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Impact of TANUVAS Aseel rearing on livelihood and nutritional security of rural farmers of north eastern part of Tamil Nadu

¹Aparna N

¹Assistant Professor, Krishi Vigyan Kendra, Kattupakkam, Tamil Nadu Veterinary and Animal Sciences University, Tamil Nadu, India

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Corresponding Author: Aparna N

Abstract

A dual purpose native variety of Aseel has been developed by Tamil Nadu Veterinary and Animal Sciences University with all the characteristics of the Aseel breed. TANUVAS Aseel chicks have been distributed to 48 Scheduled Caste beneficiaries of North Eastern part of Tamil Nadu belonging to Below Poverty Line (BPL) families. A total of 1200 one week old TANUVAS Aseel chicks have been provided to the beneficiaries for free of cost (25 chicks per beneficiary). Chicken brooder mash (10 kg) and chicken grower feed (10 kg) were provided free of cost to the beneficiaries. From the data collected it has been found that the birds achieved an average weight of 1.05kg body weight at 12 weeks of age. The average egg production per month was 12.25 eggs per bird. The results revealed that the average Benefit Cost Ratio achieved by the farmers was 1.87. An additional income of Rs. 841.67±13.78/was obtained per beneficiary family per month. In addition an average of 66.38±0.60 eggs have been utilized by the family for their feeding purpose.

Keywords: BPL, TANUVAS Aseel, rural farmers, livelihood, nutritional security

Introduction

In India of the total poultry population 33 percent is contributed by native chicken (Omprakash *et al.* 2018) ^[9]. Consumers preference for native chicken has increased and farmers also rear native chicken as backyard poultry so as to meet their own protein demand as well as to improve their income. Native chicken have many preferable characteristics to be used as backyard poultry. They are very much adaptable to local climatic conditions, able to utilize locally available feed and require minimum care and management (Omprakash *et al.* 2018) ^[9]. To improve the native chicken to increase their production performance without altering their native chicken traits Tamil Nadu Veterinary and Animal Sciences University, Tamil Nadu, India has evolved a dual purpose native variety of Aseel (TANUVAS Aseel) to achieve 12th week body weight of 1.0 kg, Feed conversion Ratio of 3.5 and livability of 95 percent. Compared to indigenous birds the improved varieties can provide better income and livelihood since consumers are willing to pay premium price for native chicken eggs and meat. According to Vinothraj *et al.* 2020 ^[15], TANUVAS Aseel is a good egg producer with maximum disease resistance. As mentioned by Rajkumar *et al.*, 2010 ^[12], 30% of commercial poultry farming is being concentrated in major cities and towns. Hence rural farmers suffer because of the gap in demand supply of eggs and meat. Rajbongshi *et al.*, 2020 ^[11], reported that the backyard poultry farming can help rural farmers in improving their livelihood as it is low input rearing.

Hence TANUVAS Aseel chicks have been chosen for the distribution to the beneficiaries under SCSP plan 2023-2024.

Materials and Methods

A total of 1200 one week old chicks were procured from Post Graduate Research Institute in Animal Sciences, Kattupakkam for distribution under Scheduled Caste Sub Plan 2023-2024. The chicks were vaccinated and distributed along with 10 kg of chicken brooder mash and 10 kg of chicken grower feed purchased from Central Feed Technology Unit, Kattupakkam. The chicks were distributed to 48 beneficiaries (25 chicks per beneficiary). The beneficiaries were rural farmers belonging to Below Poverty Line (BPL) families. The beneficiaries belonged to four blocks (Madhuranthagam, Acharapakkam, Kattankolathur of Chengalpattu district and Sriperumbadur of Kancheepuram district) in North Eastern part of Tamil Nadu. The selected beneficiaries were given training regarding management, vaccination of chicks prior to distribution of chicks. The data were collected from the beneficiaries using semi structured interview schedule and analyzed statistically (Snedecor and Cochran, 1994) ^[14].

Results and Discussion

The production parameters of TANUVAS Aseel chicks by selected beneficiaries rearing in backyard system are given in Table 1.

Body weight at 12 weeks

Majority of the beneficiaries (81.25%) observed the body weight of TANUVAS Aseel chicks in the range of 1.1 - 1.2 kg at 12 weeks of age. The average body weight (kg) obtained from the data collected was 1.05 kg. Devaki *et al.*, 2023 ^[5] found out in their study that TANUVAS Aseel chicks registered 1.12 kg body weight at 12 weeks of age. As per Omprakash *et al.*, 2018 ^[9] the average body weight of TANUVAS Aseel chicks was 1.18 kg for male and 0.91 kg for female. Since the body weight of chicks at 12 weeks of age is the marketing weight for the dual purpose birds like TANUVAS Aseel this is an important parameter to take into account.

Livability at 12 weeks

Out of the beneficiaries 45.83% registered above 95% livability at 12 weeks of age. This is in accordance with Omprakash *et al.*, 2018 ^[9] who registered 94.7% livability at 0-12 weeks of age. In the present study 16.67% beneficiaries who shown less than 85% livability mainly had the problem of predators attacking the birds. They have been given further instructions for proper housing to minimize the loss further. The average of 91.83% livability obtained in this study correlated with Devaki *et al.*, 2023 ^[5] who registered 92% of livability at 12 weeks of age. But Chithra, 2021 in their study between TANUVAS Aseel and desi chicks registered a livability of 97% for TANUVAS Aseel chicks and Anitha *et al.*, 2020 ^[1] observed that in their

study the mortality of chicks was 12.5%. When supplied with Vanaraja and Gramapriya chicks.

