

Original Research Article

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Study on Adaptability, Productive Performance and Constraints of Vanaraja Birds in Backyard System of Rearing at Udalguri District of Assam, India

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ABSTRACT

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The present study was conducted on 600 Vanaraja birds reared in backyard system at Udalguri district of Assam under Tribal Sub Plan project. The overall body weight of male and female Vanaraja birds at 40th week of age was recorded as 3980.53 ± 330.74 and 3080.55 ± 143.22 grams, respectively. Age of hen at first egg laying was 162.55 ± 11.43 days. Egg production of Vanaraja bird was recorded as 146 ± 14.66 per bird per year. The benefit cost ratio of male at 16 week and female Vanaraja bird at 1 year was recorded as 2.05:1 and 1.96:1, respectively.

Introduction

The rapid growth of poultry sector in our country during the last 3 to 4 decades has been almost exclusively dependent on appearance of intensive or commercial type poultry enterprise, often located in urban or semi urban areas. Rural and tribal areas have received little attention in this sector, creating a large gap in the availability of highly nutritious egg and chicken meat between urbanites and malnourished rural/tribal people. Only the solution is backyard farming in rural

and tribal areas.

The backyard farming will certainly improve the economic status of a large majority of tribal rural families from lower socioeconomic strata in the rural and tribal areas. Backyard farming fulfils a wide range of functions as it provides meat and eggs at an earlier age of bird when reared improved variety, chicken for traditional ceremonies, pest control and petty cash-while requiring minimal external inputs, minimal human attention, and causing minimal disruption to the environment. The

demand of poultry and its products in India is very high as it has no ethical issues. Introduction of improved breeds, strains, varieties shows an increasing trend in the production.

Vanaraja is one of the improved variety dual purpose bird developed by Project Directorate on Poultry (ICAR), Hyderabad suitable for backyard or range farming system (Dey *et al.*, 2019) and income generating activity especially for the rural women (Niranjan *et al.*, 2008). Keeping view on above mentioned advantages, Vanaraja birds were introduced in few tribal villages of the Udalguri district of Assam to study their adaptability in this locality, reproductive ability and economic viability under traditional backyard rearing system.

Materials and Methods

The present study was conducted at Udalguri district under Krishi Vigyan Kendra, Udalguri from 2016 to 2018. Six hundred day old Vanaraja birds were provided to 40 tribal women of Udalguri district under tribal sub plan project. The selected farm women were trained on “Improved poultry rearing scientifically in backyard system” before providing the chicks.

The day old chicks were reared under brooder during first 30 days. After that birds were reared in backyard system. Age at sexual maturity, egg production, egg weight, mortality rate, and carcass traits was recorded as per standard method.

Health care

Standard vaccination, deworming and supplementation was done according to the following schedule (Table1)

Feeding system

Natural vegetation, kitchen waste was

excellent source of food in backyard. Besides that adult birds were provided concentrate feed 100 g daily.

Performance parameter

Live body weight of birds were recorded at 4 weeks interval till 40 week of age *viz.* at 0 day, 8 week, 12 week, 16 week, 20 week, 24 week, 28 week, 30 week, 34 week and 40 week of age and average body weight was calculated. Age of hen at first egg laying, number of egg production, egg weight and mortality was also recorded. The cost of expenditure were recorded as per existing market price for different inputs to assess the cost benefit of rearing Vanaraja and local birds. Means and standard error of various traits were calculated using standard statistical methods (Snedecor and Cochran, 1994).

Constraints

Different constraints faced by the farmers during rearing of Vanaraja birds in Udalguri district of Assam were recorded.

Results and Discussion

The results of body weight at different stage and performance and reproductive traits of Vanaraja birds have been presented in table 2.

The mean body weight of male and female Vanaraja birds at 0 day, 8 week, 12 week, 16 week, 20 week, 24 week, 28 week, 30 week, 34 week and 40 week of age were recorded as 40.36 ± 1.2 and 38.32 ± 0.73 ; 850.34 ± 87.50 and 580.65 ± 95.05 ; 1680.45 ± 117.34 and 950.45 ± 122.45 ; 2092.66 ± 174.45 and 1625.54 ± 204.75 ; 2565.62 ± 205.30 and 1910.33 ± 184.35 ; 2830.88 ± 260.08 and 2330.06 ± 176.54 ; 3160.44 ± 198.20 and 2620.87 ± 156.41 ; 3415.77 ± 240.05 and 2815.33 ± 146.55 ; 3680.33 ± 310.40 and 2970.40 ± 138.66 and 3980.53 ± 330.74 and 3080.55 ± 143.22 grams, respectively. In

contrast to the present findings, Kalita *et al.*, (2012) Sonia *et al.*, (2019) and Dutta *et al.*, (2019) recorded higher body weight of Vanaraja bird at different ages. Mortality of Vanaraja birds till 5, 20 and 40 week of age in the present study was recorded as 7.66, 6.67 and 3.44 per cent, respectively, which was higher than the findings of Kalita *et al.*, (2012) and Dutta *et al.*, (2019).

