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## Study on commercial broiler management pattern in Sylhet region of Bangladesh

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### Abstract

The present study was carried out to elucidate the current broiler farming status at Sylhet region in Bangladesh using a questionnaire-based survey. Data were collected on different parameters to evaluate the existing farm management practices using an interview schedule from 25 randomly selected respondents who were involved in broiler farming. During investigation, it was observed that most of the farmers were young in age and started venture by their self-money, 56% of the farmers were only employed to broiler farming than the others who were found to be involved with other services also. All the broiler houses in the study area were open sided, tin shed roof and the broiler growth rate was found almost satisfactory in the kacha and concrete floor. The highest number of farmer used Cobb 500 as broiler strain and rice husk was mostly used as the litter material. There was a significant difference was observed among the strains of 5<sup>th</sup> week ( $p \leq 0.5$ ) in bird's mortality. On the other hand, a remarkable significant difference was also found among the three different companies in 3<sup>rd</sup> and 4<sup>th</sup> week ( $p \leq 0.05$ ) of bird's age in case of feed intake and there was no significant difference found in weight gain of different birds among the companies. Feed conversion ratio in different companies in the 1<sup>st</sup> week was ( $p \leq 0.05$ ) found statistically significant. There was also a significant difference ( $p \leq 0.05$ ) observed among the three types of the floor in the 3<sup>rd</sup> week in regard to Feed conversion ratio. It was found that farmers received training from the Youth Training Center had experienced the lowest mortality rate of birds than who didn't receive any training in broiler farming. It is concluded that, the information gathered from the present data analysis may be useful in designing improved poultry management in the study area.

**Keywords:** Broiler, broiler farmers, broiler farm management, Sylhet region

### 1. Introduction

The broiler industry has been successfully becoming a leading industry in Bangladesh. One third of the total agricultural contribution (18.60%) in GDP added from poultry industry <sup>[1]</sup>. This sector is also growing rapidly for the last two decades though it started farming during mid-sixties in this country. Both the government and a variety of non-governmental organizations (NGO's) are actively promoting broiler development at all levels and the Bangladesh Rural Advancement Commission (BRAC) shows, in its annual report that more than 70% of rural households are involved in broiler keeping but they face serious constraints, as the mortality rate of broiler is said to be as high as 25%, due to a combination of improper feeding practices, ignorance of management needs and poor distribution of vaccines <sup>[2]</sup>. Today broiler has emerged as the fastest growing segment for the poultry industry with the increased acceptance of chicken meat in city, town and villages. The demand for broiler is growing at a fast pace. Broiler sector will create job opportunity for 10 million people as claimed by broiler leaders in a roundtable titled "Present crisis and prospects of broiler industry in Bangladesh" (Financial Express Bangladesh, 2010) <sup>[3]</sup>. Small-scale broiler production has developed in a large number of developing countries around the world as an important source of earning for rural poor people <sup>[4]</sup>. In past few years, the recognition of small-scale commercial broiler production helps to accelerate the pace of poverty reduction riding in new height in Bangladesh. For this reason, broiler farming has been playing a important role in providing meat to overcome the malnutrition and serve as a tool for employment generation and poverty alleviation <sup>[5]</sup>. This industry has immense potentialities from the point of view of the economic growth of the country as well as the fulfillment of basic needs and to keep the price at a minimum level and ensuring food especially animal protein for the human being. The demand for meat and egg products has been expanding dramatically with income growth, population

Growth, urbanization and dietary changes [6]. The research question of the present study is to assess the present situation of broiler farming in the Sylhet region of Bangladesh. Broiler farming has been playing an important role in providing meat and creating employment opportunities for the people through the establishment of poultry hatcheries, feed mills, equipment manufacturing factories, processing and marketing of broiler and broiler products [7]. The growth of meat production was attributed to poultry as the production of beef and mutton remained almost immobile. At present chickens contributed 51% of total meat production of the country although the share of broiler is not separated and Per capita, annual consumption of meat in the country is 5.9 kg which is only 7.38% of the universal standard [8]. Even though the broiler industry is an emerging industry of Bangladesh, it has encountered some problems in the way to its development. Farmers of Bangladesh face a wide range of poultry diseases, which reduces the optimal production of the flock. During last few years several emerging diseases like IBD (Infectious bursal disease), Ranikhet, Aflatoxicosis, Avian influenza, Chicks anemia virus, Salmonella and some unknown cause threat the poultry industry and causes huge economic losses to the poultry farmers in all over the world [9]. Besides some problems such as lack of education, absence of adequate marketing knowledge, the high price of broiler feed ingredients and lack of modern equipment's in broiler farms are also the main impediment in the way of successful broiler production and management. Therefore, the present study was undertaken to identify the existing management system of broiler farm, to know about housing design, feeding and litter management as well as vaccination process and vaccination schedule for broiler in Sylhet region and the problems related with broiler production and their potential solution.

