**CHAPTER-I**

**GENERAL INTRODUCTION**

Broiler is an important part of commercial poultry sector. The modern meat chicken is a fast growing, highly efficient and can rapidly fulfill the shortage of protein requirement of the country, as it can be produced within a very short time compared to other meat producing animals. Broiler production provides employment and regular income within the shortest time possible due to its fastest body growth and shorter production cycle and low initial investment. Broiler chickens can play an important role to reduce the shortage of huge protein requirement in the country. Broiler meat is considered as a major source of high quality animal protein, required for body growth and mental development of an individual.

At present, broiler farming is being popular both in urban and rural areas. 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 increased feed intake. Feed consumption followed similar trend to that of weight gain. According to Asghar et al, (2000) and Zahid-Ud-Din et al, (2001), low cost of production and higher returns are the key factors for higher profit in broiler farming. Many people are now being encouraged in this enterprise, as maximum return can be achieved shortly by investing minimum capital in broiler production (Sarker *et al.,* 2001).

Now-a-days, broiler industry has brought about revolutionary changes and extended tremendously during the last couple of decades across the globe. The body weight gain of the broiler strains has been markedly increased and the feed utilization has been strongly improved with the advancement of new technology applied in poultry nutrition as well as in genetics development. This progress in breeding and nutrition has resulted in broiler strains having higher performances today than ever before (Bogdangnov, 1990).

The major concept of the broiler industry is to increase the productivity of the broiler carcass to gain higher profit with low investment. The genetic contribution of the broiler chicken as well as non-genetic factors such as age of slaughter, sex, nutrition and management practices are equally responsible to boost the birds performances (Hossain *et al*., 2011; Kurcubic *et al*., 2006; Nikolova & Pavlovski, 2009; Marcato *et al*., 1920; Shahin and Abdelazeem, 2005); Shahin & Elazeem, 2005; Traits *et al*., 2012). Considering this view, the present study was undertaken to find out the suitable strain and the performances of broiler chickens which give the higher meat yield and better profit under commercial farming condition.

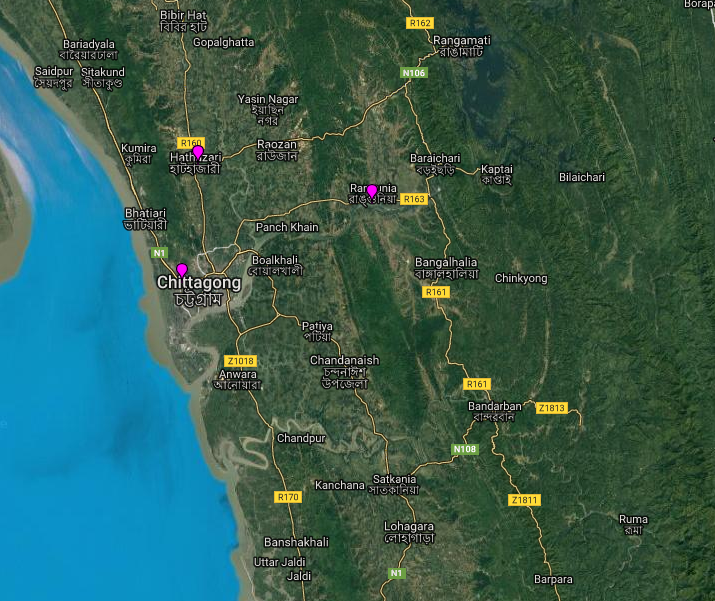
**CHAPTER-II**

**MATERIALS AND METHODS**

The present study was undertaken to investigate the rearing management practices of broiler farm at Hathazari Upazilla, Chittagong, Bangladesh.

**2.1 Study area and objectives*:***

The study was conducted at the different commercial broiler farms of Hathazari Upazilla, Chittagong. The study area was selected as part of my internship program to complete internship production report. The necessary data of the farms were taken when I was under internship placement at Hathazari Upazilla from 1st March 2017 to 6th April 2017. During this period, I surveyed the farms and collected data with a questionnaire by observing the farm activities directly from the ten commercial broiler farms available in the areas.

**Fig 1: Geographical location of study area**

**2.2 Farm selection:**

Ten commercial broiler farms of the study areas were selected randomlyfor this study. The farm was consists of five Cobb 500 strains and five Lohmann broiler strains. The name of broiler farms, location, broiler strain and number of broiler rearing in the farms are shown below in **Table 1**.

