

PRODUCTION PERFORMANCE OF IMPROVED VARIETY GRAMAPRIYA BIRDS UNDER INTENSIVE SYSTEM OF REARING

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ABSTRACT

The present study was conducted to evaluate the production performance of improved variety Gramapriya birds maintained under AICRP on Poultry breeding at Ranchi Veterinary College, Birsa Agricultural University, Ranchi (Jharkhand). The evaluation of body weight, feed intake, feed conversion ratio, age at sexual maturity, egg production rate and internal egg quality trait such as shell thickness, albumin index and shape index was done. Gramapriya birds had significantly higher body weight, higher feed intake, better FCR, better egg production rate, early sexual maturity and higher egg mass than Desi birds. The study concluded that Gramapriya birds perform better than desi birds of Jharkhand under same management and rearing conditions.

Key Words : Gramapriya, Desi birds, Performance, Jharkhand.

Gramapriya bird was developed at Project Directorate on poultry at Hyderabad for backyard poultry production in rural and tribal area (Reddy *et al.* 2002). It is an egg type bird preferred by farmer for their coloured plumage with better growth rate, more eggs production, larger egg size and brown egg shell.

Gramapriya bird is suitable for free range system provided with low cost inputs in nurseries to deliver optimal performance in village condition (Niranjan and Singh, 2005). Growth and production performance of Gramapriya birds under intensive system of rearing have been reported by Haunshi *et al.* 2009. Limited studies are under taken in our country in respect to different economic trait of this bird. Therefore, an attempt has been made to study the adaptability, viability and productive performance of Gramapriya compare to local desi bird under intensive system of management in Ranchi, Jharkhand.

MATERIALS AND METHODS

A total of 273 day old Gramapriya and 273 desi chicks were hatched and brooded under deep litter system of management. Standard managerial and healthcare practices were followed throughout the experimental period. All the chicks were immunized against Ranikhet disease on 5th and 28th days using F1 and Lasota strain respectively. Gumboro (IBD) disease vaccine was done on 14th and 22nd days using intermediate strain and other vaccination and deworming as per Chauhan and Roy (2003). The weekly body weights, mortality pattern of chicks were recorded. Relative growth rate of chicks were assessed based on the weekly body weights.

The weight of pullet when first egg laid, pullet egg weight and egg weight at 40 weeks of age was recorded. Date of laying first egg and number of eggs laid in 40 weeks period were recorded. Feed conversion ratio up to 40 weeks of age was also assessed. The egg quality traits like shell thickness, egg weight, shape index, albumin index, yolk index were estimated. Haugh unit score, a measure of internal quality of eggs was also computed. The data was analysed as per methods described by Snedecor and Cochran (1994).

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RESULTS AND DISCUSSION

The Hatchability percentage on total egg set basis was found to be 72.63 and fertility percentage was 87.58. Mortality percentage was more in Gramapriya bird (16.35) compare to Desi (14.64), which is more than the report of Niranjana and Singh (2005). Mortality in desi bird was due to diseases where as predator for Gramapriya (Hunshi *et al.* 2009). Gramapriya birds had significantly ($P < 0.01$) higher body weight than local desi birds at respective weeks of age as shown in table. Gramapriya had significantly higher combined body weight, keel and shank length at 40 weeks of age compared to desi which are in comparable with the finding of Haunshi *et al.* 2009.

The live weight of day old Gramapriya and Desi chicks were ranges from 31-37g and 23-32g respectively. The mean body weight of Gramapriya birds at 0, 4, 6, 8, 12, 16, 20 and 40 weeks of age were 33.64 ± 2.71 , 1273.46 ± 2.90 , 1568.31 ± 3.86 and 1825.75 ± 4.51 respectively, whereas 28.52 ± 0.20 , 124.83 ± 1.18 , 183.61 ± 2.54 , 258.75 ± 3.57 , 408.25 ± 4.72 , 617.36 ± 5.35 , 982.75 ± 6.83 and 1126.41 ± 8.79 were observed in desi birds. Mean body weight at laying 1st egg and 40th week age was significantly higher in Gramapriya birds than the local desi birds. Panda and Pasupalak (2007) observed that age at first egg Gramapriya at Orissa state's climate conditions was 5 months and egg size was 55-65g.