## 2. Materials and Methods

### 2.1 Study site and duration of the experiment

The study was carried out in Sylhet Sadar and Moulvibazar district in Sylhet division. The study period was from November 2018 to March 2019.

### 2.2 Experimental design

The study design was a retrospective type of descriptive survey. The methods were used like survey, review of secondary data, interview, observation and Focus Group Discussion (FGD) conducted taking representative sample from Sylhet region. The questionnaire was carefully designed keeping in mind the objectives. The questionnaire contained both open and closed forms of questions. Most easy, simple and direct questions were asked to obtain information.

### 2.3 Data Collection

Data were collected by direct interviews of the farmers. Each respondent was given a brief introduction to the purpose of the study during the interview. The questions were asked systematically in a very simple manner with explanations wherever necessary. All the information was collected on the basis of production and management systems of broiler farm. Some blocks of the villages were chosen from two upazila in Sylhet Sadar and Moulvibazar for the selection of broiler farms. Twenty five (25) farms were selected randomly (Stratified random sampling) for the study. Data and information relating to this study were collected from both the primary and secondary study. Primary data relates to different commercial broiler farms that are established in the selected

sample areas. A structured questionnaire was used for collecting the primary data. The secondary data were collected from different published documents such as survey reports, statistical yearbook, etc. An interview schedule was prepared to record the required information in accordance with the objectives of the study. Data were collected on the parameters including Age, Education level and Occupation of the farmers; Experience on broiler farming; Training about broiler farming; Source of Budget; No. of birds; Broiler strain; Housing system; Floor Management System; Litter materials used; Use of feed; Growth Promoter used; Mortality rate; Common diseases. Feed conversion ratio (FCR), mortality rate (MTRT) and average daily body weight gain (ADG) were calculated using the following formula:

$$FCR = \frac{\text{Total feed (kg) consumed up to the age of marketing}}{\text{Live weight (kg) of bird at marketing}}$$

$$MTRT = \frac{\text{Total birds dead up to the age of marketing}}{\text{Total day-old birds loaded into the house}} \times 100$$

$$ADG = \frac{\text{Live weight of bird (g) at marketing day} - \text{day - old weight (g)}}{\text{Age in days of bird at marketing}}$$

## 2.4 Data Analysis

Data collected from the farmers were compiled and tabulated according to the objectives as well as the parameters. Further, various publications of national and international organizations were collected. Some data are numerical and some are descriptive. Data were analyzed using the Statistical Package for Social Sciences (SPSS) program package (SPSS, 2013) [10]. Simple descriptive statistics such as tables, graphs, diagrams, frequency, percentages were applied using MS Excel 2013 version.

## 3. Results

### 3.1 Age, Education level and Occupation of the Farmers

The survey for the current study revealed that all the farmers were self-funded during the commencement of their venture. Farmers' age ranges from '20-25', '26-30', '31-40' were 44, 32, and 24% respectively. The maximum farmer's academic qualification was found under S.S.C. The farmers only employed to broiler farming were 56% while 36% of farmers were associated with agricultural occupation and 8% of the farmers conducted boiler rearing beside their service. Farmers had experience above 5 years about broiler farming were 76% while 24% of farmers had experience below 5 years ((Table 1).

**Table 1:** Education level and Experience on broiler farming of farmers

Parameters	Categories	No. of farmers	Percentage (%)
Education level	No Education	8	32
	Can write	10	40
	Below class five	3	12
	Above class five	4	16
	Total	25	100
Experience	Above 5 years	19	76
	Below 5 years	6	24
	Total	25	100

### 3.2 Training on Broiler Farming

Among twenty five respondents, seventeen farmers had no training on broiler rearing practices from any center or

institution. Only three farmers received training from BRAC and five farmers from Youth Training Centre. Better Feed conversion ratio (FCR) was found in those birds whose farmers received training from BRAC and the result showed

Significant difference only in case of 2<sup>nd</sup> week of bird's age (Table 2). Farmers who received training from BRAC and Youth training center found a higher growth rate of birds than those who didn't receive any training though the result showed no significant difference among them (Table 3).