**Table 1: Names of commercial broiler farms and its location**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Farms no.** | **Name of the farms** | **Name of strains** | **No. of broilers reared** | **Location** |
| F1 | Janoprio Poultry Farm | Cobb 500 | 900 | Hathazari, Ctg |
| F2 | Bhai Bhai Poultry Farm | Cobb 500 | 1200 | Hathazari, Ctg |
| F3 | Rubel Poultry Farm | Cobb 500 | 1000 | Hathazari, Ctg |
| F4 | Khaza Poultry Farm | Cobb 500 | 3500 | Hathazari, Ctg |
| F5 | Jesan Poultry Farm | Cobb 500 | 1400 | Hathazari, Ctg |
| F6 | Bismillah Poultry Farm | Lohmann | 500 | Hathazari, Ctg |
| F7 | Rahmania Poultry Farm | Lohmann | 2000 | Hathazari, Ctg |
| F8 | Md.Jaker Poultry Farm, | Lohmann | 1000 | Hathazari, Ctg |
| F9 | Mohammadia Poultry Farm | Lohmann | 1000 | Hathazari, Ctg |
| F10 | M/S Harun Poultry Farm. | Lohmann | 3000 | Hathazari, Ctg |

**2.3 Data collection:**

A questionnaire (shown in the Appendix) was developed to collect data from the selected farms. The collected data were shown in **Table 2.**

** **

**Fig 2: Observation of Management Fig 3: Collection of data**

**2.4 Source of day-old chick (DOC) collection:**

The farmers collected DOC from the different local breeder hatchery to execute their poultry farming business. These were CP Breeders Co. Ltd, Aman Breeders Co. Ltd, Gesan Breeders Co. Ltd, Kazi Breeders Co. Ltd, M. M. Agha Breeders Co. Ltd etc., are the main source of DOC. All the farm size ranges from 600 sq.ft to 4000 sq.ft. The price of DOC very often varies ranging from 16Tk (minimum) to 75Tk (maximum), as reported by the farm owners.

**2.5 Housing, feeding, watering and brooding management of the chicks:**

The chicks were reared in the floor system at the open sided housing condition from day-old to marketing age. The chicks were brooded 3 to 7 days with chick guard and hoover equipped with electric bulb. The floor space per bird was given

**Fig 4: Brooding of DOC Fig: Feeding and Watering system**

1 to 1.25 square feet. Birds were fed readymade broiler diet ad libitum collected from the different local feed companies (A1 Feed Co. Ltd, Aman Feed Co. Ltd, Paragon Feed Co. Ltd, Nourish Feed Co. Ltd). Fresh, clean drinking water was provided the birds all the rearing time. Pellet feed was preferred most of the time to feed their broiler. The price of the feed varies from 42Tk to 44Tk per kg.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Parameters** | **Farms(F1…..F10)** | | | | | | | | | |
| **Cobb 500** | | | | | **Lohmann** | | | | |
| **F1** | **F2** | **F3** | **F4** | **F5** | **F6** | **F7** | **F8** | **F9** | **F10** |
| **Farm Size (sq.ft)** | 1200 | 1500 | 1200 | 4000 | 1600 | 600 | 2500 | 1300 | 1200 | 3000 |
| **Farm capacity (bird no.)** | 1000 | 1200 | 1000 | 3500 | 1500 | 600 | 2200 | 1200 | 1000 | 3000 |
| **No. of birds reared** | 900 | 1200 | 1000 | 3500 | 1400 | 500 | 2000 | 1000 | 1000 | 3000 |
| **Feed price (Tk/kg)** | 43 | 43 | 43.5 | 42.5 | 43 | 43 | 43 | 43 | 42 | 43 |
| **Mortality rate** | 3% | 2% | 10% | 2% | 3% | 2% | 5% | 3% | 15% | 10% |
| **Rearing length (days)** | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| **Amount of feed intake upto selling period (kg)** | 2955 | 3750 | 3103 | 8785 | 3391 | 1263 | 5909 | 2812 | 2948 | 7734 |
| **Body weight (Kg/b)** | 2.4 | 2.5 | 2.3 | 2.4 | 2.4 | 2.5 | 2.2 | 2 | 2.2 | 1.9 |
| **Floor per bird (sq.ft/b)** | 1.2 | 1.25 | 1.2 | 1.2 | 1.1 | 1.1 | 1.2 | 1 | 1.2 | 1 |
| **Selling cost(Tk/kg)** | 105 | 115 | 121 | 110 | 115 | 122 | 133 | 128 | 137 | 130 |

**Table 2: Data collection from ten commercial broiler farms**

**2.6 Vaccination and medication:**

All the chicks were vaccinated against particular diseases, and some medication was also provided the birds for their proper growth and development during the rearing period by the farmers (**Tables 3, 4**).

