

CHAPTER - I

INTRODUCTION

Bangladesh is an agricultural country. Poultry plays a significant role in the subsistence economy of the country and contribute 1.6% in GDP (SAEDF, 2008). Among the poultry species, duck ranks 2nd just after chicken in producing poultry meat and eggs.

At present, prices of meat and eggs are beyond the buying capacity of the poor people. Increased ducks egg and meat production can play a vital role in solving these problems. Duck keeping is one of the possible means of breaking out poverty trap of resource-poor small holder families in low income countries (Pym *et al.*, 2002). Ducks are considered to be the most important asset and source of income for ultra poor rural women. Small scale duck farming has not only been proved to be a beneficial occupation for small, marginal and landless farmers, but also a potential source of self-employment for the youth and distress women (Jabber, 2004).

There are many advantages of duck production and the duck can be considered as a good all purpose poultry species. Duck needs less care and management. Ducks can exploit natural water bodies; marshy lands, haors, rivers, ponds and cannels for their individual gain. About one-ninth of the total land of Bangladesh is low land which is very much suitable for duck rearing. It is easy to raise, need less space for rearing and require low inputs of feed, housing facilities and management. Ducks are hardy and can easily adapt to different climates and they are also relatively resistance to diseases (Holderread, 1990). Ducks are excellent foragers and if allowed to scavenge, can consume enough natural feed to cover most of their nutrient requirements. The scavenging venues of duck and chicken are different. So, they are not competitor of each other for scavengable feeds. Duck offers the opportunity for better utilization of water and aquatic resources to generate food and income for rural communities. Poor villagers can get maximum return by giving minimum supplemental diets to their ducks.

The prospect of duck rearing in Barura upzila of Comilla district of Bangladesh lies in the fact that there are large areas of low-lying water reservoirs where waters stand throughout the year. These water reservoirs contain weeds, fishes, snails, insects, fallen grains etc, which are the important feeds for ducks when reared under scavenging and semi scavenging systems. There is a great potentiality in improving the productivity of duck through better feeding and management. The problem and prospect of duck rearing has not been yet assessed and quantified. Very few research works had been done on the potentiality, productivity and profitability of duck rearing.

Objectives:

- To know the managerial conditions of duck rearing system under rural conditions
- To increase the productivity of duck from the present status

CHAPTER – II

MATERIALS AND METHODS

2.1 Study area:

Several villages (Tolagram, Noapara, Muriara, Mohammadpur) under Barura upazila of Comilla district and 40 farmers were selected from these villages purposefully and randomly. The selected farmers were considered on the basis of their traditional crop production combined with small-scale duck production system.

2.2 Duration of study:

This questionnaire survey was conducted from 15th February to 25th March, 2018.

2.3 Selection of sample:

A total of 40 farmers were randomly selected for data collection in which around 10 were from every selected villages (Tolagram, Noapara, Muriara, Mohammadpur).

2.4 Questionnaire design and data collection

On the farm visit, a pre-structured questionnaire survey was used to collect applicable information of duck. A closed ended (categorical) and open ended questionnaire were designed. Data were collected through direct randomly interviewing method questionnaire.

2.5 Statistical analysis:

Data obtained were entered into Microsoft Excel 2007 and exported to STATA-11 (Stata Corp, 4905, Lakeway River, College Station, Texas 77845, USA) for statistical analysis. Descriptive analysis was performed. The results were expressed in percentage each category of variable.

CHAPTER - III

RESULT AND DISCUSSION

3.1 Age of duck farmers:

Age of the duck farmers ranged from 18 to 90 years. The farmers were stratified into 3 age categories; namely young <36, middle age 36-50 and old >50. The average age of duck farmers was 42.02. The stratification agrees with Rahman (2009). He observed the average age of duck farmers was 43.52 years.

3.2 Rearing of duck:

In the rural areas of Barura upzila of Comilla district, farmers reared Deshi, Khaki Campbell, Jinding ducks. About 72.5% farmers reared only deshi, followed by 17.5% farmers reared only Khaki Campbell, 10% farmers reared only Jinding (Table 1).