**Table 2:** Feed conversion ratio (FCR) of the birds of trained/untrained farmers

Training status	1 <sup>st</sup> week	2 <sup>nd</sup> week	3 <sup>rd</sup> week	4 <sup>th</sup> week	5 <sup>th</sup> week
No training	1.13 ± 0.89	1.23 ± 0.07	1.07 ± 0.04	1.78 ± 0.094	1.21 ± 0.08
BRAC	1.10 ± 0.87	1.2 ± 0.04	1.05 ± 0.04	1.91 ± 0.28	1.21 ± 0.07
Youth Training center	1.17 ± 0.80	1.14 ± 0	1.05 ± 0.038	1.85 ± 0.17	1.27 ± 0.09
p- value	0.51 <sup>NS</sup>	0.02*	0.67 <sup>NS</sup>	0.27 <sup>NS</sup>	0.52 <sup>NS</sup>

p ≤ 0.05 = Significant\*; p > 0.05 = Non-significant<sup>NS</sup>

**Table 3:** The Growth rate of birds in regards to trained/untrained farmers

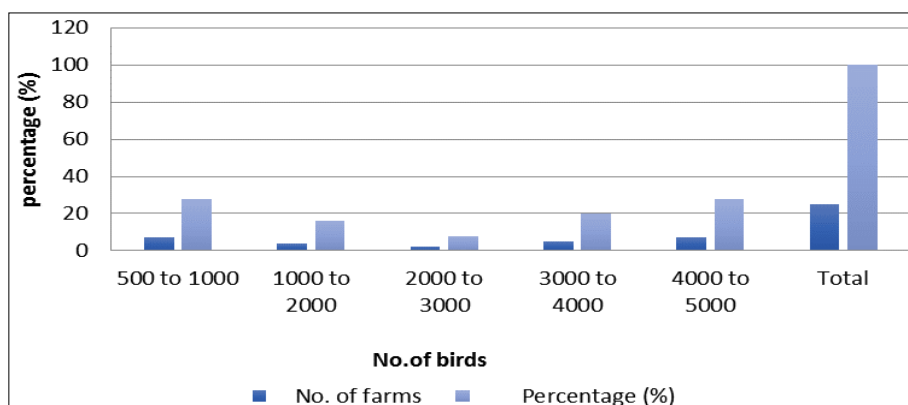
Training status	1 <sup>st</sup> week	2 <sup>nd</sup> week	3 <sup>rd</sup> week	4 <sup>th</sup> week	5 <sup>th</sup> week
No training	128.85±6.73	265±13.22	565.21±19.64	835.84±26.05	1713.82±68.75
BRAC	138.33±10.4	271.67±2.8	573.33±11.54	825±25	1725±66.14
Youth Training Center	132±5.70	268±11.51	578±18.23	816±42.92	1689±76.19
p- value	0.10 <sup>NS</sup>	0.65 <sup>NS</sup>	0.39 <sup>NS</sup>	0.41 <sup>NS</sup>	0.72 <sup>NS</sup>

p ≤ 0.05 = Significant\*; p > 0.05 = Non-significant<sup>NS</sup>

### 3.3 Number of birds

Five hundred to one thousand birds were found in 7 farms whereas one to two thousand birds were found in 4 farms. On the other hand, two to three thousand birds were found in 2

farms. Meanwhile, three to four thousand birds were found in 5 farms and four to five thousand birds were found in 7 farms (Fig. 1).



**Fig 1:** Number of birds in the study area

### 3.4 Broiler strains

The highest no. of farms (11) used Cobb 500 as broiler strain followed by Hubbard classic (7) and Lohmann (5). There was a higher mortality rate found in Ross strain compared to Cobb 500, Hubbard classic and Lohman. There was a significant difference observed in bird's mortality among the strains of 5<sup>th</sup> week (p-value is ≤ 0.5) (Table 4). There was no significant difference found in Feed conversion ratio (FCR) among the different bird's strain (Table 5).

**Table 4:** The mortality rate of birds in regards to various birds' strain reared

Strain	1 <sup>st</sup> week	2 <sup>nd</sup> week	3 <sup>rd</sup> week	4 <sup>th</sup> week	5 <sup>th</sup> week
Cobb 500	5.9 ± 0.69	5.09 ± 0.88	4.04 ± 0.75	3.13 ± 0.86	0.29 ± 0.53
Hubbard classic	6.1 ± 0.76	5 ± 0.7	4 ± 0.65	2.81 ± 0.70	0.27 ± 0.52
Lohmann	6.7 ± 0.5	5.37 ± 0.47	4.5 ± 0.70	3.37 ± 0.47	0.08 ± 0.28
Ross	7 ± 0	6 ± 0	4.75 ± 1.06	4 ± 1.41	1.12 ± 1.06
p- value	0.16 <sup>NS</sup>	0.38 <sup>NS</sup>	0.44 <sup>NS</sup>	0.29 <sup>NS</sup>	0.05*

