

PRODUCTIVE AND REPRODUCTIVE TRAITS OF INDIGENOUS CHICKEN IN DHEMAJI DISTRICT OF ASSAM AND THEIR PERFORMANCES IN SCAVENGING SYSTEM OF MANAGEMENT

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ABSTRACT

A survey was conducted in 15 villages of Dhemaji district of Assam, comprising 150 non-tribal and 150 tribal households. Both purposive and random sampling methods were used to evaluate performance of indigenous chicken in respect of egg weight, body weight, age at sexual maturity, egg production and hatchability percentage of egg. It was obvious from the results that the body weight of indigenous chicken at day old, 5 months and 10 months of age were not significant ($P > 0.05$) between communities. Sexual maturity, egg production per laying cycle and annual egg production were found significantly ($P < 0.05$) different between communities except hatchability percentage of egg of indigenous chicken.

Key words: Indigenous chicken, Productive and reproductive performance, non-tribal and tribal community, Dhemaji district of Assam.

Dhemaji district of Assam is one of the district situated in the remote corner of North East India on the north bank of river Brahmaputra. The district is recognized as one of the disadvantaged districts of the state, according to the Planning Commission, Govt. of India. Most of the rural people of this district are Schedule Tribes and Schedule Caste categories. Though agriculture is the prime source of income of these people, dependence on livestock and poultry as auxiliary source of income is evident. Moreover, Dhemaji district of Assam possesses a good number of indigenous chicken about 2.35 lakhs⁷. These Indigenous chickens play an important role to meet the domestic as well as socio-cultural needs of the rural people. Present study is an attempt to assess the overall productive and reproductive performances of these indigenous chickens in the district. Moreover, a comparison is made between non-tribal and tribal community of the district in respect of indigenous chicken performance.

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MATERIALS AND METHODS

A survey was conducted in entire Dhemaji district during the period from July 2009 to June 2010 by personal interview method to collect information regarding productive and reproductive traits of indigenous chicken. A total 300 nos. of indigenous chicken farmers were selected uniformly from non-tribal and tribal community and interviewed. The body weight of Day old chick and egg weight were taken in a flock with the help of a Veeto egg balance (accuracy 2g). Body weight of chicken at the age of 5 and 10 month were taken with the help of Salter balance (2 kg capacity, accuracy 20 g). The age at sexual maturity of pullet was determined as the difference between the date of hatch and the date of first egg laid. The egg laid by the indigenous chicken up to 72 weeks of age was considered as annual egg production. The hatchability percentage was calculated on total egg set (TES) basis. The data thus collected were compiled and tabulated suitably and were analyzed statistically using standard technique⁸.

RESULTS AND DISCUSSION

The mean values for egg weight, body weight of indigenous chicken at day old, 5 months and 10 months of age, age at sexual maturity, egg

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production in a laying cycle, annual egg production and hatchability percentage for non-tribal and tribal community are presented in Table 1.

1. Egg weight:

The overall mean value for egg weight of indigenous chicken of the district was found to be 34.94 ± 0.11 g, irrespective of communities. It was observed that egg weight found to be lower in non-tribal community than that of tribal community. The indigenous birds of non-tribal community laid less number of eggs in comparison to tribal community (Table1). This might be the probable reason of higher egg weight of that non-tribal community as egg weight is directly proportional to the numbers of egg produced. This finding was in close proximity with other workers ^{3 & 4}.

2. Body weight:

The overall mean value for day old body weight of indigenous chicken of the district (irrespective of communities) was 29.82 ± 0.21 g. It was noticed that the body weight of day old chick of indigenous chicken of tribal community was slightly higher than that of non-tribal community but statistically not significant ($P > 0.05$). This might be due to comparatively larger egg size in respective communities (Table1). This finding was in agreement with the study of ^{2 & 9}.

The overall mean values of body weight of male and female indigenous chicken at 5 month of age were 837.52 ± 9.45 g and 765.88 ± 10.01 g, respectively. The body weights of male and female birds in non-tribal community had higher body weight than that of tribal community but were not found to be statistically significant ($P > 0.05$). This might be due to comparatively better management practices in terms of feeding, breeding, health care and other welfare activities adapted by the farmers of the respective communities. In respect of body weight at the age of 10 months, the overall mean values of body weight of male and female indigenous chicken were 1341.01 ± 4.27 g and 1070.29 ± 1.56 g, respectively. A similar trend was observed between two communities as in case of body weight at 5 months of age. The present finding was almost similar with the finding reported by ^{3 & 9}. However, other study⁵ reported comparatively

higher body weight of indigenous chicken than the present finding. This might be due to different agro-climatic conditions and management practices adopted in different places of study.

