

Original Research Article

Comparative Evaluation of Grampriya and Vanraja with Local Desi Bird in Dumka District

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ABSTRACT

Performance in terms of body weight, age at first egg and egg weight of Grampriya, Vanaraja and Local Desi (Kadakhnath) of Dumka were studied under backyard system of rearing and their respective values were compared between these three varieties. The overall mean body weight was significantly ($P \leq 0.01$) higher in Grampriya and Vanaraja than Local Desi birds. The mean body weight of local Desi bird, Grampriya and Vanaraja at 6 month of age were 708.5 ± 20.83 , 1481.3 ± 33.75 and 1358.2 ± 22.34 , respectively. The mean age at first egg (Sexual maturity) in local Desi bird, Grampriya and Vanaraja were recorded as 179.3 days, 186 days and 183 days, respectively. The mean egg weights of local Desi bird, Grampriya and Vanaraja was 45.3, 50.8 and 51 gm, respectively. No any adverse mortality was noticed in Grampriya and Vanaraja as compare to Local Desi bird.

Keywords

Grampriya and vanraja, local desi bird

Introduction

Livestock and poultry sector provide a major contribution to India's economy (Nath *et al.*, 2012). In poultry sector impressive growth has been achieved in the intensive poultry farming in India, but the rural poultry sector remained rather stagnant. The native chicken varieties adopted in free-range backyard conditions for centuries contribute about 11% of total egg production in India (Kumaresan *et al.*, 2008). Due to their low productivity (annual egg production: 50-60 nos.), their contribution to the total egg output was almost static for the last few decades. For developing the rural poultry farming, improved backyard poultry like Vanaraja/Grampriya birds rearing is of utmost important. These improved birds can rear in both intensive and free ranging

system. Gramapriya is a cross breed, produced by breeding the Rhode Island and the Plymouth Rock. Gramapriya is a multi-colored egg purpose chicken variety developed at Directorate of Poultry Research, Hyderabad, for free range and rural backyard rearing. This bird lays more number of eggs than native chickens and eggs are tinted brown in colour and heavier than native chicken eggs. Advantages of Gramapriya chicken poultry farming are Alleviates protein malnutrition in vulnerable groups viz. expectant women, feeding mothers and children; Waste material (insects, ants, fallen grains, green grass, kitchen waste, vegetable waste etc.) can be efficiently converted in to egg and chicken meat for human consumption; Minimizes

environmental pollution per unit poultry produce, which is otherwise a major problem with the intensive poultry farming; Provides additional income to the rural households; Integrates well with other agricultural operations; Aids in enhancing the soil fertility in backyards; Produce of rural poultry farming fetches high price compared to those produce from intensive poultry Farming.

Gramapriya has both a laying hen and a broiler property. From the genetic perspective, the Project Directorate on Poultry (Indian Council of Agricultural Research), Hyderabad has developed a multicolored germplasm (Vanaraja) which can thrive well in village conditions. It is a multicolored, medium weight, and dual-purpose bird.

The male and female parents for this bird are the strain crosses, evolved by blending of genes responsible for egg and meat production from both indigenous and exotic sources (Rao, *et al.*,)

So, considering the low profit in rearing local Desi bird due to low yield of body weight & egg production, this experiment was conducted with assessment of new breeds viz. Gramapriya and Vanraja with the following objectives.

Assessment of new poultry breed Gramapriya and Vanraja in rural area of Dumka district.

Body weight gain at different time intervals.

Materials and Methods

The performance of Gramapriya and vanraja, a layer variety for rural/ tribal areas, was evaluated and compare with local desi bird under intensive and free-range conditions of Ghortopi village of Dumka

district under considerable research project, financially helped from KVK, Dumka. The Gramapriya and Vanraja were procured from Ranchi Veterinary college, Birsa Agricultural university, Kanke, Ranchi.

