

**NSAP****47th Annual Conference
(JOS 2022)****CONFERENCE
PROCEEDINGS**THEME
**SECURING ANIMAL
AGRICULTURE AMIDST
GLOBAL CHALLENGES****PERFORMANCE AND ECONOMIC IMPLICATIONS OF FEEDING DIFFERENT
TYPES OF FIBRE SOURCES TO WEANER RABBITS**

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ABSTRACT

A study was conducted to evaluate the performance and cost benefits of raising weaner rabbits fed with wheat offal, maize offal, and millet offal and rice bran. The study lasted for 56 days. Thirty two (32) weaner rabbits (mongered breeds) with an average live weight of 768.75-868.75g were allocated to the treatment diets with eight rabbits per treatment and two per replicate in a completely randomized design. Feed and water were provided to the weaner rabbits ad libitum. The results of total feed intake, daily feed intake, daily weight gain, total weight gain, not affected ($P>0.05$) by dietary treatments and feed conversion ratio were statistically analyzed and indicated that, the inclusion in the diets of rabbits supported no significant growth performance of the rabbits. Therefore, use of these offals at levels up to 30% in rabbit's diets should be encouraged. Millet offal seems to be the cheapest (₦193.55) among the test ingredients.

Keywords: Fiber Sources, Growth Performance, Economic Implication, Weaner Rabbits

INTRODUCTION

Rabbits are basically reared for meat, fur and wool production (TNAU, 2008). Rabbit production is very essential in improving animal protein intake in developing countries. This is because rabbit is very preferred as determined by the number of kits born alive at culling and birth to weaning viability (Orumuyi *et al*, 2006.) The feeding habit of rabbit offers no appreciable with man. This because it can subsist on green as based diets, the combination of these characteristic is unique. (Ajayi *et al*; 2005). Rabbit meat is highly nutritious, tasty and excellent in quality and it is rich in protein, low rate in fat, cholesterol and sodium and this can be recommended for cardiac patient (TNAU, 2008). Advantage of rabbit farming is enormous considering the fact that they can be fed with high forage, low grain diets that is largely non-competitive with human food they have high feed conversion efficiency. Rabbits have the potential to being in constant state of reproduction and can be mated within 24 hours of kindling and have high growth rate attaining market weight of about 2kg at 12 weeks of age (TNAU, 2008). The recommended policy is to identify and use locally available feed resources to formulate diets that are as balance as possible (Avege and bracket, 2002). The economization of feed cost using cheaper and unconventional feed resources is an important aspect of commercial rabbit production (Bhatt and Sharma, 2001, Muriu *et al*, 2002). Rabbits are efficient converters of feed to meat and can utilize 30% fibre as against 10% by most poultry species (Egbo *et al*, 2007). This strategy could help reduce the cost of production, and ensure cheaper meat production thereby making available major crops for human consumption. Alleviation of Poverty, attainment of food security and provision of adequate nutrition are some of the millennium development goals that Nigeria has to meet. Rabbit farming can be one effective object that can be used not only in Nigeria but also in Africa countries (Clifford, 2009). Therefore, the study was aimed to determine the performance and economic implication of feeding different types of fibre sources to weaner rabbits.

MATERIALS AND METHOD***Experiment site***

The experiment was carried out at the Nya Nya Housing Estate, Obasanjo Road Damaturu Yobe State. Yobe State lies between latitudes 11.74° North of the equator and longitude 11.96° east of the green which meridian. The prevailing climatic factor determined the rainfall range between 500 mm per annum in the south and 600 mm per annum in the extreme north (FAO, 2013) Yobe State is bordered with four State and Republic of Niger: Borno to the South East, Gombe and Bauchi to the West, Jigawa and Niger Republic to the North West (FAO, 2013).

***Management of experimental animals***

A total of thirty-two (32) 6-8 weeks old Weaner rabbit of mixed sexes from a Damaturu Sunday market and Yakubu Anjikwi farm were used for the study. Under an intensive system of management, the rabbits were housed two in wooden wire cage designed in such a way that allows easy removal of faeces, urine and feed remnant to avoid buildup of odour and pathogenic diseases. They were fed commercial ration during the first week of life in the experimental site for acclimatization with the environment. Feed and water were served *ad-libitum* for the experimental period of 8 weeks

Experimental procedure

In experiment thirty-two (32) weaner rabbits of both sexes with initial average body weight of 650-975g were randomly divided into four treatments of 8 rabbit each. The Rabbits were randomly assigned to four treatment diets which contain wheat, maize, millet offal and rice bran at 30% levels of inclusion. Each treatment was replicated four times with two Rabbits per replicate. The cages were located inside a building equipped with vents and windows for proper ventilation. Rabbits were provided feed and water *ad-libitum* twice daily in the morning and evening for 56 days of the experimental period. Rabbits were weighed at the beginning of the experiment and subsequently on weekly basis. Feed conversion were calculated from weigh gain and feed intake. Four diets were formulated. Diet 1 which served as a control contained wheat offal while, diet 2, 3 and 4 contained maize, millet offal and rice bran respectively at 30% inclusion (Table 1).

