

**STUDY ON PHENOTYPIC CHARACTERISTICS,
PRODUCTIVE AND REPRODUCTIVE
PERFORMANCES OF CAPTIVE GAYAL (*Bos
frontalis*) IN BANGLADESH**



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Roll No.: 0121/01

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**A thesis submitted in the partial fulfillment of the requirements for the degree of
Master of Science in Dairy Science**

**Department of Dairy and Poultry Science
Faculty of Veterinary Medicine
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September 2023

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Sushama Chakma

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PLAGIARISM VERIFICATION

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LIST OF ABBREVIATIONS

Abbreviation	Meaning
°C	Degree Celsius
°F	Degree Fahrenheit
%	Percentage
L	Body length
G	Heart girth
G	Gram
Kg	Kilogram
RCC	Red Chittagong Cattle
N	Number of animals
M	Male
F	Female
SD	Standard Deviation
m ²	Square meter
FMD	Foot and Mouth Disease
LSD	Lumpy Skin Disease
Cm	Centimeter
CVASU	Chattogram Veterinary and Animal Sciences University

Abstract

The study was carried out to investigate the phenotypic characteristics, productive and reproductive performances of Gayal (*Bos frontalis*) in captivity in the Chattogram division of Bangladesh. A total of 75 gayals were included in this study. A measuring tape was used to measure all parts of the body. Notably, its coat colour changes from unique, brighter patterns in the calf stage to a mature, darker hue in the adulthood. This species, distinguished by an athletic form, well-defined hump, and robust, upwardly curved horns in both sexes, exhibits significant variety in horn size and tail switch color. Gayal's weaning age can range from 2 to 3 months. When weaned, gayal calves weigh between 50 and 80 kg. Adult males can reach up to 800 kilograms, while females typically average 400 to 600 kilograms. Average head length, height at wither, body length, heart girth and body weight of mature bull was 22.00±0.00 inch, 57.00±0.71 inch, 59.60±0.55 inch, 88.20±0.84 inch and 702.51±12.80 kg respectively. Average head length, height at wither, body length, heart girth and body weight of mature cow was 20.20±0.45 inch, 55.20±1.64 inch, 54.40±2.07 inch, 85.00±1.00 inch and 595.84±33.38 kg respectively. Crossbred resulted by crossing Gayal and Red Chittagong Cattle known as Tang guar. The body weight of a three-year-old Tang guar heifer was 250 kg, whereas that of a three-year-old Gayal heifer was 279 kg. Gayals were fed a diverse diet including grass, straw, rice polish, wheat bran, and Napier grass, with variations based on grazing conditions, confinement, and seasonal adjustments, emphasizing nutritional care for optimal well-being. In natural breeding, the average age at first estrous was 547.5 days, the gestation duration was 280-290 days, the first calving age was 1095-1277 days, the calving interval was 360-400 days, and one calf was born per conception. Gayal milking never performed in the study area due to low milk output and tiny teats. Calves were allowed to consume their mother's milk. The significant growth rate and reproductive efficiency of gayals suggest that this species holds economic potential when accompanied by effective breeding plans and well-implemented extension services.

Keywords: Gayal, phenotype, weaning, Tang guar, breeding