Average Age at Sexual maturity was 154.65 ± 1.76 and 214.83 ± 1.46 days respectively in Gramapriya and Desi birds. We observed lower age of sexual maturity in Gramapriya as compare to Haunshi *et al.* (2009) who reported 179.50 ± 0.96 ; it may be due to suitable climate condition of ranchi and better managemental condition. A similar trend was observed in weight of pullet egg $38.79 +$

0.22 and 29.46 ± 0.58 , egg weight at 40 weeks of age 54.96 ± 2.34 and 41.83 ± 2.36 , number of egg laid per bird in 40 weeks periods 67.26 ± 3.56 and 11.43 ± 3.72 respectively in Gramapriya and Desi birds. The feed conversion ratio was 3.84 and 6.72 in Gramapriya and local desi birds respectively at 40 weeks of age.

The mean shell thickness ranges from 0.31 to 0.34 mm with an average of 0.32 ± 0.007 mm in Gramapriya eggs. The Gramapriya egg's shell thickness is higher than Kadaknath breed of poultry (Palmer *et al.*, 2006). Egg weight is higher in Gramapriya (54.96g) than Desi (41.83g). These results are lower than the finding of Haunshi *et al.* (2009) who reported 57.22g in Gramapriya and in agreement with Singh *et al.*, (2000) who reported egg weight of 41.0g in Aseel birds under backyard management system. The mean shape index (%) was 73.47 and results are comparable with that of Parmer *et al.*, (loc.cit) who found shape index of 73.95 in Kadaknath breed under free range conditions. The average albumin and Yolk index (%) value were 6.97 ± 0.14 and 35.68 ± 0.56 respectively and the results are higher than Parmer *et al.* (loc.cit), who reported a wide variation in albumin index (4.46 + 8.98) of eggs in Kadaknath breed. The haugh unit (%) ranged from 71.32 to 73.84 with an average of 72.27 ± 0.65 in Gramapriya eggs. The haugh unit values in the present study were higher than those reported by Haunshi *et al.* (loc. cit), in Gramapriya and Sakuthaladevi and Reddy (2005) in white Leghorns and crossbred chicken. From present study it may be concluded that Gramapriya has significantly higher ($P < 0.01$) body weight, higher feed intake, better egg production rate, early sexual maturity and higher egg mass and better FCR than the Desi birds (Haunshi *et al.* 2009) and there is a scope for improvement of local desi bird of Jharkhand.

Table 1 : Growth (g) and production performance (mean \pm SE) of Gramapriya and Desi Poultry of Different age groups

Age of Chicks	Gramapriya (Mean \pm SE)	Desi (Mean \pm SE)
0 Day	33.64 \pm 0.31 ^b	28.52 \pm 0.20 ^a
4 Weeks	167.82 \pm 2.13 ^b	124.83 \pm 1.18 ^a
6 Weeks	349.48 \pm 1.17 ^b	183.61 \pm 2.54 ^a
8 Weeks	495.46 \pm 1.86 ^b	258.75 \pm 3.57 ^a
12 Weeks	812.75 \pm 3.71 ^b	408.25 \pm 4.72 ^a
16 Weeks	1243.46 \pm 2.90 ^b	617.36 \pm 5.35 ^a
20 Weeks	1568.31 \pm 1.87 ^b	982.75 \pm 6.83 ^a
40 Weeks	1825.17 \pm 4.51 ^b	1126.41 \pm 8.79 ^a
Age at Sexual maturity (Days)	154.65 \pm 1.76 ^b	214.83 \pm 1.46 ^a
Pullet egg weight	38.79 \pm 0.22 ^b	29.46 \pm 0.58 ^a
Egg weight at 40 weeks of age	54.96 \pm 2.34 ^b	41.83 \pm 2.36 ^a
No. of eggs laid in 40 weeks period	67.26 \pm 3.56 ^b	11.43 \pm 3.72 ^a
Feed Conversion Ratio	3.84	6.72

Means bearing same superscript within rows dis not differ significantly (P<0.01)

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