



ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2022; SP-11(10): 1489-1491
© 2022 TPI
www.thepharmajournal.com
Received: 24-08-2022
Accepted: 30-09-2022

SU Waghmare
M.Sc. Student, Department of
Animal Husbandry and Dairy
Science, Dr. BS Konkan Krishi
Vidyapeeth, Dapoli,
Maharashtra, India

PD Chendge
M.Sc. Student, Department of
Animal Husbandry and Dairy
Science, Dr. BS Konkan Krishi
Vidyapeeth, Dapoli,
Maharashtra, India

NN Prasade
Assistant Professor, Department
of Animal Husbandry and Dairy
Science, College of Agriculture,
Dapoli, Maharashtra, India

DJ Bhagat
Professor (CAS), Department of
Animal Husbandry and Dairy
Science, College of Agriculture,
Dapoli, Maharashtra, India

VS Dandekar
Associate Professor, Department
of Animal Husbandry and Dairy
Science, College of Agriculture,
Dapoli, Maharashtra, India

Corresponding Author:
SU Waghmare
M.Sc. Student, Department of
Animal Husbandry and Dairy
Science, Dr. BS Konkan Krishi
Vidyapeeth, Dapoli,
Maharashtra, India

Production and reproduction performance of indigenous chickens in Thane district of Maharashtra state

SU Waghmare, PD Chendge, NN Prasade, DJ Bhagat and VS Dandekar

Abstract

A survey was conducted to “Morphological characterization indigenous chicken in Thane district of Maharashtra.” The main object of study was to identify different morphological characters of indigenous chicken. Three stage stratified random sampling was followed for collection of data. At first stage from proposed district under study i.e., Thane five tehsils were selected having maximum indigenous poultry population and from each tehsil four villages were selected randomly in second stage. In third stage four farmers having five birds were selected randomly. Thus, total sample size 80 poultry owners and 400 birds were selected.

The production performance studied indicated that the female chicken was laying 70 to 85 eggs with good fertility of 78.52 per cent and hatchability of 74.99 percent. Chickens were average egg producer with (13.44 ± 0.29) egg per clutch and (4.51 ± 0.19) clutches per year respectively. The eggs were small in size. Although indigenous birds generally lay few eggs and grow very slowly. They have ability to increase their productivity.

Keywords: Indigenous, chicken, production and reproduction characters, Thane district

Introduction

Native chickens in India are found abundantly and distributed across different agro-ecologies under traditional scavenging management system indicating that they are important avian resources reared as a source of animal protein and income to many of the rural households (Fisaseha *et al.* 2010) [5]. Thus, their widespread distribution indicates their adaptive potential to the prevailing environment, disease and other stresses. Breeding for high productivity has caused loss of many commercial and indigenous genetic resources.

Although indigenous birds generally lay few eggs and grow very slowly, they have the ability to increase their productivity if good care and proper management is provided in terms of proper feeding, veterinary care and good housing etc.

Material and Methods

The present investigation entitled “Morphological characterization of indigenous chicken in Thane district of Maharashtra” was undertaken to study different morphological characterization of indigenous chicken that are reared in Thane district For collection of information on this aspect, a three stage stratified random sampling method was followed. From this district, five tehsils *viz.* Bhiwandi, Kalyan, Ambernath, Murbad, Shahapur were selected and from each tehsil four villages were selected randomly. From each village four farmers rearing a minimum of five indigenous chickens were selected randomly. Thus, a total sample size of 80 poultry owners and 400 chickens were observed for a sample survey. A questionnaire was prepared as per the performance of NBAGR for collection of data on performance of indigenous chicken. The data were collected by personal interview and also by taking measurements of each chicken.

Result and Discussion

Productive characteristics

Average age at first lay

The data regarding average age at first egg production is given in Table 1. From the table it is indicated that the mean age at the first egg production was 5.59 ± 0.12 months. The average age of birds at first production in Bhiwandi, Kalyan, Ambernath, Murbad and Shahapur tehsils was

5.57±0.13, 5.50±0.18, 5.73±0.11, 5.48±0.09 and 5.69±0.11 months, respectively. The results of the present study are comparable with Khawaja *et al.* (2012) ^[10] who reported age at first egg (days) 204±1.53, 135±3.51 and 147±1.15 days, of Desi, Fayoumi and Rhode Island Red chicken, respectively. Rajkumar *et al.* (2017) ^[13] reported higher age (214±6 days) of sexual maturity than present study.

