CHAPTER-I
INTRODUCTION

Boiler chickens (*Gallus gallus domesticus*) are a gallinaceous domesticated fowl, bred and raised specifically for meat production. They are a hybrid of the egg-laying chicken, both being a subspecies of the red jungle fowl (*Gallus gallus*). Typical broilers have white feathers and yellowish skin. Most commercial broilers reach slaughter-weight at between five to seven weeks of age, although slower growing breeds reach slaughter-weight at approximately 14 weeks of age.

At present, Broiler farming has become popular both in urban and rural area. It has encouraged the people of different sections such as small farmers, landless laborers and educated unemployed as well as for industrialists to establish broiler farms on small & large scale. The growth performance of broiler bird might simply be a function of higher feed intake. Feed consumption followed similar trend to that of weight gain. These non-significant differences in growth performances support the findings of (Oliveira et al, 1974), (Shanmugasundaran et al, 1976), (Haque & Chowdhury, 1994), (Anisuzzaman & Chowdhury, 1996), (Hussain et al, 1996) & (Sarica et al, 1998) the study clearly indicate that all broiler farms made good profit.

According to FAO, 1997 appropriate size of the operation, maintaining highly productive stock, efficient utilization of resources, better housing, adoption of standard hygienic practices, reducing cost of production and adequate planning for marketing of the products play a major role in making commercial egg production more profitable. Lower costs of production and higher returns for larger than smaller flocks. (Kumar and Mahalati, 1998) .Isa brown strain at Mymensingh and stated the effect of management in production of egg of the layer. He found lower production than the expected level due to poor management and environmental effect. (Kabir et al., 2010).The intensive farm rearing system has got more production and high profit by rearing the hybrid and exotic breed. (Alam et al. 1998). Sudden excessive heat or cold lowered the egg production. Due to quick temperature change in the reproductive tract egg formed very slowly. Normally it takes about 23 hours to form an egg in the reproductive tract. Remedy of the problem is temperature controlled by thermometer and application of Vitamin-C in hot season. (Ahmed, 2008). The efficient utilization of feed and avoiding unnecessary feed wastage would minimize total cost of production.

Thus, management of egg laying birds in an appropriate rearing environment would ensure better profitability. (Elwardany et al., 1998).

Farm bio-security is a set of measures designed to protect a property from the entry and spread of pests, diseases and weeds. Farm bio-security is your responsibility, and that of every person visiting or working on your property. The disease outbreak and low bio-security and managemental practice decrease the average production performance in both commercial and smallholding poultry farm in Bangladesh. (FAO, 2008 and Talukdar et al., 2010) .The disease in any stage of production effect the productivity of the farm. By avoiding overcrowding, effective use of brood-grow house under better hygiene, appropriate light schedule and use of cages instead of floor houses for egg type layers will reduce mortality(Farooq et al., 2002).

A marketing channel is a set of practices or activities necessary to transfer the ownership of goods from the point of production to the point of consumption. It is the way products and services get to the end user, the consumer and is also known as a distribution channel. A marketing channel is a useful tool for management, and is crucial to creating an effective and well-planned marketing strategy (Das, 2005).

CHAPTER-II

MATERIALS AND METHODS

The present study was conducted to investigate the prospects and challenges of broiler farming at Ramu Upazila, Coxsbazar in Bangladesh. The area was selected due to my internship placement was at Ramu Upazila. This study was conducted in Ramu Upazilla, Cox's Bazar over a period from 1st March to 16th April 2017.During this period I worked actively & collected data by directly observing farm activities and recording the farm data from 15 broiler farms for estimating farm profitability with a view to accomplish my internship report paper. It included farmer's characters like education level, training, experiences and work forces on broiler farming, farm management parameters like farm size, housing system, commercial hybrid broiler strains, and litter materials, drinkers during loading day old chicks in house, brooding system, vaccination, de-worming, growth promoter use, day old chick purchase, feed purchase, bio-security and live broiler marketing. The collected data were analyzed after coding, decoding, summarized when stay in CVASU campus with the correspondence of supervisor. Simple statistical methods such as mean, percentage, standard deviations etc. were applied for analyzed the collected data to meet up the study goals and objectives.

CHAPTER -III

RESULTS AND DISCUSSIONS

3.0: MANAGEMENTAL PRACTICES IN BROILER FARMS

3.1. Husbandry practices:

3.1.1: Collection of Day Old Chicks:

Collection of broiler chicks is important for broiler farming. The farm owner collects the chicks from different hatcheries. The price of day old broiler chick was paid 40-45Tk. per chick.

