



ISSN: 2456-2912

VET 2023; SP-8(1): 20-22

© 2023 VET

www.veterinarypaper.com

Received: 14-11-2022

Accepted: 27-12-2022

Dharmaraj GY

Assistant Professor,
Department of Livestock Farm
Complex, Veterinary College,
Gadag, Karnataka, India

Shivakumar K Radder

Professor (I/c), Department of
Veterinary Animal Husbandry
and Extension Education,
Veterinary College, Gadag,
Karnataka, India

Prasanna SB

Associate Professor, Department
of LPM, Veterinary College,
Gadag, Karnataka, India

Rudresh BH

Associate Professor, Department
of LFC, Veterinary College,
Gadag, Karnataka, India

Nagaraja R

Dean, Veterinary College, Gadag,
Karnataka, India

Mahantesh M Nekar

Assistant Professor, Department
of Livestock Farm Complex,
Veterinary College, Gadag,
Karnataka, India

Corresponding Author:

Dharmaraj GY

Assistant Professor,
Department of Livestock Farm
Complex, Veterinary College,
Gadag, Karnataka, India

Comparative study on growth performance of Giriraja and Raja-II birds in Gadag region

Dharmaraj GY, Shivakumar K Radder, Prasanna SB, Rudresh BH, Nagaraja R and Mahantesh M Nekar

DOI: <https://doi.org/10.22271/veterinary.2023.v8.i1Sa.510>

Abstract

Giriraja and Raja-II breeds are dual purpose type breeds and helps in improving the production. Total 90-day old chicks were distributed into two groups with 45 Giriraja chicks in T1 group and 45 Raja II chicks in T2 group. To comparative the growth performance of Giriraja and Raja-II birds in Gadag region this study was conducted for 56 days. Except for the first week of their growth which shows comparatively higher weight gain in Raja II chicks ($p \leq 0.05$) and there was no significant difference observed in body weight, feed consumption and feed efficiency in both the groups. It is concluded that these birds are equally suitable for rearing on deep litter system as observed by similar rates of body weight gains, feed consumption and FCR.

Keywords: Giriraja, Raja II, cumulative, body weight, feed consumption and feed conversion ratio

Introduction

In India, the poultry sector is the fastest growing and most flexible of all livestock sectors. There is more demand for native chicken and their eggs. When compared to commercial chicken the product from the native chicken fetches higher prices due to their flavour, taste and texture as perceived by the large population in the local region.

Backyard poultry farming was a low input venture. The egg and meat production by the native birds are very low due to their low genetic potential. Therefore to improve the production performance of backyard poultry farming the improved variety of chicken were being introduced in the different region (Singh *et al.*, 2002) [12].

The University of Agricultural Sciences, Bangalore was released the first improved coloured bird which is suitable for backyard rearing 'Giriraja' in 1989. Raja II broiler breed has been developed by Department of Poultry Science, Veterinary College, Bangalore, (KVAFSU) by the funding of ICAR. Giriraja is a popular dual-purpose chicken breed and able to improve the economy of the rural population by increasing the production of egg and meat (Reddy and Rajendiran, 2002) [10]. They are distributed in various parts of our country and promising in terms of good number of egg production and higher body weight under the backyard system of rearing. These dual purpose breeds are suitable for extensive and intensive system of rearing. Therefore, these are suitable for improving the indigenous breeds of poultry (Aryal and Neupane, 1997) [11]. Though, dual purpose breeds of chicken are lower in production compare to the exotic breeds, but they can fetch the higher price due to the close appearance and scavenging rearing pattern (Neupane *et al.*, 2017) [7]. Due to easily availability and improvement of dual purpose birds majority of the farmers rearing the chicken under semi-intensive system and earning the premium profit.

Hence, the present experiment was conducted to assess the production and performance of Giriraja and Raja-II breeds under the deep litter system in the Gadag region.

Material and Methods

The experiment was conducted at Department of Livestock Farm Complex, Veterinary College Gadag, Karnataka, to evaluate the Comparative Growth Performance of Giriraja and Raja-II Birds in Gadag Region.

A total of 90-day old chicks were procured from Poultry Science Department, Veterinary College Hebbal, Bengaluru. T1 group consisted of 45-day old Giriraj chicks and 45-day old T2 group consisted of 45-day old Raja II chicks. Each group had three replicates R₁, R₂ and R₃ and each replicate had 15 chicks. The birds were deep litter system with all the standard managerial practice by providing the ad libitum feed and water through out the experimental period of 56 days. Birds were vaccinated by following the standard broiler vaccination schedule. On weekly basis the body weight, feed consumption and feed conversion ratio was recorded and calculated. The obtained data were analyzed statistically by using independent T test using SPSS 20 statistical software as per standard procedure described by the Snedecoe and Cochran (1994). The differences between the means were tested using Levene's Test at $P \leq 0.05$.