Age at first egg laying of Vanaraja bird was

162.55 ± 11.43 days. Egg production was recorded as 146 ± 14.66 per bird per year while the egg weight at 32 and 40 week was recorded as 46.8 ± 1.98 and 60.5 ± 3.66, respectively. The dressing percentage of the bird used for meat purposes was 69.66 ± 3.44. The present findings in terms of egg weight, egg production was in agreement with the findings of Kalita *et al.*, (2012) while Sharma and Hazary (2002) reported lower egg weight at 40 weeks of age.

Table.1 Vaccination, deworming and supplementation Schedule adopted for Vanaraja birds at Udalguri district of Assam

Age	Supplementation/ Deworming	Vaccination	Booster	Interval
0 day	Electrolyte	Marek's disease	-	-
Upto 3 days	Electrolyte	-	-	-
4-7 days	Vitamins	Ranikhet Disease F1 strain	-	-
8-10 days	Antibiotics	-	-	-
12-14 days	Liver tonic	Infectious Bursal disease	-	-
15-17 days	Anti coccidiosis	-	-	-
18-20 days	Vitamins	-	-	-
21-23 days	Antibiotics	-	-	-
25 -27 days	Anticoccidiosis	-	-	-
28-30 days	Vitamins	Ranikhet Disease F1 strain	-	-
37-40 days	Liver tonic	-	-	15-20 days
60-70 days	Vitamins	Ranikhet Disease R2B	-	-
70-80 days	Vitamins	Fowl pox	-	-
16-17 weeks	Vitamins	Ranikhet Disease R2B	Every 6 months	-

Table.2 Productive, reproductive parameters and economics of Vanaraja birds reared in backyard system at Udalguri district of Assam

Parameters of study	Male Vanaraja bird	Female Vanaraja bird
Body weight of female duck (Mean ± S.E.) gram		
0 day	40.36 ± 1.2	38.32 ± 0.73
8 week	850.34 ± 87.50	580.65 ± 95.05
12 week	1680.45 ± 117.34	950.45 ± 122.45
16 week	2092.66 ± 174.45	1625.54 ± 204.75
20 week	2565.62 ± 205.30	1910.33 ± 184.35
24 week	2830.88 ± 260.08	2330.06 ± 176.54
28 week	3160.44 ± 198.20	2620.87 ± 156.41
32 week	3415.77 ± 240.05	2815.33 ± 146.55
36 week	3680.33 ± 310.40	2970.40 ± 138.66
40 week	3980.53 ± 330.74	3080.55 ± 143.22
Mortality (Combined sex)		
0-5 week of age (%)	7.66	
6-20 week of age (%)	6.67	
21-40 week of age (%)	3.44	
Age at first egg laying (days)	162.55 ± 11.43	
Egg production (number / bird / year)	146 ± 14.66	
Egg weight (g) at		
32 week	46.8 ± 1.98	
40 week	60.5 ± 3.66	
Dressing percentage (Combined sex)	69.66 ± 3.44	
Earning		
From female bird (Rs.)	697	
From male bird at 16 week (Rs.)	256	
B:C ratio		
Male bird	2.05 : 1	
Female bird	1.96 : 1	

The benefit cost ratio of male and female Vanaraja bird was recorded as 2.05:1 and 1.96:1 at 16 week and 1 year, respectively, which indicates that the rearing of Vanaraja bird is economic and beneficial for both meat and egg purposes. The overall results were corroborated with the findings reported by Buragohain *et al.*, (2005) while Zuyie *et al.*, (2009) has reported a slight different result from the present findings. But PDP, Hyderabad has reported sexual maturity as 145.3 days and 40 week body weight as 3.40 - 3.80 kg. The mortality up to first lay was recorded as 11.98 percent (9.58-16%) which indicate their adaptability in rural areas of Udalguri district of Assam. The egg weight and body weight at 10 months of age was lower than the report of PDP, Hyderabad. This may be due to the poor management and feeding resource at village level.

Constraints faced by farmers rearing vanaraja birds

The problems faced by the farmers in rearing Vanaraja birds were destruction of vegetation, hatching of eggs in scattered places rather than nest, poor brooding habit and cannibalism when reared by providing less space for the birds.

These findings were in agreement with the findings of Dutta *et al.*, (2019).

It is perceptible from the present study that the Vanaraja birds adapted well in agro-climatic condition of Udalguri district of Assam. The productivity in terms of growth and egg production was found superior than the local birds. Thus, it can be concluded that under backyard system of rearing, Vanaraja birds may considerably contribute to the overall economic return and give nutritional security to the rural poor farmers of the region.

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