

Prospect and constrains of backyard poultry rearing System in Rural area of Bangladesh



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Abstract

Backyard poultry is one of the key sources of protein for the rural people of Bangladesh. Almost every rural family has small flocks of indigenous chickens and ducks under backyard system. Litter materials used by the farmers were sand, ash, rice-husk and jute bags. The farmers provided boiled rice, rice polish and broken rice and provided additional paddy, rice or wheat along that. Pond water, tube well water and water from nearby river and canals were supplied by farmers. Almost all the poultry raisers reared their poultry through free-range scavenging system. Almost all the poultry farmers did not vaccinate their poultry. Newcastle disease was identified as the major threat to the backyard poultry. Their poultry through free-range scavenging system and women were the main poultry raisers. Two causes of death of poultry were identified - 76.92% due to different diseases and 23.08% death due to predators. Egg production of chicken and duck were 30-45/year and 60-80/ year respectively. Despite some problems, backyard farming is seemed to be profitable farming, and contributed family income to some extent in the rural area of Bangladesh.

Keywords: Backyard, management, poultry, production, free ranging

List of Abbreviations

Abbreviation Elaboration

CVASU	Chittagong Veterinary and Animal Sciences University
DLS	Department of Livestock Services
GDP	Gross Domestic Product
FAO	Food and Agriculture Organization of the United Nations
LBM	Live Bird Market
BCRDV	Baby Chick Ranikhet Disease Vaccine
RDV	Ranikhet Disease Vaccine
NGO	Non- Government Organisations
IM	Intramuscular
SC	Subcutaneous
gm	Grams
UVH	Upazilla Livestock Office
%	Percentage

Chapter 1

Introduction

Bangladesh is an agricultural country. Small farmers & most of the rural people of our country live based on agricultural. Backyard poultry farming is one of the most common & dependable way for rural people to save them from poverty. Village chicken production systems are based on the scavenging indigenous domestic fowl (*Gallus domesticus*), the predominant species in the rural poultry sector in Bangladesh. These local chickens remain predominant in own villages despite the introduction of exotic and crossbred types, because farmers have not been able to afford the high input requirement of introduced breeds (Safalaoh, 1997). In most Asian countries, the chicken have no regular health control program, may or may not have shelter and scavenge for most of their nutritional needs (Bourzat and Saunders, 1990).The poultry rearing system, which is followed at the village level or rural area, is termed as Backyard Poultry farming or village poultry farming or Scavenging farming System. In this System, the free ranging poultry is reared and the birds feeding on broken rice, kitchen wastes, green vegetable, leaves, insects (through scavenging) and anything edible available in the surrounding areas (Vijay, 1999).Backyard poultry can be a major source of cash income of the rural households. By selling eggs & birds, they can meet up their family need including health, education, clothing, etc & thereby importing the quality of life. Sometimes poor people exchange high value commodities like meat, eggs for cheaper & larger quantities of cereals & vegetable and improving the families food supply but when economic condition is improved, it can be avoided (Asaduzzaman, 2000).Backyard poultry farming in Bangladesh is not a new one.Bangladesh is an agro-based country where 90% of rural households raise poultry (Sultana et al., 2012).Most of the people in village don't have their own land. The rural people are illiterate mainly women. It is a prospective resource for the livelihood of rural peoples for a developing country. It provides a substantial amount of family income for small, marginal and landless poor.Meat of backyard poultry is tasty, widely accepted and sold at a very good market price. Therefore, traders involved with the backyard poultry business collect backyard poultry from different sources and supply them to different city LBMs in Bangladesh. Since Chittagong city has a population of over 6.5 million ([BBS, 2014](#))

Family poultry production contributes an important role for the landless and small poor, 80 per cent of the total population who occupy average landholding size 0.05-2.49 acres. This majority portion of farmers in their home stead raise 77.29per cent chicken and 84.41per cent duck respectively of the total chicken and duck population in the country. Crossbreed chicken and ducks under semi-scavenging condition, commercial broiler and layer are raised by landless and small farmers with the support of Govt. livestock department, Non Govt. organizations (NGOs) and private farms for training, credit, input supply and marketing support.(Md. Nuru Miah,2009)

The poultry sector is one of the promising sectors in Bangladesh which provides animal protein for human consumption that generates income and contributes to the Gross Domestic Product (GDP).Agricultural sector contribute 18.6% of the Bangladeshi GDP in which 3.2% of GDP comes from the poultry industry (MoP, 2015).The poultry population in Bangladesh was about 338 million in 2017-2018 in which 282.1 million chickens and 55.9 million ducks (DLS, 2018). A large section of marginalized rural people earns their living through this industry. Backyard poultry are mostly reared by women or children for subsistence income and family consumption (Hamid et al., 2017).