Number of clutch cycles per year

The data regarding the number of clutch cycles is given in Table 1. From the table it is indicated that the mean number of clutch cycles was 4.51±0.19. The number of clutch cycles in Bhiwandi, Kalyan, Ambernath, Murbad and Shahapur tehsils was 4.50±0.19, 4.52±0.32, 4.56±0.17, 4.40±0.22 and 4.60±0.23, respectively.

Bett *et al.* (2014) ^[3] reported lower number of clutch cycles per year as 3.4±0.08, 4.2±0.29, 3.1±0.07 and 3.9±0.18, of chickens reared in Vietnam, Pakistan, Bangladesh and Sri Lanka, respectively. Guni *et al.* (2013) ^[7] also reported lower clutch cycles per hen per year in Chunya, Njombe and Songea districts were 3.61, 3.16 and 3.11±0.16, respectively than present findings.

Number of eggs per cycle

The data regarding the number of eggs per cycle is given in Table 1. The mean egg per cycle was 13.44±0.29 in Thane district. The average egg production per cycle Bhiwandi, Kalyan, Ambernath, Murbad and Shahapur tehsils was 13.87±0.40, 14.31±0.38, 13.68±0.31, 12.75±0.19 and 12.62±0.20 respectively.

The results of the present study are not in accordance with Deneke *et al.* (2014) ^[4] who observed that comparably the highest number of eggs per cycle in the highland, lowland and midlands as 15.8±2.70, 15.1±2.25 and 15.3±1.99. The overall mean eggs per cycle was 15.4 ± 2.34. Negassa *et al.* (2014)

^[11] also reported that the eggs per clutch in indigenous chickens of highland was 15.8±2.70, 15.3±1.99 in midland and 15.1±2.25 in lowland agro-ecological zones of South Eastern Ethiopia, respectively and the overall mean was 15.4±2.34 eggs per clutch.

Interval between two clutch cycles

The data regarding the interval between two clutch cycles is given in Table 1. The mean interval between two clutch cycles was 73.95±0.19 days. The interval between two clutch cycles in Bhiwandi, Kalyan, Ambernath, Murbad and Shahapur tehsils was 72.12±0.27, 74.50±0.18, 76.41±0.11, 75.12±0.21 and 71.60±0.19 days, respectively.

The results of the present study are comparable with (2020) ^[12] who reported that most of the hens had broodiness, and the mean interval between two cycles was 82.55 days. Interval between two cycles was within the range of 76 to 90 days in indigenous chickens of Raigad and Ratnagiri districts of Maharashtra.

Annual egg production

The data regarding egg production per year is given in Table no 1. The mean egg production per year was 75.54±2.65 eggs. The average egg production per year in Bhiwandi, Kalyan, Ambernath, Murbad and Shahapur tehsils was 79.31±2.61, 76.87±2.69, 78.43±2.80, 75.00±2.88 and 68.12±2.27 eggs, respectively.

The results of the present study are higher than Iqbal and Pampori (2008) ^[9] who studied characteristics of indigenous chicken of Kashmir. And recorded 50- 60 eggs per year in the chicken reared under free range scavenging system.

Hailu *et al.* (2017) ^[8] observed similar results and recorded the number of eggs produced by individual hen per year was 79.09±4.52.

Table 1: Average age at first lay, number of clutch cycle / years, Number of Eggs / cycle Interval between two clutch and Egg production/year

Category Tehsils	Average age at first lay (Mean ± S.E) (month)	No. of clutch Cycles / Year (Mean ± S.E)	No. of Eggs / Cycle (Mean ± S.E)	Interval between two clutch cycle (Mean ± S.E) (day)	Egg Prod. / Year (Mean ± S.E)
Bhiwandi	5.57±0.13	4.50±0.19	13.87±0.40	72.12±0.27	79.31±2.61
Kalyan	5.50±0.18	4.52±0.32	14.31±0.38	74.50±0.18	76.87±2.69
Ambarnath	5.73±0.11	4.56±0.17	13.68±0.31	76.41±0.11	78.43±2.80
Murbad	5.48±0.09	4.40±0.22	12.75±0.19	75.12±0.21	75.00±2.88
Shahapur	5.69±0.11	4.60±0.23	12.62±0.20	71.60±0.19	68.12±2.27
Average	5.59±0.12	4.51±0.19	13.44±0.29	73.95±0.19	75.54±2.65

Reproductive characteristics

Fertility and Hatchability

In Table no. 2 the data regarding fertility and hatchability of indigenous chickens furnished. And depicted in Fig.2 and Fig.2. The average fertility of indigenous hen Thane district was 78.52 per cent. Whereas, percent hatchability of eggs by broody hen was 74.99 per cent.in Thane district. The fertility in Bhiwandi, Kalyan, Ambernath, Murbad and Shahapur tehsil was 75.25, 75.50, 82.18, 79.06, 80.62 and 80.62 per

cent and the percent hatchability in above Tehsils was recorded 70, 68.75, 79.06, 78.43 and 78.75 respectively.

