Chapter I: INTRODUCTION

Bangladesh is an agricultural country. The economic system of Bangladesh is mostly dependent on agriculture and agricultural related production. Broiler are the common and mostly raised poultry birds of Bangladesh. Commercial broiler farming can create an employment opportunities for the job seeking unemployed educated people. Even, the women can also start raising some poultry birds in small scale farming system. This will ensure the availability of necessary nutrition for the family and help them by making some extra income. Commercial broiler farming business has a great ROI (returns of investment) ratio. The common problems faced by the broiler grower's are procurement of broiler chicks, quality feed, appropriate litter materials and limited technical knowledge on rearing. Generally, rice husk & sawdust are used as litter in both rural & urban areas for broiler farming. Besides rice husk & sawdust, chopped straw, sugarcane pulp, paper mill by products, wood savings, sand, oat hulls, corn cobs ground corn cobs, peat moss etc. are also been used as litter materials all over the world. The better growth performance of broiler bird might simply be a function of higher feed intake.

Broiler farming is one of the fastest growing sectors with bright future and plays a crucial role in supplying nutritious food and generating income. It is recognized as a profitable business by many people and getting popularity day by day as employment opportunity is being created among people. As a developing country, unemployment, inadequate nutrition and poverty, scarcity of available land are the major problems in Bangladesh. Commercial broiler farming serves as ready source of income among the poor people when need money and creates the employment opportunity for educated unemployed youth and also for women. It has been acting as an important tool for reducing the migration from rural poor people to the urban areas. Millions of rural women are involved in poultry rearing under the poverty alleviation program of direct Non-Government Organizations (NGOs) and Department of Livestock Service (DLS) under its packages program. For this purpose it is necessary to help the growers. An important way of helping the growers is to reduce their production cost, so that the prices of locally produced poultry become more competitive and profitable.

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Bangladesh faces some problems of serious malnutrition & food security, about 17.6 percent population is identified as hardcore poor & 31.5 percent lies below poverty line (Household expenditure survey,2010) , the tragic extent of malnutrition in Bangladesh amongst both urban &

rural population is widely known & discussed and needs no nutrition survey to prove it. Bangladesh is also one of the malnourished nations in the world. Average energy intake is 1925 kcal as against the requirement of 2273 k.cal /day /people. It is the biggest deficit. The deficit in the intake of children & expectant and nursing mothers is the severest. Thus picture is more serious in the rural areas to meet the nutritional requirement of our country needs to produce more meat, egg along with other food items. To this end government arranged special credit for livestock & poultry farming on easy terms in the private sector. With the support of public sector the existing commercial poultry meat production system has been developing in the country with some emerging problems of different nature. Commercial poultry rearing is extended to upozila level & average 93 broiler farms were found in each upozila. Rahman (2003) described a linear increase in broiler meat production in the last decade, poultry meat contributes 40 percent of the total meal in Bangladesh. (Calculated based on FAO.2008). The total contribution of livestock in Bangladesh to Gross Domestic Product (GDP) is approximately 1.66% and it generate foreign exchange is 4.31 percent (BBS, 2015-2016). Poultry is one of the most prospective sectors for development. 1t is a quick returnable enterprise that needs relatively small initial investment. To meet the shortage of protein supply with in a shortest possible time, expansion of the poultry sector is required. The expansion of poultry sector depends, among other things, on the profitability of chicken poultry rearing at farmers level.

Broiler meat contains high quality protein and micro-nutrients which has had a tremendous impact on health and nutrition for the poor people in rural areas (Neumann et al., 2002; Barroetoa., 2007). For this reason, broiler farming has been playing a key role in providing meat to overcome the malnutrition and serve as a tool for employment generation and poverty alleviation (Raha, 2007). All these evidences suggested that commercial broiler farming deserve wider scale expansion throughout the country as a poverty reduction activity. Despite its high potential the broiler farming is not based on sound footings. Studies revealed that most of the broiler farm owners suffered from adequate amount of credit to run their farms and provision of credit for poultry farming is not yet very regular and well established practice among all the financial institutions-banks and NGOs in Bangladesh (Jabbar *et al.*, 2005). So, broiler farm owners face various problems like shortage, high price and poor quality of DOC (Day-old chick); high price, poor quality and unavailability of feeds; high cost and low quality of

medicine, vaccine and veterinary services; shortage of capital; inadequate marketing facilities; and poor transportation and communication (Raha, 2007).