**Table 3: Vaccination schedule maintain by farmer**

|  |  |  |  |
| --- | --- | --- | --- |
| **Day of vaccination** | **Vaccine against disease** | **Trade name** | **Dose and route** |
| 4-6 | Newcastle | RaniVax Plus, Izovac New L, Cevac New L | 1 drop per eye or drinking water |
| 10-12 | Infectious Bursal Disease(IBD) | GumboMed, Izovac Gumboro 2 | 1 drop per eye or drinking water |
| 17-19 | Infectious Bursal Disease(IBD) | GumboMed, Izovac Gumboro 2 | 1 drop per eye or drinking water |
| 21-24 | Newcastle | RaniVax Plus, Izovac New L, Cevac New L | 1 drop per eye or drinking water |

**Table 4: Vitamin supplement schedule maintain in broiler farm**

|  |  |  |
| --- | --- | --- |
| **Days** | **Generic name** | **Dose** |
| 1-5 | Multi-vitamin | 1gm/3-5 Liter water |
| 8-12 | B complex | 1gm/2-3 Liter |
| 16-22 | Vitamin-e, Selenium, Biotin, Zinc | 1ml/1-3 Liter |
| 25-30 | Multi-vitamin and Amino acid | 1ml/1-3 Liter |

**2.7 Disease incidence and medication:**

Farmers were faced diseases problems with the birds while rearing those at their farming condition. These were assumed to be bacterial, viral, fungal or parasitic infections. The birds were seemed to be affected by the various diseases namely colibacillosis, salmonellosis, infectious coryza, newcastle disease, infectious bursal disease, brooder pneumonia, coccidiosis etc., as per the sign and syndromes shown by the birds recorded in the farms. Farmer himself or registered veterinarian gives the treatment of these cases. Treatment is given by the mainly on the clinical signs and symptoms or by post mortem findings.

**2.8 House preparation:**

The broiler house was prepared by washing and cleaning before entering the birds into the farms. For this purpose, different commercial disinfectant agents are used in the maximum farms (**Table 5**). This chemical agent was mainly applied for washing the farm floor, drinker, feeder, hover, chick guard, foot wash, hand wash in different concentrate.

**Table 5: Different commercial disinfectant used by farmers in broiler farm:**

|  |  |  |
| --- | --- | --- |
| **Trade name** | **Generic name** | **Dose** |
| Timsen | Quaternary ammonium compound | 1ml/3-5 Liter |
| FAM 30 | Iodine | 1ml/2-4 Liter |
| GPC 8 | Quaternary ammonium and Glutaraldehyde | 1ml/1-2 Liter |

**2.9 Statistical analyses:**

The collected data were analyzed after coding, decoding, summarized while locating at the CVASU campus with the correspondence of supervisor. Simple statistical methods such as mean and percentage etc. were used to analyze the collected data.

**2.10 Calculation of production data:**

**a. Feed intake of broiler chicken:** Feed intake is measured from day one up to day thirty. It is calculated for one farm by total feed intake in farm is divided by total number of live birds. And finally estimate as mean value for finding the average value.

**b. Body weight of broiler chicken**: Body weight is collected from the broiler farm during selling time. Here only mean value of bird’s weight is estimated for each farm.

**c. Feed Conversion Ratio (FCR):** FCR is measured for one farm by the total feed intake (kg) is divided by the total body weight (kg).

**d. Mortality:** Mortality rate is calculated by percentage for record of each farm.

**e. Cost-benefit analyses***:* Data on cost benefit analyses of broiler chickens were assessed from the various costs represent by the individual farm.

**CHAPTER-III**

**RESULTS**

**Growth performances and mortality of broiler chickens of two broiler strains**

**Feed intake of broiler chickens**: The average feed intake (FI) of broilers of two broiler strains rearing in the different commercial farms was shown in the **Table 6**. The result showed that Cobb 500 consumed a little bit more feed than the Lohman strains on day 30. Cobb 500 feed consumption ranges from 2.9 to 3.6 kg/b while Lohmann strains 2.9 to 3.3 kg/b, respectively, as observed in our current study (**Table 6**). The average FI of Cobb 500 and Lohmann was 3.1 and 3.04, respectively.