3.1.2: Flock size: During my internship period I worked in different size of broiler farms. The average flock sizes were found which is given bellow:

Table no.1 Flock size of broiler at the study area:

Farm no	Flock Size
1	1200
2	2000
3	1500
4	1000
5	1000
6	1000
7	1500
8	1200
9	2000
10	2000
11	1500
12	1000
13	900
14	1000
15	1500

3.1.3: Housing:

A suitable house is the prime need for the rearing of poultry birds in the intensive method. In Ramu Upazila there are two types of house are observed brooder house and grower cum finisher house.

3.1.4: **Floor, feeder and waterer space followed by the farmers are given below:**

a. Floor space

Table no.2 Average available floor space of broiler farming

Age of the bird	**Floor space / bird**
1st week	0.5 sq. ft.
2nd week	0.5 sq. ft.
3rd week	1 sq. ft.
4th week	1 sq. ft.
5th week to finishing	1 sq. ft.

Source: Field Survey, 2017

b. Feeder space

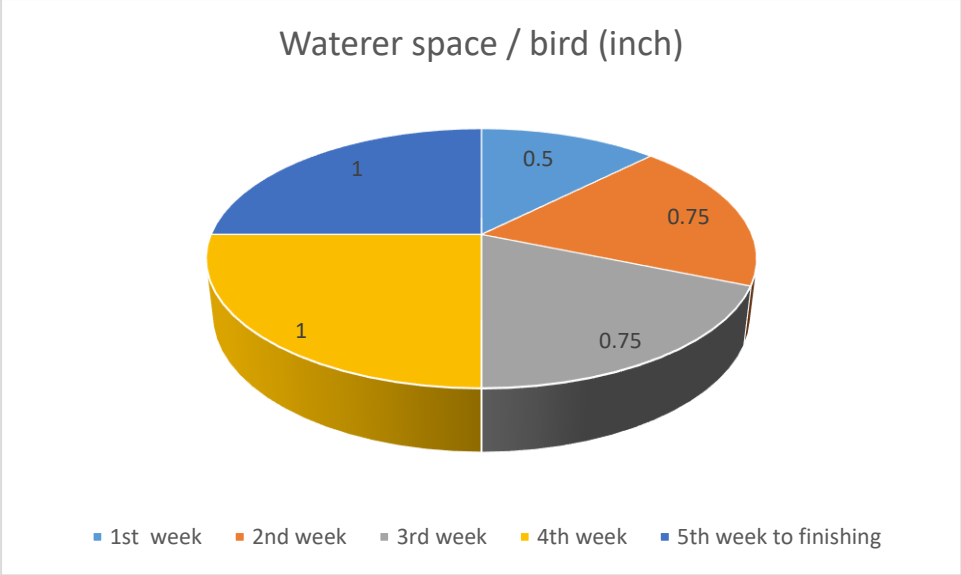
Table no.3 Average Feeder space of broiler farming

Age of the bird	Floor space/bird
1st Week	1 inch
2nd week	1 ½ inch
3rd week	1 ½ inch
4th week	2 inch
5th week to finishing	2 inch

Source: Field Survey, 2017

c. Water space

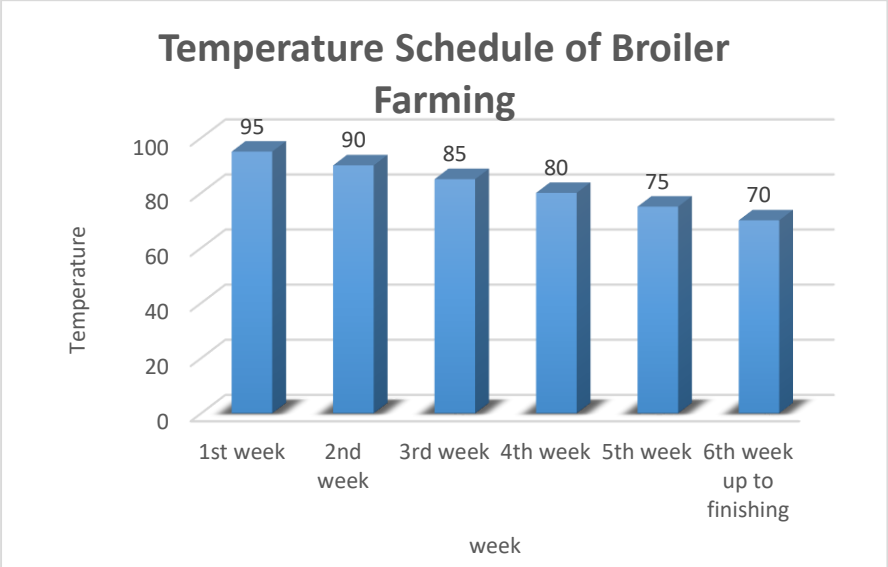
Figure 3.1.4: Graphical Representation of **Average Waterer space in broiler farming**



