

Profitability of Backyard Duck Farming in PatiyaUpazila under Chattogram district



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A production report submitted as per approved style and contents.

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List of Abbreviation

BCR - Benefit cost Ratio

TC - Total cost.

FC- Full cost.

TR- Total return.

NR- Net return.

TVC- Total variable cost.

HSC - Higher Secondary Certificate

BDT- Bangladeshi Taka

Tk- Taka

ABSTRACT

The research aimed to investigate the current status and cost-benefit evaluation of existing backyard duck rearing systems by women in Patiya upazila, Chattogram district, Bangladesh. The study was conducted over the period from 27th April to 7th June 2019, in five villages within the Patiya upazila of Chattogram district. Random sampling technique was used to collect 13 duck farms for the study. The research methodology employed for this study involved conducting face-to-face surveys. The findings of the study revealed that among the surveyed participants, 23% were aged over 45 years and 39% were mid-aged. The economic analysis of the backyard duck farming indicated that the total return is Tk.455.0 ± 47.39, with a total cost of Tk.125.25 ± 12.20 resulting in a net return of Tk.329.75 ± 46.41. The BCR both cash cost (3.91) and full cost (3.66) show profitable business of duck farming.

Key words: Backyard duck, Income, Patiya, Profitability

INTRODUCTION

Background of the study

In many societies around the world, rural households engage in diverse agricultural activities to secure their livelihoods and sustain their economic well-being. Within this context, the multifaceted role of women in agricultural production and income generation is increasingly recognized as pivotal for the overall prosperity of households. One such avenue that has gained prominence is backyard duck farming, a traditional yet resilient practice that holds substantial potential for augmenting household income and improving nutritional security.

Backyard duck farming involves the rearing of ducks within domestic spaces, often characterized by limited land availability and a focus on subsistence farming. While it has long been perceived as a supplementary activity, recent trends suggest that backyard duck farming has evolved into a viable income source, particularly for women in many rural communities. This evolution is driven by various factors, including changing consumer preferences, market demand for poultry products, and the adaptability of ducks to local environments.

By examining the challenges faced, opportunities harnessed, and outcomes achieved, this research seeks to shed light on the pathways through which women enhance household income, potentially leading to broader socio-economic advancement. Ultimately, this exploration holds the promise of not only advancing scholarly discourse but also informing policy interventions that can empower women and foster sustainable livelihoods within rural communities. In recent years, there has been a growing recognition of the pivotal role that women play in agricultural and livestock activities, especially within the context of household economies. Among these activities, backyard duck farming has emerged as a significant endeavor that not only contributes to household nutrition and income generation but also holds the potential to foster gender empowerment and socioeconomic development.

The traditional division of labor has often relegated women to supporting roles in agricultural and livestock sectors, despite their substantial involvement in various stages of production. Backyard duck farming, with its adaptability to small spaces and relatively low resource requirements, has provided women with a viable means to take a more active and central role in farming activities. This shift towards women's engagement in duck farming carries the promise of not only enhancing household economic outcomes but also challenging traditional gender norms and power dynamics.

By employing a multidimensional approach, the research will delve into various aspects, including the economic benefits accrued from duck farming, the influence on household food security, the potential for income diversification, and the empowerment dynamics within households and communities. Furthermore, it will investigate the challenges faced by women in this endeavor, ranging from access to resources and markets to social and cultural barriers. The outcomes of this research are anticipated to shed light on the intricate interplay between women's participation in backyard duck farming and the socioeconomic fabric of households. As governments, non-governmental organizations, and development agencies increasingly emphasize gender equality and women's empowerment, a nuanced understanding of how specific agricultural activities, like duck farming, can be harnessed to achieve these goals becomes imperative.

Justification of the study

This research paper develops into the specific context of women's involvement in backyard duck farming and its contribution to household income. Recognizing the transformative potential of such endeavors, this study aims to illuminate the various dimensions of women's participation in duck farming, ranging from their roles in decision-making and farm management to the economic benefits derived from the practice. Through an empirical investigation conducted in Patiya upazila, Chattogram, this study endeavors to unveil the intricate dynamics of women's engagement in backyard duck farming.

