International Journal of Science, Environment and Technology, Vol. 6, No 3, 2017, 1796 – 1799

ISSN 2278-3687 (O)
2277-663X (P)

GROWTH PERFORMANCE OF BROILER RABBITS ON TREE FORAGE AS GREEN FODDER

Pasupathi, Karu, Gopi, H. and Muthusamy, P.
Post Graduate Research Institute in Animal Sciences
Kattupakkam-603 203, Kancheepuram District

Abstract: An experiment was conducted in New Zealand White breed of rabbits to study the growth performance of rabbits on tree fodder feeding. Thirty two weaned bunnies aged between seven to nine weeks were individually weighed and randomized into four treatments with eight replicates (four males and four females) in each. The dry matter intake of rabbits was met by feeding concentrate 50% level and green fodder 50 % level. The treatments were concentrate feed with *Desmanthus virgatus* as green fodder (T1). The T2, T3 and T4 groups received *Leucaena leucocephala*, *Erythrina indica* and *Artocarpus heterophyllus*, respectively instead of *Desmanthus virgatus.* The diet was made iso-nitrogenous by modifying the protein content in concentrate feed. The trial was conducted for eight weeks period. The overall average daily gain (ADG) observed in the treatment groups of T1, T2, T3 and T4 were 15.17 g, 11.25 g, 15.71g and 13.39g. The growth performance of rabbits on *Erythrina indica* tree fodder was found to be better than the leguminous green fodder *Desmanthus virgatus.* The *Leucaena leucocephala* and *Artocarpus heterophyllus* fed groups also showed a comparable growth performance. The feed conversion ratio in *Erythrina indica* fed group was lower than the *Desmanthus virgatus* group (4.27 vs 4.59). The dry matter intake and feed conversion ratio in *Leucaena leucocephala* and *Artocarpus heterophyllus* fed groups seems to be found higher; on cost of production it was economical. This study reveals that the tree fodder can be effectively utilized as fodder source for broiler rabbits to reduce the production cost.

Keywords: Broiler Rabbits, Tree fodder, forage utilization, growth performance, ADG.

Introduction

Rabbit production appears as an attractive proposition for the supply of high quality meat especially in India. In India most of the rabbit farmers are landless labourers rearing rabbits as backyard venture to meet their family protein demand. They are offering only vegetable waste available throughout the year at free/cheaper cost. Commercial rabbitry are scanty and feeding their rabbit with leguminous fodder like *Desmanthus virgatus* to obtain market weight of 2 kg at an early age. The utilization tree fodder will improve the weight gain compared to vegetable waste which predominantly consists of cabbage waste. More over, the tree fodders are available throughout the year in all parts of India. The rabbits are efficient converter of forage in to valuable animal protein compare to all other animals

*Received May 2, 2017 * Published June 2, 2017 * www.ijset.net*

(Anugwa *et al.,* 1982*)* Hence, the present study was carried out to assess the growth performance of rabbits on tree fodders such as *Leucaena leucocephala, Erythrina indica and Artocarpus heterophillus* and compared with the *Desmanthus virgatus* legume fodder.

Materials and methods

The animals for the study were taken from Rabbit Breeding Unit of Post Graduate Research Institute in Animal Sciences, Kattupakkam, Tamilnadu. Thirty two weaned bunnies of New Zealand White breed aged between seven to nine weeks were individually weighed and were randomized into 4 treatments with eight replicates (four males and four females) in each. The treatment groups were

T1 – Control group – Concentrate with *Desmanthus virgatus* (Hedge lucerne)

T2 – Concentrate with *Leucaena leucocephala* (Subabul leaves)

T3 - Concentrate with *Erythrina indica* (Kalyanamurungai leaves)

T4 - Concentrate with *Artocarpus heterophyllus (*Jack fruit tree leaves)

The quantity of feed offered will be based on the body weight. Rabbits normally consume 7 per cent of their body weight. In that, 50 per cent will be offered through concentrate and 50 per cent through tree leaves. Since the protein content is varying for different tree leaves, different concentrate feed are prepared with different protein content (11%, 16% and 26% Protein) in order to make the diet iso-nitrogenous (Table 1). Clean portable water was supplied for drinking and the water availability was ensured all the time. The data collected on various parameters were statistically analysed as per the method of Snedecor and Cochran (1989) and Duncan (1955).

Results and discussion

The proximate principles of *Leucaena leucocephala* (Subabul), *Erythrina indica* (Kalyanamurungai), *Artocarpus heterophyllus* (Jack fruit) leaves were analysed and are presented in Table 2. The *Erythrina indica* leaves having higher crude protein content (26.24 %) compared to *Leucaena leucocephala* (21.40 %) and *Artocarpus heterophyllus* (7.43 %).