It is interesting to note that broiler farming is solely in the private sector particularly in the hands of small farmers who are running their enterprise through self-finance. So it is very much necessary to assess whether broiler farming is contributing positively for the socio-economic development of the broiler farmers or not. The overall objective of the present study is, however, to estimate and assess the extent of improving livelihood of small scale commercial broiler farmers. It also identifies and analyzes the problems faced by the farm holders. Thus to meet the nutritional requirement & in the context of income generation & employment for rural household poultry husbandry is one of the most important source. Poultry husbandry especially broiler rearing becomes a very encouraging enterprise for small farmers, landless labourers & educated unemployed as well as for big enterprise.

OBJECTIVES

The specific objectives of my study were as following-

1) To analyze the situation of poultry rearing in rural area.
2) To study the management pattern of broiler Farming.
3) To study the weight gain and feed conversion ratio.
4) To estimate the cost and return from broiler farming**.**
5) To determine the socio economic development by broiler farming.

Chapter II: METHODOLOGY

a) Selection of the study area:

Muktagachha upozila was selected for my study.

b) Selection of sample and sampling technique:

A total of 10 broiler farms were selected randomly. Simple random sampling technique was followed to select samples.

c) Data collection procedure:

Data were collected during my placement in upozila veterinary hospital.

Data were collected through direct interview with the farmers by following different questionnaire about broiler rearing. Separate interview schedule were used for collecting data from different poultry farmers.

FARM INFORMATION

A) Strains that are used by farms:

The broiler were non-descript types widely differing phenotypes. The so- called Hab chicks, Starbro, ISa-I 757 are common.

B) Socioeconomic status of the farmers:

Broiler farming is an income generating enterprise for almost all the farmers. People from all strata of the society, irrespective of religion, education, occupation & economic background were involved. About one third of the farmers were literate, the other were illiterate. The majority (70%) were not engaged in other form of occupation and by this occupation their economic condition was sound enough to maintain their families. All had gained their knowledge and experience of broiler farming from their farm consultant.

C) Husbandry practices:

The most practical program for broiler rearing has been the use of all-in, all-out system in which only one age of broilers is on the farm at the same day and later sold on the same day, after which there is a period when no birds

are on the premises. This lack of birds breaks any cycle of an infectious disease: the next group of birds has clean start with no possibility of contracting a disease from older flocks on the farm. The downtimes maintain the farmer ranges from 14 to 16 days.

1 .Flock Size

The majority of flocks comprised 1000-1500 birds within the overall range between 1000-3000.

Table 1: Poultry population in different farm

Name of the farm	**Flock size**
1.Tanvir poultry farm	1500
2.Kamrul poultry farm	1000
3.Asraf poultry farm	1000
4.Mitu poultry farm	2500
5.Sanjay poultry farm	1500
6.Mayer doa poultry farm	3000
7.Mujati poultry farm	1000
8.Razzak poultry farm	1500
9.Sabina poultry farm	2000
10.Helal poultry farm	1500

2. Housing:

There are many different styles and designs of houses such as shed hype, combination hype, Gable type etc. during my study I have seen that most or the farmers constructed gable Type house for their bird which is made by bamboo & tin and suing the wire net around the houses, almost all of the houses are south facing & keep the house in well ventilated.

3. Floor, Feeder and water space followed by tile farmers are as follow:

In most of the farm, water is supplied from tube-well and others farm used supply water.