p ≤ 0.05 = Significant\*; p > 0.05 = Non-significant<sup>NS</sup>

**Table 5:** Feed conversion ratio (FCR) of birds in regards to various birds' strain reared

Strain	1 <sup>st</sup> week	2 <sup>nd</sup> week	3 <sup>rd</sup> week	4 <sup>th</sup> week	5 <sup>th</sup> week
Cobb 500	1.13 ± 0.10	1.24 ± 0.10	1.07 ± 0.03	1.86 ± 0.17	1.25 ± 0.09
Hubbard classic	1.16 ± 0.06	1.25 ± 0.06	1.06 ± 0.04	1.79 ± 0.10	1.23 ± 0.04
Lohmann	1.13 ± 0.04	1.22 ± 0.05	1.07 ± 0.03	1.77 ± 0.10	1.26 ± 0.12
Ross	1.14 ± 0.15	1.22 ± 0.13	1.07 ± 0.02	1.70 ± 0.01	1.28 ± 0.01
p- value	0.85 <sup>NS</sup>	0.92 <sup>NS</sup>	0.91 <sup>NS</sup>	0.40 <sup>NS</sup>	0.88 <sup>NS</sup>

p ≤ 0.05 = Significant\*; p > 0.05 = Non-significant<sup>NS</sup>

### 3.5 Housing and floor management system

Most of the broiler farmers modified their house to rear birds.

The housing system in the study area was open sided, tin shed roof (Fig. 2). In the present study area, the floor was

categorized into kacha, brick, and concrete. Among them 11 farms were made of concrete, 9 were of kacha and the remaining 5 were of brick. In the case of Feed Conversion Ratio (FCR), there was a significant difference found between the three types of the floor ( $p \leq 0.05$ ) in the 3<sup>rd</sup> week. Better

Feed Conversion Ratio (FCR) was found in kacha and concrete floor than brick floor (Table 6). There was a higher growth rate of birds observed in kacha floor compared to concrete and brick and a significant difference is also found in different floor systems in the 1<sup>st</sup> week (Table 7).



**Fig 2:** Housing System in the study area

**Table 6:** Feed conversion ratio (FCR) in regards to the different flooring system

Floor	1 <sup>st</sup> week	2 <sup>nd</sup> week	3 <sup>rd</sup> week	4 <sup>th</sup> week	5 <sup>th</sup> week
Concrete	1.16 ± 0.07	1.23 ± 0.10	1.07 ± 0.03	1.82 ± 0.14	1.27 ± 0.11
Brick	1.13 ± 0.06	1.241 ± 0.06	1.16 ± 0	1.83 ± 0.07	1.234 ± 0.09
Kacha	1.12 ± 0.1	1.26 ± 0.06	1.06 ± 0.02	1.85 ± 0.17	1.22 ± 2.36E-16
p-value	0.48 <sup>NS</sup>	0.88 <sup>NS</sup>	4.92E-06*	0.924 <sup>NS</sup>	0.474971 <sup>NS</sup>

$p \leq 0.05$ = Significant\*;  $p > 0.05$ = Non-significant<sup>NS</sup>

**Table 7:** The Growth rate of birds in a different flooring system

Floor	1 <sup>st</sup> week	2 <sup>nd</sup> week	3 <sup>rd</sup> week	4 <sup>th</sup> week	5 <sup>th</sup> week
Concrete	127.27 ± 6.06	261.5 ± 12.48	563.63 ± 20.38	837.72 ± 27.60	1700.90 ± 70.34
Kacha	135 ± 7.07	271.11 ± 8.93	575 ± 13.9	836.11 ± 22.04	1722.22 ± 93.07
Brick	130 ± 7.90	265 ± 14.14	571 ± 21.3	805 ± 37.08	1674 ± 80.73
p-value	0.05*	0.21 <sup>NS</sup>	0.39 <sup>NS</sup>	0.09 <sup>NS</sup>	0.57 <sup>NS</sup>

$p \leq 0.05$ = Significant\*;  $p > 0.05$ = Non-significant<sup>NS</sup>

### 3.6 Litter materials

The present study revealed that the highest number of farmers used rice husk (60%) as litter material. Besides that, saw dust and straw were also used by some farmers (Table 8).