Results and Discussion

Cumulative Body Weight

The results of cumulative body weights of the T₁ and T₂

groups are presented in the Table 1. Except for first week of their growth which shows higher weight gain in Raja II chicks ($P \leq 0.05$) compared to Giriraj chicks, there was no significant differences observed in weekly cumulative body weight. At the end of the experiment the mean cumulative body weight of T₁ group (1413.40 g) was lesser than T₂ group (1500.10 g). This finding is in agreement with the findings of the Ramappa and Lokanath (1985)^[9] who observed 1.37 kg. Similar results (1329.73 g) was found by Chawke *et al.*, (2021)^[2] by feeding black cumin seed powder (BCSP). Similar results (1482.72 g) was found by Dharmaraj *et al.*, (2017)^[3] by feeding herbal immunomodulator and levamisole. But, in contrary to the findings of Neupane *et al.*, (2014)^[6] the average body weight of giriraj at the age of 8th week was 1184.10 g. Jaishankar (2021)^[5] also found that, higher body weight at the age of 6th week (862.5-956.00 g). Tejashree *et al.*, (2021)^[13] found higher body weight of ranging 1689 to 1899 at 8th week by feeding Neem, Ginger, Garlic powder in their experiment on Giriraj birds. Prasanna *et al.*, (2011)^[8] also found 1.6 kg at the end of 6th week experiment in Raja -2 bird.

Table 1: Cumulative Body Weight (g) of birds

Treatment	0 day	1 week	2 week	3 week	4 week	5 week	6 week	7 week	8 week
T1	36.36±0.58	107.60 ^b ±3.81	235.24±4.46	372.4±7.13	534.33±12.35	737.52±13.42	961.26±17.31	1134.50±17.91	1413.40±19.54
T2	39.37±0.56	131.28 ^a ±2.01	297.86±5.82	476.84±7.01	675.79±12.31	885.14±14.41	1086.50±16.73	1256.50±16.86	1500.10±19.63

Mean values in the same column with different superscripts are significantly different ($P \leq 0.05$)

Feed consumption:

The results of Feed consumption by the birds in the groups T1 and T2 are presented in the Table 2. This results shows the significantly ($P \leq 0.05$) higher feed consumption (92.3g vs 87.6g/d) in Raja II birds during the first week of the experiment. But there was no significant difference observed in the remaining weeks. The cumulative feed intake by Giriraj at the age of 8th week was 3738.50 g and for raja- 2 was 3935.60 g. This result is in agreement with Dharmaraj *et al.*, 2017 who observed feed consumption of 3385.61g at 8th week by feeding herbal immunomodulator and levamisole in

Giriraj birds. The findings of other researchers show that at the age of six week the cumulative feed consumption was 1.8-1.9 kg (Jaishankar. 2021)^[5]. But, in contrary to the findings of this results to the findings of Tejashree *et al.*, (2021)^[13] that highest feed consumption was observed in the Giriraj bird at the end of the experiment (8th wk.) and found the consumption of up to 4494 g. similar results found by the Chawke *et al.*, 2021^[2], by feeding BCSP in their experiment of range 2624- 2686 g. Prasanna *et al.* (2011)^[8] found higher feed consumption (3019g) in the Raja II by feeding azolla at 6th week.

Table 2: Cumulative feed consumption (g)

Treatment	1 week	2 week	3 week	4 week	5 week	6 week	7 week	8 week
T1	87.65±0.93 ^b	256.91±0.57	589.52±0.33	1018.60±0.683	1539±3.04	2243.7±0.783	2943.20±0.750	3738.50±0.35
T2	92.03±0.02 ^a	255.75±0.45	608.17±0.100	1084.60±0.35	1633.0±0.611	2374.1±0.360	3112.50±0.40	3935.60±0.330

Mean values in the same column with different superscripts are significantly different ($P \leq 0.05$)

Feed conversion ratio

The results of feed conversion ratio in the T1 and T2 groups are presented in the Table 3. The results revealed that, there was no significant difference in the feed conversion ratio between the groups. The found results are in agreement with the findings of Tejashree *et al.* (2021)^[13] who found that, the FCR was in the range of 2.23 to 2.77 at 8th week. Similar FCR values (2.44) result found by the Chawke *et al.* (2021)^[2] at 8th

week. In contrary to Neupane *et al.* (2014)^[6] found 2.9 and 3.3 FCR at the age of eight week in Giriraj and new Hampshire bird respectively. Aryal and Neupane (1997)^[1] observed the 2.8 and 3.68 FCR at the age of eight week in Giriraj and new Hampshire bird respectively. The feed conversion efficiency in cross bred birds are higher compare to the pure breeds (Dwivedi *et al.* 1986)^[4].