The indigenous (deshi) hens in that system have small body size of around 1.140 gm (Huque *et al.*, 1993) and produce 45 eggs per hen per year (Ahmed and Hasnath, 1983). Their egg laying potential was investigated under intensive condition by Sazzad (1986) and it was found to be 64 eggs per hen per year with a behavior of pronounced brooding. The scavenging birds are raised with little or no inputs and their productivity is very low and irregular. (Huque *et al.*, 1993).

Rearing of poultry is an important source of cash income for rural women (Alam, 1997). It is also plays an important role in reducing the gap of protein supply in developing countries like us (Rahman, 2002).Bangladesh, a country of 1,47,569.55 sq. kilometers area with about 142.319 million people, with a density of over 964 persons per sq km, making it one of the most densely populated countries in the world (Preliminary result of 5th Population and Housing census, 2011). In 2000, 52.5% of the urban and 44.3% of the rural people were surviving under the poverty line I (2122 Kcal/d/capita) and 25 % of the urban and 18.7% of the rural people under the poverty line II (1805 Kcal/d/capita), called the ‘Hardcore Poverty’. In 1998-99, energy intake (Cal/d/capita) was 100 from animal production, with 16 from meat and 7 from eggs, and protein intake (g/d/cap) was 11.2

from animal production, with 3.2 from meat and 0.5 from eggs. Protein intake is recommended to be in range of 0.8 to 1.6 g per kg body weight for human (Anonymous, 1998) There are some constrains to raise backyard poultry. In relation to the indigenous poultry rearing, there are many diseases of poultry such as highly pathogenic avian influenza, Newcastle disease, infectious bursal disease, colibacillosis, salmonellosis, mycoplasmosis, fowl pox, etc. that causes loss of production and high mortality in poultry. The constrain for improving productivity are not only diseases but also management system i.e. lack of supplementary feed, lack of proper healthcare and housing. However, proper knowledge on backyard poultry rearing in this respect is necessary. Therefore, the present study was undertaken with the following objectives.

- To know the traditional scavenging poultry rearing system in Bangladesh.
- To know about the management system of breeding, feeding, housing, prevention and control of diseases on poultry.
- To observe the productive performances of backyard poultry farming

Chapter 2

Review of Literature

A number of studies have been conducted on the Backyard poultry farming

Yasmin et. al (1989) studied the characteristics of backyard poultry farmers in Bangladesh. Findings of the study indicated that 17% farmers had low knowledge, while 13% had considerable knowledge. Statistical tests revealed that education, family size, occupation, number of birds and extension contact o the farmers had a positive and significant relationship with their knowledge on poultry production.

Miah et al.,(1990) surveyed small- scale poultry farmers in Saver areas. The purpose of the study was to determine the profitability of poultry farming. The researcher found that the average numbers of birds in small and medium farms were 589 and 3139 respectively. The average annual costs per small and medium farms were Tk. 136788 and 567034 respectively. The average income earned from small and medium farms were Tk. 308779 and Tk. 1480302 respectively. The researcher also found that the profitability of poultry farming was positively correlated to the size of individual farms.

Haque , et al., (1992) in his article " Rural Poultry in Bangladesh Economy" analyzed the costs and benefits of 500 layers and 500 broiler farms. The net profits of layer and broiler farms were Tk. 105876.00 and 37146.00 respectively.

Islam, A (1995) studied economic analysis of poultry farms of different sizes in some selected areas of Dhaka city. He estimated relative profitability of small, medium and large poultry farms. He found that the total costs of per poultry bird per year were Tk. 406.17, 373.86 and 347.54 for small, medium and large poultry farms respectively. On the other hand the average gross returns per poultry bird per year stood at Tk. 614.15 for a small farm, Tk. 599.67 for a medium farm and Tk. 351.69 for a large farm. He identified higher prices of feed, frequent occurrence of diseases, lack of veterinary care and services, non-availability of chicks, lack of institutional creEdit and training facilities, low price of eggs and lack of space were the main problems of raising poultry birds.

