



Evaluation of New Zealand White and Soviet Chinchilla Breeds of Rabbit in South Garo Hills, Meghalaya, India

Rupam Bhattacharjya, Athokpam Haribhushan, Thongam Monika Devi,
Bishorjit Ningthoujam and Amarjit Karam

Krishi Vigyan Kendra, South Garo Hills, Chokpot, Meghalaya, CAU, Imphal

ABSTRACT

Krishi Vigyan Kendra, South Garo Hills conducted on farm trials (OFT) at three villages during 2019-20 where New Zealand White (NZW) and Soviet Chinchilla (SC) breeds of broiler rabbit were introduced. Altogether 10 demonstration units were laid out having one male and two females in each unit. The groups were fed with pelleted feed (Crude protein 15%) and greens (*ad libitum*). The quantity of feed offered and leftover was recorded on daily basis. It was found that the average age at first kidding, number of kidding per doe per year, litter size per kidding per doe and litter size at weaning per kidding per doe for New Zealand White (NZW) rabbit were 211.85 ± 0.45 , 6.00 ± 0.18 , 6.2 ± 0.29 and 4.25 ± 0.29 , respectively and the corresponding values for SC breed of rabbit were 212 ± 0.45 , 6.10 ± 0.19 , 6.1 ± 0.29 , 4.5 ± 0.36 . The mean body weight of NZW at the age of weaning (4th wk) and at slaughter age (13th wk) were 249.29 ± 1.88 g and 1271.50 ± 8.99 g respectively and the parallel values for SC were recorded as 251.33 ± 1.77 g and 1273.19 ± 2.99 g. Similarly, the body weight gain of NZW and SC rabbits at 5th week and 13th wk were 192.38 ± 2.02 g, 93.63 ± 6.34 g, 205.01 ± 2.43 g and 92.88 ± 3.07 g. The body weight and body weight gain that has been observed from 4 to 13 wk in both, NZW and SC suggested that there was no significant difference between the breeds. The average quantity of weekly feed consumed per animal from 4th to 13th wk in NZW was 316.57g and figures for SC was found as 300.68g. The amount of weekly feed consumed in both the breeds did not differ significantly. The average weekly feed conversion ratio (FCR) per animal in NZW was 3.49 and for SC was 3.34. The average FCR in both the breeds did not differ significantly. It was observed that both the breeds performed well in South Garo Hills district of Meghalaya with basic management practices.

Key Words: New Zealand White, Rabbit farming, Soviet Chinchilla.

INTRODUCTION

Rabbit was introduced in North eastern part of India by ICAR research institute for NEH region as meat producing animal in the year 1985. As the per capita productivity of land has some threshold limit, so to maximize the production in developing countries like India all practical options must be considered and estimated. Broiler rabbit is an important contributor of animal protein to assure food security because of its ability to produce high quality meat. It has now been established that the production of 1 kg of rabbit meat requires only 25 per cent of food energy needed to produce the

same amount of lamb or beef and only 70 percent of the food required for the equivalent quantity of pork. Large ruminants cannot solve the extensive shortage of meat, as they require more space to landless and marginal farmers. Also Small animals like sheep and goat require pastureland, which is also limited due to urbanization.

Pigs and poultry compete with human beings for nourishment. So rabbit is the most potential and therefore more emphasis has been given on its production in this region. Its high reproductive rate, shorter pregnancy period, faster weight gain, early sexual maturity, ability to breed any time of the

year, yield of more than one product has brought this micro livestock into limelight. Further, under the changing need of the hour, some countries have developed highly specialized rabbit industry. It has been observed that a single doe can add 20 to 40 kg of dressed meat at 90d, 20-40 numbers of fur skins or 1.5 to 3.0 kg of fine wool per doe per year (Das *et al*, 2002). Rabbit can play a major role in enhancing animal protein production in developing countries due to its various biological advantages. Small-scale rabbit units can produce meat for the family by using weeds, natural grasses and leaves of trees and crop by-products as well as kitchen wastes as a source of feed. Small body provides small carcass that can be consumed by a family in one meal eliminating the need for storage, so rabbit may be termed as Biological Refrigerator. As competition between human and livestock for grains intensifies, rabbit will have an economical advantage over swine and poultry, since these animals cannot be raised on high roughage diet or diets that do not contain grain. The ability of the rabbit to convert forage into meat efficiently will be of special significance in developing countries like India. Rabbit meat is richer in protein, certain minerals like calcium and phosphorous and vitamins like nicotinic acid, calcium pantothenate.