Source: Field Survey, 2017

3.1.5: Temperature Schedule:

Figure 3.1.5: Graphical Representation of **Temperature Schedule**



Source: Field Survey, 2017

3.1.6: Litter management:

Table no.4 Litter management of Broiler farming

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

Source: Field Survey, 2017

3.1.7: Feeding

Feeding is the main function to rear broiler chicks. The chicks should be given small quantity of feed frequently for the first week. The owner was used the following way for feeding of the broiler.

Table no. 5 Feeding Practices of Broiler Farming

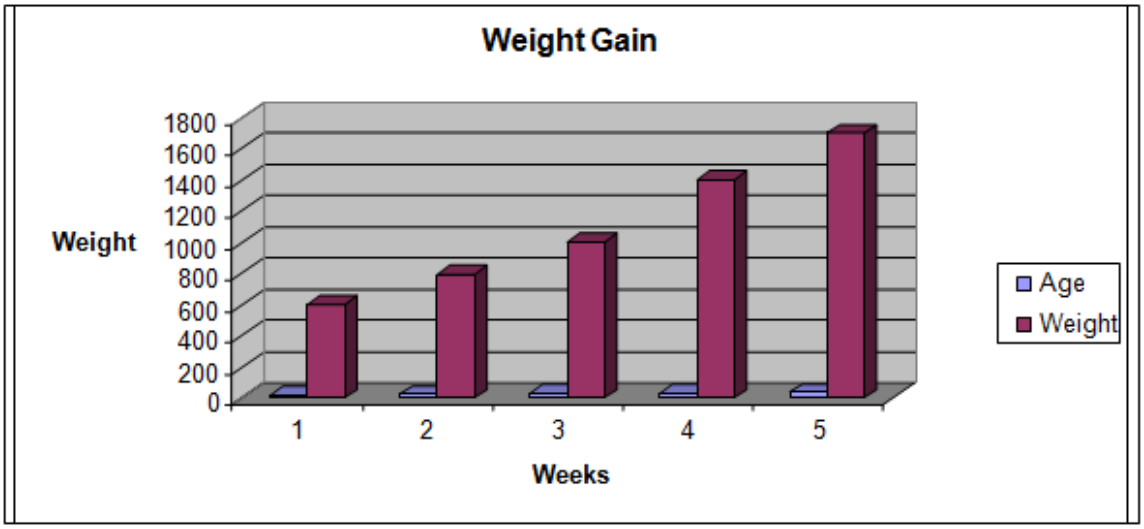
Age (week)	**Nature of feed**
1th	Crumble
2th	Crumble
3th	Pellet
4th	Pellet
5th week up to finishing	Pellet
6th week up to finishing	Pellet

Source: Field Survey, 2017

3.1.8: Weight gain

After proper feeding weight gain which is recorded by the farm owner are given bellow:

Figure 3.1.8: Graphical Representation of Weight Gain



Source: Field Survey, 2017

3.1.9: Vaccination schedule

Table no. 6: Vaccination Schedule of Broiler Farming System.

Age	**Vaccine**	**Disease**	**Dose & route**
Days 3-5	BCRDV	Newcastle Disease	1 drop in 1 eye
Days 12-14	Gumboro (D-78/228E)	Infectious Bursal Disease	1 drop in 1 eye
Days 21-22	BCRDV	Newcastle Disease	1 drop in 1 eye
Day23-24	Gumboro (D-78/228E)	Infectious Bursal Disease	1 drop in 1 eye

Source: Field Survey, 2017

3.2. Feeding practices of Broiler farming:

The broilers need more feed and the farm owner collects the feed from different companies. The owner mainly follow the literature of the Quality, Provita, A One, CP, Nourish and some other companies for their feeding management. The companies supply three types feed that is broiler starter, broiler grower and broiler finisher.