Kashem and Sarker et al (1988) conducted a study in Tarundia union of Mymensingh district and determined the extent of problems faced by the farmers in respect of breeding, feeding, housing and prevention and control of diseases in poultry

raising. The findings revealed that the prevention and control of diseases in poultry raising. The findings revealed that the prevention and control of diseases were the most disturbing problem followed by feeding, breeding and housing.

Das et al.,(1995) reported that 80% poultry products were purchased by institutional buyers and 20% by individual consumers in Sylhet Sadar thana. Egg price was fully dependent on market demand while broiler price was equally depended on production cost and market demand. Owing to religious belief and social tradition, live poultry birds were purchased by the consumers. The processing of dressing as marketing operation was uncommon in Sylhet town market. The consumer considered the Deshi chicken as more tasty than broilers.

Kamrul Hasan et al.,(1997) studied poultry rearing of small farmers under the supervision of BRAC in a selected area of Kushtia district. He revealed that on an average the total cost per poultry farm per year was TK. 1367.65, 6259.13, 24538.76 and 46703.75 for key rearer, model rearer, chick rearer and mini hatcherer respectively. The gross returns and net returns per poultry farm per year were Tk 6533.25 and 5165.60, Tk 17158.40 and 10899.27, Tk. 42996.50 and 18437.74 and Tk. 92611.20 and 45907.45 for key rearer, model rearer, chick rearer and mini hatcherer respectively. The study also revealed that the annual net return was the highest for the mini hatcherer but the net return per Taka invested was the highest for the key rearer.

M.A.A. Biswas et al., 2001 conducted Poultry rearing by rural women was found profitable although they faced various problem relating to social, financial and management problem. Scientific method of poultry rearing was not adopted by rural women in the study area. As a consequence they are deprived incur losses as many of the birds died by diseases. Further more they did not clean the poultry house with disinfectant that causes increased disease attack. Rural women had to face some social problem like theft of birds. This problems sometimes hindrance the desire ness of rural women in poultry rearing.

J. Alam et al., (2001) conducted a similar nature of study in 5 districts of Bangladesh has evaluated the impact of interventions made by the Small holder Livestock Development Project (SLDP) on socio - economic condition of the poor people. The generation of income and employment from SLDP activities has enhanced the status of women in the family. An overwhelming majority of beneficiaries reported that their socio -economic condition improved after their participation in SLDP.

J.Alam et. al., (2001) also conducted a research works to examine the productivity and profitability of poultry farms under traditional, semi-intensive and intensive management systems were investigated. The production of egg per layer per year was 43.88 for traditional, 141.11 for semi-intensive and 230.15 for intensive farms. A significant percentage of eggs produced by each type of farm was sold in the market for cash. The annual cost of operation per farm was Taka 820.03, Taka 10732.75 and Taka 715164.94 for traditional, semi-intensive and intensive farms, respectively. The cost per bird was Taka 33.61 for traditional, Taka 51.28 for semi-intensive and Taka 106.68 for intensive farms. The cost per egg was Taka 0.49, Taka 2.16 for traditional, semi, intensive and intensive farms, respectively. The benefit cost ratio was 2.94:1 for traditional 1.31:1 for semi- intensive and 1. 22:1 for intensive farms.

Chapter 3

3.1.Poultry species:

Poultry are domesticated birds kept by humans for their eggs, their meat or their feathers .In Bangladesh chickens ,ducks ,peafowls ,pigeons etc are rearing commonly in backyard farming . Livestock population in Bangladesh is currently estimated to comprise 25.7 million cattle, 0.83 million buffaloes, 14.8 million goats, 1.9 million sheep, 118.7 million chicken and 34.1 million ducks. The density of livestock population per acre of cultivable land is 7.37. (DLS,2015)

Tables1 :Poultry statistics in Bangladesh(DLS,2019)

Livestock Species	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Chicken	2490.11	2553.11	2617.70	2683.93	2751.83	2821.45	2892.83
Duck	472.54	488.61	505.22	522.40	540.16	558.53	577.52
Total Poultry	2962.64	3041.72	3122.93	3206.33	3292.00	3379.98	3470.35

3.2.Rearing system

There is a traditional practice in backyard poultry rearing system of poultry mainly chickens and ducks. Almost all the farmers rear poultry in free-range scavenging system. This result agrees with the result of Dutta et al., (2013) who reported that free-range scavenging system has prevailed in chicken all the year round. In the rural areas, women are the main contributors to backyard poultry farming practice. This result agrees with the report of Ogunlade et al., (2013) who described that poultry farming is very popular among the rural women in different countries.