Table 2: Floor, feeder and waterer space

Age	Floor space	Feeder space	Waterer space
First week	0.5sqft/bird	1 inch/bird	0.5 inch/bird
Second week	0.5sqft/bird	1.5 inch/bird	0.6 inch/bird
Third week	1sqft/bird	1.5 inch/bird	0.75 inch/bird
Fourth week	1sqft/bird	2 inch/bird	1 inch/bird
Fifth week	1sqft/bird	2 inch/bird	1 inch/bird

4. Chick transportation:

Farmers started their program by collecting the Day Old Chick(DOC) from hatchery or other selling enterpriser. After collection most of the farmers transports their chick by taxi or tempo. It is noted that chick is packed in paper box: which is supplied by selling enterpriser or hatchery.

5. Disinfection of the farm:

- At first disinfected the floor of the house by iosan, phenol bleaching powder or limewater before placing the litter materials. But among the disinfectants the farmer most commonly uses iosan & bleaching powder.

- Most of the farmers fumigate the house before 10 days of arrival of chicks and they follow the following formula for fumigation:

Potassium permanganate (ppm): Formalin (400/0 formaldehyde) -1**:**2

i.e. 60gm Potassium permanganate + 120 ml formalin for 100 cubic ft areas.

Then applied litter materials. Rice husk and saw dust were widely used by the farmers with a depth of 1 -2 inch. The other litter materials are wood savings, straw or leaves etc. Surrounding the brooding area by the use of plastic sheet. Brooder was run 3 hours before arrival of chicks with a Temperature of 90° to 95°F.

6. First care of the chick in the house:

After arrival of the chick in the house farmers firstly gave the chick water with the mixer of Glucose, Vitamin and minerals. Then feed is given in a

paper sheet for the first 3 hours, after that feed was given in feeder. Number of waterer & feeder used by the farmer is shown in following table:

Table 3: Number of Feeder

Feeder	**0-2 Weeks**	**3-5 Weeks**
Chicks feeder	2 ft long feeder/ 50 chicks	-
Tube feeder	-	4 in number/100 birds

Table 4: Number of waterer

	0-2 weeks	**3-5 weeks**
Waterer	1 plastic drinker/50 birds	-
	-	1 Plastic drinker/50 birds

7. Brooding:

Artificial heat was use in brooding chick. It was seen that 5-10 brooder /500 bird & electric bulb were used by the farmers as a heat source for the first 2 weeks of age. Number of electric bulb were used by farmers for heat source is shown in following table:

Table 5: Number of electric bulb

Number of chicks	**No. of electric bulb**	
	Summer	**Winter**
500	100 watt 2 in number and 60 watt 1 in number	200 watt 2 in number and 100 watt 2 in number

After 2 weeks brooder guard had been withdrawn and the brooder house are used as grower house.

8. Temperature schedule: Temperature schedule are given below:

Table 6: Temperature schedule for brooding

Age(weeks)	Temperature of Brooding(^{o}F)
0-1	**90**
1-2	**85**
2-3	**80**
3-4	**75**
4-5	**75**

9. Litter management: litter management may vary season to season. Litter management are given below:

Table 7: Litter materials and its management

Litter material	Depth	
	Winter	Summer
Rice husk	1.5-2 inch	1 inch

10. Lighting schedule: lighting schedule are as follows:

Table 8: Lighting schedule for broiler

Age(days)	Light/day(hour)
1-3	**24**
4-7	**23**
8-14	**20**
15-21	**08**
22-28	8 hours dark at night
29-35	8 hours dark at night

Figure-1: Housing system of broiler farming.

Figure-2: Feeding system of broiler.

11. Feeding:

Since feed constitutes about 70% of the cost of producing broilers, it is important to give special attention to it. In this respect fanners follow the literature of the feed company. 'It has been seen that all the farmers used two different quality of feed and it was given firstly in paper sheet (First 3 hours) & then in feeder. Farmers usually followed the ½ feed level in the feeder. The feeder were kept up to the neck level of the birds

.