**Table 6: Feed intake (FI) of broiler chickens at 30 days**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Strains | Farms----- |  | | | | | |
| F1 | F2 | F3 | F4 | F5 | **Average** |
| Cobb 500 | FI (kg/b) | 3.6 | 3.1 | 3.0 | 2.9 | 2.9 | **3.1** |
| Lohmann | Farm ----- | Farm 6 | Farm 7 | Farm 8 | Farm 9 | Farm 10 | **-** |
| FI (kg/b) | 3.2 | 3.3 | 3.0 | 2.9 | 2.8 | **3.04** |

**Body weight of broiler chickens:** The average body weight (BW)of broilers of two broiler strains rearing in the different commercial farms was shown in the Table 7. The result showed that Cobb 500 gained a little bit more body weight than the Lohman strains on day 30. Cobb 500 BW ranges from 2.3 to 2.5 kg/b while Lohmann strains 1.9 to 2.5 kg/b, respectively, as observed in our current study (**Table** 7). The average BW of Cobb 500 and Lohmann was 2.4 kg and 2.16 kg, respectively.

**Table 7: Body weight (BW) of commercial broiler chickens of two different strains at 30 days**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Strains | Farm -- | F1 | F 2 | F 3 | F 4 | F 5 | **Average** |
| Cobb 500 | BW (Kg/b) | 2.4 | 2.5 | 2.3 | 2.4 | 2.4 | **2.40** |
| Lohmann | Farm-- | Farm 6 | Farm 7 | Farm 8 | Farm 9 | Farm 10 |  |
| BW (Kg/b) | 2.5 | 2.2 | 2 | 2.2 | 1.9 | **2.16** |

**Feed Conversion Ratio (FCR):** The feed conversion ratio (FCR) of the ten broiler farms of two strains was measured as observed on day 30. The FCR values of Cobb 500 broiler strain were 1.47, 1.50, 1.54, 1.57, 1.59 and Lohmann strains farms being 1.41, 1.42, 1.45, 1.38 and 1.52, respectively (**Fig. 6**). The average FCR value of Cob500 broiler strain was 1.53 whereas the FCR of Lohmann strain being 1.44 on days 30. The value indicates that Lohmann broiler strain is more efficient in converting feed to meat than that of Cobb 500 strain.

**Figure 6: Comparative FCR of two commercial strain farms**

**Mortality**: The mortality (%) recorded for Cobb 500 broiler strains are 3%, 2%, 10%, 2%, 3% and the Lohmann strain are 2%, 5%, 3%, 15% and 10%, respectively. The average mortality (%) recorded for Cobb 500 was 4.0% while the mortality (%) for Lohmann was 7 %. The result of mortality implies that Lohmann broiler strain had higher mortality than the Cobb 500 strain in this study. The comparative mortality rate of ten commercial broiler farms of two broiler strains are shown graphically through **Figure** 7.

**Figure** 7**: Comparative mortality rate of ten commercial broiler farms**

**Cost benefit analyses of two commercial broiler strains:**

The data of cost benefit analyses of two broiler strains are shown in Table 8. The data showed that profit of per kg live bird was higher for Cobb 500 broiler farms than that of Lohmann farms. The production cost was also lower in the Cobb 500 farms than that of Lohmann broiler farms. The higher production cost and deceased body weight gain might be a reason for low profitability of Lohmann broiler.

