zaria.

Onwudike, O.C. (1986). Palm kernel meal as feed for poultry/composition of palm kernel meal and availability of Amino acid to chicks. *Animal Feed Science Technology*; 16: 179-186.

Patrick, H. and Schiabile, P.J. (1986). Poultry feed and nutrition new edition AVI Publishing Company Inc., West Post, Connecticut. 2nd edition Pp23,73.

Salami, R.I (1999). The feed problems in poultry production in Nigeria. The way forward. *Nigeria Journal of Agriculture Education* (In Press)

Salami, R.I. and Boorman, K.N. (1999). Crude protein requirement of growing cockerels by diet dilution technique. *Tropical Journal of Animal Science* 1(2): 63-72.

Snedecor, G.W. and Cochran W.G (1978). Statistical Methods. The Iowa State University Press. Ames IOWA, 6th edition.

Steel, R.G.D. and Torrie, J.H. (1980). Principles and procedures of statistics; A biometric approach. 2nd Edition. MC Graw Hill Book Co. Inc. New York.