12. Health maintenance program:

Under health program farmers only done vaccination & used foot bath (1% ppm) in front of the shed.

Vaccination schedule:

Table 9: Vaccination schedule used for broiler

Age	Vaccine	Route
3rd day	BCRDV	Eye drop
7th day	Gumboro (228E)	Eye drop
14th day	Gumboro (228E)	Eye drop
21st day	BCRDV	Eye drop

13. Marketing of Broilers:

Broilers in this region were raised & sold when age at 4-5 weeks either at the local market or at the farmer doorstep to individual and local traders.

Chapter III: RESULT AND DISCUSSION

Table 10: Performance of commercial broiler at different farms in Muktagachha upozila

Farm with rearing time of birds	Parameters							
	Body wt(kg)	**Feed intake/ bird (kg)**	**FCR**	***Cost involve /bird (tk)**	**Morta-lity rate (%)**	**Return/ Bird (tk)**	**Benefit/ bird (tk)**	**Cost Benefit ratio**
Farm:1 (37 days)	1.7	3.1	1.8:1	115.2	2.5	220	104.8	1.09
Farm:2 (35 days)	1.5	3.0	2:1	108.5	3.0	210	101.5	1.06
Farm:3 (38 days)	1.7	3.1	1.8:1	110.6	2.0	215	104.4	1.05
Farm:4 (36 days)	1.7	2.9	1.7:1	108.5	1.8	200	91.5	1.18
Farm:5 (33 days)	1.4	2.7	1.9:1	112.8	2.5	205	92.2	1.22
Farm:6 (35 days)	1.6	3.0	1.8:1	110.4	1.5	212	101.6	1.08
Farm:7 (32 days)	1.5	2.9	1.9:1	105.5	3.0	210	104.5	1.0
Farm:8 (36 days)	1.6	3.3	2.06:1	115.6	2.8	208	102.4	1.12

Farm:9 (33 days)	1.4	3.1	2.2:1	110.2	3.5	205	94.8	1.16
Farm:10 (35 days)	1.5	2.9	1.9:1	108.8	2.5	208	99.2	1.09

*$\textbf{(Cost involve /bird=} \dfrac{\textbf{Total Cost}}{\textbf{Total no of birds}}$

Cost involve per bird including housing, vaccination, medication, electricity, feed and chick cost.**)**

The above table shows that, the body weight of birds in different farm was ranges from 1.4-1.7. The height body weight was 1.7 which was found in farm no. 1, 3 and 4.

FCR was found best in farm: 4(**1.7**)and followed by farm:1(**1.8**), farm:2**(2)**, farm:3**(1.8**) and farm: 5 **(1.9)**, farm :6**(1.8),**farm :7**(1.9),**farm :8**(2.06)**, farm :9**(2.2)**, farm:10**(1.9)** respectively.

Return /bird varied from farm to farm due to high market price. The farm:1got highest market price **(220)** then the other farm and farm:4 got the lowest market price**(200).**
Benefit was estimated highest in Farm**:** 1 **(104.8)** and the benefit was lowest in farm: 4**(91.5)**.

And cost benefit ratio was determined best in farm:7**(1.0)** and followed by farm:1**(1.09)**, farm:2**(1.06)**, farm:3**(1.05)** , farm:4**(1.18)**,farm:5**(1.22)**,farm: 6**(1.08),**farm:8**(1.12)**, farm:9**(1.16)** and farm:10**(1.09)**

In the study, we notice that production performance long stand depend on chick's quality i.e. different hatchery. Production variation was also dependent on different strains (Zaman, 2008). It is also observable that some hatchery supply often different quality maintaining chicks. It is

depend on demand and supply of chicks. In the study the chicks of KAZI farm (1.7:1) have shown better performance than others. The farmers who will rear the chicks of KAZI and fed their flock C.P's feed, will get more profit. On the other hand the chicks of BRAC (2.2:1) show lower performance due to low quality chicks. Their chick's weight, feed conversion ratio, are low but disease prevalence and mortality is higher than other. Overall the whole study shows that the average weight gain, feed conversion ratio of broiler at Muktagachha upozila is almost satisfactory.