Nutritional level of Quality feed is as follows:

Table no. 7: Feeding Practices of Broiler Farming.

	Quality feed		
Nutrients	**Broiler starter**	**Broiler grower**	**Broiler finisher**
Moisture %	11	11	11
CP%	21	21	21
CF%	3.5	3.5	3.5
Fat%	5.6	5.5	5.5
P%	.5	.5	.5
Ca%	1	1	1
Me kcal/ kg	3000	3100	3200

Source: Field Survey, 2017

Table no. 8: Standard Level of Broiler Feed

Nutrients	Broiler starter	Broiler grower	Broiler finisher
Moisture %	11	11	11
CP%	22	21	20
CF%	3.5	3.5	4
Fat%	3	3	3
P%	.5	.5	.5
Ca%	1	1	1
ME kcal/ kg	2900	3000	3000

Source: Jadhav M. F. Siddiquei-1999, Hand book of Poultry Production &Management.

3.3: Bio-security Management

3.3.1: Entry of the farm:

Entry of the farm is one of the most elements of maintaining farm bio-security as this is the pathway of transferring diseases by people to the farm.

Some important bio-security measures were undertaken were found as follows:

3.3.2: Foot bath:

All personnel should use foot bath on entering the farm. Foot bath is used for disinfection.

3.3.3: Spray room:

All personnel must use spray room on entering the farm to prevent infection into farm that carry from outside of the farm.

3.3.4: Transport Vehicles:

Vehicles, other than service trucks with heavy equipment, should be parked in a designated area away from the poultry houses (30 meters). Ideally, the vehicles will be equipped with a disinfectant sprayer to treat wheels and the vehicles' cabin mats.

3.3.5: For visitors:

- Visits should be avoided as much as possible. When a visit is necessary, it is important to follow a protocol that will serve a dual purpose: protect the birds on the farm and on other farms, and educate visitors regarding the risks of disease transmission.
- Visitors should be made aware of the risk of disease transmission via traffic of vehicles, equipment and people.
- Visitors must use the foot bath, spray room on entering the farm.

3.3.6: Entry of the farm shed:

Entry of the farm shed was also found another important key element to maintain bio-security of the farm. Some important bio-security measures were undertaken were found as follows:

3.3.6.1: Use of separate sandals and dress:

Infection can be transfer by sandals and dress. So all personnel must use different sandals and dress before entering the shed.

3.3.6.2:.Foot bath

Foot bath is used to prevent infectious disease in the farm shed. All personnel must use foot bath on entering the shed.

3.3.6.3: Use of mask

Mask is used to protect the bird gaining any infection from personnel and also to protect the personnel from bird's infection or disease like Avian Influenza.

3.3.7: Location of the farm

The farm should be located few kilometers away from dwellings. It should not be located near the main road.

3.3.8: Source of water:

The supply of water must be from safe source. Water should be kept clean, cool and free from pathogens. Chlorination may be used to sanitize a water supply. It helps to control bacteria and also helps to prevent slime and algae build-up in water lines. A chlorine level of 3-5 ppm is recommended at the drinker level. Water analysis, at three month intervals, is good practice to determine the need for treatment.

3.3.9: Hand washing:

Dirty or unwashed hands transfer infection. All visitors to the site should be required to wash their hands before entering. All staff should wash their hands before starting work, after breaks and when changing work activities.

3.3.10. Water Sanitizing

Drinking water can be a potent source and spread of infection. Header tanks and pipelines need to be regularly cleaned and disinfected with a non-tainting disinfectant.

3.3.11: Aerial Disinfection:

Spraying a fine disinfectant mist or fog over birds can help reduce cross infection and secondary infection during outbreaks of respiratory and other diseases. It is particularly of value in preventing secondary bacterial infection (e.g. *E. coli* septicemia) following a virus challenge such as Infectious Bronchitis Virus.

3.3.12: Cleaning and disinfecting procedure:

Disinfect flock environments on a regular basis. Disinfection reduces the pathogens in the flock environment, which thereby reduces the risk of disease. Disinfecting involves two steps: cleaning and applying a disinfectant. Always clean first. If the area is not cleaned thoroughly, the disinfectant will not work.

