



ISSN: 2456-2912

VET 2016; 1(1): 06-07

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www.veterinarypaper.com

Received: 04-05-2016

Accepted: 05-06-2016

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Productive Performance of Indigenous and Vanaraja chicken under Deep litter system of rearing

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Abstract

The present study was conducted on two hundred farm hatched day old indigenous and two hundred day old Vanaraja chicks were maintained following standard feeding and managerial practices under deep litter system of management. The body weight of the birds was recorded at day-old, 8, 14, 20 and 40 weeks. The egg production was recorded in numbers from age at sexual maturity up to 40 weeks of age. The mean body weight of indigenous chicken at day-old, 8, 14, 20 and 40 weeks of age were recorded at 27.19 ± 0.23 , 389.56 ± 5.42 , 827.91 ± 7.77 , 1122.75 ± 8.56 and 1394.72 ± 16.36 g for males and 22.39 ± 0.18 , 258.90 ± 3.96 , 620.22 ± 5.75 , 835.49 ± 11.85 and 1048.57 ± 6.50 g for females. Significantly ($P \leq 0.05$) higher egg production was recorded for Vanaraja (52.25 ± 0.19 numbers) than indigenous (31.25 ± 0.28 numbers) from sexual maturity up to 40 weeks of egg production. Vanaraja had significantly higher body weight and higher egg production. But the indigenous birds were found to have lower mortality rate. Rearing of indigenous birds under deep litter system was found to be economically not viable as production cost far exceeded the income.

Keywords: Indigenous, Vanaraja chicken, litter system, coloured plumage

Introduction

Domestic fowls with coloured plumage are preferred by rural and tribal people. The demand for indigenous chicken and eggs are high in Assam and North-East India. However, the existing traditional poultry farming is unable to meet the ever increasing demand in the region. Improved variety like Vanaraja which are phenotypic replica of indigenous fowl are now being extensively introduced in the region (Singh *et al.*, 2002) [4]. An attempt was made to study the productive performance and economics of production of indigenous and Vanaraja chicken under deep litter system of rearing

Materials and Methods

The present study was conducted in the project “AICRP on Poultry Breeding”, Department of Poultry Science, College of Veterinary Science, Assam Agricultural University, Khanapara, Guwahati. Two hundred farm hatched day old indigenous and two hundred day old Vanaraja chicks were maintained following standard feeding and managerial practices under deep litter system of management. The body weight of the birds was recorded at day-old, 8, 14, 20 and 40 weeks. The egg production was recorded in numbers from age at sexual maturity up to 40 weeks of age. Mortality pattern was recorded up to 40 weeks of age. To calculate the economy of production, the cost of construction of house, equipments, feed, medicines, labour, electricity, litter materials etc. and returns from all sources on per bird basis were considered at the prevailing market rates. The data were analyzed statistically as per Snedecor and Cochran (1994) [5].

Results and Discussion

The mean body weight of indigenous chicken at day-old, 8, 14, 20 and 40 weeks of age were recorded at 27.19 ± 0.23 , 389.56 ± 5.42 , 827.91 ± 7.77 , 1122.75 ± 8.56 and 1394.72 ± 16.36 g for males and 22.39 ± 0.18 , 258.90 ± 3.96 , 620.22 ± 5.75 , 835.49 ± 11.85 and 1048.57 ± 6.50 g for females. The mean body weight of Vanaraja chicken at corresponding periods were recorded at 41.96 ± 0.30 , 1327.69 ± 14.85 , 2568.13 ± 21.07 , 3390.11 ± 13.63 and 3917.36 ± 39.25 g

for males and 37.58 ± 0.24 , 930.22 ± 5.99 , 1919.78 ± 13.09 , 2275.82 ± 18.47 and 2826.87 ± 23.80 g, Respectively for females. A significantly ($P \leq 0.05$) higher body weight in Vanaraja chicken was recorded than their indigenous counterparts and the males were heavier than the females. Krishna *et al.* (2007) ^[3] reported superior weight gain in colored layer compared to desi birds. The lower body weight in indigenous birds maybe due to lighter and compact body weight and lower response to improved feeding management system. The higher body weight in Vanaraja may be attributed to the broiler inheritance prevailing in the birds. Iqbal and Pampori (2008) ^[2] and Haunshi and Doley (2011) ^[1] reported significantly higher body weight in male than female birds. Significantly ($P \leq 0.05$) higher egg production was recorded for Vanaraja (52.25 ± 0.19 numbers) than indigenous (31.25 ± 0.28 numbers) from sexual maturity up to 40 weeks of egg production. The present findings were in close agreement with Krishna *et al.* (*loc. cit*) who reported a significantly higher egg production in colored layer than desi birds. The higher egg production in Vanaraja might be attributed to lack of broody character and early attainment of sexual maturity.

The overall mortality per cent recorded was found higher in Vanaraja (9.1%) than indigenous (7.5%) chicken. In agreement to the present finding, Krishna *et al.* (*loc. cit*) reported lower percent survivability in colored layer than desi birds under backyard system. This may be attributed to the better adaptability, survivability and better disease resistance of the indigenous chicken.

The cost of production per bird was calculated to be Rs.766.16 and Rs.1130.88 for indigenous and Vanaraja chicken, respectively. Although the cost of production was higher in Vanaraja, a total income of Rs.1481.00 and a profit of Rs.350.12 per bird were found. This might be due to better performance in terms of annual egg production and higher body weight which fetched the higher profit. In indigenous chicken, despite lower cost of production and higher market price, a loss of Rs.11.16 was incurred with a total income of Rs. 755.00. The low egg production and lower body weight of the indigenous chicken could not compensate the marginal loss incurred.

In contrast to the present finding, Haunshi and Doley (*loc. cit*) reported a profit margin of Rs.70.12 in Mizo-local reared under intensive system. The reason might be the economics being calculated up to 18 weeks of age resulting in lower cost of production. The chickens might also have had higher rate of growth, thereby resulting in increased body weight gain in the early part of life. Another probable reason might be due to higher selling price of eggs and live birds in their location and the season might have facilitated increased price of the products.

Summary

Vanaraja had significantly higher body weight and higher egg production. But the indigenous birds were found to have lower mortality rate. Rearing of indigenous birds under deep litter system was found to be economically not viable as production cost far exceeded the income. In case of Vanaraja birds, it was found quite relevant to rear under deep litter management system as it proved to be profitable despite a higher cost of production.

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