



PERFORMANCE INDICES OF RABBITS FED DIFFERENT PROTEIN SOURCES

¹Luka J.S*, ²Omiyale C., ³Goholshak P. M., ²Pam B. J, ⁴Asiruwa P. O, ⁴Adesope A. I, ⁵Akwashiki M.A.
and ¹Musa M. Y.

¹Department of Animal Production, University of Jos, Jos Plateau State, Nigeria

²Department of Animal Production Technology, Federal College of Animal Health and Production
Technology, N.V.R.I., Vom, Plateau State²

³National Veterinary Research Institute (NVRI), Rabbitary Unit, Vom Jos Plateau State, Nigeria
Department of Animal Science, University of Ibadan, Ibadan Oyo State, Nigeria⁴

⁵Department of Animal Science, Nasarawa State University, Keffi, Nigeria

Jsaboluka2013@gmail.com*

+2348069662059*

Abstract

The aim of this study was to investigate performance indices of rabbits fed different protein sources. Fifteen, grower mixed breed rabbits were randomly allotted to three dietary treatments in a completely randomized design. The experimental diets contained soyabean meal, groundnut cake and sesame seed meal, respectively as protein sources. The study lasted for eight weeks. Parameters recorded were; initial weight, final weight, feed served and feed refusal, while weight changes, average weight change/week, total feed intake, average feed intake/week and feed conversion ratio were calculated. Proximate analysis was carried out using standard procedures. Data were analysed using descriptive statistics and ANOVA at $\alpha_{0.05}$. Dietary treatments had significant effect ($P < 0.05$) on; final weight, weight change, average weight change/week and total feed intake. Rabbits fed diet containing soybean cake had the highest values for final weight, average weight change/week and total feed intake when compared to values obtained for rabbits fed groundnut cake and sesame seed-based diets, respectively. Better feed conversion ratio was observed for rabbits on soybean meal-based diet than those on groundnut cake and sesame seed meal. The proximate analysis is presented in Table 3, parameters analysed were not significantly different ($P > 0.05$).

In conclusion, sesame seed cake can be effectively used as source of protein in rabbit's diet when compared with both soybean and groundnut cakes.

Keywords: Sesame seed cake, soybean cake, groundnut cake, growth indices

Introduction

With increasing population, the rate at which humans depend on animals for protein is increasing (Biobaku *et al.*, 2003). Rabbits possess attributes that make them advantageous over other livestock species. Rabbits can be produced on forage alone, although production can be improved on by addition of other feed supplements. Rabbits are highly prolific and have a short gestation period (28-32 days). They are also good converters of feed, easy to care for and they require low capital investment in rearing (Biobaku *et al.*, 2003). There is dearth of information on performance of grower mixed breed rabbits fed diets containing different sources of protein. The aim of this study therefore was to evaluate performance of grower rabbits fed different protein sources.

MATERIALS AND METHODS

Experimental site:

The experiment was conducted at Rabbit Unit Division of National Veterinary Research Institute, Vom, Plateau State, Nigeria.

Experimental animals and management:



Fifteen grower rabbits of mixed breed were used for this study. The rabbits were weighed individually, randomly allotted to three dietary treatments with five replicates per treatment and rabbits were housed in individual metal cages. The experimental diets are presented in Table 1 with soyabean meal, groundnut cake and sesame seed meal as the dominant protein sources.. The rabbits were fed twice daily (morning and evening). The study lasted for eight weeks.

Table 1. Composition of experimental diets (g/100g diet)

Ingredients	T1	T2	T3
Maize	45.00	44.00	44.00
Soybean cake	18.00	0.00	0.00
Groundnut cake	0.00	18.00	0.00
Sesame seed cake	0.00	0.00	18.00
Wheat offals	15.00	15.00	15.00
Rice offals	17.00	17.00	17.00
Fish meal	1.00	1.00	1.00
Bone meal	2.25	2.25	2.25
Limestone	1.00	1.00	1.00
Common salt	0.30	0.30	0.30
Premise	0.25	0.25	0.25
Methionine	0.10	0.10	0.10
Lysine	0.10	0.10	0.10
Total	100.00	100.00	100.00
Calculated Analysis (%)			
Crude protein	15.85	15.98	15.75
Metabolizable energy	2524.10	2546.10	2553.48
Crude fibre	8.55	8.54	8.69

T1= Soybean cake , T2= Groundnut cake, T3= Sesame seed cake

Parameters measured

- Parameters recorded were; feed served, feed refusal, initial weight and final weight, while weight changes, average body weight change/week, total feed intake, average feed intake/week and feed conversion ratio were calculated.
- Proximate analysis was done using the methods described by AOAC (1990).

Experimental design and statistical Analysis

Experimental design was a completely randomized design and data obtained were subjected to analysis of variance using SAS (2010). Means were separated using Duncan's Multiple Range Test

Results and discussion

Presented in Table 2 are the selected performance indices of rabbits fed different protein sources. Dietary treatment had significant effect ($P < 0.05$) on; final weight, weight changes, average weight change/week and total feed intake. Rabbits on soybean cake based-diet had the highest values for; final weight, weight change, average body weight change/week and total feed intake when compared to rabbits fed groundnut cake and sesame seed meal. This result is similar to that obtained by Biobaku *et al.* (2003), who used soybean cake, groundnut bean cake and fish meal. The feed conversion ratio values of the rabbits in all the treatments were not significantly different. The proximate analysis is presented in Table 3. All parameters



analysed were not significantly ($P>0.05$). The results obtained in this result are in agreement with the results obtained by Biobaku *et al.* (2003). This could be due to fact that the protein sources used were all plant protein sources with almost similar chemical profile.

Table 2. Growth indices of rabbits fed different protein source

Parameters	T1	T2	T3	SEM
Final weight, (g)	1460.00 ^a	1370.00 ^b	1210.00 ^c	36.56
Weight gained (g)	710.00 ^a	570.00 ^b	460.00 ^c	36.17
Weight gained/week	88.00 ^a	71.25 ^b	57.50 ^c	4.56
Feed intake (g)	62.50 ^a	58.20 ^b	56.30 ^b	1.08
Feed Conversion Ratio	0.08	0.10	0.12	0.01

^{a,b,c} Means across rows with different superscripts differ significantly at $P<0.05$

Table 3. Proximate analysis of diets fed to rabbits using different protein source

Parameters (%)	T1	T2	T3	SEM
Ash	7.50	4.87	6.50	1.80
Moisture content	6.72	7.50	6.40	1.76
Ether extract	2.82	2.20	2.82	0.59
Crude fibre	4.50	4.52	4.60	0.58
Crude protein	17.20	17.39	17.10	0.58
Carbohydrate	45.10	45.10	46.20	0.61

^{a,b,c} Means across rows with different superscripts differ significantly at $P<0.05$

Conclusion

In conclusion, sesame seed cake can be effectively used as source of protein in rabbits' diet when compared with both the soybean and groundnut cakes.

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