Table 1: Duck breeds with population

Breed name	Number	Percent (%)
Deshi	29	72.5
Khaki Campbell	7	17.5
Jinding	4	10

The proportion of farmers reared *deshi* duck in this study was slightly lower than that of Rahman (2009). He found 82.25% farmers reared *deshi* duck. The reason for decreasing of *deshi* duck may be for substitution of *deshi* duck by Khaki Campbell and Jinding.

3.3 Duck rearing system:

All the farmers in the study area reared duck in semi scavenging system. The observation did not agree with Amin (1999). He reported that 85 to 87% duck was being reared under scavenging system.

3.4 Housing of duck:

Farmer used a variety of materials for duck housing. About 35% farmers used wood and tin followed by 25% farmers used brick, 20% farmers used bamboo and soil, 10% farmers used only bamboo and rest of the farmers used other materials for constructing duck house that show in Figure 1.

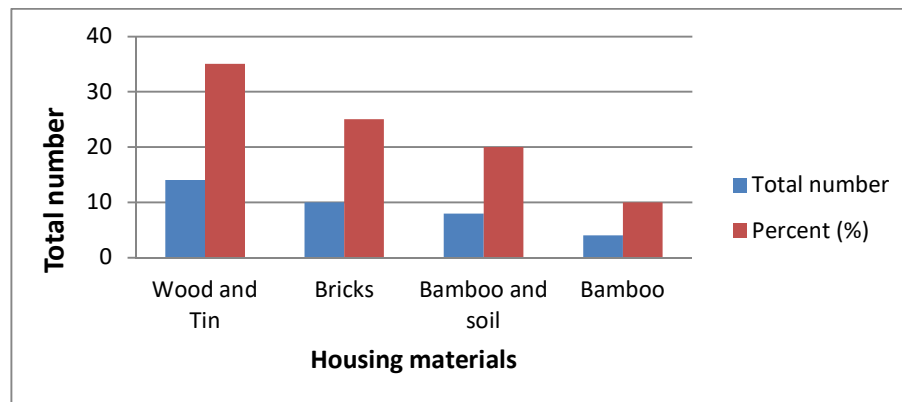


Figure 1: Housing Materials of ducks

This finding differs from Rahman (2009). He found 65.5% farmers used wood and tin, 17.5% farmers used bamboo, 10.25% farmers used straw and bamboo and rest 6.75% farmers used soil and other materials for duck housing.

3.5 Feeds and Feeding of duck:

Farmers used a wide variety of supplementary feed for their ducks. It was shown that about 62% farmers used rice and rice polish, 20% farmers used rice, rice polish and commercial feed, 6% farmers used rice, rice polish and paddy, 6% farmers used rice, rice polish and broken rice and rest of the farmers used rice, rice polish, snail and wheat bran as a feed ingredients for duck that stated in Figure 2. Farmer noticed that Most of the ducks are semi-scavenging and the ingest snail, different kind of pest.

