



Livelihood upliftment of Tribal farmers through Backyard Poultry Farming intervention in Kishanganj district of Bihar

RATNESH KUMAR CHOUDHARY^{1*}, MANOJKUMAR ROY¹ AND R K SOHANE²



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ABSTRACT

The study was conducted in Panasi, Mahsul and Sakhuadali villages of Kishanganj district of Bihar. The improved dual purpose poultry breeds Vanaraja and Gramapriya, which were supplied to the tribal farmers under Tribal Sub Plan (TSP) for their evaluation under backyard system. Under the backyard system of rearing 20 chicks (4weeks) were distributed per household among 100 households. The study was carried out by Krishi Vigyan Kendra, Kishanganj, Bihar and body weight at 4, 8, 16, 32, and 52 weeks of age of three poultry breeds Vanaraja, Gramapriya and Desi under backyard system were recorded. The mean live body weights of Vanaraja and Gramapriya were significantly ($P \leq 0.05$) higher than the live body weights of local (Desi). The mean age of first lay in Vanaraja, Gramapriya and Desi were recorded as 186 ± 0.72 , 184 ± 0.79 and 198 ± 1.38 days respectively. The mean egg production up to 32 and 52 weeks of age in case of Vanaraja were recorded as 31.53 ± 0.56 and 86.60 ± 0.85 , in case of Gramapriya were recorded as 33.86 ± 0.74 and 97.80 ± 0.82 and in case of Desi were recorded as 12.20 ± 0.64 and 43.86 ± 0.94 , respectively. The mean egg weight at first egg, 32 weeks and 52 weeks of age of Vanaraja and Gramapriya were significantly ($P \leq 0.05$) different than Desi poultry. The mortality rate during 0-6th weeks of age of Vanaraja ($14.40 \pm 0.82\%$) and Gramapriya ($16.20 \pm 0.78\%$) were significantly ($P \leq 0.05$) higher than the Desi poultry ($07.86 \pm 0.41\%$). After advancement of age mortality rate decreased in all breeds. Therefore, Vanaraja and Gramapriya instead of local (Desi) poultry under backyard system are helpful for livelihood upliftment of Tribal farmers and can enhance household nutritional security.

KEYWORD

Tribal Sub Plan, backyard system, Vanaraja, Gramapriya, livelihood.

INTRODUCTION

Most tribal households rear Indigenous poultry in backyard system. Poultry farming plays important role in the lives of tribal people but output of indigenous poultry is low. Rural poultry is a good occupation for the rural masses for economic sustainability and nutritional security. Backyard poultry use locally available materials such as food grain waste, floor mill waste, kitchen waste and vegetable waste etc to keep the cost of production at minimum.

Vanaraja and Gramapriya are dual purpose high yielding breeds developed by Project Directorate on Poultry, Hyderabad and successfully introduced for backyard farming in rural and tribal areas of India (Reddy *et al.*, 2002). Poultry has significant contribution to the overall economy of the rural people in terms of eggs and meat (Bhattacharya *et al.*, 2005).

In Kishanganj district of Bihar, most of poultry farming is under backyard system and rearing indigenous poultry. As per census 2012, in Kishanganj district 48,253 were cross and 6, 33,767 were indigenous bird. The strengths of this district is geographically and climatic suitability for poultry rearing by large number of small and marginal farmers and population density in rural area is 92.32%. Constraints for poultry farming in Kishanganj district are unawareness about improved breeds like Vanaraja and Gramapriya.

Our objectives are to generate self employment in tribal people by poultry farming, healthy and nutritional food for tribal people from poultry and production of good quality poultry manure. Keeping this in view, the present study has been undertaken for livelihood upliftment of Tribal farmers' through improved poultry breeds in backyard poultry intervention under Tribal Sub Plan (TSP).

MATERIALS AND METHODS

Work plan

The study was conducted in the Kishanganj district of Bihar. Farmers of Panasi, Mahsul and Sakhuadali villages of Kishanganj district have been selected on the basis of their experience on Desi poultry keeping. They were provided dual purpose Vanaraja and Gramapriya birds under Tribal Sub Plan (TSP) for their evaluation under backyard system after training on backyard poultry farming.

Experimental Design:

Under the backyard system of rearing 20 chicks (4weeks) were distributed per household among 100 households. Chicks (4weeks) were obtained from Bihar Animal Science University, Patna, Bihar. All the birds were vaccinated against Ranikhet and Gumboro diseases as per standard protocol. The data on body weights at 4, 8, 16, 32, and 52 weeks of age, age of first lay, total egg production up to 32 weeks of age and up to 52 weeks of age, egg weight at first egg, 32 weeks and 52 weeks of age were recorded. Mortality percentage recorded at 0 to 6 weeks, 7 to 32 weeks and 33 to 52 weeks. All the data collected on various parameters of Vanaraja, Gramapriya and Desi were analyzed by Comparing Mean Test with standard error by Duncan method (One Way ANOVA) and the significance (P value) of the test was recorded at 5%. The complete statistical analysis was made by Statistical Package for Social Sciences (SPSS, windows version 10.0) and the results have been tabulated accordingly.

¹Krishi Vigyan Kendra, Kishanganj-855107, Bihar.

²Director of Extension Education, Bihar Agricultural University, Sabour, Bhagalpur, Bihar.

