

# Comparative study of Giriraja and Desi birds under backyard system of rearing in farmers field

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**Abstract :** Giriraja is a dual purpose bird suitable for backyard rearing and intensive system of management. Because of its sturdy and resistant nature, it can easily acclimatize itself to any region and weather. A field level study was undertaken to evaluate efficiency of production performance of Giriraja and Desi birds in 32 households each 20 birds under backyard system of rearing in Thanjavur district of Tamil Nadu state with respect to age at sexual maturity, average weight at first egg, average live weight at 28<sup>th</sup> week and hen day egg production at 52 weeks of age. The average live weight gain of Giriraja birds after 6 months was 2.127 kg which was higher than that of Desi birds (1.100kg). Age at sexual maturity was ranged between 155.00-157.02 days in Giriraja birds whereas the age at sexual maturity in Desi birds was 181.17- 182.25. The mean weight at first egg was 45g in Giriraja whereas 38g in Desi birds. The egg production up to 52 wks of age was ranged from 202.56-206.12 in Giriraja and 91.78-93.61 in Desi birds. Moreover, the average weight of chicks of Giriraja and Desi birds at day old age observed was 50.2g and 41.8g, respectively.

**Key words :** Giriraja, Desi birds, Backyard system, Rearing

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## INTRODUCTION

Poultry is one of the fastest growing segments of the agricultural sector in and around Thanjavur district of Tamil Nadu. Under intensive rearing system, indigenous hens laid 100 -110 eggs from starting to ten months of laying. By proper selection programme, egg production of Desi hen could be increased up to 135 eggs per year. Productivity of indigenous chicken breeds may be doubled with improved diets and management conditions. The indigenous chickens have not attained their full production potential due to exposure to risks that influence against their survival and productivity under extensive management conditions. However, the research works under field level on age at sexual maturity, average weight at first egg, average live weight at 28<sup>th</sup> week and hen day egg production at 52 weeks of age

of Desi birds and Giriraja birds are studied. Therefore, the purpose of this study was to compare and evaluate the productive and reproductive performance, as well as heritability of body weight of indigenous hens and Giriraja birds under backyard management system.

## RESEARCH METHODOLOGY

Present study was undertaken on the Giriraja birds and Desi hens which are maintained by a farmer's field. Data's were collected from 32 smallholders those are having 20 birds under backyard system of rearing in Thanjavur district of Tamil Nadu state with respect to age at sexual maturity, average weight at first egg, average live weight at 28<sup>th</sup> week and hen day egg production at 52 weeks of age. Age at sexual maturity of birds observed in all households. After sexual maturity, First egg of both Giriraja and Desi bird were collected from 32 houses of each bird. Data were analyzed using the General Linear Procedure of SAS (1986) and were subjected to analysis of variance.

## RESULTS AND DISCUSSION

In Tamil Nadu, the rural poultry production system especially in delta areas is typically a smallholder free ranging system. Under free-range birds can easily pick up its food the backyards once it learns to scavenge in the household surrounding. Under free-range conditions the necessity of supplementary feed/ feed ingredients mostly depends on the free area available in the backyards, intensity of vegetation and availability of waste grains, insects, grass seeds etc. Pathak and Nath (2013). Age at sexual maturity, average weight at first egg, average live weight at 28<sup>th</sup> week, average day old chick weight and hen day egg production at 52 weeks of age of Desi birds and Giriraja birds presented in the Table 1.

The differences in attaining sexual maturity might be due to the genetic differences. Cross-breeding results in early sexual maturity compared with pure-bred hens. Sexual maturity tends to be attained at later ages for heavier breeds. This character is also influenced by many environmental factors, such as temperature, nutrition and day length. In the present study, mean egg weight of Giriraja birds was significantly high (Zaman *et al.*, 2015). Whereas age at sexual maturity was shorter in Giriraja birds when compared to desibirds as suggested by Neupane *et al.* (2014). The egg weight of Giriraja chicken reported by Semmaran *et al.* (2008) was in close agreement with our study. The average egg weight of first lay (g) was higher ( $P<0.05$ ) in Giriraja than the Desi birds. Significant effect of breed on body weight was observed in Giriraja showing superiority over Desi birds. Effect of sex on body weight was also found significant. The average twenty eighth week body weight was observed higher in Giriraja male, followed by Giriraja female, Desi bird male and Desi hens Shrestha *et al.* (2004). This was in disagreement with Ramappa and Lokanath (1985). The age at which desi birds start laying eggs ranges from 181.17- 182.25 days. Egg production upto 52<sup>nd</sup> week as well as average weight of day old chicks of Giriraja birds are significantly varied from Desi birds. The hen day production were significantly more ( $P<0.05$ ) in Giriraja than the Desi birds during both early and peak laying periods This was in agreement with Bharambe and Garud (2012). The data on chick-egg ratio have shown that newly hatched chicks in the Giriraja birds had higher than chicks in the Desi birds. Chick weight was influenced by egg weight. This was in correlation with Faruque *et al.* (2013).

Egg production and body weight of Giriraja birds were higher than for the local chickens kept under farmer's

**Table 1 : Comparison between giriraja and desi birds**

Sr. No.	Parameters	Giriraja birds	Desi birds
1.	Average age at sexual maturity (days)	156.01±0.4 <sup>a</sup>	181.71±0.2
2.	Average weight of first egg (g)	45±0.5 <sup>a</sup>	38±0.3
3.	Average weight at 28 <sup>th</sup> week (kg)	2.127±0.8 <sup>a</sup>	1.100±0.1
4.	Average egg production upto 52 weeks (Nos)	204.34±0.59 <sup>a</sup>	92.69±0.4
5.	Average weight of day old chicks (g)	50.2±0.2 <sup>a</sup>	41.8±0.5

Means with superscripts <sup>a</sup> in a row differ significantly ( $P< 0.05$ )

condition as suggested by Fassill *et al.* (2010) which indicates that cross breeding has potential for improving economically important traits. The economic return from the poultry largely depends on characters like body weight, age at sexual maturity, egg production, egg weight and other egg quality traits. Knowledge of these parameters is essential to decide selection programme for overall improvement and hence, the present investigation has been undertaken to help the small hold farmers for selecting giriraja birds over Desi birds.

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