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Dr. L Babita Devi
Subject Matter Specialist
(Animal Science), KVK, ICAR
Nagaland Centre, Jalukie,
Peren, Nagaland, India

Dr. KL Meena
Principal Scientist & Head,
KVK, ICAR Nagaland Centre,
Jalukie, Peren, Nagaland,
India

Dr. Kshetrimayum Mahesh Singh
Assistant Professor,
Department of Animal
Genetics & Breeding, CVSc,
CAU, Jalukie, Peren,
Nagaland, India

Dr. H Kalita
Head of Regional Centre,
ICAR-RC for NEH Region,
Nagaland Centre, Medziphema,
Nagaland, India

Corresponding Author:
Dr. L Babita Devi
Subject Matter Specialist
(Animal Science), KVK, ICAR
Nagaland Centre, Jalukie,
Peren, Nagaland, India

Performance of Vanaraja bird as backyard poultry in Peren district of Nagaland

L Babita Devi, KL Meena, Kshetrimayum Mahesh Singh and H Kalita

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Abstract

Backyard poultry farming especially with nondescript local birds is an age old practice for sustainable livelihood especially for rural farmers. Vanaraja, an improved dual purpose breed has gain popularity among the tribal population of the region. Therefore, the present study was undertaken to assess the performance of Vanaraja, a high yielding dual purpose improved breeds in the backyard system of Peren district of Nagaland under Front line Demonstration programme during the year 2020 and 2021. Performance parameters including body weight, age at first egg, annual egg production, mortality rate and economics were assessed during the present study. The results indicate that Vanaraja male and female birds attained body weight of 1263.00 ± 34.352 g and 1003.33 ± 35.954 g in 60 days of age and gradually increased to 3495.00 ± 94.818 g and 2446.67 ± 70.749 g in 150 days respectively. The Average age at 1st egg lay under backyard rearing system was 148.20 ± 1.383 days. Annual egg production per bird was recorded as 153.80 ± 1.856 eggs. Mortality rate in Vanaraja birds was found to be 9.2% and benefit cost ratio of 2.29. It can be concluded from the study that vanaraja birds adapted well under traditional backyard system of rearing and the farmers can take up in small scale for income generation, livelihood improvement, nutritional and food security.

Keywords: Vanaraja, backyard poultry, performance, Nagaland

1. Introduction

Peren District is the 11th District of Nagaland having a strip of mountainous territory having fertile foothill valley plains in North-West and North-East. It occupies the elongated South-Western end of Nagaland State. The population of Peren District is entirely tribal. Animal Husbandry occupies a substantial share in agriculture dominated economy of the district. The ethnic group being non-vegetarian, rearing of any kind of meat producing animals are very common in the district. Backyard Poultry farming forms an integral component of agriculture among rural tribal livelihood in the hilly states of Nagaland. It is also a potent tool for livelihood improvement and helps in alleviation of malnutrition of the rural people through production of valuable animal protein and empowers rural women. Backyard poultry do not require large investment to start and maintain as compared to commercial poultry (Alders *et al*, 2009) [1]. In the district, almost every household rears local indigenous type of poultry birds traditionally which are low in production and productivity, therefore not sufficient to meet the demand with the increasing human population in the district. Vanaraja and Srinidhi poultry is dual purpose poultry birds developed by Directorate of Poultry Research, Hyderabad for backyard farming and has become popular among the rural people as one of the income generating activity especially for the rural women (Niranjan *et al*, 2008) [9]. Backyard poultry farming with Vanaraja and Srinidhi varieties is a proven technology for doubling the farming income in tribal areas particularly in Nagaland. (Mahak *et al*, 2018) [13]. Therefore, the present study was undertaken to evaluate the performance of Vanaraja, a high yielding dual purpose birds under rural backyard system of rearing of Peren district under Front line demonstration.

2. Materials and Methods

The present study was conducted during the year 2020 and 2021 at Peren district of Nagaland. A total of 25 poultry beneficiary farmers were selected on the basis of their experience and interest in rearing the improved variety birds. Training on capacity building towards scientific poultry farming and skill development training on poultry were given to

improve the knowledge level of the farmer by imparting scientific skills on management, feeding, breeding and health care. Beneficiary farmers were provided 20 numbers each of Day old Vanaraja Chicks procured from ICAR Nagaland Centre. Day old Chicks of Vanaraja were reared under intensive system with brooding up to 4th week of age. During the brooding period, chicks were provided with pre-starter feed and clean drinking water. After brooding, birds were let loose during the day time by the farmers and supplemented an average of 30 g of feed per bird with concentrate feed or mixture of crushed maize, wheat bran, broken rice and kitchen waste etc. All the chicks were vaccinated against Ranikhet Disease. Time to time treatment of ailing birds was also done. To evaluate the performance of Vanaraja, data's are recorded in terms of Average body weight, age at first egg, number of eggs per year, Mortality rate and Economics was recorded as per standard procedures. The recorded data were analyzed statistically by using standard methods.