The study on isonitrogenous diet with tree fodder (Table 3) reveals that the tree fodder *Erythrina indica* fed groups growth performance of rabbits were better than the *Desmanthus virgatus* fed group and the *Leucaena leucocephala* and *Artocarpus heterophillus* fed groups were lower than desmanthus fed group. The level of tree fodders included in this study was 50 % of dry matter. It was higher (50%) than the recommended level (40 %) for *Leucaena leucocephala* by Adejumo (2006), Nieves *et al.* (2002). El-Gali *et al.* (2001) recommended 15 % dried leaves of to *Leucaena leucocephala* in rabbit ration .But in this present study with

50 % no deleterious effect could be found. However, feeding more than five months caused loss of hair in facial region and all over the body of rabbits. The *Artocarpus heterophillus* tree leaves performances poor compared to desmanthus and other tree leaves may be due to higher cuticle thickness which in turn reflected in higher crude fibre level which could affect the digestibility. The decrease in crude fibre digestibility may be due to inhibited growth of cellulolytic caecal bacteria (Wang *et al.,* 2000). The performance of rabbits on *Erythrina indica* found to be better than the commercial rabbit farmers traditionally feeding *Desmanthus virgatus*.

Conclusions

It can be concluded from this study that *Leucaena leucocephala* and *Artocarpus heterophillus* tree fodders could be effectively recommended for feeding broiler rabbits for meat production in backyard venture. The *Erythrina indica* leaves could be used in commercial rabbitry.

References

[1] Adejumo, D.O. 2006. Performance and serum chemistry of rabbits fed graded levels of cassava peels, *Leucaena leucocephala* and *Gliricidida sepium* leaves based diet. *Global Journal of Pure and Applied Sciences.* 12 (2): 171-175.

[2] Anugwa F.O.I., Okorie, A.U. and Esomonu, A.F.M. 1982. Feed utilization and growth of rabbits fed three levels of protein and energy in the tropics. *Nigerian Journal of Nutrition*, 3: 109-114.

[3] Duncan, D. B., 1955. Multiple range and multiple 'F' test. *Biometrics,* **11:** 1-42

[4] El-Gali, K.A., Khalil, F.S. and El-Ganzoury. E.H. 2001. Utilization of Leucaena leaf meal by growing rabbits under the recently reclaimed areas. *Egyptian Journal of Rabbit Science*. 11: 151-165.

[5] Nieves, D., Silva, B., Teren, O. and Gonzalez, C. 2002. Increasing levels of *Leucaena lecucocephala* in fattening rabbits diets. *Reviosta Cientifica, Facultad de Ciencias Veterinarias, Universidad del Zulia*, 12 (Supplemento 2): 419-421.

[6] Snedecor, G.W. and W.G. Cochran, 1989. Statistical Methods. 8th edn, Iowa state University Press, Ames, USA. Iowa – 50010

[7] Wang Y, MC Allister, LJ Yanke & PR Cheek. 2000. Effect of steroidal saponin from Yucca schidigera extract on ruminal microbes. *Journal of Applied Microbiology*. 88(5): 887-896.

Table 1: Nutrients (per cent) in concentrate feed

Ingredients	Concentrate feed for *Erythrina indica* fed group	Concentrate feed *Artocarpus heterophyllus* fed group	Concentrate feed for *Leucaena leucocephala* fed group
Crude Protein	11.86	26	16.25
Digestible Energy (kcal)	2562	2600	2550
Calcium	1.02	0.7	1.1
Available Phosphorus	0.60	0.45	0.67

Table 2: Proximate Principles in tree fodder

Sl. No.	Proximate Principles	*Erythrina indica* (Kalyanamurungai)	*Artocarpus heterophyllus* (Jack fruit)	*Leucaena leucocephala* (Subabul)
1	Crude Protein (%)	26.24	7.43	21.40
2	Crude Fibre (%)	6.51	17.78	10.01
3	Ether Extract (%)	5.59	3.36	7.52
4	Total Ash (%)	9.19	17.70	8.80
5	Gross Energy (kcal/kg)	4014	3319	4091

Table 3: Growth Performance of rabbits in tree fodder feeding (Mean±SE)

	Conc. + Desmanthus	Conc. + Subabul	Conc. + Kalyanamurungai	Conc. + Jack fruit tree leaves
Initial weight (kg)	0.92±0.05	0.93±0.05	0.93±0.04	0.93±0.05
Final Weight (kg)	1.77^{b}±0.09	1.56^{a}±0.08	1.81^{b}±0.09	1.68^{a}±0.07
Weight Gain (g)				
First Biweekly weight gain	239.75±9.41	209.75±16.48	241.87±9.98	232.13±9.93
Second Biweekly weight gain	160.38^{ab}±7.26	134.25^{b}±10.51	184.00^{a}±9.42	142.63^{b}±8.57
Third Biweekly weight gain	143.50^{b}±9.62	99.00^{a}±8.64	157.00^{b}±8.29	110.50^{a}±7.01
Fourth Biweekly weight gain	134.88^{b}±10.67	87.37^{a}±2.16	137.13^{b}±4.31	98.87^{a}±9.14

Each value is the mean of eight observations

Mean bearing at least one common superscript within a row do not differ significantly ($P<0.05$)