

MON -20

Growth Response of Weaner Rabbits to Diets Containing Graded Levels of Palm Kernel Cake

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Abstract

The research work was carried out to evaluate the growth response of weaner rabbits to diets containing graded levels of palm kernel cake (PKC). A total of sixteen weaner rabbits of different sexes and mixed breed were randomly allotted to four (4) dietary treatments containing 0%, 5%, 10%, 15% levels of palm kernel inclusion given as T1, T2, T3 and T4 respectively. Growth parameters measured were: feed intake, final weight gain and feed conversion ratio. Results showed that there was no significant difference across dietary treatments in all the parameters measured. However, on the average, the final weight of the rabbits were higher in Treatment 2 (5%) compared to those on 10% and 15% palm kernel cake diets. Feed intake, average weight gain and feed conversion ratio values were slightly better in T 2 (5%) and T3 (10%). It was therefore concluded that palm kernel cake can be used up to 5% and 10% in the diet of weaner rabbits to enhance their growth.

Keywords: rabbit, palm kernel cake, feed intake, weight gain, feed conversion ratio

Introduction

In tropical and subtropical countries, one of the main constraints to the production of rabbit is the high cost of commercial feed. These balanced feeds are usually compounded with raw materials such as alfalfa, soya bean and corn, among others which can be substituted in nutritional and agronomic terms by others better adapted to tropical and subtropical environments and that are not required for human consumption. This problem has been the prime stimulants for the continuous search for alternative feed stuffs that can meet the nutritional requirements of micro-livestock, reduce the cost of feed and animal production.

Food and agricultural organization (FAO), has estimated an annual 50% to 70% growth rate of meat consumption. Such increase cannot be met easily by large animals because of long production cycle. They may however be met by short-cycle animals such as rabbits, poultry, and pigs. Poultry and pigs food source are in serious competition with man. Rabbits however, can be produced on forage alone, but production can be improved by the addition of other supplements (Biobaku *et al.*, 2003). Increased rabbit production could bridge the animal protein gap. Rabbit is also the perfect size for home consumption requiring no refrigeration, drying, curing or other means of preservation compared to meat of bigger animals. Rabbits are best known for being prolific and utilize fodder efficiently. They are able to breed year- round, have a quick generation interval which make them poised to provide animal protein to large number of low income earners (McNitt *et al.*, 1996). Palm kernel cake is a by- product from the palm –oil industry. It is readily available and of low cost. The production is not seasonal as the oil palm tree produce fruit year round. However, the peak of production falls between the months of March and May when seasonal protein meal source are scarce and expensive (Aduku *et al.*, 1988).

The research work was carried out to evaluate the growth response of weaner rabbits to diets containing graded levels of palm kernel cake

Materials and Methods

The experimental work was carried out at a private facility in Vom, Jos, Plateau State, with an altitude of about 4, 200ft (1280). The average rainfall is between 50 and 60 (1300 – 1500cm) and rainy season extends from late March to early October. The maximum daily temperature is 19.6, while the mean relative humidity at room varies between 14 and 74%. Sixteen (16) weaner rabbits of mixed breed and sexes were used for the experiment. The rabbits were housed in long wooden hutches partitioned into cages and were allowed an adjustment period of one week before the feeding trial commenced. They were given preventive dosages of antibiotics (Oxytetracycline) and dewormer (albendazole suspension) based on manufacturer's prescription.

At the beginning of the feeding trial, the rabbits were randomly allotted to four (4) dietary treatments of 0, 5, 10 and 15% inclusion levels of palm kernel cake given as T1, T2, T3 and T4 respectively. Each treatment consists of four rabbits replicated twice with two rabbits per replicate in a Completely Randomized Design (CRD). Percentage composition of experimental diets is shown in table 1. The rabbits were fed twice daily in the morning and evening and water was given *ad-libitum*. Feed stuff was obtained from feedstuff dealers in Bukuru, Jos South L.G.A of Plateau State, Nigeria. The rabbits were weighed weekly and data collected was used to compute the final weight gain. Feed intake was determined as the difference between feed offered and left- over while feed conversion was also calculated.

Data collected were subjected to analysis of variance using SPSS (16th version) and means were separated using fisher method. The experiment was conducted from May-July 2017 and lasted for four (4) weeks.

Table 1: Percentage composition of experimental diets

Ingredients	T1	T2	T3	T4
Maize	55.00	45.00	40.00	35.00
PKC	0.00	10.00	15.00	20.00
GNC	17.00	17.00	17.00	17.00
Wheat offal	12.00	12.00	12.00	12.00
Fish meal	2.00	2.00	2.00	2.00
Soya bean cake	10.0	10.0	10.0	10.0
Limestone	1.50	1.50	1.50	1.50
Bone meal	0.25	0.25	0.25	0.25
Premix	0.25	0.25	0.25	0.25
Salt	0.25	0.25	0.25	0.25
Total	100	100	100	100

Results and Discussion

Table 2 shows the proximate analysis of the experimental diets used for the feeding trial of weaner rabbits for the period of four (4) weeks. It can be seen that the composition of crude protein ranged from 20.05 – 21.15%. This is within the range reported by Aduku *et al.* (1988), when they did a comparative evaluation of palm kernel meal, peanut and sunflower meal in diets of weaner rabbits. Growth performance of rabbits fed different levels of palm kernel cake based diets is shown in table 3. There were no significant difference ($p>0.05$) across treatment diets in all of the parameters. The data obtained on average weight gain indicates that T1 diet (control) had the highest value of (0.31kg) while T4 had the lowest value of 0.16g. The result obtained on feed conversion ratio indicated no significant difference ($p>0.05$) but T3 (10%) had a better value of 2.10.

Table 2: Proximate composition of the experimental diets

Parameters	T1	T2	T3	T4
Dry matter	90.74	90.11	90.65	90.83
Crude protein	21.6	21.01	21.15	20.05
Ether extract	2.73	2.77	2.88	3.07
Ash	5.22	4.66	4.74	4.11
NFE	62.55	61.02	60.02	59.79

Table 3: Growth performance of rabbits fed different levels of palm kernel cake Based Diets

Parameters	T1	T2	T3	T4	SEM	LS
Initial weight (kg)	0.81	0.90	0.89	0.66	0.816	NS
Final weight (kg)	1.12	1.13	1.05	0.86	1.539	NS
Weight gain (kg)	0.31	0.22	0.19	0.16	0.223	NS
Feed intake (g)	51.25	56.25	56.95	51.85	54.070	NS
Feed conversion	2.10	2.90	2.10	2.11	0.0800	NS

SEM= Standard Error of Mean

Conclusion

The results of the present study revealed that palm kernel cake can be included in the diets of weaner rabbits, also rabbits can be fed up to 10-15% inclusion level of PKC to enhance their growth.

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