Table1: Percentage composition of the experimental diets

Ingredients	Treatments			
	T₁	T₂	T₃	T₄
Maize	22.39	22.39	22.39	22.39
Soybean	24.91	24.91	24.91	24.91
Wheat offal	30	-	-	-
Maize offal	-	30	-	-
Millet offal	-	-	30	-
Rice bran	-	-	-	30
G/Nut haulm	20	20	20	20
Bone meal	2.0	2.0	2.0	2.0
Salt	0.25	0.25	0.25	0.25
Promise	0.25	0.25	0.25	0.25
Methionine	0.10	0.10	0.10	0.10
Lysine	0.10	0.10	0.10	0.10
Total	100	100	100	100

Experimental design

The experimental design was completely randomized design (CRD)

Statistical analysis

Data collected were subjected to analysis of variance (ANOVA) as described by Steel and Torrie (1980).

RESULTS AND DISCUSSION

The proximate composition of wheat offal, maize offal, millet offal and rice bran used in the formulation of experimental diets are presented in table 2. Proximate analyses of the different fiber sources are presented in Table 2. Wheat offal had highest for crude protein than others, while rice bran had higher dry matter, crude fiber and ether extract. The result indicated that maize offal, millet offal and rice bran compared favorably with wheat offal as feed ingredient for ration formulation. No significant variations ($P > 0.05$) in performance of rabbits fed the dietary treatments (Table 3).



Table 2: Proximate composition of used offal and bran

Composition %	Wheat offal	Maize offal	Millet offal	Rice bran
Dry matter	88.69	88.97	89.64	89.73
Crude protein	15.09	11.68	11.09	6.50
Crude fiber	10.74	11.04	6.23	35.60
Ether extract	4.93	1.69	2.87	7.23
Ash	1.10	1.29	3.24	8.39

Table 3: Growth performance characteristic of rabbits.

Parameters	Treatments				SEM
	T ₁	T ₂	T ₃	T ₄	
Initial weight	768.75	868.75	825.00	843.75	38.23 ^{NS}
Total weight gain	468.75	762.50	538.75	370.63	228.99 ^{NS}
Final weight gain	1123.75	1218.8	1363.8	1214.4	48.28 ^{NS}
Total feed intake	4341.5	4551.4	4355.5	4515.5	96.17 ^{NS}
Daily feed intake	78.93	82.75	79.19	82.10	1.75 ^{NS}
Daily weight gain	8.52 ^{bc}	13.86 ^a	9.7 ^b	6.73 ^d	6.58*
Feed conversion ratio	9.26 ^b	5.57 ^c	8.08 ^{bc}	12.19 ^a	0.17*

SEM = Standard error of mean

Generally, rabbits on millet offal diets had numerical advantages of average final body weight (1363.8g) over rabbits on other offals. Rabbits on maize offal, millet offal and rice bran diets were also comparable to those on wheat offal (control) in terms of gain and total feed intake. However, there was significant effect of diet on feed conversion ratio ($P < 0.05$).

Table 4: Cost implications of feeding different types of fiber sources to rabbits. .

Parameters (kg)	Treatments			
	T ₁	T ₂	T ₃	T ₄
TFI (kg)	4.35	4.55	4.35	4.51
FC(₦)/kg	177.72	166.72	166.72	157.72
TFC(₦)	773.08	758.58	725.23	711.31
TWG(kg)	468.75	762.50	538.75	370.62
FC/kg weight gain/(₦)	210.19	251.19	172.27	235.52

TFI = Total feed intake FC = feed cost TFC = Total cost TWG = Total weight gain

The economic production of rabbit fed different types of fiber is presented in table 4. Cost per kg of the diet was slightly higher in T₁ (control) (₦177.72) than the other treatments, this was attributed to the high cost of wheat offal. This supported the work of Igwebuike, *et al.* (2013) who reported that cost of feed per kg depends on the prevailing price of the feed ingredients

CONCLUSION

Results from this study shows that up to 30% of maize offal, millet offal and rice bran can be successfully incorporated into the diet of rabbits without any adverse effect on growth performance. The use of these offal in commercial quantity when compounding diets for rabbits could also reduce cost of production and make rabbit products available at cheaper price. The use of millet offal reduced feed cost.

RECOMMENDATIONS

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It is recommended that maize offal, millet offal and rice bran could be fed to rabbits up to 30% level. The complementary nature of maize offal, millet offal and rice bran as sources of fiber in feeding rabbits in Nigeria can be encouraged as it does not affect growth performance. Millet offals reduced the feed cost (₦193.55).

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