



# PERFORMANCE OF CHARA CHAMBELLI DUCK IN BACKYARD SYSTEM OF REARING AT ADOPTED VILLAGE UNDER NICRA AT DARRANG DISTRICT OF ASSAM

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## ABSTRACT

The Chara Chambelli duck, indigenous to the foothills of the Himalayas, has been gaining attention for its potential as a valuable genetic resource in small-scale poultry production systems. This research paper aims to evaluate the performance of Chara Chambelli ducks in backyard rearing systems under agro-climatic condition of Darrang district of Assam. In the context of the NICRA project, the study was carried out on 400 Chara Chambelli ducks that were raised in backyard systems at the NICRA adopted village of Darrang district of Assam to look into their environmental suitability, productivity, and financial viability. By the time the ducks reached their fifth month of life, the overall weight of the male and female was measured at  $1480.02 \pm 18.14$  grams and  $1365.46 \pm 14.90$  grams respectively. The duck was  $155.03 \pm 9.18$  days old on average when it laid its first egg. The data showed that the annual production of eggs was  $169.12 \pm 6.04$  numbers and the weight of eggs at  $63.98 \pm 2.84$  grams. For ducks and drakes, the corresponding benefit-cost ratios were 2.26 and 1.80. It was found that rearing Chara Chambelli ducks in backyard systems with low input traditional systems is more cost-effective than raising Assamese native ducks. Results indicate that Chara Chambelli ducks exhibit promising performance characteristics suitable for backyard rearing, contributing to sustainable livelihoods and biodiversity conservation efforts.

**KEY WORDS:** Chara Chambelli duck, backyard rearing, performance evaluation, small-scale poultry production, NICRA

## INTRODUCTION

Backyard poultry farming plays a crucial role in supplementing household income and nutrition security, especially in rural areas of developing countries. Indigenous poultry breeds are often well-adapted to local environmental conditions and possess valuable genetic traits such as disease resistance, adaptability, and high fertility rates. The Chara Chambelli duck, native to the foothills of the Himalayas, is one such breed that has recently garnered attention for its potential in small-scale poultry production systems. The duck is one common poultry species raised by Indian farmers primarily in their villages. Duck farming has the potential to involve rural residents in the production of ducks, but it is imperative that they receive sufficient training in this field. It is a crucial instrument for reducing poverty in rural areas and has enormous promise in rural areas. The region's hot, humid climates combined with the abundance of resources (ponds, rivers, marshy wet lands, etc.) make it an ideal place for duck rearing in Assamese rural areas. Both duck meat and eggs offer nutritional security and are generally accepted by various societal segments. It is possible to reduce poverty in rural households and communities by utilizing these potentials. There has been minimal focus on the dual-purpose poultry and duck breeds in rural areas. There is a disparity between urbanites and undernourished rural people in terms of the availability of nutrient-dense eggs and poultry meat. Raising more diverse backyard chickens and ducks in rural areas is the answer to solving the issue. Backyard poultry contributes between 30% and 40% of the total egg production, despite the low productivity of local poultry. Since backyard farming requires little to no input and requires little to no capital, it will undoubtedly boost the economic standing of the vast majority of rural families from lower socioeconomic strata in rural areas (Saha, D., 2003). The majority of rural families from lower socioeconomic strata in rural areas will undoubtedly benefit economically from backyard farming because it is a low- or no-input endeavor. Improved varieties of backyard duck farming, which require less outside assistance and care and generate income, particularly for rural women, will yield secondary income in the form of meat and eggs at a younger age. Because there are no ethical concerns with duck meat or eggs, there is a high demand for them. Production is trending upward with the introduction of improved strains, varieties, and breeds. One improved



variety that performs well in terms of egg productivity and is appropriate for use in range or backyard farming systems is Chara Chambelli. Although, Chara Chambelli is very popular for backyard rearing in different parts of India its production performance in Darrang district of Assam was not studied.

In light of these considerations, Chara Chambelli ducks were brought to the NICRA adopted village in the district of Darrang in order to investigate their suitability for the environment, their level of productivity, and their economic feasibility when raised in a traditional backyard.

**MATERIALS & METHOD**

Under the auspices of the NICRA project, the current study was carried out in the Darrang district at adopted village under NICRA under Krishi Vigyan Kendra, Darrang. Four hundred (400) 15-days old Chara Chambelli ducklings were provided to twenty rural farmer of the NICRA village of Darrang district. Before supplying the ducklings, the chosen beneficiaries received training in "Improved duck rearing scientifically in backyard system." During the first thirty days, the day-old ducklings were raised in a brooder and were not permitted to go free range. Following that, they were raised using the conventional backyard method for raising ducks. Standard vaccination and medication schedule were followed for the birds. The ducks were given free reign to forage throughout the day in the farmer's house and adjacent pond, where they consumed organic matter, insects, earthworms, fallen grains, and other edibles. In addition, adult ducks received a daily feed of roughly 100 g of concentrate. Following the following schedule, standard vaccinations, dewormings, and supplementation were carried out.

