

Characterization of native chickens of Ranchi district of Jharkhand

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Poultry farming under backyard condition is being practiced in rural areas which provide livelihood security to the family in addition to securing the availability of food. The number of backyard poultry birds has risen by a staggering 46% during 2012 to 2019 (20th Livestock Census 2019). The birds of Ranchi district are fast movers, energetic and capable of fighting for long time. The rural women are mainly engaged with rearing and marketing of chickens whereas, the youths have very much interest in cocks fighting in local market. The plumage colour and long shank of native chicken helps in protecting themselves against predators. However, no information is available on the characteristics of native chickens of Ranchi and the population is not recognised as a distinct breed. Therefore, the present investigation was undertaken with the objective of obtaining baseline data on the morphology and production potential of the local chickens of Ranchi district of Jharkhand.

The survey was carried out during March 2019 to March 2020 in three adjacent areas of Ranchi district namely Bundu, Sonahatu and Tamar covering 180 adult local chickens of either sex among 90 households for collection of phenotypic data whereas biometric measurements were recorded from 180 birds. Information was also recorded on flock composition and performance parameters. The study site lies between latitude 23.05° N and 23.196° N and longitude 85.58° E and 85.698° E. The area receives an average annual rainfall of 56.34 inches with an average annual temperature of 23.7°C. The field survey design and data collection procedure of this study were performed according to the guidelines of NBAGR, Karnal. Structured questionnaire was designed to collect data and the interviews were conducted at farmers' house. The data collected on various traits were subjected to analysis using SPSS statistical package.

Flock dynamics: The flock size in the study area was

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14.97±0.410 birds per household comprising 2.36±0.163 cocks, 3.69±0.204 hens and 8.91±0.316 chicks (Fig. 1). This value was almost similar to the flock size in Bundi district of Rajasthan (Dhaka *et al.* 2017).

Morphological characteristics: The birds usually had elongated body with long neck and long legs which was in agreement with the Kaunayen bird (Vij *et al.* 2008). The majority of male chicken (41.66%) had mixed plumage colour followed by black and white (18.33%), red (13.33%), black (10%), brown (8.33%) and white (8.33%). Cocks generally had shining off-white or golden feathers on neck, back, wings and greenish black feathers on tail (Fig. 2). In hens, 44.17% had brown plumage followed by black (30.83%), black and white (15.83%), white (6.67%) and mixed (2.5%). The hens generally had brown or dark brown feathers on neck, wings and back and black feathers on tail (Fig. 3). In cocks, the mixed feather colours predominate over any single feather colour which was in agreement with the findings of Mishra *et al.* (2019). The predominant colour of shank was yellow in male (96.66%) and female (77.50%) followed by slaty-black in male (3.33%) and female (22.50%). The predominant yellow shank colour corresponds with the findings of Churchill *et al.* (2019). The birds had 100% red colour ear lobes and comb. This result was in close agreement with the findings of Churchill *et al.* (2019) and Veeranna *et al.* (2020). The predominant comb type was single in male (56.67%) and female



Fig. 1. Flock composition of indigenous chicken of Ranchi district.

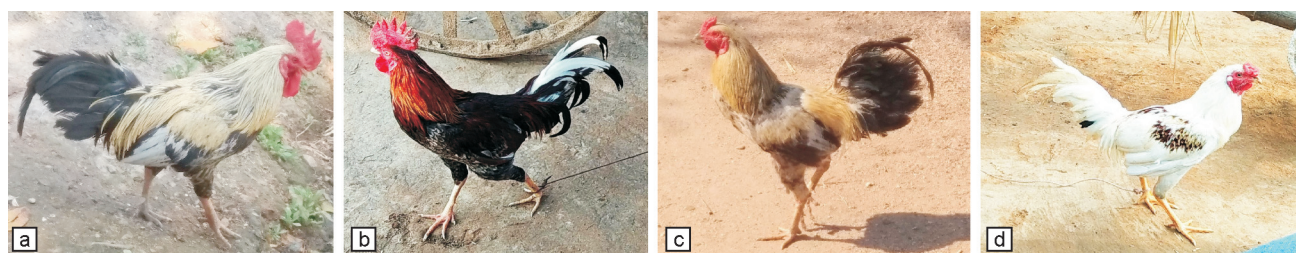


Fig. 2. Basic plumage colour and comb type of native cock of Ranchi district. (a) Mixed plumage with single comb, (b) red plumage with single comb, (c) mixed plumage with pea comb and (d) black and white plumage with rose comb.