Chapter IV: CONCLUSION

According to the study it was clear that there was significant variation from farm to farm in relation to FCR, costs involve/bird, return/bird, benefit/bird and cost benefit ratio. There was difference in management, feeding and chick from different company. Overall we can say that the broiler farming in Muktagachha upozila was profitable for the farmers and it may be good sources of income, solve the unemployment problem and develop the socio-economic status of the farmer and also reduce protein shortage. If the farmers are trained on management and production of broiler chicken then the total profitability and socio-economic status might be increased up to satisfactory level.

Chapter V: LIMITATION OF THE STUDY

All farmers was not equally co-operative and friendly. They sometimes tried to escape in the middle of the interviews.

Moreover, even, interviews were not always right person who involved with rearing of poultry directly. Variable measurements were dependent on reporting of the farmer in most of the cases that recall or incorrect information could have gathered on the way.

As some variable were measured from retrospective information asking to farmers, this could not have corrected or real situation

Chapter VI: ACKNOWLEDGEMENTS

All praises are due to “Almighty Creator” who enabled me to complete this work successfully.

The author feels great pleasure to express his deepest sense of gratitude, sincere appreciation and profound regards to his reverend teacher and internship supervisor Mrs. Shahnaz Sultana, Professor, Department of agricultural economics and social sciences, Chittagong Veterinary and animal Sciences University, for her valuable advice, Suggestion and kind co-operation during the study period.

The author would like to express his great respect to Dr. A. K. M Saifuddin, Director of external affairs, for his cordial co-operation.

The author would like to express his deepest sense of respect and appreciation to Dr. Helena Begum Shopna ,U.L.O, Muktagachha upozila, for her kind co-operation during study period.

The author would like to express her deepest sense of respect and appreciation to Dr. Sadia Afrin ,V.S, Muktagachha upozila, for her kind co-operation during study period.

The author extends his appreciation to the farmers for their patience in giving information.

The author would like to thanks to all of his friends and well-wishes for their help, encouragement and inspiration during the study period and preparing the report.

The Author

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Chapter VIII: APPENDIX

Study on Commercial Broiler Farming at Muktagachha Upozila

Questionnaire

1. Name of the farm:……

2. Owner's name:…….

3. Address:……...…

4. Type a) Broiler b) Layer c) Others

5. Number of the birds:……

6. Number of Shed: …….

7. Housing:……..

Placement:

a) South facing, b) North facing, c) East facing, d) West facing.

Design:

a) Gable type, b) Shed type, c) Combination type

Materials:

a) Bamboo. b) Tin, c) Wood, d) Brick

Floor Type:

a) Concrete b) Mud.

8. Floor, Feeder &. Water space:……..

9. Chick transportation system:…….

10. Preparation before arrival of the chick in the house:……..

11. Treatment after arrival of the chick in the house:……..

12. Brooding temperature:……...

13. Litter materials with depth in different season:…….

14. Lighting schedule:……..

15. Feeding Practice:……

16. Incidence of diseases:……

17. Health programe: a) Vaccination. b) Foot bath, c) Others

18. Marketing system:…….

19. Cost & return:……

Biography

This is Md. Mukitur Rahman, from Mymensingh, son of Md. Muzibur Rahman and Momotaz Begum.I have completed my Secondary School Certificate from Nabarun Biddya Niketan with CGPA 5.00 out of 5.00 in 2009 and Higher Secondary Certificate from Govt. Shahid Smrity College, Muktagachha with CGPA 5.00 out of 5.00 in 2011 under Dhaka board. Now I am enrolled in the yearlong Internship program. I am interested toward the higher study and research in the field of Veterinary Medicine.