3.3.Housing system

There are some types of rearing system e.g; Slat ,Cage ,Scavenging ,Free range ,only Night shelter.Free range backyard poultry rearing requires small farm area. It is suitable for small scale poultry farming in Bangladesh. So, a suitable house for poultry birds needs so that they can be kept inside the house at night time . In Alam et al (2014) reported that mostly used litter material was ash. The percentage of rice husk saw dust, sand were 25%, 5%, 30% respectively in bangladesh. Naogaon district of Bangladesh that

44%, 28%, and 28% poultry were kept in bamboo cages, living house and earthen house, respectively. Many of the duck raisers had the temporary house made with bamboo under the open sky, Halim et al(1988).

3.4.Litter used in poultry house

Different poultry householders used different litter materials on the floor of their poultry houses. It was also found that some of the farmers did not use any litter materials in the poultry houses. Alam et al., (2014) observed that 67.50% farmers used ash then using sand or paper and ash together as a bedding material in their poultry house. It was found that 15.38% farmers did not use any litter materials on the floor of their poultry houses. In Islam et al (2015) mention that the production system of smallholder backyard poultry was scavenging in nature

3.5.Feeding system

Backyard poultry raisers usually provide less supplement feed, unlike commercial poultry raisers. Some common feed ingredients were used by the farmers eg rice ,paddy ,oat ,wheat ,boiled rice ,rice polish ,house hold waste etc . In semi-scavenging system two or three times feed are given to the poultry. Some people given broiler and layer feed to their ducks and chickens for rapid growth and production .Only boiled rice and rice polish were used by many the farmers. Alam et al., (2014) showed that about 62% of the farmers used boiled rice and rice polish other than using rice, rice polish, paddy, broken rice and wheat bran as feed ingredients for poultry due to scavenging system farmers provided the mentioned feed ingredients single time or twice in a day.

3.6.Water management

Backyard poultry farmers were less conscious of good management and sanitation practices. Most of the Farmers are not given water to their chicken and ducks in cages of free ranging rearing system . They were not cautious about a water-borne disease. Majority of the water sources were found as unhygienic water . Weyuma et al., (2015) showed that backyard poultry farmers in Ethiopia supplied river and tap water to their poultry.

3.7.Vaccination

In the remote areas, people were less aware of vaccination. But in many areas, people were becoming more cautious to reduce mortality rate through vaccination .They collect

the vaccine from upazila livestock office .They are given to the farmers at minimum cost . BCRDV, RDV ,fowl pox ,pigeon pox ,Fowl cholera, Duck plague etc are now available in UVH. Alam et al., (2014) found in Mymensingh that 86% farmers didn't vaccinate their poultry. Due to the higher prevalence of Newcastle disease, people mainly immunized their poultry against this disease.For better production poultry should be vaccinated timely.

Table 2. Vaccination schedule for poultry birds .Chakrabarti et al.,(2014)

Sl. No.	Age of birds	Name of Vaccine	Name of Disease	Doses	Route of Vaccination
1	Day old Chicks	HVT MD Vaccine	Marek's Disease	0.2 ml	S/c or I/m
2	4 to 7 days	F-1/ Lasota	Ranikhet Disease	One drop	Eye or nostril
3	14 to 18 days	Intermediate plus	Gumboro disease	-	Drinking water
4	35 days	F-1/ Lasota	Ranikhet Disease	One drop	Eye and nostril
5	6 to 7 weeks	Chicken embryo adopted	Fowl Pox	0.5 ml	Wing stab method
6	8 to 10 weeks	Strain killed vaccine	Ranikhet Disease	0.5 ml	S/c or I/m