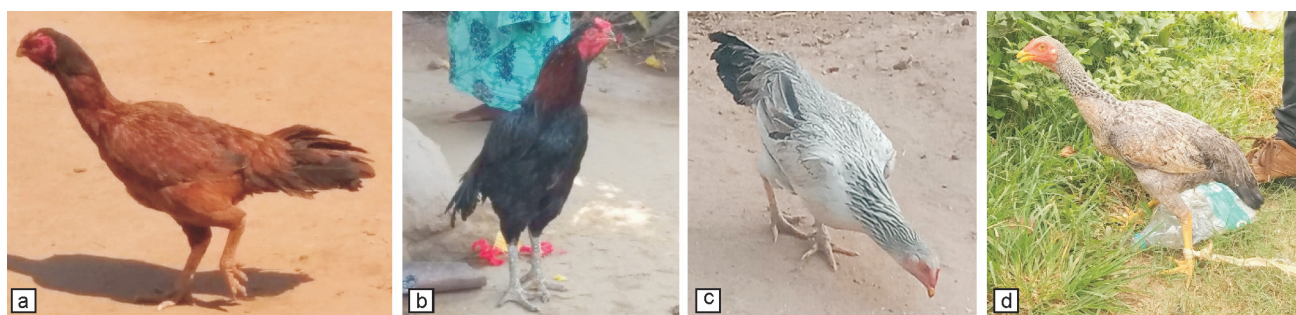


Fig. 3. Basic plumage and shank colour of native hen of Ranchi district. (a) Brown plumage, (b) black plumage with slaty-black shank, (c) black and white plumage and (d) mixed plumage with yellow shank.

(62.50%) followed by pea in male (31.67%) and female (29.17%). Whereas rose comb type was found in lesser proportion in male (11.66%) and female (8.33%). Similar pattern was also reported by Veeranna *et al.* (2020). The birds had white skin (100%). Predominant white skin colour was also reported by Nayak *et al.* (2020).

Body measurement: The mean value of body weight and shank length was recorded. Body weight and shank length of males were significantly ($p < 0.05$) greater than females (Table 1). This was in agreement with the reports of Dana

The percentage hatchability reported in this study was 75.59 ± 0.79 , which was similar to the observation of Kumar *et al.* (2016).

From the present study, it may be concluded that native chickens of Ranchi district of Jharkhand had diverse plumage colour and long shank which help them to protect from predators. The birds thrive well in free range scavenging condition and contribute to the genetic pool because of their hardiness and ability to survive and produce under rural low input conditions.

SUMMARY

The present research work was conducted on indigenous chicken of Ranchi district of Jharkhand during March 2019 to March 2020. The field survey design and data collection procedure of this study were performed according to the guidelines of NBAGR, Karnal. Structured questionnaire was designed to collect data and the interviews were conducted at farmer's house. The birds had elongated body with long shank and long neck. The male birds were fast movers, energetic and capable of fighting for long time. Cocks generally had mixed plumage and hens had brown plumage. The colour of ear lobe and comb was red whereas the skin was white in colour in both the sexes. The type of comb was mostly single followed by pea and rose. The shank colour was generally yellow. Average body weight of an adult cock and hen were 1738.58 ± 42.856 and 1302.24 ± 23.48 g respectively. The hen laid about 44.90 ± 0.61 eggs/annum. The current study has set a new dimension for further studies for establishment of a distinct breed in future. However, molecular characterization, genetic similarity or divergence with other Indian breeds and efforts must be taken to

Table 1. Mean performance of body measurements in adult native chickens

Parameter	Male	Female
Body weight (g)	1738.58 ± 42.856^b	1302.24 ± 23.48^a
Shank length (cm)	11.3 ± 0.03^b	9.88 ± 0.039^a

^{a,b}Values with different superscript across rows differ significantly at $P \geq 0.05$.

et al. (2010), Kumar *et al.* (2016) and Mishra *et al.* (2019).

Production performance: The birds started egg laying at an age of 220.43 ± 1.36 days. This was accordance with findings of Mishra *et al.* (2019). The clutch size and number of clutches per cycle were 5.45 ± 0.214 days and 2.55 ± 0.146 respectively. The inter clutch interval was 1.34 ± 0.106 days. The average egg production in a cycle was 13.33 ± 0.335 . The study revealed that the annual egg production of native chicken was spread in 3.41 ± 0.169 cycles separated by pause period of 107.68 ± 0.951 days. Average egg production per hen per year was 44.90 ± 0.61 , which was similar to the findings of Mishra *et al.* (2019).

conserve the indigenous chicken population.

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