

Phenotypic characteristics of Gaolao strain of Nagpuri buffaloes in Wardha district of Maharashtra*

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Nagpuri or Berari breed of buffalo, recognized as early as 1938 (Oliver 1938), belongs to Vidrabha region of Maharashtra. It is a light but strong and hardy, dual purpose breed of buffalo, which is well adapted to hilly and forest area of tropical climate. The five distinct strains of Nagpuri breed of buffalo which are spread all over 5 distinct subregions of Vidrabha, viz. Purnathadi (along the banks of Purna river in Akola district), Ellichpuri (Achalpur tehsil of Amrawati district), Gauli or Gaolao (Wardha district), Nagpuri (Nagpur district) and Shahi of Chandrapur district. Rife (1959) and Ranjhan and Pathak (1983) also recognized different strains of Nagpuri buffaloes differing in colour and body characters.

The primary data pertaining to the habitat, phenotypic appearance, breed characteristics, biometric measurements and production performance of Gaolao strain of Nagpuri buffaloes was collected from Arvi, Ashti and Karanja tahsils of Wardha district of Maharashtra state by interviewing the buffalo owners. A specially designed questionnaire was developed for this survey. The questionnaire was pre-tested and used for survey. The biometric measurements were taken personally and the live body weights were derived by using Shaeffer's formula.

The data collected by direct observations of 500 Gaolao buffaloes belonging to different age groups at 3 different locations in the native tract. The data were categorized in the following age groups.

Sr. No.	Group	Age groups (years)
1	A	4–5
2	B	5–7
3	C	7–9
4	D	9–11
5	E	Above 11

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Phenotypic characteristics

Colour: Out of 500 Gaolao strain of Nagpuri buffaloes surveyed, majority (93.80%) exhibited black body coat colour. The remaining (6.20%) buffaloes exhibited brown body coat colour.

Muzzle colour: Majority (70–60%) had black colour and 29.40% had brown muzzle.

Colour of patch on legs: Majority (85–60%) of buffaloes had white colour patch, 2.4% of buffaloes had brown patch on their legs whereas, 12% buffaloes did not have any coloured patch on their legs.

Colour of tail switch: Majority (60.40%) of buffaloes had white tail switch and 37% of them had black colour tail switch whereas, only 2.60% of them had brown tail switch.

Shape of horns: Majority (84.4%) of buffaloes had sword like orientation of horns whereas 15.6 of buffaloes had sickle shaped orientation of horns.

Orientation of ears: Majority (76%) of buffaloes had long ear orientation whereas, 24% of them had drooping ears.

Circumference of horns: In the age group of 4–5 years, the average circumference of horns of buffaloes was 16.77 ± 0.206 cm while in older buffaloes in the age group of 9–11 years, it was 18.01 ± 0.235 cm. The circumference of horns increased progressively up to 11 years of age but there was no further increase in it above 11 years of age. The pooled average circumference of horns was 17.88 ± 0.812 cm.

Distance between two horns: In the age group of 4–5 years, the average distance between 2 horns of buffaloes was 15.69 ± 0.11 cm. With the advancement in age, the distance between 2 horns increased significantly up to 11 years of age. In older buffaloes having 11 years of age, the average distance between 2 horns was 18.77 ± 0.17 cm.

Tail length: In the age group of 4–5 years age, the average tail length was 78 ± 0.53 cm. With the advancement in age, the tail length increased slightly up to 11 years of age. In older buffaloes having 11 years of age, the tail length was 85.23 ± 0.45 cm. The pooled average tail length was 84.52 ± 0.44 cm.

Neck length: The average neck length in the age group of 4–5 years age was 41.28 ± 0.32 cm whereas in the age group

of 9–11 years it was 44.09 ± 0.56 cm. The pooled average neck length was 42.55 ± 1.06 cm.

