

Growth, Feed Efficiency and Health Performance of Soviet Chinchilla Rabbit Fed With Different Levels of Cole Leaves under Subtropical Hill Ecosystem of Meghalaya

P. K. Bharti¹, M. H. Khan², Champak Barman³, G. Kadirvel⁴, Suresh Kumar⁵,
R. Basumatary⁶, S. Doley⁷ and G. Khargharia⁸

1. Scientist, 4. Sr. Scientist, 5. Principal scientist, 6. Scientist, 7. Sr. Scientist and 8. Veterinary Officer,
Division of Livestock Production, ICAR RC for NEH Region, Umiam (Meghalaya);
2. Sr. Scientist, NRC on Mithun, Jharnapani, 3. Asst. Professor, C.V.Sc., Khanapara,
Corresponding author e-mail: pkish.1002@gmail.com

ABSTRACT

The present experiment was conducted at Rabbit Farm, Division of Livestock Production, ICAR Research Complex for NEH Region, Umiam (Meghalaya) with thirty Soviet Chinchilla (SC) rabbits (at two months of age) in order to assess their growth, feed efficiency and health performances after feeding them with different levels of locally available cole crop leaves. The experiment was conducted for a period of 90 days and the animals were randomly divided in to five groups consisting 6 in each. The respective groups were designated as Control (C), Treatment-1 (T-1), Treatment-2 (T-2), Treatment-3 (T-3) and Treatment-4 (T-4), respectively. The animals of control & T-1, T-2, T-3 and T-4 groups were fed with concentrate feed mixture & cole crop leaves, respectively during the study period. It can be concluded from the present experiment that overall body weight gain was found to be significantly higher ($P < 0.05$) in control group than T-4 group; however it was not significant with T-1, T-2, and T-3. Feeding cost per kg weight gain was higher in control followed by T-1, T-2, T-3 and T-4 groups. Growth performance and feed efficiency was found to be highest in T-2 group, thus inclusion level of cole leaves up to 30 percent could be more beneficial in terms of feeding cost for rearing the broiler rabbits among the poor farmers.

Key words: Cole crop leaves, concentrate feed, rabbit, Soviet Chinchilla;

North-East (NE) region of India has been identified as one of the highest meat consuming zones of the country, where there is huge gap between demand and supply of meat and meat products. Rabbit (*Oryctolagus cuniculus*) has been introduced in this region as a “micro livestock” to produce meat for household consumption. Broiler rabbit is one of the most prolific breeders among the livestock species and its meat is as nutritious as chicken and can serve as an excellent source of meat apart from the primary meat producing animals of this region like pig, goat, cattle and poultry (Das et al. 2006; Ghosh et al. 2008) and also has low cholesterol content in their meat, giving more importance for heart patients to whom meat of other species are generally not recommended to consume (McCroskey 2000). In spite of having less space requirement, high production and reproduction potential of broiler rabbit, its rearing has not got much tremendous popularity among the poor

farmers due to high feeding cost (Bhatt et al. 2010). Thus, it is essential to find out the optimum level of including unconventional feed and to reduce the feeding cost for economic production of broiler rabbits in the region. Study of broiler rabbits under different agro-climatic zones of India is very scanty. Therefore, present experiment was conducted to investigate the optimum inclusion levels of non conventional locally available feeds (Cole leaves) in the diet of Soviet Chinchilla (SC) rabbits and its effect on their growth, feed efficiency and health performances reared under subtropical condition of Meghalaya.

METHODOLOGY

The present experiment was conducted at Rabbit farm, Division of Livestock Production, ICAR Research Complex for NEH Region, Umiam (Meghalaya) with thirty Soviet Chinchilla (SC) rabbits in order to assess

their growth, feed efficiency and health performances after feeding them with different levels of locally available cole crop leaves. The experiment was conducted for a period of 90 days and the animals were randomly divided in to five groups consisting 6 in each. The respective groups were designated as Control (C), Treatment-1 (T-1), Treatment-2 (T-2), Treatment-3 (T-3) and Treatment-4 (T-4), respectively. Each rabbit was housed in individual cage with dimension 2.5' x 2' x 2.5' kept in a well ventilated shed. All cages were equipped with feeders made up of stainless steel. The group C was solely fed on concentrate feed mixture @ 60 g, 80 g and 100 g daily (in two divided doses) during 1st, 2nd and 3rd months of feeding trial, respectively. The crude protein and net energy content of concentrate mixture fed to the experimental rabbit was 22.33 percent and 3.49 ME/kg, respectively. The composition of the used concentrate mixture has been presented in the table 1. The other groups viz. T-1, T-2, T-3 and T-4 were given cole crop leaves with different levels @ 20%, 30%, 40% and 50%, respectively of total feed intake on dry matter basis. Fresh and wholesome drinking water was given ad libitum.

Table 1. Composition of concentrate mixture

Feed ingredients	Part (%)		
Maize	32	GNC	15
Wheat bran	25	Soya meal	10
Rice Polish	15	Mineral mixture	2.5
Salt	0.5		

The body weights of rabbits were recorded on electronic balance at weekly interval, before offering feed and water to them. The amount of feed offered and residues left was recorded for each animal and feed intake was calculated for roughage and concentrates offered to the animals. The total dry matter intake (DMI) was calculated based on dry matter (DM) content of feeds (AOAC 1980) (concentrate and roughages) on daily basis. Feed efficiency was calculated as weight gain in kg per kg DMI. The animals were examined properly during the study period. The data obtained from the experiment during the study period were analyzed statistically as per the method described by *Snedecor and Cochran (2007)*.