About one hundred twenty (120) of day old poultry bird comprises of three breed were subjected to the present study. All these birds were divided in to three groups Viz. Gr A, Gr. B and Gr. C, each of having equal quantity of birds. Out of these 120 birds, 40 birds are local Desi (Kadakhnath) birds, 40 are Gramapriya and rest 40 are Vanraja birds. The experiment was conducted at Village Ghortopi, Jarmundi of Dumka district.

All the birds included in this study were reared at 8 marginal farmers, having 20 birds each. The birds were kept in same possible managerial condition in the farm house of their marginal farmers. Since the chicks move in free range, there is a possibility of parasitic infestation. So the deworming at 2 months of age was done with PIPRAZINE sulphate.

Experimental design

All the one hundred twenty poultry subjected to this study were randomly divided in to three groups of forty poultry in each group. The following schedule of experimentation was followed in different groups.

Observation to be recorded

Body weight at 30, 60 90 and 180 days

Mortality rate (if any)

Egg count after 300 days of age (in female birds)

Maturity period

Results and Discussion

Vanaraja/ Gramapriya birds under free-range can easily pick up its food the backyards once it learns to scavenge in the household surrounding like desi bird. This finding was also correlated with the finding of Pathak and Nath (2013). Under free-range conditions the necessity of supplementary feed/ feed ingredients are generally not required as were readily available of waste grains, insects, grass seeds etc near about farm. Generally, the birds under free-range conditions can meet their protein requirement through scavenging, but, the possibility of energy deficiency is common. Therefore, feeding the birds with different locally available cereals (like maize, bajra, ragi, jowar, broken rice, with equal parts of rice polish or rice bran). These statements were also reported by Bhattacharya *et al.*, 2005.

Result of table 1 shows that there were significantly increased ($P<0.01$) in body weight of all the three groups (Gr. A, B and C) at different time interval i.e. at 0 day, 1 month, 2 month, 3 month and 6 month of age. The mean body weight of local Desi bird at 0day, 1 month, 2 month, 3 month and 6 month of age were 33.8 ± 0.46 , 83.5 ± 3.75 , 167.2 ± 3.84 , 258 ± 7.43 and 708.5 ± 20.83 , respectively. The respective individual variation in body weight in group A during these period were 63 to 101gm, 150 to 185 gm, 243 to 300 gm and 578 to 803 gm at 1month, 2 month, 3 month and 6 month of age. However, the mean body weight of group B (Grampriya) at 0day, 1 month, 2 month, 3 month and 6 month of age were 34.1 ± 0.56 , 124.6 ± 4.32 , 246.2 ± 5.32 , 396.8 ± 6.14 and 1481.3 ± 33.75 , respectively. The respective individual variation in body weight in group B during these period were 104 to 140 gm, 227 to 273 gm, 373 to 430 gm and 1268 to 1620 gm at 1month, 2

month, 3 month and 6 month of age. Similarly, the mean body weight of group C (Vanraja) at 0day, 1 month, 2 month, 3 month and 6 month of age were 33.9 ± 0.43 , 124.2 ± 4.72 , 239.1 ± 5.0 , 389.8 ± 6.61 and 1358.2 ± 22.34 , respectively. The respective individual variation in body weight in group C during were 103 to 152 gm, 218 to 261 gm, 358 to 424 gm and 1200 to 1457 gm at 1month, 2 month, 3 month and 6 month of age. On comparing the mean body weight of group B (Grampriya) and group C (Vanraja) with respect to control group A (local Desi), it was found that there were significantly ($P<0.01$) increase in body weight at 1 month, 2 month, 3 month and 6 month of age, respectively. However, the mean body weight of group B (Grampriya) and group C (Vanraja) does not vary significantly among themselves at any period of time throughout the experiments.

The Excellent weight gain of Grampriya and vanraja with respect to indigenous local bird might be due to utilization of exotic germplasm (Islam *et al.*, 2014).