**Table 8:** Litter materials used in the present study area

Litter materials	No. of farms	Percentage (%)
Rice husk	15	60
Saw dust	7	28
Straw	3	12
Total	25	100

### 3.7 Use of feed

Most of the farmers used the feed from a company named CP. The feed from the other companies like Aman and Nourish were also used by some farmers. In the case of feed intake, there was a significant difference found among the three companies in 3<sup>rd</sup> and 4<sup>th</sup> week ( $p < 0.05$ ). Feed intake was higher from feed supplied by Nourish. However, there was no significant difference observed in weight gain of different birds among the companies (Table 10). But the feed conversion ratio (FCR) in the 1<sup>st</sup> week ( $p \leq 0.05$ ) indicates that there was a significant difference among them (Table 11). FCR was lowest in feed supplied by Aman group.

**Table 9:** Feed intake of different birds in regard to different companies

Company	1 <sup>st</sup> week	2 <sup>nd</sup> week	3 <sup>rd</sup> week	4 <sup>th</sup> week	5 <sup>th</sup> week
CP	150 ± 8.2	331.38 ± 13	609.17 ± 11	1501.39 ± 79	2100 ± 108
Aman	140 ± 14.1	321.25 ± 6	597.5 ± 8	1531.25 ± 68	1996.25 ± 23
Nourish	153.33 ± 2.8	336.66 ± 5	620 ± 10	1666.67 ± 16	2166.67 ± 76
p-value	0.10 <sup>NS</sup>	0.23 <sup>NS</sup>	0.03*	0.02*	0.23 <sup>NS</sup>

$p \leq 0.05$ = Significant\*;  $p > 0.05$ = Non-significant<sup>NS</sup>

**Table 10:** Weight gain of different birds in regard to different companies

Company	1 <sup>st</sup> week	2 <sup>nd</sup> week	3 <sup>rd</sup> week	4 <sup>th</sup> week	5 <sup>th</sup> week
CP	129.4 ± 7	266.05 ± 12	567.5 ± 20	828.33 ± 31	1705.83 ± 76
Aman	135 ± 10	268.7 ± 13	570 ± 13	831.25 ± 31	1743.75 ± 42
Nourish	131.6 ± 2	270 ± 5	575 ± 13	843.33 ± 16	1733.33 ± 57
p-value	0.40 <sup>NS</sup>	0.83 <sup>NS</sup>	0.81 <sup>NS</sup>	0.73 <sup>NS</sup>	0.56 <sup>NS</sup>

$p \leq 0.05$ = Significant\*;  $p > 0.05$ = Non-significant<sup>NS</sup>



**Table 11:** Feed conversion ratio (FCR) of different companies

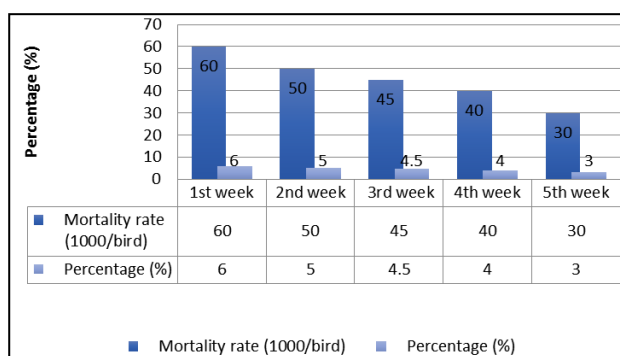
Company	1 <sup>st</sup> week	2 <sup>nd</sup> week	3 <sup>rd</sup> week	4 <sup>th</sup> week	5 <sup>th</sup> week
CP	1.17 ± 0.088	1.26 ± 0.08	1.03 ± 0.04	1.81 ± 0.12	1.23 ± 0.10
Aman	1.03 ± 0.02	1.15 ± 0.06	1.09 ± 0.02	1.84 ± 0.10	1.14 ± 0.15
Nourish	1.16 ± 0.007	1.22 ± 0.03	1.05 ± 0.03	1.91 ± 0.20	1.25 ± 0.01
p-value	0.05*	0.60 <sup>NS</sup>	0.45 <sup>NS</sup>	0.19 <sup>NS</sup>	0.31 <sup>NS</sup>

$p \leq 0.05$  = Significant\*;  $p > 0.05$  = Non-significant<sup>NS</sup>

### 3.8 Growth Promoter used and Mortality rate in birds

Growth promoter is supplemented with feed for a rapid gain of body weight of broiler birds. In the present study area, 80% of the farmers used growth promoter and the rest 20% did not use. The mortality rate was decreased with the increase of the bird's age. Higher mortality rate (6%) was found in the 1<sup>st</sup> week where the lower mortality rate was found in the 5<sup>th</sup> week of age (Fig. 3).