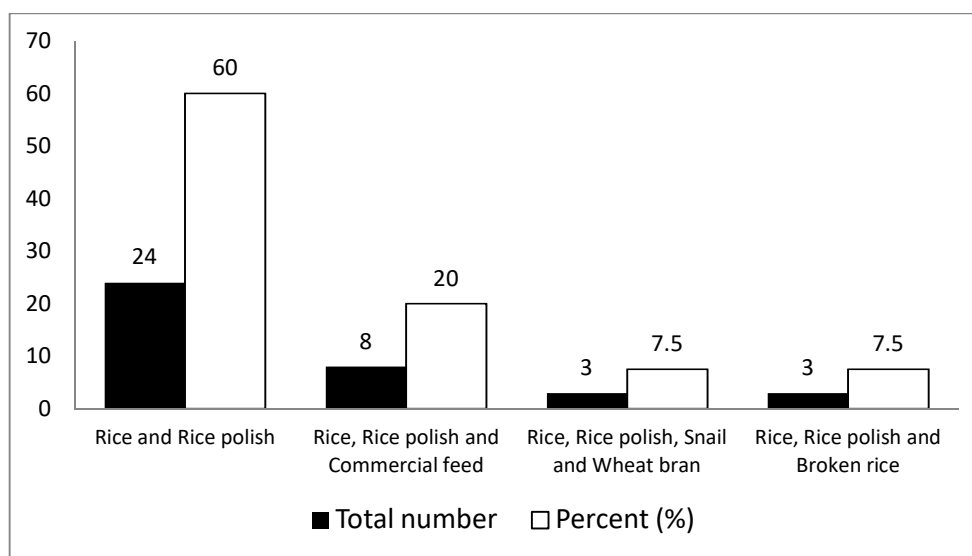


Figure 2: Feed ingredients of duck

It is evident from the current findings that 100% duck farmers used rice in the diet of duck which contradict Rahman (2009). He did not find any farmer to use rice in the supplemented diet.

3.6 Amount of feed supplied to duck and cost of supplemented feed:

The amount of feed supplied to duck ranged from 100g/day to 150g/day with an average 125g/day. About 80% farmers provide 125 gm/day. It is evident from above information that the amount of supplemental feed/day of each duck 121.91g agrees the observation of Hoque *et al.* (2001). They observed that the farmers of Sylhet basin supplied 117g extra feed per duck per day during dry period but according to Rahman (2009), farmers gave 120g supplemental feed/day to each duck.

3.7 Productivity of duck:

Egg production ranged 70-100/duck/year with an average number of 85. Among the farmers 55% found 70-80 egg/duck/year, 45% found 80-100 egg/duck/year that stated in Table 2.

Table 2: Egg production

Egg production	Number of farmer	Percent (%)
70-80	22	55
80-100	18	45

The observation of egg production of duck was lower than that of Ukil (1992). He stated that indigenous ducks reared for egg and meat laid 150-200 eggs per year under semi-scavenging system but the observation was similar with Islam *et al.* (2003) and Sarker (2005). They stated the egg production of indigenous duck was 85-90.

3.8 Diseases of duck:

It was observed that most prevalent diseases of duck were Plague and Cholera. About 52% farmers stated that their duck were affected with Plague, 26% duck were affected with Cholera and rest 8% farmers did not faced any duck diseases. This finding coincides with that of Rahman (2009) and Baki *et al.* (1986). Rahman (2009) found that 100% of the duck owners in Noakhali Sadar and Ramgati reported that the most prevalent diseases of ducks were Plague and Cholera. Baki *et al.* (1986) mentioned that Duck Plague and Duck Cholera are the common diseases of epidemic nature in Bangladesh.

CHAPTER –IV

LIMITATIONS OF DUCK FARMING

The farmers have limited knowledge about the production performance of improved breeds/varieties of duck. Farmers do not know scientific feeding and management system of duck. Most of the farmers do not know about vaccination and its advantages in preventing duck disease. They have unavailability of improved variety of duckling. Most of the farmers have no training on duck production. Decreasing scavenging area and complains of neighbor regarding decrease duck rearing because they damage seedlings and crop during scavenging.

CHAPTER – V

RECOMMENDATIONS TO IMPROVE DUCK FARMING:

- a) For increasing duck meat and egg production it is needed to Introduce improved duck varieties in the rural areas with informing the farmers about the advantages of rearing improved varieties. The farmers can even use improved *deshi* duck like *deshi* black and *deshi* white.
- b) Vaccination against common diseases of duck should be ensured.
- c) Vaccine and medicine of duck should be available in market.
- d) Government should give financial and technical support to farmers for rearing duck.
- e) Duck rearing in the rural areas of Bangladesh could be a good source of income, nutrition and employment generation, especially for the unemployed youth, rural women and the small-marginal farmers.

CHAPTER- VI

CONCLUSION

The study concluded that most of the farmers reared deshi duck. Duck rearing knowledge such as breeding, feeding, housing, prevention and control of diseases are not satisfactory of the farmers. They do not communication with UVH, Barura, Comilla. Therefore, a need-based extension program should be introduced among the farmers giving more focus on building awareness and ability about duck production.