*Corresponding author email: dr.ratneshchoudhary@gmail.com

RESULTS AND DISCUSSION

The mean live body weight at 4, 8, 16, 32, and 52 weeks of age of three poultry breeds Vanaraja, Gramapriya and Desi under backyard system is presented in the Table 1. The mean live body weights of Vanaraja and Gramapriya were significantly ($P \leq 0.05$) higher than the live body weights of local (Desi). [Niranjana et al. \(2008\)](#) and [Ramana et al. \(2010\)](#) recorded higher body weight of Vanaraja birds at different ages under intensive system of management. Between Vanaraja and Gramapriya, the live body weight of Vanaraja was recorded higher in all age groups. This finding was in accordance with [Haunshi et al., \(2009\)](#), was reported that Vanaraja was heavier than Gramapriya.



Figure 1: Distribution of Chicks (Vanaraja & Gramapriya)

Table 1: Mean body weight (g) of the Vanaraja, Gramapriya and Desi birds at different age (weeks) under backyard system

Age in weeks	Vanaraja	Gramapriya	Local (Desi)
4	326.26 ^a ±4.78	302.26 ^b ±3.86	165.86 ^c ±4.63
8	784.60 ^a ±5.18	662.00 ^b ±9.88	370.20 ^c ±6.60
16	1426.80 ^a ±12.60	1176.93 ^b ±15.53	659.20 ^c ±8.01
32	2484.93 ^a ±31.14	2002.6 ^b ±32.28	1006.33 ^c ±14.66
52	3114.13 ^a ±30.39	2194.33 ^b ±27.94	1286.93 ^c ±26.75

Mean bearing with different superscripts within a row differ significantly ($P \leq 0.05$)



Figure 2: Backyard poultry (Vanaraja & Gramapriya)



Figure 3: Weight taken of poultry (Vanaraja)



Figure 4: Weight taken of Egg (Vanaraja)

The mean age of first lay in Vanaraja, Gramapriya and Desi were recorded as 186±0.72, 184±0.79 and 198±1.38 days respectively (Table 2). The mean age of first lay of Vanaraja and Gramapriya were significantly ($P \leq 0.05$) different with Desi poultry which might be due to the genetic difference between two groups of birds. Similar findings were reported by [Zuyie et al. \(2009\)](#) in Nagaland in case of Vanaraja under extensive system of management. [Pathak & Nath \(2013\)](#) recorded much lower values for age at first lay for Vanaraja and Desi chicken in Sikkim. The difference might be due to supplementation of additional nutrient and better management.

The mean egg production up to 32 weeks and 52 weeks of age in case of Vanaraja were recorded as 31.53±0.56 and 86.60±0.85, in case of Gramapriya 33.86±0.74 and 97.80±0.82 and in case of Desi 12.20±0.64 and 43.86±0.94 respectively (Table 2). The mean egg production up to 32 and 52 weeks of age of Vanaraja and Gramapriya were significantly ($P \leq 0.05$) higher than the Desi poultry, which might be due to improved genetic makeup and parental lines utilized in developing breed developed by project Directorate on Poultry, Hyderabad. This finding was in accordance with [Chutia \(2010\)](#), was reported that an overall mean for annual egg

Table 2: Comparative production performances of Vanaraja, Gramapriya and Desi birds

Parameters	Vanaraja	Gramapriya	Local (Desi)
Age of first lay (days)	186 ^a ±0.72	184 ^a ±0.79	198 ^b ±1.38
Total Egg production (No)			
Upto 32 weeks of age	31.53±0.56	33.86±0.74	12.20±0.64
Upto 52 weeks of age	86.60±0.85	97.80±0.82	43.86±0.94
Egg weight (g)			
First egg wt.	50.26±0.35	48.73±0.46	36.06±0.52
At 32 weeks of age	52.73±0.46	53.66±0.47	38.46±0.49
At 52 weeks of age	55.60±0.48	56.73±0.44	45.93±0.49
Mortality (%)			
0-6 th weeks	14.40 ±0.82	16.20 ±0.78	07.86 ±0.41
7 th -32 weeks	02.40 ±0.23	02.00 ±0.25	02.60 ±0.27
33-52 weeks	01.66 ±0.18	01.33 ±0.15	01.26 ±0.15

production of indigenous chicken of Assam ranged from 53.8±0.23 to 58.4±0.26. However, Kumaresan *et al.*, (2008) reported that annual egg production of Vanaraja birds under the backyard system of rearing was 176±9 eggs.

The mean egg weight at first egg, 32, and 52 weeks of age of three poultry breeds Vanaraja, Gramapriya and Desi under backyard system were presented in the Table 2. The mean egg weight at first egg, 32, and 52 weeks of age of Vanaraja and Gramapriya were significantly ($P \leq 0.05$) different with Desi poultry. The average weight of eggs was 35.27±0.15g in case of indigenous chicken of Assam reported by Kalita *et al.* (2011).

The mortality rate during 0-6 weeks, 7-32 weeks and 33-52 weeks of age of three poultry breeds Vanaraja, Gramapriya and Desi under backyard system were presented in the Table

2. The mortality rate during 0-6 weeks of age of Vanaraja and Gramapriya were significant ($P \leq 0.05$) higher than the Desi poultry. After advancement of age mortality rate were decreased in all breeds. Kalita *et al.*, (2012) also reported 6 to 10 % of chick mortality in indigenous chicken of Assam. Kumaresan *et al.* (2008) also recorded 8.4% of mortality up to 5th week of age in case of Vanaraja birds. Further, Ghosh *et al.* (2005) reported higher mortality percentage of 22.63% in Vanaraja up to 6 weeks of age in high altitude of Arunachal Pradesh.

CONCLUSION

It can be concluded that rearing of improved breeds of poultry like Vanaraja and Gramapriya will be more beneficial instead of rearing local (Desi) poultry under backyard system for their livelihood upliftment and household nutritional security.

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