Farmers who received training from the BRAC and the Youth Training Center had experienced a lower mortality rate of birds than those didn't receive any training on broiler farming practices. Especially farmers who received training from the Youth Training Center had observed the lowest mortality rate of birds. The mortality rate of birds in the 2<sup>nd</sup> week showed significant difference in regards to training status of farmers (Table 12).



**Fig 3:** Mortality rate in the study Area

**Table 12:** The mortality rate of birds in regards to trained/untrained farmers

Training status	1 <sup>st</sup> week	2 <sup>nd</sup> week	3 <sup>rd</sup> week	4 <sup>th</sup> week	5 <sup>th</sup> week
No training	6.44 ± 0.59	5.32 ± 0.58	4.29 ± 0.70	3.26 ± 0.88	2.27 ± 0.63
BRAC	6 ± 1	5.16 ± 1.25	4 ± 1	3.17 ± 0.76	2.33 ± 0.57
Youth Training Center	5.7 ± 1.2	4.16 ± 1.32	3.67 ± 0.68	2.97 ± 0.73	2.33 ± 1.36
p-value	0.23 <sup>NS</sup>	0.05*	0.21 <sup>NS</sup>	0.69 <sup>NS</sup>	0.98 <sup>NS</sup>

$p \leq 0.05$  = Significant\*;  $p > 0.05$  = Non-significant<sup>NS</sup>

### 3.9 Common diseases and vaccines applied in the study area

Diseases are frequently affecting in all poultry farms in the study area. Among them the prevalence of Ranikhet, Gumboro, and Inflammatory bowel diseases are the most common. Three vaccines such as BCRDV, IBD and RDV vaccine were applied in the present study area (Table 13). In the study area, farmers of 18 farms followed proper vaccination schedule whereas 7 farmers were not concern about it.

**Table 13:** Vaccine applied in the study area

Days	Disease	Vaccine	Nature	Route
04	IB + ND	BCRDV	Live	Eye drop
09	IBD	IBD	Live	Water
18	IB + ND	RDV	Live	Water
21	IBD	IBD	Live	Water

### 4. Discussion

The present study revealed that, most of the farmers were in young age in the Sylhet region and their education level was under Secondary Education. Some farmers have no education at all, while Hauque (2005) [11] found junior level educated, Higher secondary level educated and graduate level farmers in their study. Sultana *et al.* (2012) [12] reported that the majority

(60%) of the respondents were in the middle age (31-50 years), 34% of respondents were young (up to 30 years) and the remaining were old age (above 50 years) while Aganga *et al.* (2000) [13] conducted study in the Southern region of Botswana reported that maximum farmers involved in poultry farming remain within the range of 35-50 years. In the present study area, maximum farmers have experience in broiler farming above 5 years. However, Islam *et al.* (2015) [14] found that about 75% of farmers in Mymensingh and 33.30% farmers in Barguna district had experiences in broiler farming for 3 years and above. Maximum farmers in the study area found to be started broiler rearing without receiving any training on broiler farm practices. Only a few farmers found to receive training from BRAC and Youth Training Centre. Islam *et al.* (2015) [14] reported that few farmers received short training on broiler farming in Barguna (38.10%) and Mymensingh district (15%), however, most of the farmers did not take training at all. This result was contradictory with Sultana *et al.* (2012) [12] in Pabna and Rahman *et al.* (2003) [15] in rural environment of Bangladesh, who found 70% of farmers got training on broiler farming. The present study discovered that farmers who received training from the BRAC and the Youth Training Center had a better FCR and higher growth rate of birds compared to those who did not receive training. Bhattu *et al.* (2016) [16] reported in their study that 60