CHAPTER - VII

REFERENES

- Alam ABMM and MB Hossain, 1989. Hatchability of egg and suvivability of Khaki Campbell under farmer's condition. Bangladesh Journal of Animal Science, 18:105-108.
- Amin MM, 1999. Poultry disease in Bangladesh. Present status and control strategies. Paper presented in the seminar and international poultry show. Organized by the World's Poultry Science Association of Bangladesh Branch, Dhaka. 24-26th April, 1999, 81-91.
- Baki MA, AJ Sarker and MMH Mondal, 1986. Pathological investigation on the mortality of ducks in Bangladesh. Proceeding of workshop, Bangladesh Agricultural University, Research Progress, held at Bangladesh Agricultural University on 4-5 October.
- Das GB and ME Hoq, 2000. Performance of Khaki Campbell, Zending and Khaki Campbells × indigenous ducks in integrated fish-cum-duck farming system. Bangladesh Journal of Animal Science, 29: 111-117.
- DLS. Annual Progress Report 2009, Department of Livestock Services, Ministry of Fisheries and Livestock, Government of the People's Republic of Bangladesh, Farm gate, Dhaka.

Eswaran KR, A Ramakrishnan, CK Venugopalan and GR Nair, 1984. Comparative performance of Khaki Campbell and Deshi ducks. 2 Egg production, feed efficiency and egg quality. Indian Journal of Poultry Science, 20: 42-45.

FAO 2009. Food and Agricultural Organization, FAO statistics 2009, Internet.
Hamid MA, SMRK Chowdhury and SD Chowdhury, 1988. A comparative study of the performance of growing ducklings of Khaki Campbell, Indian Runner and Indigenous ducks under farm conditions. Indian Journal of Poultry Science, 23: 118-121.

Holderread D, 1990. Raising the house duck flock. 7th Printing. A Garden Way Publishing Book, Storey Communications Inc. Hoque KS, MSK Sarker, QME Huque and MN Islam, 2001. Duck production in the Sylhet basin of Bangladesh-Prospects and problems. Paper presented in the seminar and international poultry show organized by the World's Poultry Science Association-Bangladesh Branch at IDB Bhaban, February 16-17, 40-51.

Huque QME and MJ Hossain, 1994. Comparative performance of three genotypes of ducks under rural conditions. Bangladesh Journal of Scientific Research, 12: 157-160.

Islam MN, QME Huque, MS Uddin and MSK Sarker, 2003. Potentiality of native genotypes of Ducks. Proceedings of Third International Poultry Show and Seminar, Organized by World's Poultry Science Association, Bangladesh Branch, Dhaka, 259-270.

Jabber MA, 2004. Smallholder livestock for poverty alleviation: issues and prospects. Keynote paper presented at BARC, Dhaka.

Khanum J, A Chwalibog and KS Huque, 2005. Study on rural duck production systems in selected areas of Bangladesh. *Livestock Research for Rural Development*, 17(10).

Pym RAE, EB Lanada and EY Morbos, 2002. Case studies of family poultry development. 2nd INFPD-FAO, Electronic conference. May 13-July 5, 2002.

Rahman MM, 2009. Development of feeding strategy for ducks raised by small farmers in coastal areas of Bangladesh. M.S. Thesis, Department of Poultry Science, Bangladesh Agricultural University, Mymensingh.

Rahman MM, MJ Khan, SD Chowdhury and MA Akbar, 2009. Duck rearing system in southern coastal districts of Bangladesh. *Bangladesh Journal of Animal Science*, 38: 132-141.

Ravindran TK, CK Venugopalan and A Ramkrishnan, 1984. A survey in the status of duck farming in Kerala state. *Indian J. Poult. Sci.*, 19: 77-80.

Rithamber V, R Reddy and PV Rao, 1986. A survey study of duck farming and hatcheries in Andhra Pradesh. *Indian J. Poult. Sci.*, 21: 180-185.