3. Age at sexual maturity:

The overall mean value of sexual maturity of indigenous chicken of the district was 186.34 ± 0.76 days. It was observed that the indigenous pullet of non-tribal community matured early than those of tribal community. The sexual maturity of indigenous chicken found to be significant ($P < 0.05$) between communities. This might be due to the fact that the non-tribal farmers took more care of their indigenous chicken than the tribal farmers. The present finding was in agreement with the finding present in other literature ¹.

4. Egg production:

After attainment of sexual maturity the indigenous chicken of the district laid eggs for $1\frac{1}{2}$ month period. Thereafter, the indigenous chickens incubate these eggs for a period of 21 days. After hatching of chick the hen takes care of chicks for a period of $1\frac{1}{2}$ months. This whole process takes around $3\frac{1}{2}$ to 4 months. The indigenous chicken of the district follows this process about 3 times in a year.

The overall mean values for egg production in a cycle of indigenous chicken of the district was 15.97 ± 0.08 nos. The egg production per laying cycle of indigenous chicken reared by the non-tribal community was higher than tribal community and was found statistically significant ($P < 0.05$) between communities. This might be due to small size of egg laid by indigenous chicken of non-tribal community. Several workers ^{5 & 6} also found similar finding of the present study.

The overall mean value for annual egg production of indigenous chicken of the district was 56.25 ± 0.06 nos. Similarly, it was observed that the indigenous chicken reared by non-tribal community laid more number of eggs than those of tribal community and was found statistically significant ($P < 0.05$) between communities. This might be due to the similar reasons as stated for egg production per laying cycle.

5. Hatchability percentage:

The overall mean value of hatchability percent of egg (TES) in indigenous chicken of the district was 83.47 ± 0.35 %. All the indigenous chicken farmers adopted the practice of natural incubation by the use of broody hen. The overall mean hatchability percent of indigenous chicken in

tribal community was higher than non-tribal community but were not found to be statistically significant ($P > 0.05$). The present finding was in close proximity with the finding reported by other worker³. However, other authors⁵ reported a comparatively lower hatchability than that of present finding.

Table 1: Productive and Reproductive traits of indigenous chicken

Sl. No.	Parameters	Non-tribal community	Tribal community
1.	Egg weight (g)	$34.68^a \pm 0.14$	$35.21^a \pm 0.16$
2.	Body weight of		
	i. Day-old (g)	$29.64^a \pm 0.23$	$30.00^a \pm 0.25$
	ii. Male body weight at the age of 5 months (g)	$842.58^a \pm 11.53$	$832.45^a \pm 12.19$
	iii. Female body weight at the age of 5 months (g)	$775.16^a \pm 10.13$	$756.59^a \pm 11.40$
	iv. Male body weight at the age of 10 months (g)	$1346.11^a \pm 2.28$	$1335.91^a \pm 8.31$
	v. Female body weight at the age of 10 months (g)	$1079.21^a \pm 1.77$	$1061.37^a \pm 2.02$
3.	Age at sexual maturity (days)	$184.70^a \pm 1.03$	$187.97^b \pm 1.13$
4.	Egg production		
	i. Egg production per laying cycle	$17.50^a \pm 0.29$	$14.44^b \pm 0.29$
	ii. Annual egg production	$57.54^a \pm 0.11$	$54.95^b \pm 0.12$
5.	Hatchability percentage	$82.83^a \pm 0.47$	$84.10^a \pm 0.48$

Means bearing different superscript in a row differ significantly from each other ($P \leq 0.05$)

CONCLUSION

The body weight of indigenous chicken at day old, 5 months and 10 months of age were not significant ($P > 0.05$) between communities. Sexual maturity, egg production per laying cycle and annual egg production showed significant ($P > 0.05$) difference between communities except hatchability percentage of egg of indigenous chicken. It is very clear from this study that non-tribal people of the district take more care of their chickens than tribal people. So, performance of indigenous chicken of non-tribal community is found to be better than that of indigenous chicken of tribal community. Moreover, overall performance of indigenous

chicken in the district (irrespective of community) is quite satisfactory. If elements of improved scientific practices including feeding, breeding, management and health coverage could be imbibed better results could be ensured.

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