Circumference of neck: In the age group of 4–5 years age, the average circumference of neck was 97.04 ± 0.53 cm, whereas, in the age group of 5–7 years it was 100.23 ± 0.77 cm. With the advancement in age, it increased slightly and in older buffaloes having 11 years of age, it was 106.77 ± 0.50 cm. The pooled average circumference of neck in all age groups was 104.53 ± 1.50 cm.

Ear width: The average ear width of buffaloes in the age group of 4–5 years age, was 11.08 ± 0.16 cm, whereas, in older buffaloes having 11 years of age, it was 13.194 ± 0.12 cm. The pooled average ear width was 12.82 ± 0.14 cm.

Head length: The average head length in the age group of 4–5 years age, was 48.38 ± 0.28 cm. With the advancement in age, it increased progressively up to 11 years of age. At 11 years of age, it was 57.67 ± 0.68 cm.

Breadth of head: The breadth of head of buffaloes in the age group of 4–5 years age, was 20.123 ± 0.14 cm, whereas, it was slightly more (21.89 ± 1.45 cm) in the older buffaloes of 11 years of age. The pooled average breadth of head in different age groups was 21.52 ± 0.31 cm.

Live body weights: In the age group of 4–5 years age, the average live body weight of buffaloes was 374.31 ± 2.41 kg. With the advancement in age, it increased progressively up to 418.72 ± 3.76 kg. In the age group of 9–11 years whereas, the pooled average live body weights was 408.99 ± 8.24 kg.

Biometric measurements

Body length: In the age group of 4–5 years age, the average body length was 127.26 ± 0.17 cm. With the advancement in age, it increased progressively. In the age group of 11 years and above, it was 132.88 ± 0.88 cm whereas, the pooled average body length was 131.42 ± 0.83 cm.

Heart girth: The average heart girth in the age group of 4–5 years age was 186.89 ± 1.90 cm. With the advancement in age, it increased progressively. At 11 years of age and above it was 188.90 ± 0.70 cm. The pooled average heart girth at all age groups was 181.71 ± 0.81 cm.

Height at withers: The average height at withers in the age group of 4–5 years age was 126.55 ± 0.89 cm. With the advancement in age it increased progressively and at 11 years of age it was 128.2655 ± 0.54 cm. The pooled average height at withers at all age groups was 127.43 ± 0.42 cm.

Udder characteristics

Shape of udder: Maximum (52.6%) Gaolao strain of Nagpuri buffaloes had bowl shaped udder. Further, round shaped udder was also observed in 36.2% of buffaloes whereas 11.2% buffaloes had goat type udder.

Udder width: The average width of udder was 25.76 ± 0.37 cm. With the advancement in age, it increased progressively up to 11 years of age, and it was 49.84 ± 0.41 cm, whereas the pooled average width of udder was 44.49 ± 3.66 cm.

Production traits

Average daily milk yield: The average daily milk yield in the age group of 4–5 years age, was 3.24 ± 0.06 kg. With the advancement in age, it increased progressively. In the age group above 11 years it was 3.59 ± 0.07 kg. But in later age there was reduction in milk yield. Pooled average daily milk yield was 3.82 ± 0.09 kg.

Lactational milk yield: The average lactational milk yield in the age group of 4–5 years age was 1008.8 ± 20.7 kg. In the age group of 5–7 years age, it was 1164.79 ± 34.4 kg. With the advancement in age, it increased progressively up to the age of 9–11 years, and it was 1224.8 ± 34.8 kg. In the later age it decreased up to 1112.8 ± 32.37 kg. The pooled average lactational milk yield in all the age groups was 1212.87 ± 17.33 kg.

SUMMARY

Phenotypic characterization of Gaolao strain of Nagpuri buffaloes in Wardha district of Maharashtra was carried out in its native tract. Out of 500 Gaolao buffaloes surveyed, majority (93.80%) exhibited black body coat colour, while remaining (6.20%) buffaloes exhibited brown body coat colour. Variation was observed in colour of muzzle and tail switch. But, no variation was observed in colour of patch on their legs, shape of horns, ear orientation and shape of udder.

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