SAEDF, 2008. South Asia Enterprise Development Facility, a multi-donor facility managed by the International Finance Corporation of the World Bank Group, Dhaka, Bangladesh, May 24, 2008.

Sarkar K, 2005. Duck farming for resource-poor farmers in Bangladesh. In: Proceedings of the 4th International Poultry Show and Seminar. Dhaka, Bangladesh. World's Poultry Science Association, Bangladesh Branch, 130-141pp.

Ukil MA, 1992. Availability of nutrients to scavenging chickens and ducks in Bangladesh. M. Sc. Thesis. Department of Poultry Science, Bangladesh Agricultural University, Mymensingh.

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Md. Alauddin, an intern student at Chittagong Veterinary and Animal Sciences University (CVASU), originate from Comilla, Chittagong. After completing one year intern period, he will receive his Doctor of Veterinary Medicine (DVM) degree with lots of real life experiences. As an intern student he has received clinical training from Khon Kaen University, Khon Kaen, Thailand and Madras Veterinary College, and Veterinary College & Research Institute, Namakkal, Tamilnadu, India. He has a great enthusiasm in research and has done some clinical research works. He has published one scientific paper in **Journal of Veterinary Science & Technology** titled by “Comparative Study on Newcastle Disease and Infectious Bursal Disease in Chicken Submitted to Upazilla Veterinary Hospital, Bogra Sadar, Bangladesh”. He has more interest on genetics, theriogenology, medicine, surgery, microbiology and epidemiological field area.

APPENDIX

1. A questionnaire on estimation of duck management under rural condition

Objective:

1. To know the Duck management system under rural condition.
2. To estimate the genetic parameters of egg characteristics performance.

Reg no:

Date:

Owner's Details:

Name:

Age.....

Family members: Mobile:

Address:

Educational backgrounds of farmer: 1. Under S.S.C 4. Honor's
2. S.S.C 5. Other's
3. H.S.C

Occupation:

Income:

.....

.....

Source of income:

Rearing system:

Type of shed:

1. Duck house, 2. Main house,
3. Fence, 4. Others.....

Element of shed:

1. Pakka, 4. Bricks,
2. Tin 5. Soil
3. Wood 6. Others.....

Rearing system:

1. Free range 3. Semi-intensive
2. Intensive 4. Other.....

Feeding system:

Type of feed: 1. Concentrate (rice, rice polish, rice gruel, Vegetables, Others.....)

2. Snail

3. Scavenger(pest, other feed from natural source)

4. Others.....

Source of feed:

1. Home maid

2. From market

3. Others.....

Amount of feed:kg/Duck no/day.

How much time offer the feed per day:

1. 1 Time 2. 2 Times 3. More

Male		Female(Egg production record/year)					
No.	Age	Base population		1 st generation		2 nd generation	
1.		Flock no.	Egg production	Flock no.	Egg production	Flock no.	Egg production
2.		1.		1.		1.	
3.		2.		2.		2.	
4.		3.		3.		3.	
5.		4.		4.		4.	

Production performance:

Breed: **Egg size:** **Egg shape:**
Egg color: **Fertility:** **Hatchability:**
Where egg hatch:
Breeding system: 1. Straight breeding 2. Cross breeding
Mating system: 1. Natural service 3. AI
2. Natural service confirmed by men. 4. Others

Disease management:

Any diseases occur in previous/current?.....Yes/No. If Yes.....

Sign	Possible diagnosis	Time	Treatment	Mortality
Deworming:		Yes/No.	If yes,	Name and
Date.....				
Vaccination:		Yes/No.	If yes,	Name and
Date.....				

Biosecurity:

Type of predator: 1.Snake 3.Mongoose 5.Gui snake
2.Eagle 4.Wild cat(Bawral) 6. Others

What do you think for the main reason of mortality: 1. Disease 2. Predator
3. Others.....

How many times clean the shed: 1.Daily 2.Weekly 3.Monthly
4.Others.....