Though it has not made an impact in the meat industry in India, there is tremendous scope for popularizing rabbit meat. In India, the production of rabbit meat had not reached any marked stage. In India Tamil Nadu is the premier state in rabbit farming. The breeds mainly reared in India are crosses of New Zealand White, Soviet chinchilla and Dutch crosses. Rabbit being an animal of temperate climate, is adopted well on the North Eastern Region, particularly in the hilly regions. No other animal can be kept in a space of approximately one square meter and produce eight to ten times its own weight in meat in one year. No religious rules prohibit its consumption, in general. Rabbit provide continuous provision of protein in the form of fresh meat.

MATERIALS AND METHODS

Krishi Vigyan Kendra, South Garo Hills conducted on farm trials (OFT) on introduction of broiler rabbit at Chokpot C&RD block, South Garo Hills, Meghalaya during 2019-20. New Zealand White (NZW) and Soviet Chinchilla (SC) breeds of broiler rabbit were introduced in three villages *viz.*, Chokpotgre, Dagalgopgre and Dobogre of the district. Altogether 10 demonstration units (Five NZW units and five SC units) were laid out having one male and two females in each unit. Low cost rabbit hutches were prepared using locally available bamboos by the farmers. The hutch is divided into three compartments for keeping the three rabbits (1M+2F) individually.

The requirement of feed was assessed initially by actual feeding trial. There after feed requirement was assessed at weekly interval. Rabbits were fed with pelleted feed (Crude protein 15%) in the morning and greens (*ad libitum*) in the evening. The quantity of feed offered and leftover was recorded on daily basis. They were provided with clean water round the clock. Management practices were similar in all the groups. Deworming was carried out with fenbendazole @ 5mg/kg-body weight once in three months and preventive dose of coccidiostat was given with 1% coccinil @ 1ml /l of drinking water for three consecutive days on monthly basis. For mating, female is transferred to the male and after successful mating it is again return back to its original compartment. Age at first kidding, Litter size per kidding, litter size at weaning, body weights of weaner rabbits from the day of weaning and thereafter at weekly interval up to slaughter age of 13 wk were recorded. From the obtained data total body weight gained and FCR were calculated. The data were analysed statistically as per method described by Snedecor and Cochran (1994).

RESULTS AND DISCUSSION

From Table 1 it was found that the average age at first kidding, number of kidding per doe per year, litter size per kidding per doe and litter size

Evaluation of New Zealand White and Soviet Chinchilla Breeds of Rabbit

Table 1. Reproductive parameters of NZW and SC.

Parameters	NZW	SC
Average age at first kidding (days)	211.85±0.45	212±0.45
Number of kidding per doe per year	6.00±0.18	6.10±0.19
Litter size per kidding	6.2±0.29	6.1±0.29
Litter size at weaning	4.25±0.29	4.5±0.36

(Average ± Standard Error)

at weaning per kidding per doe for New Zealand White (NZW) rabbit were 211.85±0.45, 6.00±0.18, 6.2±0.29 and 4.25±0.29, respectively and the values for SC breed of rabbit were 212±0.45, 6.10±0.19, 6.1±0.29, 4.5±0.36. Statistical analysis showed no significant difference between the breeds. The findings of said parameters were in agreement to the findings of Das *et al* (2005).

The mean body weight of NZW at the age of weaning (4th wk) and at slaughter age (13th week) were 249.29±1.88g and 1271.50±8.99g, respectively and the parallel values for SC rabbit were recorded as 251.33±1.77g and 1273.19±2.99g. Similarly, the body weight gain of NZW and SC

rabbits at 5th wk and 13th wk were 192.38±2.02g, 93.63±6.34g, 205.01±2.43g and 92.88±3.07g, respectively. The body weights and body weight gains that has been observed from 4 to 13 weeks in both, NZW and SC breeds suggested that there is no significant difference between the breeds. Princz *et al* (2008) and Kumaresan *et al* (2011) also reported that both New Zealand white and Soviet Chinchilla rabbit performed in a similar way and there was no significant difference among them.

The average quantity of weekly feed intake on dry matter (DM) basis, body weight gain and feed conversion ratio for NZW and SC breed of rabbit is presented in Table 3. The average quantity of

Table 3. Weekly feed intake and FCR per animal (on DM basis).

