ANIMAL RESEARCH INTERNATIONAL

Volume 4 Number 3 (2007)

An International Journal Publishing Original Research Involving the Use of Animals and Animal Products

ISSN: 159-3115

Website: zoo-unn.org

PERFORMANCE OF WEANER RABBITS FED *PANICUM MAXIMUM, CENTROSEMA PUBESCENS* AND *SIDA ACUTA* SUPPLEMENTED WITH POULTRY GROWERS MASH

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ABSTRACT

Sixteen Crossbred Weaner rabbits aged eight weeks made up of 8 males and 8 females with initial average weight of 650 ± 21.76 g were subjected to four dietary treatments namely Panicum maximum plus Poultry growers mash (T_1), Centrosema pubescens plus Poultry growers mash (T_2) Sida acuta plus Poultry growers mash (T_3) and Poultry growers mash alone (T_4) which served as Control. The experiment, which lasted for nine weeks, was aimed at comparing the performance of the rabbits fed different forages. The results indicated that there was no significant ($P > 0.05$) difference in weight gain among the treatment groups. However the group fed Centrosema pubescens recorded the highest numerical weight gain compared with the other groups. Total feed intake and feed conversion ratio of the rabbits fed Panicum maximum, Centrosema pubescens and Sida acuta were similar but significantly ($P > 0.01$) higher than for rabbits fed poultry growers mash alone. There were significant ($P<0.05$) differences in the total feed intake, total dry matter intake, feed conversion ratio and cost of feed per kg live weight gain among rabbits fed different forages. In conclusion, the results of the experiment indicated that all the forages could be used for the feeding of rabbits and that a better performance will be obtained if forages are supplemented with poultry growers mash.

Keywords: Rabbits, Forages, Supplements, Poultry growers mash, Utilization

INTRODUCTION

There is an acute shortage of animal protein in the diet of most Nigerians. This has been caused by the low supply and high cost of the conventional animal proteins such as beef, pork, mutton, goat meat, poultry, egg and milk. Among the farm animals in Nigeria, rabbits have been identified as the cheapest source of animal protein because of its prolificacy and short generation interval.

The gestation period is about 31 days and if properly managed a doe can produce 5 to 6 litters in a year with an average of 6 kittens per litter (Cheeke, 1986). Rabbits can be raised on forages alone, although growth can be improved by combining with agro by- products and kitchen waste (Aduku, 1988). Apart from the provision of nutrients, feeding of forages satisfies the chewing instinct of rabbits and promotes the overall growth of the animal. Some of the conventional forages used for feeding rabbits include *Panicum maximum, Purearia phaseloides, Centrosema pubescens, Mucuna cochinchinensis* and *Sida acuta* (Ugwuene, 2003). Most of these forages are found in abundance in arable farm environments. The objective of this research was to compare the weight gain, feed intake and feed conversion ratio of weaner rabbits fed *Panicum maximum*, *Centrosema pubesens* and *Sida acuta* supplemented with poultry growers mash.

MATERIALS AND METHODS

A total of 16 crossbred weaner rabbits consisting of 8 males and 8 females were used for the study. The animals were eight weeks old when they were housed with an initial average body weight of 650 ± 21.76 g. They were randomly assigned into four treatment groups as follows: *Panicum maximum* plus poultry growers mash (T_1), *Centrosema pubescens* plus poultry growers mash (T_2), *Sida acuta* plus poultry growers mash (T_3) and poultry growers mash only (T_4) control. Each treatment group was replicated twice with 2 rabbits per replicate. The rabbits in each replicate group were housed together in a wire mesh cage with a floor area of 0.4 m^2. For treatments T_1, T_2 and T_3 each rabbit received 200 g/day of the forage and 150 g/day of the poultry growers mash. For the control (T_4), each rabbit received 150 g/day of poultry growers mash only. Fresh drinking water was provided *ad libitum* throughout the experimental period of 9 weeks.