3.3.13: Rodent and wild bird control

Rats and mice can be responsible for the spread of a number of serious diseases on breeder farms including Salmonella infections. Ensure that feed spillages are removed as quickly as possible and that houses are secure from vermin. Use an effective Rodenticide and baiting program for control of rats and mice. Birds can carry infection to farm from other places. So step should be taken to prevent the entry of foreign bird into farm

3.4: Farm Profitability:

3.4.1:. Profitability of Broiler Farming practices: A broiler farm where reared 1350 DOCs for a certain batch were observed during Upazila placement at internship period. Profitability of that farm was examined by adopting as the following ways

Net Profitability: $\boldsymbol{\pi = TR - TC}$

Where, TR= Total meat produced (Qty. kg) x Multiplied by per Kg broiler TC = Cost for all factors.

The cost benefit analysis of a farm is given below (Average Flock size-1350).

3.4.2: Farm Operating Cost:

- **Land:** Family
- **Labour:** Family supplied
- **Housing Rent** - Own
- **Day old chick cost**:

  Total chick 1350 at the rate of Tk. 45 per chicks : 1350 X 45

  = Tk.60750

- **Feed cost:** 2kg /bird = 1350 X 2= 2700 kg @ Tk. 40 per kg = (2700×40)

  =Tk.108000

- **Other cost:** Electricity, medicine and part time day labor accounted for amount in Tk. 23200

So, estimated Total Cost (TC) for a batch of broiler farming flock sizes 1350 birds = (Tk. 60750 + Tk. 108000 + Tk. 23200) = Tk.191950

3.4.3: Returns of Farming/Evaluated Batch:

- Average live weight **:** 1.5kg / bird
- Mortality rate **:** 1350 X 2%=27
- Total live weight **:** 1323X 1.5 = 1984.5 Kg (@2% mortality)
- Total Returns(TR) from selling live birds: 1984.5@ Tk.120 per Kg

  = Tk. 238140
- Net farm profitability = TR-TC = Tk. 238140 – Tk. 191950

  = Tk.46190

So the study findings revealed that, the broiler farming is profitable but this was only one batch results and farm owners reported most of the batch incurred lower return even some batches were also resulted losses few times in a year.

3.5: Marketing System of Broiler:

Marketing channel are the alternative routes of product flow from producers to consumers (kohls & Ukl, 1980). It involves a number of important activities at different stages by a serves of intermediaries linking the producers with the consumers. Other farm owners sell their poultry to the wholesaler cum retailer or retailer. They have direct contact to the hotel & restaurant and fast food traders. Sometimes the poultry are also sold by hawker in the city.

3.5.1: Marketing Channels: The available live poultry and poultry products marketing channels of the study areas are mentioned as under:

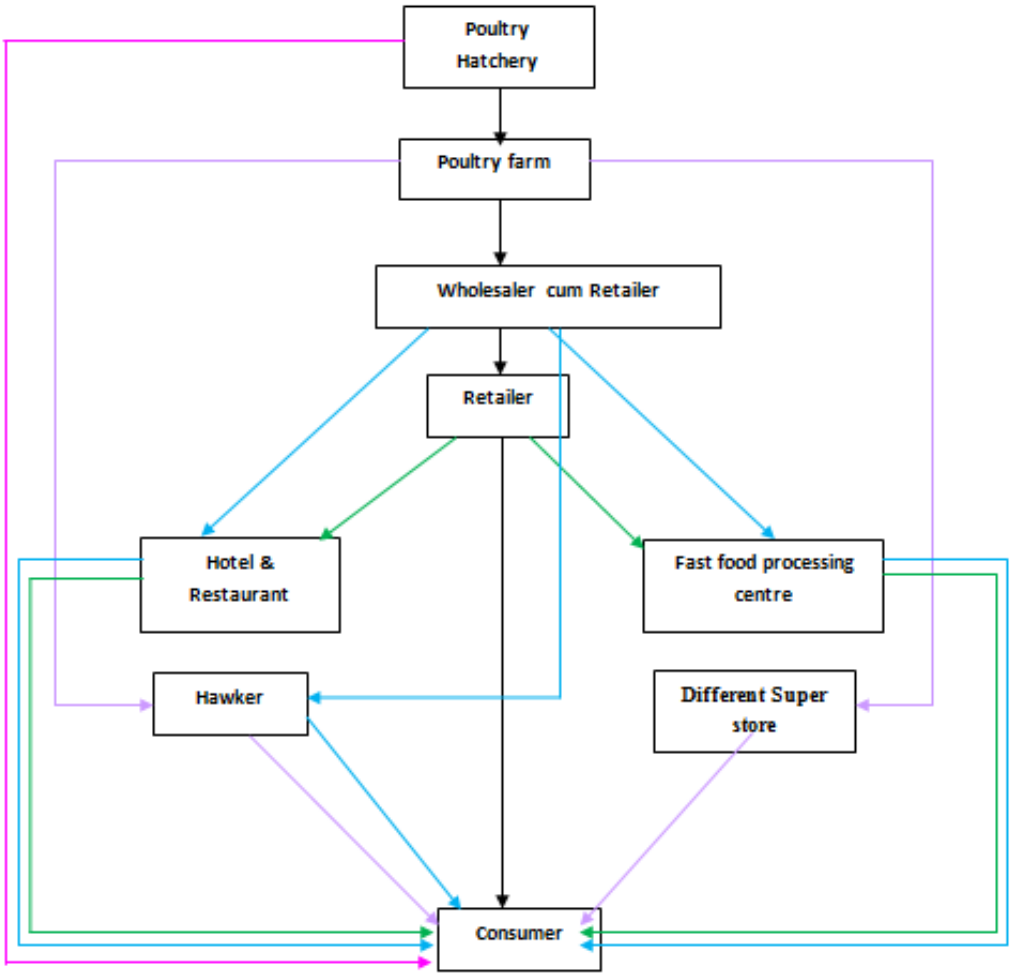


Figure 3.5.1 : The marketing channels of poultry & poultry meat product

3.5. a: Direct marketing channel: Farm/ Poultry Farm →Consumer.

3.5. b: Indirect marketing channel:

Other farm owners sell their poultry to the wholesaler cum retailer or retailer. They have direct contact to the hotel & restaurant and fast food traders. Sometimes the poultry are also selled by hawker in the city.

Channel 1: Poultry hatchery →Poultry farm →Wholesaler Cum Retailer →Retailer → Consumer.

Channel 2: Poultry farm→ Wholesaler cum retailer→ Hotel & Restaurant → Farm→ Consumer.

Channel 3: Poultry farm→ Wholesaler cum retailer→ Fast food processing centre → Consumer.

Channel 4: Poultry farm →Retailer→ Hotel & Restaurant → Consumer.

Channel 5: Poultry farm →Retailer →Fast food processing centre →Consumer

Channel 6: Poultry farm →Wholesaler cum retailer →Hawker →Consumer

Channel 7: Poultry farm →Hawker →Consumer.

Channel 8: Poultry farm→ Different Super store→ consumer

3.5.2: Market Participants:

In case of poultry & poultry meat products market participants involved are-

- **Poultry hatchery:** Poultry hatchery is engaged in production and supply of day old chicks by artificial incubation. They sell their day old chicks to their own sales center or poultry farm owner collect their DOC from farm by their own demand. The transportation cost of poultry mainly carried by hatchery owners

- **Poultry farm owner:** The marketing channels of poultry start from collection of day old chicks by commercial farm owner from hatchery. Most of the farm owners sell their poultry to the wholesaler cum retailers and small portion of local consumer.

- **Wholesaler cum retailer:** They are professional poultry traders who have fixed establishment in the city. They purchase poultry from poultry farm in a large number and sell to the retailer, hotel & restaurants owner, fast food traders. They sell in large quantity to the retailers at cheaper prices.

- **Retailers:** They are the last link in the poultry marketing. They purchase poultry from wholesalers cum retailers & sell at their retail shops to the consumers, hotel & restaurants owner & fast food traders.

- **Hotel & restaurant owners:** This is a place where poultry meat is cooked with other products for selling. The hotel owners/managers purchase poultry (live or dressed) farm retailers and wholesaler cum retailers for cooking in hotel.

- **Fast food traders:** Here fast food items are stored and displayed for selling. After buying poultry or poultry meat from poultry traders (retailer and wholesaler cum retailer), the fast food trader brings those at the processing plant. In processing plant fast food is prepared from poultry meat.

- **Hawker:** The hawkers are part time traders. They purchase poultry from retailer and sell to the consumer in city.

- **Super store traders:** They purchase the poultry from farm owner. Then they sell their products to consumers.

3.5.3: Marketing functions:

A. Exchange functions

- **Buying and Selling after settling price:** In case of poultry marketing, farm owners fix price on the basis of production. All poultry traders follow the open bargaining method for fixing the price at the time of buying & selling.