Age at sexual maturity

For dual purpose birds age at sexual maturity is an important parameter in their breeding management. According to the ideal age at sexual maturity for TANUVAS Aseel birds by Omprakash *et al.*, 2018 ^[9], it was 141 days that is around 20 weeks. In the present study, only 39.58% got less than 24 weeks (168 days) as their age at sexual maturity whereas majority (58.33%) got age at sexual maturity at 24 - 25 weeks (168-175 days). Overall average was 23.48 weeks (164 days) in the present study. Aparna *et al.*, 2021 ^[2] in their study with Rajashri chicks found out that the age at sexual maturity observed by the farmers was 165-180 days. The present study results were also similar to Chithra, 2021 who got an average of 159 days for age at sexual maturity. Devaki *et al.*, 2023 ^[5] got 190 days as age at sexual maturity in their study on TANUVAS Aseel chicks. Leonal Rabins *et al.*, 2024 ^[8] in their study on TANUVAS Aseel chicks found out that the age at sexual maturity was 185 days. The difference in the age at sexual maturity in present study may be due to the fact that many farmers prefer to let the layers to scavenge and difference in the feed sources obtained during scavenging may be the factor. Singh *et al.*, 2000 ^[13] in their study found out that the Aseel in field conditions attained sexual maturity at the age of 29 weeks.

Table 1: Production parameters of TANUVAS Aseel birds in selected beneficiaries practicing backyard poultry farming in North Eastern part of Tamil Nadu

S. No	Parameter	Number of Beneficiaries	Percentage, N=48	Average ± SE
1	Body weight at 12 weeks (Kg)			
	<1	4	8.33	1.05±0.01
	1.0-1.1	39	81.25	
	>1.1	5	10.42	
2	Livability at 12 weeks (%)			
	<85	8	16.67	91.83±0.72
	85-90	9	18.75	
	91-95	9	18.75	
	>95	22	45.83	
3	Age at sexual maturity (weeks)			
	<24	19	39.58	23.48±0.15
	24-25	28	58.33	
	>25	1	2.08	
4	No of eggs produced per bird per month			
	<10	5	10.42	12.25±0.25
	10-12	21	43.75	
	>12	22	45.83	
5	Egg weight (g)			
	<48	21	43.75	48.21±0.44
	48-50	10	20.83	
	>50	17	35.42	
6	BCR			
	1.7-1.8	9	18.75	1.87±0.02
	1.9-2.0	26	54.17	
	2.1-2.2	13	27.08	

Egg production and Egg weight

Leonel Rabins *et al.*, 2024 ^[8] observed that egg weight in their study on TANUVAS Aseel chicks was 51.9 g. The egg weight of TANUVAS Aseel chicks according to Omprakash *et al.*, 2018 ^[9] was 52.14 g. In the present study the average

egg weight obtained was 48.21 $\pm$ 0.44 g. Majority beneficiaries (43.75%) obtained eggs less than 48 g weight. Thirty five percent beneficiaries obtained eggs greater than 50 g weight. Aparna *et al.*, 2021 ^[2] found out that the Rajashri birds reared with mostly scavenging during the

laying stage produced 45-50 g weight eggs. But irrespective of the egg weight the number of eggs produced per bird per month in majority beneficiaries household was above 12 eggs. This can be similar to the data obtained by Ezhilvalavan *et al.*, 2016 ^[7], who found out that the mean egg production per Aseel bird during 52 weeks was 159 which can be taken as 12 eggs in four weeks per bird. Leonal Rabins *et al.*, 2024 ^[8] found out that the TANUVAS Aseel birds can produce 14 eggs per bird per month.

Economics

In the present study the Benefit Cost Ratio obtained was an average of 1.87 ± 0.02 which is similar to the observation made by Devaki *et al.*, 2023 ^[5] who got 1.75. Eggs are among the cheapest source of protein. And as noted by Drewnoski, 2010 chicken eggs are the source of protein, Vitamins and minerals like iron, zinc. As per ICMR the recommendation is 180 egg when compared to the per capita availability of 101 eggs (BAHS, 2023). This difference in demand and supply mainly affect the BPL families. Thus the present study not only helps in increasing their income but also provide an average of 66.38 ± 0.60 eggs for the family nutritional purpose thus ensuring the nutritional security. The beneficiary family was able to get an additional income of Rs. $841.67 \pm 13.78/-$ per month. The economics was worked out considering the average expense of Rs. $2065.21 \pm 20.82/-$ (Feed cost and miscellaneous cost including medicine cost) and average revenue of Rs. $2096.88 \pm 31.57/-$ (Eggs and excess male sale). Aparna *et al.*, 2021 ^[2] in their study of Rajashri birds on BPL families produced an additional income of Rs.745/- per family. Praveen Kumar *et al.*, 2018 ^[10] found out that the net annual income obtained by a woman farmer in his study was Rs.7454/- from backyard poultry farming.

Conclusion

From this study it can be established that the TANUVAS Aseel thrive well in backyard system of poultry rearing and it can improve the livelihood of families belonging to Below Poverty Line by giving an additional income of Rs. 841.67 per month per family and also provide nutritional security through consumption of eggs and meat.

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