The study aimed to assess the profitability of backyard duck farming to understand the socio-economic conditions of women engaging in this practice as well as to improve their livelihood in Patiya Upazila. The study seeks to go beyond the surface-level observations of increased duck production and explore the broader ramifications of women's participation in backyard duck farming.

Objectives

1. To find out the socio-economic condition of women in duck farming
2. To assess the profitability of backyard duck farming.

MATERIALS AND METHODS

Study area and study period

Over a span of 45 days, a comprehensive survey was undertaken to explore the household-based duck rearing methods within 5 designated villages located in the Patiya upazila of the Chattogram district. This survey took place from 24th April to 7th June 2023. The selection of these villages was based on two key factors: the presence of backyard ducks and accessible communication facilities. These criteria were chosen to facilitate the collection of relevant data regarding duck rearing practices. In each of the five villages, a random selection process identified 13 household duck farms to participate in the study. Only households engaged in rearing a minimum of four ducks within scavenging systems were considered for inclusion.

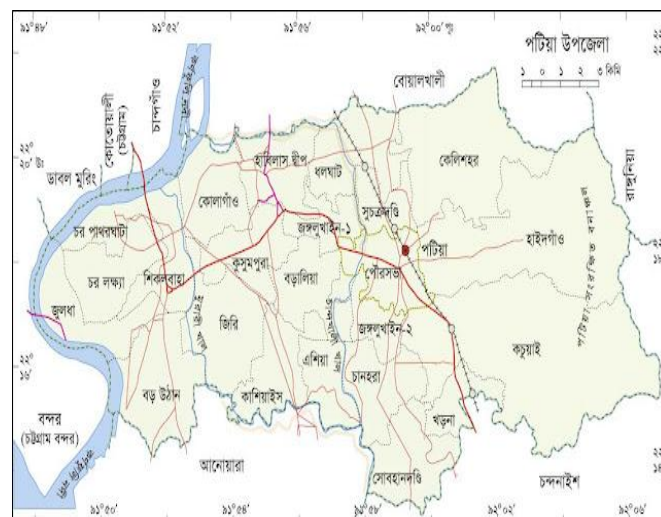


Figure 1. Map of the study area

Study Population

The study encompassed several duck breeds, including the local 'Deshi', Khaki Campbell, and Pekin ducks. To determine the sex of ducklings, visual cues such as color, feather patterns, and vent characteristics were employed. Information about the duck age was gathered through interviews with the farmers. The study also documented details about vaccination, treatment methods, interventions, drug types employed in various cases.

Data Gathering and Analysis

Employing a cross-sectional approach, data were collected using a method of simple random sampling. Direct interaction with duck farmers was achieved through face-to-face interviews using a structured questionnaire. The questionnaire aimed to capture information about duck breeds, ages, housing modalities, feeding practices, egg production quantities, duckling nurturing, cost-efficiency assessments, and the socio-economic status of the farmers. All the data accumulated was entered into Microsoft Excel 2016. Basic descriptive statistics were subsequently calculated, with the outcomes expressed as frequency percentages.

Profitability analysis

For Profitability analysis following equations was used:

i) $\pi = TR - TC$

ii) $GM = TR - TVC$

iii) $BCR \text{ (Full cost basis)} = TR/TC$

iv) $BCR \text{ (Cash cost basis)} = TR/TVC$

Where,

π = Profit or net return from per duck per day (Tk.).

TR = Total return.

TC = Total cost.

TVC= Total variable cost.

GM= Gross margin.

BCR= Benefit cost Ratio.

RESULTS

Socio-economic status of duck rearer

Several socio-economic status of the women such as age, education, family size occupation, experience of farming, training, credit, herd size were calculated.