Age (Week)	NZW			SC		
	Body weight gain (g)	Feed Intake(g)	FCR	Body weight gain (g)	Feed Intake(g)	FCR
5th week	192.38	245.45	1.28	205.01	214.45	1.05
6th week	266.52	260.45	0.98	253.97	226.45	0.89
7th week	60.81	267.84	4.40	60.38	237.84	3.94
8th week	71.31	298.90	4.19	69.43	291.90	4.20
9th week	77.13	301.37	3.91	79.19	290.37	3.67
10th week	80.81	315.79	3.91	80.75	325.79	4.03
11th week	88.44	355.79	4.02	88.56	345.79	3.90
12th week	91.18	387.79	4.25	91.69	367.79	4.01
13th week	93.63	415.79	4.44	92.88	405.79	4.37
Average	113.58	316.57	3.49	113.54	300.68	3.34

Table 2. Weekly body weights and body weight gains (in gram).

Breed	4 th week	5 th week	6 th week	7 th week	8 th week	9 th week	10 th week	11 th week	12 th week	13 th week
NZW (Body wt.)	249.29± 1.88 ^a	441.67± 2.02 ^a	708.19± 7.58 ^a	769.00± 7.14 ^a	840.31± 7.35 ^a	917.44± 7.36 ^a	998.25± 7.16 ^a	1086.69± 7.81 ^a	1177.87± 8.41 ^a	1271.50± 8.99 ^a
SC (Body wt.)	251.33± 1.77 ^a	456.34± 2.32 ^a	710.31± 3.06 ^a	770.69± 2.95 ^a	840.12± 2.92 ^a	919.31± 3.13 ^a	1000.06± 3.28 ^a	1088.62± 3.17 ^a	1180.31± 3.26 ^a	1273.19± 2.99 ^a
NZW (Body wt. gained)		192.38± 2.02 ^b	266.52± 1.43 ^b	60.81± 1.33 ^b	71.31± 2.45 ^b	77.13± 3.12 ^b	80.81± 3.7 ^b	88.44± 1.35 ^b	91.18± 4.56 ^b	93.63± 6.34 ^b
SC (Body wt. gained)		205.01± 2.43 ^b	253.97± 3.02 ^b	60.38± 1.04 ^b	69.43± 2.67 ^b	79.19± 2.09 ^b	80.75± 4.65 ^b	88.56± 3.06 ^b	91.69± 3.12 ^b	92.88± 3.07 ^b

Figures with same superscripts in a column does not differ significantly

weekly feed consumed per animal in NZW was 316.57g and the corresponding figure for SC was found as 300.68g. The amount of weekly feed consumed in both the breeds did not differ significantly. The average weekly feed conversion ratio (FCR) per animal from 4th to 13th weeks in NZW was 3.49 and similar figure for SC was 3.34. The average FCR in both the breeds did not differ significantly. Das *et al* (2003) also found that the feed conversion ratio was non-significantly lower in SC breed (11.65) than that in NZW (11.71).

CONCLUSION

It may be concluded that there was no significant difference between New Zealand White (NZW) and Soviet Chinchilla (SC) breeds of rabbit. It was also observed that both the breeds performed well in South Garo Hills district of Meghalaya with basic management practices.

REFERENCES

- Das S K, Barman K C, Dasand A B and Verma N D (2002). Performance of broiler rabbit and f-i progenies under agro-climatic condition of Meghalaya. *Indian J Animal Res.* (36):147 - 149
- Das S K, Das A, Barman K C and Naskar S (2003). Performance of New Zealand White and Soviet Chinchilla rabbit on Congosignal grass. *Indian J Anim Res* 37 (1): 51- 53.
- Das S K, Dasand A and Buzarbarua K M (2005). Techno-feasibility, socio-acceptability and ecoviability of rabbit farming in india - a review. *Agric Rev* 26 (1): 73 – 78.
- Kumaresan A, Pathak K A, Chetri B and Ahmed S K (2011). Performance of New Zealand White and Soviet Chinchilla Rabbits under Agro Climatic Conditions of Mizoram. *Indian J Hill Farming* 24(1&2) 11-13.
- Princz Z, Nagy I, Radnai I, Gerencsér Zs and Szendrő Zs (2008). *Effect of the floor type and stocking density on the productive performance of growing rabbits.* 9th World Rabbit Cong, June 10-13 – Verona – Italy.
- Snedecor G W and Cochran W G (1994). *Statistical Methods* (8th edition). Calcutta, India: Oxford & IBH Publishing Co

Received on 16/07/2020

Accepted on 10/12/2020