**Table 8: Cost benefit analysis of commercial broiler farms of two strains**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Cobb 500 Farms** | | | | | | **Lohmann farms** | | | | | |
| **Parameters/Items** | **F1** | **F 2** | **F 3** | **F 4** | **F5** | **Av.** | **F6** | **F7** | **F8** | **F9** | **F10** | **Av.** |
| Live weight (kg/b) | 2.4 | 2.5 | 2.3 | 2.4 | 2.4 | **2.40** | 2.5 | 2.2 | 2 | 2.2 | 1.9 | **2.16** |
| Feed cost (Tk/kg) | 43 | 43 | 43.5 | 42.5 | 43 |  | 43 | 43 | 43 | 42 | 43 |  |
| A). Feed cost (Tk/kg live weight) | 60.65 | 54.85 | 65.21 | 45.35 | 44.74 |  | 36.9 | 60.79 | 62.3 | 66.2 | 64.8 |  |
| Day-old chick cost (TK / bird ) | 16 | 38 | 70 | 29 | 25 |  | 21 | 70 | 72 | 55 | 42 |  |
| B). Day-old chick cost (Tk/kg live bird) | 6.67 | 15.2 | 30.4 | 12 | 10.4 |  | 8.4 | 31.8 | 36 | 25 | 22.1 |  |
| Other cost (Tk/kg live wt) | 5.49 | 4.9 | 5.6 | 2.5 | 4.57 |  | 7.14 | 6.22 | 8.04 | 7.65 | 6.96 |  |
| C).\*\*Other cost (Tk/kg live weight) | 5.49 | 4.9 | 5.6 | 2.5 | 4.57 |  | 7.14 | 6.22 | 8.04 | 7.65 | 6.96 |  |
| D).Total production cost (Tk / kg live wt.) [A+B+C] | 72.81 | 74.95 | 101.21 | 59.85 | 59.71 | **73.71** | 52.44 | 98.81 | 106.34 | 98.85 | 93.86 | **90.1** |
| E). Bird selling (Tk /kg live bird) | 105 | 115 | 121 | 110 | 115 |  | 122 | 133 | 128 | 137 | 130 |  |
| **Profit (Tk/kg live bird) [E-D]** | **32.19** | **40.05** | **19.79** | **50.15** | **55.29** | **39.58** | **69.56** | **34.19** | **21.6** | **38.15** | **36.14** | **33.09** |

**[\*\*Other costs include vaccine, medication, labour, electricity, water, transport, bulb/wire etc.; Detailed calculation was shown in the Appendix Table]**

**CHAPTER- IV**

**DISCUSSION**

The aim of this study was to focus on the productivity and assessing of economic profitability of comparing two commercial broiler strains and also their management system in Hathazari Upazilla, Chittagong. Traditionally, the salient criteria for estimating the performance of the broiler strains have been growth rate and feed conversion efficiency, and less frequently, carcass yield and composition (Cahaner *et al.,* 1987; Cabel & Waldroup, 1991; Smith & Pesti, 1998; Rezaei *et al.,* 2004). Some strains might show higher mortalities and a great variation in final body weight than others due to several factors (strains, sex, feed, disease incidences, environmental condition and so on). However, a bit differences were observed in the live weight and average body weight gain between the two broiler strains rearing under the farming conditions of the Hathazari, Chittagong in this recent study. Cobb 500 broiler strain achieved heavier body weight and higher weight gain than the Lohmann strain. The improved body weight gain of this strain, possibly due to higher feed intake including several other factors . Our results are in agreement with the reports of several other previous researchers (Gonzales *et al.,* 1998; Sarker *et al.*, 2001 & 2002; Abdullah *et al.,* 2010), who found similar variations in rearing different strains under experimental conditions. The differences of the live weight and weight gain of the broiler strains might be explained by different factors, for example, genotype, feed, sex, strains, environmental conditions, climatic effects and so on. Gonzales *et al.* (1998) found strain effects among several strains of birds in live weight. Korver *et al.* (2004) reported that genotype migt affect the body weight of different broiler strains. Genetic variation of the strains amongst other factors might give rise to body weight variation between two individual birds. So it is assumed that more weight gain of Cobb 500 broiler strain might arise from the genetic make-up during the embryonic stage, which can lead to having different growth potential, and it may be possible owing to the strain effect, and some other factors might be involved herewith.

The Cobb 500 broiler strain had higher profit than the Lohman strain as observed in this study. The increased profitability of Cobb 500 broiler strains might be a result of higher body weight gain and lower production cost. The cost-benefit assessment of a poultry enterprise is often determined by the level of risk to which the reared flocks are exposed to bio-security measures (Ament et al. 1993; Davidson et al. 1999; Vaillancourt 2001). Apart from these, the profit margin in poultry production depends mainly on feed utilization, cost of day-old chicks and efficient management of such resources as land, day laborers and appliances (Nworgu and Egbunike 2000). Studies on the financial dynamics of smallholder farms, poultry production and profits can be increased by the use of appropriate feed, capital, vaccines and adoption innovative approaches (Alabi and Aruna 2005; Nahamya et al. 2006; Nworgu 2007).