Table1:Socio-economic characteristics of the sample women farmers (N=13)

Parameter	Categories	No. Of Respondents	Percentage (%)
Age	>45(Old)	3	23
	35-45(Mid Age)	5	38.5
	25-34(Young)	4	30.76
Education	Primary	5	38.46
	Secondary	8	61.50
	HSC	0	0
Family Size	Small (<5)	4	30.76
	Medium (5-6)	4	30.76
	Large (>6)	5	38.50
Training	Yes	0	0
	No	13	100
Income Source	Job Holder	4	30.76
	Day Labor	4	30.76
	Others	5	38.50

In terms of age distribution, there were 3 participants categorized as "Old" (>45), 5 as "Mid Age" (35-45), and "Young" (25-34), making up 23%, 38.5%, and 30.76%, respectively. Regarding education, 5 individuals had a primary level education, 8 had a secondary level education, and none had an HSC education, accounting for 38.46%, 61.50%, and 0% respectively. In the context of family size, 4 participants were from small families (<5), 4 were from medium-sized families (5-6), and 5 were from large families (>6), contributing to 30.76%, 30.76%, and 38.50% respectively. As for

training, none had received training. In terms of income sources, 4 participants were job holders, 4 were day laborers, and 5 had other income sources, making up 30.76%, 30.76%, and 38.50% respectively.

Cost Benefit Analysis

Average annual expenditures and economic return of rearing ducks in the study regions are shown in Tables 2. The farmers with 4-8 ducks usually did not hire any labor and used to manage by themselves. It was found that the average cost for ducklings, feed, housing, vaccination and medication cost were Tk. 44.58 ± 4.98 , $Tk.50.00 \pm 7.07$, $Tk.5.50 \pm 1.07$ and $Tk.22.92 \pm 5.43$, respectively. When considering all these factors, the total cost per duck was $Tk. 125.25 \pm 12.20$.

Table 2: Gross cost of backyard ducks (N=13) in the areas of patiya upazila.

Item	Amount (Tk.)
Cost per duckling	44.58 ± 4.98
Feed cost	50.00 ± 7.07
Medicine cost	22.92 ± 5.43
Housing cost	5.50 ± 1.07
Equipment cost	2.25 ± 0.50
Fixed cost	7.75 ± 0.97
Total cost	125.25 ± 12.20

It was also evident that total return and net return per backyard duck after one year of effective laying were $Tk.455.0 \pm 47.39$ and $Tk.329.75 \pm 46.41$, respectively.

Table 3: Profitability analysis of backyard ducks (N=13)

Item	Amount
(A) Total Return (Tk)	455.0 ± 47.39
(B) Total cost (Tk)	125.25 ± 12.20
(C) Cash Cost (Tk)	117.50 ± 12.09
(D) Net Return (Tk)	329.75 ± 46.41
(E) BCR (Cash cost basis)	3.91 ± 0.61
(F) BCR (Full cost basis)	3.66 ± 0.54

Moreover, the calculated BCR values further emphasize the financial viability of the operation. Both the BCR values based on cash cost (3.91) and full cost (3.66) are greater than 1, which signifies that the returns generated are several times higher than the costs incurred. This suggests that the duck farming venture is financially rewarding and has the potential to provide substantial benefits relative to the invested costs.

Discussion

The largest proportion of farmers (38.5%) fell within the middle-aged category, which is consistent with the conclusions of other researchers. However, this contrasts with the findings of (Jha et al.,2016), who observed a higher number of young women farmers in the haor regions of Sylhet compared to middle-aged and elderly women farmers. Another study by (Khanum and Salim Al Mahadi.,2016) also noted a predominance of young women engaged in duck rearing in the haor areas of Bangladesh.