The result of these experiment were also supported by Pathak and Nath (2013) who reported that at the 42 days of age, Grampriya and Vanraja birds will attain 650-750 g weight. Kumar also observed the weight of Gampriya cocks and hen at 15 week was 3.2 kg and 1.6 kg, respectively. Niranjana and Singh (2005) also supported to these finding that body weight of Grampriya was 299.2 ± 3.76 gm, 432.6 ± 7.27 gm and 688.0 ± 12.76 gm at 4,6 and 8 weeks of age, respectively. He further reported that the average body weight at farm and farmer house was 932.8 and 914.7g, 1262 and 1006g, 1445 and 168.7g, 1581 and 1213g, 1744 and 1364g, 1860 and 1556g and 2773 and 2614 g at farm and farmers hose during 10, 12, 14, 16, 18, 20 and 40 weeks of age, respectively.

Experimental design

Groups	Variety
A (F.P)	Kadaknath -Traditional local Desi bird
B	Grampriya -improved variety of poultry
C	Vanraja - improved variety of poultry

Table.1 Showing the body weight gain in Desi, Grampriya and Vanraja bird at different time intervals

S.N	O day	1 month	2 month	3 month	6 month
Desi	33.8± 0.46 ^a	83.5± 3.75 ^b	167.2± 3.84 ^c	258± 7.43 ^d	708.5± 20.83 ^e
Grampriya	34.1± 0.56 ^a	124.6± 4.32 ^{b*}	246.2± 5.32 ^{c*}	396.8± 6.14 ^d *	1481.3± 33.75 ^{e*}
Vanraja	33.9± 0.43 ^a	124.2± 4.72 ^{b*}	239.1± 5.0 ^c *	389± 6.61 ^{d*}	1358.2± 22.34 ^{e*}

Means bearing the same superscript in a row (alphabet) and column (*) did not vary significantly

Table.2 showing the B: C ratio of Desi, Grampriya and Vanraja poultry after 6 month of age

Variety	Cost of rearing /bird	Gross return/ bird	Net return/bird	B:C ratio
Desi	60	125	65	1.02
Grampriya	80	200	120	1.5
Vanraja	80	190	110	1.4

Table.3 Showing the Mean maturity period (in days) of Desi, Grampriya & Vanraja with respect to local desi bird

Group	Breed	Day
A	Desi	179.3
B	Grampriya	186
C	Vanraja	183

Table.4 Showing the Mean 1st Egg weight (in grams) of local desi bird Grampriya & Vanraja

Group	Breed	Weight in gram
A	Desi	45.3
B	Grampriya	50.8
C	Vanraja	51

Islam *et al.*, (2014) also reported that the mean body weights of Vanraja at 8 and 20 weeks of age were recorded as 768.23±6.43g and 1693.52±11.13g respectively whereas in indigenous chicken

the mean body weights were 365.12±2.74g and 783.14±5.03g respectively.

The finding of table 2 shows that gross return and benefit- cost ratio of group B

(Grampriya) and group C (Vanraja) with respect to control group A (local Desi). The benefit- cost ratio of Group A, B and C were 1.02, 1.5 and 1.4 respectively

The finding of table 3 shows that the sexual maturity of all the three i.e. local Desi (179.3 day), Grampriya (186 day) and Vanraja (183 day) were nearly equal. The result of this finding was also supported by Niranjana and Singh (2005) who reported that the age at sexual maturity of Grampriya at farm and farmer house was 127.0 and 193.6 days, respectively. The report of Central Avian Research Institute also tells the average sexual maturity of Kadaknath is 180 days.

The finding of table 4 shows that Mean 1st Egg weight (in grams) of group A (local Desi), group B (Grampriya) and group C (Vanraja) were 45.3, 50.8 and 51 grams respectively.

As far the Mortality concerned, it well within the limits in all the three groups. The total mortality were equal in local Desi, Grampriya and Vanraja during brooding, growing and laying periods were 1 (2.50%), 2 (5.0%) and 2 (5.0%), respectively.

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