**CHAPTER-V**

**CONCLUSION**

For the study it may be concluded that Cobb 500 broiler strain had better body weight, low mortality and higher profit than the Lohmann strain. It implies that Cobb 500 has good potentials to be reared profitably under farming condition.

**CHAPTER-VI**

**LIMITATIONS AND RECOMMENDATIONS**

* Further studies could be undertaken focusing the large number of commercial broiler farms.
* More than two strains can be taken into consideration.
* Data should be collected from the reliable sources.
* Precise and informative questionnaire should be developed.
* Study should be conducted in wide geographical location.
* Careful attention should be given while collecting data.

**CHAPTER-VII**

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**CHAPTER-VIII**

**APPENDIX**

**A SAMPLE OF QUESTIONNAIRE**  Farm No: ---------

Date: ----------

Collection of data from Broiler Farm in Hathazari Upazilla, Chittagong:

1. Farm name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Farmer name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Location: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Farm size: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. Farm capacity: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. No. of rearing birds: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. Price of day one chick: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. Company name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. Strain of DOC: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. Vaccination schedule:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. Vaccine detail:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. Any Vitamin supplement supply:

a. Yes b. No

13. If supply, which types of vitamin are supplies? Along with their dose, date, age, generic name, trade name, price and volume

14. Disease incidence: a. Yes b. No

15. If yes, what types of disease are found?

16. Diagnosis of disease done?--by

a. Clinical signs and symptoms b. Post mortem findings

17. Treatment given by farmer\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

18. Mortality rate: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. Rearing length (age)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2o. Amount of feed intake during selling (Kg):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

21. Selling cost\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Tk/kg

22. Housing system: (Direction)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

23. Presence of any farm beside this farm:

a. Yes b. No

24. If yes, how distance from this farm? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

25. Disposal system of dead bird/waste product:

a. Burying method b. Burning method d. pit e) Others

26. Any bio-security measures taken: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

27. Any disinfectant used: a. Yes b. No

28. If used, what types of disinfectant are used?

29. Gap between two subsequent batchesof rearing broiler \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

30. Rearing system\_\_\_\_\_\_\_\_\_\_floor/slat/cage/others\_\_\_\_\_\_\_\_?

31. Litter type \_\_\_\_\_\_\_\_\_\_\_ Rice husk/saw dust/sand/ash/treated litter?

32. Floor space per bird\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_sq.ft

33. Type of housing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_open/close/others?

34. Selling system of broiler \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_live/dressed/processed?

35. Number of tools used for the rearing of birds\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

i) Feeder ii) Drinker iii) thermometer iv) Hygrometer v) Balance vi) Scraper vii) Belcha viii) Brooder/hover/canopy ix) Chick guard x) paper xi) others.

**Table 9: Detail Cost Benefit analysis of cob 500 broiler farms**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameters/Items** | **Farm 1** | **Farm 2** | **Farm 3** | **Farm 4** | **Farm 5** |
| Live weight (kg/b) on the last day of trial 30days | 2.4 | 2.5 | 2.3 | 2.4 | 2.4 |
| No. of birds’ survivability / treat. | 873 | 1176 | 900 | 3430 | 1358 |
| Feed intake (kg/b) on 30 d | 3.6 | 3.1 | 3 | 2.9 | 2.9 |
| Feed cost (Tk/kg) on an average | 43 | 43 | 43.5 | 42.5 | 43 |
| Total Feed intake (kg) | 2955 | 3750 | 3103 | 8785 | 3391 |
| Total Feed cost (Tk) | 127065(43×2955) | 161250 | 134980 | 373362 | 145813 |
| Total live weight (kg) of birds per treatment | 2095.2(2.4×873) | 2940 | 2070 | 8232 | 3259.2 |
| A). Feed cost (Tk/kg live weight) | 60.65(127065/2095.2) | 54.85 | 65.21 | 45.35 | 44.74 |
| Day-old chick cost (TK / bird ) | 16 | 38 | 70 | 29 | 25 |
| B). Day-old chick cost (Tk/kg live bird) | 6.67(16/2.4) | 15.2 | 30.4 | 12 | 10.4 |
| Other costs include: |  |  |  |  |  |
| i) Vaccination cost | 2500 | 4000 | 2500 | 10000 | 4000 |
| ii) Medication cost | 1000 | 2000 | 1000 | 3000 | 2000 |
| iii) Disinfectant cost | 500 | 500 | 500 | 1000 | 1000 |
| iv) Bulb & wire cost | 500 | 500 | 500 | 1000 | 1000 |
| v) Water & Electricity cost | 1000 | 1000 | 1000 | 1500 | 700 |
| v) Labour cost | 5000 | 5000 | 5000 | 1000 | 5000 |
| vi) Transport cost | 1000 | 1500 | 1000 | 3000 | 1200 |
| Total other cost (Tk) [ i…..vi] | 11500 | 14500 | 11500 | 20500 | 14900 |
| Other cost (Tk/kg live wt) | 5.49(11500/2095.2) | 4.9 | 5.6 | 2.5 | 4.57 |
| C). Other cost (Tk/kg live weight) | 5.49 | 4.9 | 5.6 | 2.5 | 4.57 |
| D).Total production cost (Tk / kg live wt.) [A+B+C] | 72.81 | 74.95 | 101.21 | 59.85 | 59.71 |
| E). Selling live bird market price (Tk /kg live bird) | 105 | 115 | 121 | 110 | 115 |
| **Profit (Tk/kg live bird)[E-D]** | **32.19** | **40.05** | **19.79** | **50.15** | **55.29** |