Proximate analysis of the forages and the poultry growers mash was conducted (AOAC, 1990). Data were collected on total feed intake, total dry matter intake, body weight, weight gain and feed conversion ratio. All the data collected were analyzed using one-way analysis of variance in a completely randomized design. Duncan's multiple range test (Duncan, 1955) was used to separate the mean where ANOVA showed significant difference.

RESULTS AND DISCUSSION

The proximate composition of the forages and poultry growers mash is presented in Table 1. The protein, fiber, nutrients and energy content of the forages and poultry growers mash tend to satisfy the nutrient requirements of the weaner rabbits for optimal growth (Champe and Maurice, 1993).

Table 1: Proximate Composition of the Forages and the poultry growers mash

Components	*Panicum maximum*	*Centrosema pubescens*	*Sida acuta*	Poultry growers mash
Dry matter (%)	46.83	30.75	27.75	99.00
Crude protein (%)	18.22	20.00	13.24	15.00
Ether extract (%)	2.80	2.30	3.40	0.90
Crude fibre (%)	29.54	23.14	18.16	15.31
Ash (%)	2.18	6.20	7.40	6.80
Nitrogen free extract (%)	34.90	40.90	57.59	65.10
Gross energy ME (Kcal/kg)	3.76	2.98	3.25	3.94

The percentage crude protein in *C. pubescens* was the highest, followed by *P. maximum*, poultry growers mash and *S. acuta* in that order. However, the crude fiber content of the P. maximum was higher than *C. pubsecens, S. acuta* and poultry growers mash. The crude protein value of *C. pubescens* (20.00 %) observed in this study falls within the range of 13 – 25 % for leguminous plants (Aduku *et al.,* 1986).

Table 2 showed the performance characteristics of the experimental rabbits. There was no significant difference (P > 0.05) in the weight gain of the rabbits subjected to the various dietary treatments.

Table 2: Performance characteristic of the experimental rabbits

Parameter	Treatment groups			
	I	II	III	IV
Initial live weight/(g)	650.00 ±28.86[a]	650.00 ± 84.16[a]	650.00 ±28.87[a]	512.50 ±37.50[a]
Final live weight/(g)	1522.00 ±72.84[a]	1630.00 ± 73.60[a]	1580.00 ±62.18[a]	1452.50 ±48.50[a]
Weight gain/(g)	872.50 ± 45.35[a]	980.00 ± 67.70[a]	930.00 ±68.56[a]	940.00 ±47.79[a]
Total feed intake (Forages + Conc. Kg)	13.00 ±0.07[a]	12.65 ±0.12[a]	10.75 ±0.15[a]	7.49 ±0.09[b]
Total dry matter intake (kg)	5.04 ± 0.01[a]	6.04 ±0.04[b]	5.23 ±0.04[a]	7.42 ±0.09[c]
Feed conversion ratio	0.06 ±0.003[a]	0.78 ±0.006[a]	0.087 ±0.006[a]	0.125 ±0.006[b]

[abc] *Mean value superscripted with different letters are significantly different (P<0.05)*

This suggests that the forages and poultry growers mash used for this experiment are commercially acceptable and had a nutritive value, which could be used for the feeding of rabbits. In this experiment, the weaner rabbits recorded a total weight gain of 872.50 g to 980.50 g in nine weeks.

This result is in agreement with the range of 10 – 20 g/day for weight gain of rabbits in the tropic (Lukefahr and Cheeke, 1990). From Table 2, it will be observe that rabbits fed *P. maximum* recorded the highest feed intake, followed by those *fed C. pubsecens, S. acuta* and poultry growers mash in that order. The higher feed intake of rabbits fed with *P. maximum* compared to other forages may be due to the higher crude fiber content of the diet. This is in line with the findings of Ugwuene (2003) and Sandford (1986) that growing rabbits adjusted their feed intake according to the energy and crude fiber content of their diet. The result of feed conversion ratio showed that rabbits fed with the three forages were not significantly different (P> 0.05) from each other. However, they were significantly (P > 0.01) superior to the rabbits fed with only poultry growers' mash. Table 3 showed the cost benefit analysis of rabbits fed different forages and poultry grower's mash. The result showed no significant difference (P>0.05) in the cost per kg feed among the four treatment groups. However, their daily feed intake differs significantly (P< 0.05) while the cost of feed consumed per rabbit per day in each group showed significant differences (P< 0.05). The cost of feed consumed in treatment 1 is statistically similar with those of treatments 2 and 3 but differ with that of treatment 4 (control). Treatment 4 had the lowest feed cost value of ₦199.9 per kg live weight gain as against those of T_3, T_2 and T_1 with values of ₦289.02, ₦322.76 and ₦372.76 respectively.