RESULTS AND DISCUSSION

The initial average body weight (kg) of rabbits (at two months of age) in groups C, T-1, T-2, T-3, and T-4 were recorded as 0.79± 0.01, 0.87 ± 0.04, 0.91 ± 0.02,

0.93 ± 0.01 and 0.93 ± 0.05, respectively. The initial body weight of control and T-1 groups were found to be significantly higher (P<0.05) as compared to the values recorded in T-2, T-3 and T-4 groups. The final body weights (kg) for the respective groups of rabbits (at five months of age) were recorded as 2.20 ± 0.02, 2.13 ± 0.11, 2.26 ± 0.05, 2.23 ± 0.02 and 2.16 ± 0.02, respectively (Fig.1). Analysis of variance revealed no significant differences between the respective groups in respect of final body weight recorded at five months of age. The total body weight gain (kg) was found to be significantly higher (P<0.05) in control group (1.40 ± 0.01) than the value recorded in T-4 group (1.23 ± 0.04), however it was not significantly different from other groups viz. T-1 (1.26 ± 0.09 kg), T-2(1.35 ± 0. 05 kg), and T-3 (1.30 ± 0.01 kg). Highest total gain in body weight recorded in control group of animal could be attributed to higher amount of proteins intake or increased amino acid utilization through sole feeding of concentrate ration in Soviet Chinchilla rabbits (*Bhatt 2010*). The findings recorded in the present experiment in respect of total body weight gain (kg) were in close agreement with the earlier report of *Singh et al. 2006*.

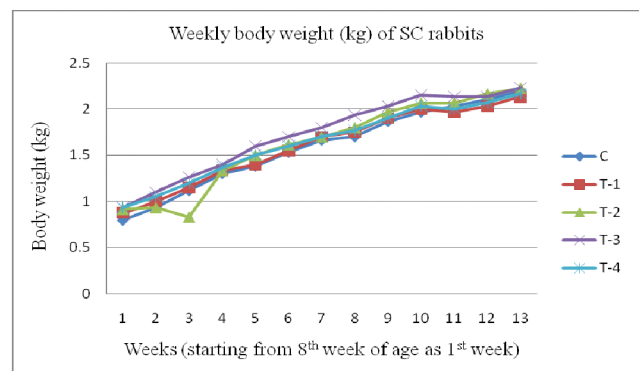


Fig.1: Weekly body weight of rabbit (kg) from 8th weeks to 20th weeks of age

Among the treatments groups, T-2 group showed better growth performance (Fig. 2) which could be due to better utilization of forage up to 30% levels along with subsequent reduction in concentrate level as per the feeding schedule (*Gupta et al. 1995*).

The overall dry matter intake (kg) recorded in control, T-1, T-2, T-3, and T-4 groups were as 6.72 ± 0.00, 6.38 ± 0.00, 6.21 ± 0.00, 6.04 ± 0.00 and 5.88 ± 0.00, respectively. Analysis of variance revealed no significant differences among all the groups in respect of dry matter intake (kg). The highest dry matter intake in control group might be due to high dry matter content

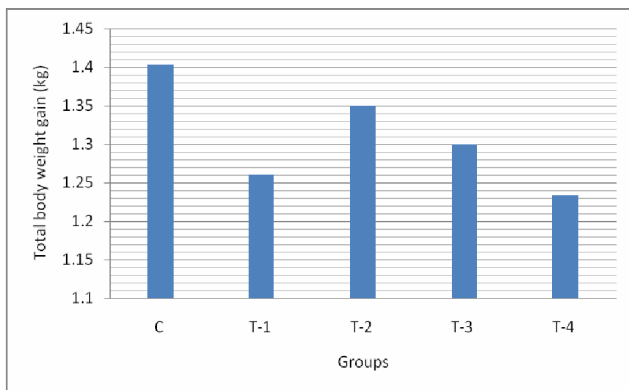


Fig.2: Total body weight gain of rabbit (kg)

of concentrate ration followed subsequently by T-1, T-2, T-3 and T-4 groups which were fed on lower concentrate levels (Prasad *et al.* 1999). The feed efficiency (weight gain in kg per kg dry matter intake) recorded in the present experiment was found to be apparently higher in T-2 group (0.217 ± 0.00) followed by T-3 (0.214 ± 0.00), T-4 (0.209 ± 0.00), C (0.208 ± 0.00) and T-1 (0.197 ± 0.01) groups but statistically, no significant differences were observed among the groups in respect of feed efficiency. Highest feed efficiency recorded in T-2 group (Fig.3) might be due to better growth rate by lower intake of dry matter content in the

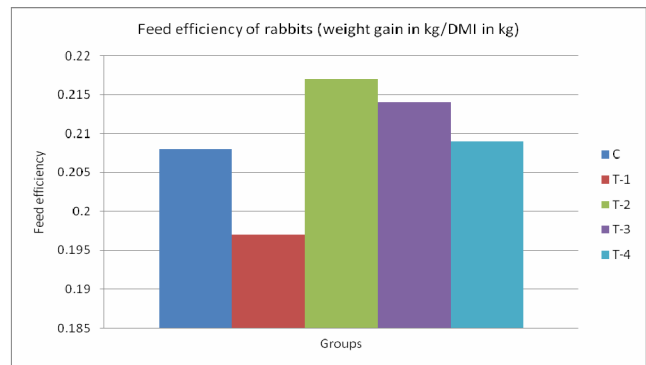


Fig.3: Feed efficiency (body weight gain in kg per kg dry matter intake)

ration (Deshmukh and Pathak 1995).

CONCLUSION

From the present study it could be concluded that broiler rabbit can be raised on low cost feeds without affecting their growth and health performance. Feeding management of rabbit by partial replacement of concentrate with 30 percent local fodder could yield better result this practice would be more beneficial to the resource poor farmer of this region of the country.

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