Table 3: Cumulative Feed conversion ratio

Treatment	1 week	2 week	3 week	4 week	5 week	6 week	7 week	8 week
T1	0.81±0.02	1.09±0.00	1.58±0.00	1.91±0.04	2.09±0.03	2.33±0.03	2.59±0.03	2.65±0.07
T2	0.70±0.02	0.86±0.03	1.27±0.03	1.59±0.04	1.84±0.02	2.18±0.04	2.48±0.01	2.62±0.02

Mean values in the same column with different superscripts are significantly different ($P \leq 0.05$)

Conclusion

This was concluded that Giriraja and Raja -2 birds which are normally reared under backyard system under low-cost maintenance are equally suitable for rearing on deep litter system as observed by similar rates of body weight gains, feed consumption and FCR.

Acknowledgement

We are grateful to our the Dean, Veterinary college Gadag, and KVAFSU, Bidar, Karnataka for providing necessary facilities and funding to carry out this research work.

References

1. Aryal IK, Neopane SP. Performance of Giriraja chicken in the eastern hills of Nepal. PAC technical paper, 1997, no. 179. Pakhribas Agricultural Centre, Dhnakuta; c1997. p. 14.
2. Chawke AP, Dakhore RS, Shegokar SR. Effect of Dietary Supplementation of Black Cumin (*Nigella sativa*) Seed Powder on Growth Performance and Economics of Giriraja Poultry Birds. International Journal of Current Microbiology and Applied Sciences. 2021;10(01):1374-1380.
Doi: <https://doi.org/10.20546/ijcmas.2021.1001.163>
3. Dharmaraj GY, Jayanaik, Indresh HC, Munegowda T. Effect of herbal immuneo modulator on growth performance and survivability in Giriraja birds. Journal of Entomology and Zoology Studies. 2017;5(4):1217-1221.
4. Dwivedi HB, Singh C, Kushwaha NS. Study on mortality and feed conversion efficiency in inbreeds and their crosses. Poultry Guide; c1986. p. 44-47.
5. Jaishankar N. Role of feed additives on production performance of Giriraja chicks. The Pharma Innovation Journal. 2021;10(11):134-137.
6. Neupane DM, Karki, Shrestha SB. Intensive Management of New Hampshire and Giriraja Chickens for Generating Premium Cash Income. Nepal Journal of Science and Technology. 2014;15(2):23-28.
7. Neupane D, Bhandari BB, Poudel S, Shrestha S, Sapkota S. Comparative performance of Giriraja chicken reared on different feeding regimes for economic production in Nepal. Bang. Journal of Animal Science. 2017;46(2):134-139.
8. Prasanna SB, Shivakumar MC, Umashankar BC, Naveen Kumar GS, Pradeep MC, Prabhu TM. Influence of feeding Azolla on the performance of Raja-II broiler birds. Indian Journal of Animal Production Management. 2011;27(3):137-141.
9. Ramappa BC, Lokanath GR. Giriraja, a miracle fowl for villagers/tribals. Department of Poultry Science, University of Agricultural Sciences, Hebbal Campus, Bangalore; c1985.
10. Reddy BSV, Rajendiran AS. Paper presented at State level Seminar on Giriraja bird – A boon for rural economy. Organized by the State Department of Animal Husbandry and Veterinary Services, Government of Karnataka held on 8th March, 2002 at Bangalore.
11. Snedecor GW, Cochran WG. Statistical methods, 8th Edition, Iowa State University Press, Ames; c1994.
12. Singh RV, Saxena VK, Sharma D. Technological developments in the poultry sub-sector; in technology options for sustainable livestock production in India. Proceedings of the workshop on Documentation,

Adoption and Impact of Livestock Technologies in India; c2002. p. 99-103.

13. Tejashree L, Indresh HC, Suresh BN. Effect of feeding neem, ginger and garlic powder on growth performance in Giriraja birds. The Pharma Innovation Journal. 2021;10(12):1952-1957.