per cent farmers acquired broiler entrepreneurial development training programme before or after starting the broiler farms. Therefore, it is strongly suggested that farmer should receive proper training before rearing their birds. All farmers in the study area started broiler rearing by self-money. Hussain *et al.* (1997) <sup>[17]</sup> demonstrated that farmers started venture by receiving a loan from Bangladesh Krishi Bank. Maximum farmers found to rear Cobb 500 as broiler strain in Sylhet region. Besides that Hubbard classic, Lohmann and Ross were also found to be used while Hauque (2005) <sup>[11]</sup> found Ross hybrid strain in 19 farms out of 20 in Sherpur sadar upazila. The study revealed that higher mortality rate was observed in Ross and Hubbard classic compared to Cobb 500 and Lohmann. There was a significant difference ( $p \leq 0.05$ ) observed in bird's mortality among the strains of 5<sup>th</sup> week  $p \leq 0.05$ . On the other hand, Hossain *et al.* (2011) <sup>[18]</sup> reported that there were no significant differences ( $p > 0.05$ ) of mortality in different strains which is not agreed with the present study. The flooring system for broiler was mainly found kacha, brick and concrete. Akter *et al.* (2009) <sup>[19]</sup> reported that in Bangladesh the maximum floor is kacha and brick. It is suggested that kacha floor should be used because there were higher growth and better FCR found in kacha floor than others. The maximum farmer of Sylhet region used the feed from CP Company. Besides, the feed from Aman and Nourish were also found to be used. Sultana *et al.* (2012) <sup>[12]</sup> reported that most of the farmers use the feed of Kazi Farms Limited in Santhia upazila under Pabna district. The present study suggested that feed of Nourish and Aman is better than CP since Nourish feed was consumed more while there was better Feed conversion ratio in Aman. Additionally, there was a higher growth rate of birds that consume feed from Aman and Nourish. Sarkar *et al.* (2008) <sup>[20]</sup> in their study reported that feed consumption and FCR of broiler (Cobb 500) were slightly higher than the data indicated by the Cobb Breeding Company Limited. 80% of farmers of Sylhet region use growth promoter. Islam *et al.* (2015) <sup>[14]</sup> reported that 100% of farmers were using growth promoter for a rapid gain of body weight of broiler birds in the study area. The average feed consumption is 155 gm per bird at the 1<sup>st</sup> week and 2150 gm per bird in the 5<sup>th</sup> week. Sultana *et al.* (2012) <sup>[12]</sup> reported that bird consumed 2400 gm feed at 5<sup>th</sup> week of age in Mymensingh district. In the study area body weight of bird during marketing is 1.7 kg. Perry *et al.* (1999) <sup>[21]</sup> found a market weight of 1.07 kg to 1.70 kg per bird. Feed conversion ratio (FCR) in the study area was found 1.24. However, Chand *et al.* (2009) <sup>[22]</sup> reported the values 1.93 to 1.94 but Kawsar *et al.* (2013) <sup>[23]</sup> observed that training and management intervention could contribute to lower the FCR value (1.49 to 1.53) and higher the productivity in hybrid broiler farming. It was found that the mortality rate was 6% at the 1<sup>st</sup> week of age and 3% at the 5<sup>th</sup> week of age. Babiker *et al.* (2009) <sup>[24]</sup> reported 6.2% mortality rate in the farms of Hariana. However, the present investigation revealed that farmers who received training from BRAC or Youth training center had observed a lower mortality rate than those who didn't receive any training at all. So, it could be suggested to the farmers that they should receive proper training before starting the venture of poultry because by receiving proper training they can gain knowledge about scientific method of broiler rearing and thus mortality of birds can be reduced. In the study area, Ranikhet, Gumboro and Inflammatory bowel disease are common. Islam *et al.* (2015) <sup>[10]</sup> reported that Coccidiosis and Infectious Bursal disease are common in

Mymensingh and Barguna district. BCRDV (Ranikhet), IBD (Gumboro) and vaccine are generally applied in the present study area. Rahman (2004) <sup>[25]</sup> reported that 70% of broiler farmers vaccinated birds regularly and 30% did not practice vaccination. Sultana *et al.* (2012) <sup>[12]</sup> reported 90% of farmers using vaccines regularly. Only 16% farmers were adopting vaccination schedule in broilers to control diseases reported by Bhattu *et al.* (2016) <sup>[16]</sup>.

## 5. Conclusion

The role of broiler sector for developing human resources is enormous. Country like Bangladesh has great emergence to develop her human resources into efficient and effective basis for the domestic market to meet up the demand of protein. It is one of the substitutes in connection with the development of Bangladesh. The results of this study area will be useful for farmers and researchers to identify the overall problems and their remedies on feeding, management and marketing related to broiler farming. The findings may therefore reveal some valuable information thereby ensure proper management of broiler in rural as well as urban area of Bangladesh.