Educational attainment plays a pivotal role in duck farming. The study revealed that 38.4% had completed primary education, and the remaining 61.60% had secondary education. These results closely align with the observations made by (Ghosh et al.,2012), (Khanum and Al Mahadi.,2015), and (Islam et al.,2016), where the majority of farmers possessed only primary education. Notably, the illiteracy rate in

the study was notably lower than reported in previous research. Other studies conducted in Sylhet (44-75%), Mymensingh (32%), and the coastal regions of Noakhali and Lakhmipur (57% and 49% respectively) reported higher illiteracy rates among duck farmers. This discrepancy may be attributed to the relatively better educational facilities and socio-economic status in our study area, Chattogram district, with a literacy rate exceeding 90%, compared to the coastal and haor regions of Bangladesh (NIPORT, 2015).

The total return of per duck was Tk.455.0 ± 47.39 strongly bolsters the argument for the venture's profitability. This becomes even more compelling when juxtaposed with the average income per duck of Tk.220.69 (Ghosh, S. 2009). This positive financial margin further substantiates the claim that the venture is indeed profitable and holds the potential for substantial gains relative to the costs incurred.

Problems and limitations

Problems

Limited Technical Knowledge: Women, particularly in rural areas, might have limited access to training and technical knowledge about duck farming. This can lead to difficulties in managing the ducks' health, nutrition, and overall well-being.

Access to Resources: Obtaining quality ducklings, proper feed, and veterinary services can be challenging, especially for women with limited mobility or access to markets.

Labor Intensity: Duck rearing can be labor-intensive, requiring feeding, cleaning, and maintaining the ducks' living environment. This might place an additional burden on women who are already responsible for household chores and other caregiving duties.

Lack of Financial Resources: Starting and maintaining a backyard duck farm requires initial investments in infrastructure, feed, and other resources. Limited financial resources might hinder women's ability to scale up or improve their farming practices.

Social Norms and Gender Roles: Traditional gender roles and societal expectations might limit women's involvement in certain agricultural activities, including duck farming. This can affect women's decision-making authority and access to resources.

Market Access and Marketing Skills: Women might face challenges in accessing markets for selling duck products. Lack of marketing skills and networks could limit their ability to reach potential customers and get fair prices for their products.

Health and Hygiene Concerns: Ducks can carry diseases, and maintaining proper hygiene is crucial to prevent outbreaks. Women might lack information about disease prevention and biosecurity measures.

Climate and Environmental Factors: Extreme weather conditions, seasonal changes, and environmental factors can impact duck health and productivity. Women might need support and knowledge to adapt to such challenges.

Time Constraints: Women often have multiple responsibilities, including household chores, childcare, and other income-generating activities. Balancing these responsibilities with duck farming can be demanding.

Limitations

1. The duration of the study was brief (48 days).
2. Limited financial resources posed a constraint in this research.
3. The study was confined to a specific district, and therefore, its findings cannot be generalized to the entire country.
4. Challenges arose in collecting accurate data due to the absence of well-maintain recording systems on most families.

CONCLUSION

It is evident that backyard duck farming offers a pathway for women to actively participate in income-generating activities and uplift their socio-economic status. The study shed light on the various socio-economic benefits that women derive from their involvement in backyard duck farming. To fully accelerate this potential, providing training to enhance technical skills, facilitating access to resources and credit are essential. Ultimately, the findings of this report emphasize the significance of recognizing and supporting the pivotal role of women in transforming backyard duck farming into a catalyst for sustainable economic growth and social progress.

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The author,

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Biography

My name is Kazi Towhidul Islam, and I am the son of Kazi Mozaffar Ahmed and Khadiza Akter. I successfully completed my Secondary School Certificate (SSC) education at Bayezid Line High School in 2014 with a perfect GPA of 5.00. Furthermore, I accomplished my Higher Secondary Certificate (HSC) from Govt. Mohsin College, Chattogram in 2016, also achieving a GPA of 5.00.

At present, I am serving as an intern veterinarian within the Faculty of Veterinary Medicine at Chattogram Veterinary and Animal Sciences University. Looking ahead, my aspirations revolve around becoming a veterinary pet practitioner, utilizing my skills and knowledge to contribute positively to animal health and well-being.

My academic interests are particularly focused on Public Health and Molecular biology. I am enthusiastic about the opportunity to engage in research endeavors in these areas in the near future.