B. Physical functions

- **Storage & packaging:** Poultry are marketed alive in Chittagong like other parts of the country. Now a day's dressed broiler are sold. A kind of iron & bamboo made case is used for temporary storage. The traders can store live bird maximum for three days. Refrigerator is used in hotel & restaurants for storage poultry meat.
- **Transportation:** Mainly bus, truck & pick-up vans are used for transporting poultry from farm to city area. Hotel owners and fast food traders transport poultry from the poultry traders by rickshaw and van.
- **Processing:** Every poultry trader has a dressing center where the poultry are dressed. It hotel business, after bringing live or dressed poultry from the poultry traders it is cut into some pieces of optimum size. In fast food trade various fast food items are prepared from poultry meat.

C. Facilitating functions:

- **Grading & standardization:** In poultry marketing, poultry traders normally grade poultry on size & weights.
- **Financing:** Small portions of the farm owner in the study area are self-financed. Most farm owner and traders are run their business with institutional credit.

- **Risk bearing:** In case of poultry & poultry meat marketing physical and market risk are occurred. Physical risks occur from theft, death, loss of weight. Market risks occurred through the changes in market price.

- **Market information:** In the present study poultry traders collected information from fellow traders by observing present marketing trend, from leaflet & newspaper.

3.6: Problems of broiler farm in Ramu Upazila:

1. Shortage of quality feeds with proper nutrition

2. Insufficient electricity and disruption

3. High prices of Feeds

.4. Low quality Day Old Chicks

5. High mortality rate of chicks

6. Insufficient farming and bio-security knowledge.

7. Lack of well-established diagnostic lab and professionals

8. Lack of post mortem facilities

Chapter 4: Conclusions and Recommendations

Broiler farming has bright prospects in generating self-employment at Ramu Upazila in Coxsbazar District with providing training skills and necessary extension services by DLS and NGO's at desired level. As several poultry hatcheries and feed companies are supplying chicks and feeds, farmers have opportunity to collect feeds and chicks with competitive market price but as the farmers are collecting chicks and feed from dealer, dealers might be taking opportunity from farmers as procuring of feed are made on credit from dealers might be indicating the financial weakness of farmers and this might be making them dependable on dealer. Credit facilities through bank and NGO's with lower rate of interest might be helpful for the broiler farmers to run their enterprise without dependency on dealers. Day old chicks (DOCs) price and live broiler marketing system will be suggested that selling live broiler at high price and buying day old chick at low price for making farm business as a profitable enterprise.

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Appendix

Questionnaire for data collection

1. a. Name of the farm.....

b. Name of the owner.....

c. Father's name.....

d. Address: .....……

2. Husbandry practice:

A. Housing: a. Brooder house b. Grower cum finisher house

B. Feeding:

- Collection of feed.....
- Storage of feed ….....
- Types of feed.....
- How many times feed supplied daily.....

C. Watering:

- Source of water: a. Deep tube well b. Pond
- System of water storage: a. Water tank b. Water house
- Frequency of water supply: a. Adlibitum b. Insufficient

D. Litter materials.....

E. Litter change.....

F. Ventilation: a. sufficient .b. Insufficient

G. Natural light.....

H. Artificial light.....

I. Bio-security.....

J. Foot bath: a. Yes b. No

K. System: a. all in all out b. Not

3. Number of sheds:

4. Drainage facility: a. sufficient b. insufficient.

5. Have electric fan? : a. Yes b .No

6. Most common diseases prevalence in the farm.....

7. Management of disease condition:

a. Self-management, b. Quack c. Veterinary doctor

8. Feature of Veterinary doctor calling:

a. Actively b. occasional c. In critical situation d. Not at all.

9. The farm is profitable or not.....

Name of the interviewee..... Name of the interviewer.....

Date..... Date: ……

Signature..... Signature ……

Acknowledgements

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The Author

Biography

This is M.A.Kaium, son of Abdus Salam Azad and Umme Hane. I am the dweller of Cox's Bazar. I completed S.S.C in 2008 with GPA-5 and H.S.C in 2010 with GPA-5.I got admitted in Doctor of Veterinary Medicine course under Chittagong Veterinary and Animal Sciences University in 2011- 2012 session. During internship program, I got the opportunity to make a clinical report on the prevalence of Newcastle Disease under supervision of Asst.Professor, Abdul Rahman, Dept. of Agricultural Economics and Social Science. I am enthusiastic to be a researcher on epidemiology and want to be a skilled poultry practitioner in future.