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## 7. References

1. Khaled SMS. Poultry industry Realities and prospects. The Financial Express, International Publication Limited. <http://www.thefinancialexpress-bd.com>, 2014.
2. Ali MM, Hossain MM. Problems and prospects of poultry industry in Bangladesh: An analysis. Office of research and publication. American International University Bangladesh (AIUB), Dhaka, Bangladesh, 2012.
3. Financial Express Bangladesh. "Present crisis and prospects of Broiler Industry in Bangladesh"; 23 July, 2010.
4. Ahuja V, Sen A. Scope and space for small scale poultry production in developing countries. AIUB Bus Econ Working Paper Series, 2007, 2012-01.
5. Raha SK. Broiler industry in Bangladesh some issues, Proceedings of the 5th International Poultry Show and Seminar organized by World's Poultry Science Association, Bangladesh Branch, Dhaka, Bangladesh, 01-03.
6. Hamid MA, Rahman MA, Ahmed S, Hossain KM. Status of poultry industry in Bangladesh and the role of private sector for its development. Asian Journal of Poultry Science. 2017; 11(1):1-3.
7. Heft-Neal S, Otte J, Puppavessa W, Roland-Holst D, Sudsawasd S, Zilberman D. Supply chain auditing for poultry production in Thailand. Pro-poor Livestock Policy Initiative Research Report, 2008.
8. MoFL. National Livestock Policy and Action plan, Department of Livestock Services, Dhaka, 2006.
9. Alkie TN, Rautenschlein S. Infectious bursal disease virus in poultry: current status and future prospects. Veterinary Medicine: Research and Reports, 2016; 7:9.
10. SPSS. Statistical Package for the Social Sciences, SPSS for Windows 10.00. Version 22.0 IBM Inc. Chicago,

USA, 2013.

11. Hauque S. Status of broiler farming in Sherpur sadar upazila (Doctoral dissertation, MS Thesis, Department of Poultry Science, BAU, Mymensingh), 2005.
12. Sultana F, Khatun H, Islam A. Small scale broiler farming at Santhia upazilla of Pabna District of Bangladesh. *Bangladesh Journal of Animal Science*. 2012; 41(2):116-119.
13. Aganga AA, Omphile UJ, Maloney U, Chabanga CH, Motsamai GM, Motsumi LG. *et al* Traditional poultry production and commercial broiler alternatives for small-holder farms in Botswana. *Livestock Research for Rural Development*. 2000; 12(4).
14. Islam F, Begum S, Majumder A, Hossain MS. Broiler production at central and southern region of Bangladesh. *Journal of Bioscience and Agriculture Research*. 2015; 5(2):73-79.
15. Rahman MS, Roy K, Dey MS. Production performance of two broiler strains as affected by season under rural environment of Bangladesh. *Pak. J. Biol. Sci.* 2003; 6(8):735-737.
16. Bhattu BS, Sharma A, Singh G. A Study on Constraints of Broiler Farming Entrepreneurship in Mansa District of Punjab. *International Journal of Computer Applications*. 2015; 975:8887.
17. Hussain S. Recent trends in the rural economy of Bangladesh poverty and development. Dhaka, Bangladesh. *Institute of Development Studies Journal*. 1997; 216-236.
18. Hossain MA, Suvo KB, Islam MM. Performance and economic suitability of three fast-growing broiler strains raised under farming condition in Bangladesh. *International Journal of Agricultural Research, Innovation and Technology*. 2011; (1-2):37-43.
19. Akter A and Uddin S. Bangladesh poultry industry. *Journal of Business and Technology*. 2009; 4(2):97-112.
20. Sarkar PK, Chowdhury SD, Kabir MH, Sarker PK. Comparative Study on the productivity and profitability of commercial broiler, cockerel of a layer strain and cross-bred (RIR×Fayoumi) Chicks. *Bangladesh Journal of Animal Science*. 2008; 37(2):89-98.
21. Perry J, Banker D, Green R. Broiler farms organization, management and performance. *Agricultural Information Bulletin*, United States Department of Agriculture, 1999, 748.
22. Chand V, Chowdhury SD, Saha M, Hossain MK. IFC-SEDF Sector Studies and Baseline Surveys in Poultry in Bangladesh, Final Report. Associates for Development Services Limited, Dhaka, 2009.
23. Kawsar MH, Chowdhury SD, Raha SK, Hossain MM. Impact of management intervention on productive performance and profitability of small-scale broiler farming in Bangladesh. *Livestock Research for Rural Development*. 2013; 25(5):2013.
24. Babiker MA, Tawfeig A, Yahia IE, Noura K. Mortality and diseases status in layer chicken flocks reared in traditional farms in Khartoum-Sudan. *International Journal of Poultry Science*. 2009; 8(3):264-269.
25. Rahman MW. Livestock poultry raising as a poverty alleviation strategy in some selected areas of Mymensingh District (Doctoral dissertation, MS thesis, Department of Rural Sociology, Bangladesh Agricultural University. Mymensingh), 2004.