3. Results and Discussion

The average body weight of Vanaraja poultry at different ages are given in Table 1. Vanaraja male and female birds attained body weight of 1263.00±34.352 g and 1003.33±35.954 g in 60 days of age and gradually increased to 3495.00±94.818 g and 2446.67±70.749 g in 150 days respectively, after which male birds were sold in the market. Sonia *et al.* (2019) [4] also reported similar finding in terms of body weight with 3350.34g and 2028.27 g in male and

female respectively at 20th weeks of age. Contrary to the finding, Deka *et al.* (2014) [5] and Mahak *et al.* (2018) [3] reported comparatively lower body weight gain of n Vanaraja male and female birds at 24 and 20 weeks of age. Devi *et al.* (2025) [6] also reported comparatively lower body weight of vanaraja birds under backyard condition. The difference in the performance might be due to the difference in the climatic condition, feeding and managerial practices among the farmers.

The Average age at 1st lay in Vanaraja poultry under backyard rearing system was 148.20±1.383 days. Annual egg production per bird was recorded as 153.80±1.856 eggs. The present finding is in conjunction with findings of Niranjana *et al.* (2008) [9] who reported age at sexual maturity of 164.79 days for Vanaraja. Mahak *et al.* (2018) [3] also reported age at first egg for Vanaraja and srinidhi birds as 140-156 days and 150-162 days respectively. Contrary to the present finding, Suresh *et al.* (2005) recorded average age at sexual maturity of 171 days, and the average egg production of 147 eggs/hen/annum. Deka *et al.* (2014) [5] reported sexual maturity at an average age of 178.13±0.79 days in Vanaraja birds. Deka *et al.* (2017) [8] also reported age at first egg as 177.04±2.03 and annual egg production of 137.12±4.32 eggs.

The egg weight at 40 weeks was recorded as 53.07±1.0028g. Variations in the egg weight of vanaraja birds were reported by various workers (Niranjana *et al.* 2008b; Deka *et al.* 2014; Kalita *et al.* 2015) [9, 5, 10].

Table 1: Mean±SE body weight (g) gain of Vanaraja birds at different ages and their Performance traits.

Parameters assessed	Male	Female
Body weight (gm)		
Day 1	33.83±0.706	
30 days	436.67±15.991	
60 days	1263.00±34.352	1003.33±35.954
90 days	1485.00±35.245	1283.33±30.638
120 days	2060.00±68.204	1806.67±39.372
150 days	3495.00±94.818	2446.67±70.749
Age at 1st egg lay		148.20±1.383
Annual egg production (numbers)		153.80±1.856
1. Egg Weight 40 Weeks (g)		53.07±1.002

Mortality rate in Vanaraja birds was found to be 9.2%. Death of chick was highest during brooding period (0 to 4 weeks of age), and mainly due to poor brooding management and predators. Kumaresan *et al.* (2008) [11] recorded 8.4% mortality upto 5th weeks of age in vanaraja birds. 95% survivability upto 8 weeks in Vanaraja and srinidhi birds was also reported by Mahak *et al.* (2018) [3]. Mortality rate of 4.55±0.38 mainly due to predators in vanaraja birds was reported by Deka *et al.* (2014) [5].

A unit of Vanaraja birds (20 nos) fetch a net return of Rs. 10150, giving a benefit cost ratio of 2.29 during the present study. Higher return and benefit cost ratio was also reported in dual purpose improved breeds of poultry by Deka *et al.* (2014) [5] and Lalremruata *et al.* (2022) [12]. The birds were reared under traditional backyard utilizing locally available feeding materials with minimum supplementation of concentrate feed. The eggs are heavier and brown or tinted and meat has similar aroma and taste with the desi birds.

Since broodiness was not observed in Vanaraja birds, desi birds are required for brooding of eggs.

4. Conclusion

From the present study, it can be concluded that Vanaraja birds adapted well in agro-climatic condition of Peren district of Nagaland. The birds perform well in terms of growth, body weight gain and egg production. Farmers' preference is also high in terms of meat and egg quality. Backyard poultry with improved germplasm suitable for the region has tremendous potential to improve the rural economy. Therefore, farmers of the district can take up Vanaraja rearing in small scale for income generation, livelihood improvement, nutritional and food security.

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