The higher cost of feed in T_1, T_2 and T_3 was as a result of the use of forages in their diets, which resulted to an increase in fibre content of the feed. The higher fibre content of the feed increased the feed consumption as well as the rate of passage of the feed in the gut. Rabbits like other monogastric animals always try to satisfy their energy need first. These findings agrees with the previous report (Ugwuene, 2003)

CONCLUSION

The results of the experiment indicate that all the forages used were acceptable to rabbits and can improve growth performance when fed with poultry growers mash.

REFERENCES

ADUKU, A. O. OKOH, P. N. NJOKU, P. C. ORJIOHIC, C. AGANGA, A. A. and DIM. N. I. (1986). Evaluation of Cowpea *Vignea ungunculata*) and Pea nut (*Arachia hypogaea*) used as feedstuff for weaning rabbits in a tropical

Table 3: Cost benefit analysis of rabbits fed different forages and poultry growers mash

	T_1	T_2	T_3	T_4
Average daily feed intake (g)	51.59 ± 0.07^{c}	50.19 ± 0.12^{c}	42.66 ± 0.15^{b}	29.72 ± 0.09^{a}
Average daily weight gain (g)	13.84 ± 0.12	15.55 ± 0.17	14.76 ± 0 .42	14.92 ± 0.27
Cost of feed (₦/Kg)	48.00	48.00	48.00	48.00
Cost of feed consumed (₦/day)	2.48^{a}	2.41^{ab}	2.05^{b}	1.43^{c}
Cost of feed per kg live wt. gain (₦)	372.76^{a}	322.76^{ab}	289.02^{b}	199.19^{c}

environment (Nigeria). *Journal Applied Rabbits Research, 9:* 178 – 180.

ADUKU, A. O. (1988). Feeding value of tropical forages and dry season feeding of rabbits. Pages 15 – 21. *In:* A paper presented at the National Rabbit Production Seminar Organized by Agricultural Extension Research Services, ABU Zaria.

AOAC (1990) Official Methods of Analysis 5th edition Association of Official Analytical Chemists, Washington D.C. USA

CHAMPE, K. R. and MAURICE, D. V. (1993). Research review on response of early-weaned rabbits to source and level of dietary fibre. *Journal of Applied Rabbits Research. 6(2):* 64 – 67.

CHEEKE, P. R. (1986) Rabbit nutrition and feeding: Recent advances and future prospects. *Journal of Applied Rabbits Research, 8(1):* 31 – 37.

CHEEKE P. R. (1990) Rabbit Nutrition and feeding: Recent advances and future prospect. J*ournal of Applied Rabbits Research, 8(1):* 25 – 31.

DUNCAN, D. B. (1955). Multiple range and multiple F-tests. *Biometrics, 11:* 1 – 42.

LUKEFAHR, S. D. and CHEEKE, P. R. (1990). Rabbit project planning strategies for developing countries II research applications. *Livestock Research for Rural Development, 2:* 35 – 48.

UGWUENE, M. C. (2003). Comparative Performance of weaned rabbits fed conventional and unconventional forages. Pages 333 - 335. *In: Proceedings Annual Conference of Nigerian Society for Animal Production.*

SANDFORD, J. C. (1986). *The Domestic rabbits*. 4th Edition, Collins, London.