The results of the present study are in agreement with Gopinath (2013) ^[6] He reported fertility of eggs in Chamarajanagar was 61.34 per cent and in Mandya was 72.72 per cent. Rajkumar *et al.* (2017) ^[13] reported lower hatchability in Assel chicken and fertility on total eggs was 41.4 and 67.2 percent, respectively than present findings.

Table 2: Fertility and hatchability of indigenous chicken of Thane district

Tehsils	Fertility (%)	Hatchability (%)
Bhiwandi	75.25 (16)	70 (16)
Kalyan	75.50 (16)	68.75 (16)
Ambarnath	82.18 (16)	79.06 (16)
Murbad	79.06 (16)	78.43 (16)
Shahapur	80.62(16)	78.75 (16)
Average	78.52 (80)	74.99 (80)

N = 80 Figures in parenthesis indicate number of Birds



Fig 1: Broody Hen



Fig 2: The data regarding fertility and hatchability of indigenous chickens furnished

Conclusion

The production performance studied indicated that the female chicken was laying 70 to 85 eggs with good fertility of 78.52 per cent and hatchability of 74.99 per cent. The eggs were small in size. Only males were demanded in market than the females for selling as well as consumption purpose. The local indigenous males were sold at higher than boiler. These indigenous chickens reared for dual purpose.

Acknowledgement

The authors are greatly thankful to the farmers whose necessary information helps us to complete the research work successfully.

References

1. Anonymous. AICRP on Poultry Breeding and Poultry Seed Project report. ICAR – Directorate of Poultry Research; c2017. p. 42 -45
2. Anonymous. 20th Livestock Census-2019. All India Report. Ministry of Agriculture. Dept. of Animal Husbandry, Dairying and Fisheries. Government of India; c2019.
3. Bett RC, Bhuiyan A, Khan MS, Silva GLLP, Thuy LT, Sarker SC, *et al.* Phenotypic variation of native chicken population in the South and South East Asia. *Int. J Poultry Sci.* 2014;13(8):449-460.
4. Deneke N, Melesse A, Banerjee S. Phenotypic characterization of indigenous chicken populations in South Eastern Oromia Regional state of Ethiopia. *Anim. Gen. Res.* 2014;55:101-113.

5. Fisaseha M, Abera M, Tadelle D. Assessment of village chicken production system and evaluation of the production and reproduction performance of local chicken ecotype in Bure district, North West Ethiopia African. *J Agril. Res.* 2010;5(3):1739-1748.
6. Gopinath CR. Characterization and performance evaluation of indigenous chicken in the Mysore division of Karnataka state. Dept. of Poultry Sci. Veterinary College, Bangalore; c2013. p. 185-250.
7. Guni FS, Katule AM, Mwakilembe PAA. Characterization of local chickens in selected districts of the Southern Highlands of Tanzania: II. Production and Morphometric traits. *Liv. Res. for Rural Dev.* 2013;25:11.
8. Hailu A, Misganaw M, Assefa A, Fassil. On-farm phenotypic characterization of indigenous chicken populations in Guji Zone of Oromia national regional state, Ethiopia. *Int. J of Development Res.* 2017;7(11):16652-16661.
9. Iqbal S, Pampori ZA. Production potential and qualitative traits of indigenous chicken of Kashmir. *Liv. Res. Rural Dev.* 2008;20:11.
10. Khawaja T, Khan SH, Mukhtar NMAA, Ahmed T, Ghafar A. Comparative study of growth performance, egg production, egg characteristics and haemato-biochemical parameters of Desi, Fayoumi and Rhode Island Red chicken. *J Applied Anim. Res.* 2012;40(4):273-283.
11. Negassa D, Melesse A, Banerjee S. Phenotypic characterization of indigenous chicken populations in South eastern Oromia regional state of Ethiopia. *Ani. Gen. Resources.* 2014;55:101-113.
12. NN. Morphological characterization of Indigenous chicken in Ratnagiri and Raigad districts of Konkan. Ph.D. Thesis. Submitted to Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapolic; c2020.
13. Rajkumar U, Haunshi S, Paswan C, Raju MVLN, Rama Rao SV, Chatterjee RN. Characterization of indigenous Aseel chicken breed for morphological, growth, production, and meat composition traits from India. *Poult. Sci.* 2017;96:2120-2126.