Age	Supplementation/ Deworming	Vaccination	Booster	Interval
Upto 3 days	Electrolyte	<i>Riemerella anatipestifer</i>	-	-
4-7 days	Vitamins	-	-	For 3 days after every 15 days
8-10 days	Antibiotics as preventive measure	-	-	For 3 days after every 20 days
28-30 days	Liver tonic	-	-	For 3 days after every 20 days
32-35 days	Anticoccidiosis as preventive measure	-	-	Repeat every month
40 - 44days	Vitamin	Duck plaque vaccine	Every 6 month	

**Table: 1:** Vaccination, deworming and supplementation Schedule adopted for Chara Chambelli duck at Darrang district of Assam

The ducks' live body weights were measured at 0, 30, 45, 60, and 150 days of age. The average body weight was then determined. It was noted how old the duck was when it laid its first egg, how many eggs it produced, how heavy the eggs were, and how many died. When the birds were forty weeks old, a total of 100 eggs were collected in order to evaluate the qualities of the eggs. In order to evaluate the cost-benefit of raising Chara Chambelli ducks, the cost of expenditure was documented based on the current market prices for various inputs. Standard statistical techniques were employed to calculate the means of different traits. The economics of the rearing were also calculated by standard methods.

**RESULTS AND DISCUSSION**

Table 2 displays the mean values for different characteristics of Chara Chambelli ducks raised in backyard systems at the NICRA village of Darrang district of Assam.

**Body Weight:** A Chara Chambelli duck (Combined sex) was found to weigh  $38.93 \pm 0.75$ ,  $319.12 \pm 6.05$ ,  $720.52 \pm 15.94$ ,  $1098.06 \pm 17.23$ , and  $1381.82 \pm 12.84$  grams on average at 0, 30, 45, 60, and 150 days of age. As for the duck and drake, their body weight at 150 days was  $1365.46 \pm 14.90$  grams and  $1480.02 \pm 18.14$  grams, respectively. The present results aligned with those obtained from Senani *et al.*, 2005.  $58.72 \pm 1.24$  was the dressing percentage (combined sex) for duck.



Parameters of study	Chara Chambelli duck
<b>Mean Body weight (g) (Combined sex) at</b>	
0 day	38.93 ± 0.75
30 day	319.12 ± 6.05
45 day	720.52 ± 15.94
60 day	1098.06 ± 17.23
150 day (Combined sex)	1381.82 ± 12.84
150 day (Drake)	1480.02 ± 18.14
150 day (duck)	1365.46 ± 14.90
Age at first egg laying (days)	155.03± 9.18
Egg production (number / duck / year)	169.12± 6.04
Average Egg weight (g)	63.98 ± 2.84
<b>Egg quality traits</b>	
Egg color	White
Shape Index	72.91±1.87
Albumin Index	0.529±0.23
Yolk Index	0.387±0.03
Shell thickness	0.420±0.01
<b>Mortality (%)</b>	
0-15 days	4.02
16-60 days	1.19
61-150 days	2.03
Dressing percentage (Combined sex)	58.72 ± 1.24
<b>Earning</b>	
From drake at 3 months (Rs.)	240/
From duck per year (Rs.)	535/
<b>B:C ratio</b>	
Drake at 3 month	2.26

**Table 2: Mean ± S.E. for various traits of Chara Chambelli birds reared in backyard system at Darrang district of Assam**

**Egg production and weight:** The average age of Chara Chambelli ducks at their first egg-laying was 155.03± 9.18 days. The average egg weight was recorded at 63.98 ± 2.84 grams, and the mean annual production was reported as 169.12± 6.04 numbers. In terms of egg weight, the current findings concurred with those of Bharali *et al.*, 2020.

**Egg quality traits:** Egg shape index, albumin index, yolk index, and shell thickness of Chara Chambelli duck were found to be 72.91 ± 1.87, 0.529 ± 0.23, 0.387 ± 0.03, and 0.420 ± 0.01, respectively. The current findings aligned with the findings reported by Senani *et al.*, 2005 for Chara Chambelli.

**Adaptability:** In the current study, the mortality rates of Chara Chambelli ducks from 0 to 15 days was 4.02, 16 to 60 days was found 1.19, and 2.03 in terms of 61 to 150 days old of age birds. These results with lower mortality rate show that ducks are adaptable to the climacteric condition of the Darrang district of Assam.

**Economics:** Chara Chambelli drakes and ducks have benefit cost ratios of 2.26 and 1.80, respectively, indicating that raising Chara Chambelli ducks is more cost-effective and advantageous than raising local Assamese ducks for meat and eggs.

The Chara Chambelli duck's performance pleased the farmers since it can be raised in a traditional manner without more extra effort. Farmer satisfaction was greatly enhanced by the eggs' rapid growth rate, size, and production. Presently, the farmers hatch eggs and raise new ducklings. The hatchable eggs are then sold to nearby and far-off villages, allowing the technology to spread horizontally.



## CONCLUSION

The current study clearly shows that the Chara Chambelli duck adapted well to the agroclimatic conditions of the Darrang district of Assam. The productivity was found to be higher than that of the current Assamese local ducks, both in terms of rapid growth and higher egg production. Thus, it can be said that a backyard system of rearing Chara Chambelli ducks with low input traditional system is economically feasible. In order to mitigate crop loss caused by the changing climate, the Chara Chambelli duck may be one of the elements for doubling farmers' income and providing an alternative means of diversifying farming income. It could work as baseline information for introducing dual purpose duck bred in IFS system in the state Assam.

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