**Table 10: Detail Cost benefit analysis of Lohmann broilers of five farms**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameters/Items** | **Farm 6** | **Farm 7** | **Farm 8** | **Farm 9** | **Farm 10** |
| Live weight (kg/b) on the last day of trial 30days | 2.5 | 2.2 | 2 | 2.2 | 1.9 |
| No. of birds’ survivability / treat. | 588 | 1900 | 970 | 850 | 2700 |
| Feed intake (kg/b) on 30 d | 3.2 | 3.3 | 3 | 2.9 | 2.8 |
| Feed cost (Tk/kg) on an average | 43 | 43 | 43 | 42 | 43 |
| Total Feed intake (kg) | 1263 | 5909 | 2812 | 2948 | 7734 |
| Total Feed cost (Tk) | 54309(43×1263) | 254087 | 120916 | 123816 | 332562 |
| Total live weight (kg) of birds per treatment | 1470(2.5×588) | 4180 | 1940 | 1870 | 5130 |
| A). Feed cost (Tk/kg live weight) | 36.9(54309/1470) | 60.79 | 62.3 | 66.2 | 64.8 |
| Day-old chick cost (TK / bird ) | 21 | 70 | 72 | 55 | 42 |
| B). Day-old chick cost (Tk/kg live bird) | 8.4(21/2.5) | 31.8 | 36 | 25 | 22.1 |
| Other costs include: |  |  |  |  |  |
| i) Vaccination cost | 2000 | 10000 | 4500 | 4000 | 11000 |
| ii) Medication cost | 1000 | 4000 | 2500 | 5500 | 6000 |
| iii) Disinfectant cost (iosan& phenyl) | 500 | 1000 | 600 | 700 | 1200 |
| iv) Bulb & wire cost | 500 | 1000 | 800 | 1000 | 1500 |
| v) Water & Electricity cost | 500 | 1000 | 1000 | 1000 | 1000 |
| v) Labour cost | 5000 | 6000 | 5000 | 600 | 12000 |
| vi) Transport cost | 1000 | 3000 | 1200 | 1500 | 3000 |
| Total other cost (Tk) [ i…..vi] | 10500 | 26000 | 15600 | 14300 | 35700 |
| Other cost (Tk/kg live wt) | 7.14(10500/1470) | 6.22 | 8.04 | 7.65 | 6.96 |
| C). Other cost (Tk/kg live weight) | 7.14 | 6.22 | 8.04 | 7.65 | 6.96 |
| D).Total production cost (Tk / kg live wt.) [A+B+C] | 52.44 | 98.81 | 106.34 | 98.85 | 93.86 |
| E). Selling live bird market price (Tk /kg live bird) | 122 | 133 | 128 | 137 | 130 |
| **Profit (Tk/kg live bird)[E-D]** | **69.56** | **34.19** | **21.66** | **38.15** | **36.14** |

**BIOGRAPHY**

I am Pran Gopal Rudra from Chittagong; Bangladesh. I was born on 25th August, 1992. I completed my S. S. C in 2008 from Fatehpur Multilateral high school; Chittagong and H. S. C in 2010 from Chittagong University College; Chittagong. At present, I am continuing internship programme in Chittagong Veterinary and Animal Sciences University.