3.8.Diseases of poultry

There are few numbers of diseases in backyard poultry. But some of the infectious diseases cause tremendous mortality of the birds in the rural areas. Among those diseases, Newcastle disease is found as the major cause of death of the chicken. Hossain et al., (2013) reported that ND was of the major infectious diseases that reduces the number and productivity of traditionally managed chickens. During outbreak, avian influenza becomes most devastating for poultry. Other diseases of chicken included fowl pox, fowl cholera, salmonellosis, necrotic enteritis and coccidiosis which cause great economic loss of the rural poultry farmers. In case of duck, farmers mainly faced the problem of duck plague, duck cholera and botulism. This result agrees with the Baki et

al., (1986) who mentioned that Duck Plague and Duck Cholera are the common diseases of epidemic nature in Bangladesh. In case of pigeon, diseases which cause mortality and economic losses are mainly Newcastle and pigeon pox.

3.9. Causes of mortality

Many causes of mortality of poultry. Approximately death of 76.92% poultry occurred due to different diseases and 23.08% of death occurred due to predators. In the study it was found that mortality by diseases were results from the lack of consciousness about vaccination strategy. Islam et. al., (2015) mentioned that the major cause of death in poultry occurred by Ranikhet disease. Dutta et al., (2013) reported that high mortality of their chicks occur due to Newcastle disease, salmonellosis, gumbo and coccidiosis.

Predators which are threat for indigenous poultry are mainly fox, mongoose, kite, jungle cat etc. found in the study area. Islam et. al., (2015) reported that the losses of poultry occurred by predators like snake, rat, dog, cat, fox and bird of prey, were the main causes of bird losses, especially young birds.

3.10. Production performance

The production performance of backyard poultry is much lower than the commercial poultry. Age of sexual maturity varies according to the management, particularly on the availability of feed in the villages. Egg production in 80% of the chickens ranges from 30 to 45 per year. This result conform with the report of Das et al., (2008) who showed that egg production of indigenous birds was 35 to 40 per year. In 80% of the ducks, egg production per year ranges from 60 to 80. This finding agreed with the report of who described that the traditional household duck production in Bangladesh was 79 per year. The farmers of the study area use fertile eggs as table purpose and also for incubation. Broody hens were used mainly for incubation of both chicken and duck eggs. The number of eggs set for incubation ranges from 10 to 15 per hen. Body weight gained in matured hen mostly ranges from 1-1.5 kg that also used as meat purpose

3.11. Procurement and sell:

Most of the farmers rear their own chicks. About 90% of the respondents found that there was no problem in procuring or selling chicken in the village. Hoque et al., (2010) As far as the sales go, App.85% indicated that the selling was done within the village itself and 15% sold to others. The selling price in the village per egg of chicken was Tk. 8-10. The value of per adult chicken was ranged from Tk. 350 to Tk.500 based on their body weight. By rearing chicken farmer can add Tk.3000 to Tk.5000 to its family income yearly

Chapter 4

Prospects and constrains

4.1.Prospects:

1. In developing countries backyard poultry is an important part of livelihood and social needs of rural families (Sarwar et al., 2015)
2. Indigenous chicken is one of the important sources of protein in developing countries (Mapiye et al., 2008)
3. Backyard poultry farming requires low input and can be managed easily (Rath et al., 2015).
4. In small-scale poultry, improvement in food security occurs through contributing to mixed farming practices, contributing to women's empowerment and enabling access to healthcare and education (Wong et al., 2017).
5. Traditional family-based production systems still contribute more than 80 percent of the global poultry population (Mack et al., 2005).
6. In Bangladesh, the meat and egg of the indigenous chicken are more preferred resulting a higher market price of it (Islam et al., 2009)
7. There is considerable scope for improving the production performance of scavenging systems with low-cost intervention (Conroy et al., 2005). Improved birds in backyard poultry farming can ensure food security to the needy villagers (Pathak and Nath et al., 2013).
8. With increasing population and decreasing land holdings, the number of poultry is increasing at an annual rate of 5.9% (Reneta Statistical YearBook, 2005).
9. Low initial investment but higher economic return.
10. A unit can be started with as low as two chickens to a large flock.
11. Feed cost is negligible due to better utilization of agricultural by-products and leftover feed and grains.
12. Egg and birds can be sold in local market with high price, because there is a growing demand for local chicken.
13. And the consumers are willing to pay higher prices for high quality desi chicken meat or egg.

14. Boost up in family income for better utilization of family labourers who are not able to perform other agricultural works like old family member or children.
15. Backyard poultry farming acts as an 'ATM', because as per family need the birds and eggs can be sold at anytime anywhere with cash in hand.
16. Quality of chicken and egg is better in terms of organic farming as the birds are raised in stress less environment with natural input.

4.2. Constrains

- ✓ Inadequate modern poultry equipment in small scale farm
- ✓ Absence of adequate marketing Knowledge of farmer
- ✓ Lack of adequate poultry rearing knowledge in villagers
- ✓ Lack of modern communication facilities with govt.officers
- ✓ Absence of government help and guidance
- ✓ Lack of interest in Private investment
- ✓ Problem of getting Reasonable price of farmer
- ✓ Expensive poultry feed ingredients and feeds
- ✓ They are not aware of preventive practice (Sultana et al., 2012)
- ✓ Backyard poultry farmers are low producers.
- ✓ They have not satisfactory knowledge of management (Alam et al., 2014).

Chapter 5

PROBABLE SUGGESTIONS TO OVERCOME

These problems can be overcome if some steps are taken by the concerned authority. The main objectives are to develop huge number of unskilled people into semi-skilled or skilled. There are probable steps suggested by the researchers by the opinion taken from various poultry farmers and relevant authorities. These are as follows.

I. Government initiatives: To develop human resources to operate poultry sector effectively to compete locally and globally; government has to take major step like create institutions for training poultry farmers, increasing infrastructure and financing. Government has to motivate the businessmen and their allied to come up for better training and education.

II. To design Proper HRD planning for poultry farmers :

Government authority should take the overall responsibility to make effective human resources through coordination of various agencies. This agency should monitor the co-ordination matter. Effective HR planning and coordination is equally significant for the private and the public sector in Bangladesh. Especially educational infrastructure should be updated based on need. In Bangladesh, there is lack of poultry training institutions.

III. To arrange easy loan: Every organization like government, private financial institutions, NGOs, and foreign investors should come up to give micro credit to poultry sector.

IV. To employ professional trainer: To generate the admirable flow of skilled human resources in poultry sector, professional trainer is mandatory for all. Professional trainer should be hired from domestic or foreign sources to give technical knowledge, proper education, training, and motivations to the poultry farmers

V. To adapt appropriate Modern technology:

To improve the efficiency of the existing production technologies must be investigated (Begum et al., 2010). A low-cost intensive or semi-intensive poultry technology should be initiated for the sake of developing skilled human resource for the poultry industry. These sorts of projects should have technical capacity and ability of farmers to provide the required inputs exclusively from their own resources.

VI. To arrange workshop, seminar, and live demonstration for relevant Poultry workers :

The relevant authority should arrange workshops, seminars, conferences ,and live demonstrations for imparting training to the farmers regarding the latest knowledge of poultry and marketing.

VII. To develop security situation: The relevant authority should improve the security situation for smooth supply of day old chicks, live birds movements, poultry accessories and equipment movements all over the country

Conclusion

The backyard poultry farming in Bangladesh is revealed as a source of income for the rural and marginal people of the rural areas. The rearing system of chicken namely feeding, housing, breeding, prevention and control are not satisfactory of the farmer. Experts from government, research institutes, universities, NGOs and other relevant sector should work in a collaborative manner in order to allow sustainable production and fight challenges jointly when would appear from time to time. Malnutrition is an existing ailment in Bangladesh, particularly in many rural areas. There is still the deficiency in the production of eggs and meat in Bangladesh. To eliminate this situation there should be emphasized on poultry production. As low investment and quick profit in the poultry sector, people should be encouraged in poultry farming. Rural people need support from the government as there is crisis in the vaccination, veterinary services and marketing facilities. Training and other extension programs should be carried to encourage farmers. Improvement in the poultry sector can ensure better contribution to the national economy of Bangladesh.

Chapter 6

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Short Biography

I am Omar Faruq, son of Md. Atar Ali and Mrs. Ajiba Begum. I passed Secondary School Certificate (SSC) in 2012 with GPA-5.00 and Higher Secondary Certificate (HSC) Examination in 2014 with GPA-5.00. Now I am an intern veterinarian under the Faculty of Veterinary Medicine in Chattogram Veterinary and Animal Sciences University (CVASU). In the future, I would like to work as a veterinary practitioner and do research on animal diseases to improve animal health and production in Bangladesh.