

CHAPTER-1

Introduction

Bangladesh is the highest densely populated country (1250 people per km²) (tradingeconomics, 2016) of the world with a population of 165.303(worldometers, 2016) million people within the area of 1,67,037 km² (Quora,2016). In 2000, 52.5% of the urban and 44.3% of the rural people was surviving under the poverty line (Sumy *et al.*, 2010). However, the people of our country is blessed with a variety of agricultural resources of which chicken rearing is considered to have potential both for poverty alleviation and food production (Sumy *et al.*, 2010). Chicken rearing is suitable for widespread implementation as it cost less, requires little skills, highly productive and can be incorporated into the household works (Dolberg *et al.*, 1997).

Poultry sector has created job opportunity for 10 million people as claimed by poultry leaders in a roundtable titled —Present Crisis and Prospects of Poultry Industry in Bangladesh (Source: Financial Express, Bangladesh 23 July,2010). In the last few years, the recognition of small-scale commercial poultry production helps to accelerate the pace of poverty reduction riding a new height in Bangladesh. The poultry industry has been successfully becoming a leading industry of the country. The sector is also growing rapidly for last two decades though it started during mid-sixties in this country. It has already capable to rise at an annual growth of around 20 per cent during last two decades. This industry has immense potentialities from the point of view of the economic growth of the country as well as fulfillment of basic needs and to keep the price at a minimum level and ensuring food especially animal protein for the human being. This industry has immense scope for the country through changing livelihood & food habit, reduction of dependence of meat related to cattle (Beef) and goat (Chevon) and ultimately has positive impact on GDP (Gross Domestic Product) growth rate of the country.

Broiler farming plays an important role in improving livelihood, food security and poverty alleviation in rural and semi-urban communities in developing countries including Bangladesh. Broiler production has become a specialized and speedy business at present time for the people of the country due to short life cycle of the broiler and requirement of relatively less amount of capital attributed to its popularity to the farmers (Ahmed *et al.*, 2009). A study report on the impact on Smallholder Livestock Development Project (SLDP) in rural community at different rural areas of Bangladesh revealed that the overall socio-economic condition of the beneficiaries, their egg and meat consumption capability, empowerment of rural women in decision making issues and employment opportunities were significantly increased after the intervention made by

SLDP (Alam, 1997). Another study showed that commercial broiler farming provided employment opportunities for unemployed family members, improved socio-economic conditions and increased women empowerment among rural people of Bangladesh (Rahman *et al.*, 2006).

Protein intake is recommended to be in range of 0.8 to 1.6 g per kg body weight for human (Anonymous, 1998). Broiler meat contains high quality protein and micro-nutrients which has a tremendous impact on health and nutrition for the poor people in rural areas (Neumann *et al.*, 2002; Barroetoa, 2007). Again, another study reported that it can be the main source of family earning or can provide sufficient income and gainful employment opportunity to rural farmers throughout the year (Bhende, 2006). For this reason, broiler farming has been playing a key role in providing protein (meat) to overcome the malnutrition and serve as a tool for reducing unemployment problem and poverty alleviation (Raha, 2007).

Eggs contain complete protein and can supply essential amino acids. Eggs also contain non-essential amino acids, vitamins, minerals, antioxidants, saturated, monounsaturated and polyunsaturated fatty acids, cephalin, lecithin, and cholesterol. The content of low-calorie eggs benefits populations throughout the world at every stage of the human life cycle. So layer farming is very much important to fulfill the egg demand and to improve socio-economic condition of the farmers (Ottinger *et al.*, 2009).

The district Kishoreganj occupies an important place in Bangladesh in respect of poultry farming because of availability of all facilities. So, the present study is undertaken to evaluate the existing management system of poultry farming and understanding the overall management practices and socio-economic condition of the broiler and layer farmers.

The specific objectives of the study:

- To identify the management system of broiler and layer farms in Kishoreganj District.
- To determine the better management system.
- To assess the productivity, profitability of different types of poultry farms under different management practices.
- To identify the socio-economic status of broiler and layer farmers.

CHAPTRE- 2

Materials and Methods

2.1 Location of the study:

The study was conducted at Kishoreganj district in Bangladesh. This district consists of 13 upazilas named Kuliarchor Upazila, Hossainpur Upazila, Pakundia Upazila, Kishoreganj Sadar Upazila, Bazitpur Upazila, Austagram Upazila, Karimganj Upazila, Kotiadi Upazila, Tarail Upazila, Itna Upazila, Nikli Upazila, Mithamain Upazila, Bhairab Upazila. The place of my study is the Kishoreganj Sadar, Pakundia, Katiadi, Hossainpur and Bajitpur upazila. The district Kishoreganj was selected due to availability of large number of broiler and layer farms and good communication facilities.

2.2 Study period:

The study was conducted between the period of 1st March, 2017 to 6th April, 2017 and from 5th July, 2017 to 4th August, 2017 when I was in internship placement at District Veterinary Hospital, Kishoreganj.

2.3 Sources of data:

Data for this study was obtained from both primary and secondary sources. The primary data was collected from the production performance, activities and economic condition of the chicken producers using structured questionnaires and the secondary data was obtained from District Veterinary Hospital, Kishoreganj.

2.4 Research design:

The research design adopted for this study was of ex-post-facto in nature since the phenomenon has already occurred. According to Sevilla *et al.*, (2007) ex-post facto research is a systematic empirical inquiry in which the researcher does not have direct control over independent

variables, because their manifestation has already occurred or because they are not inherently manipulated.



Figure2.1: Kishoreganj District.

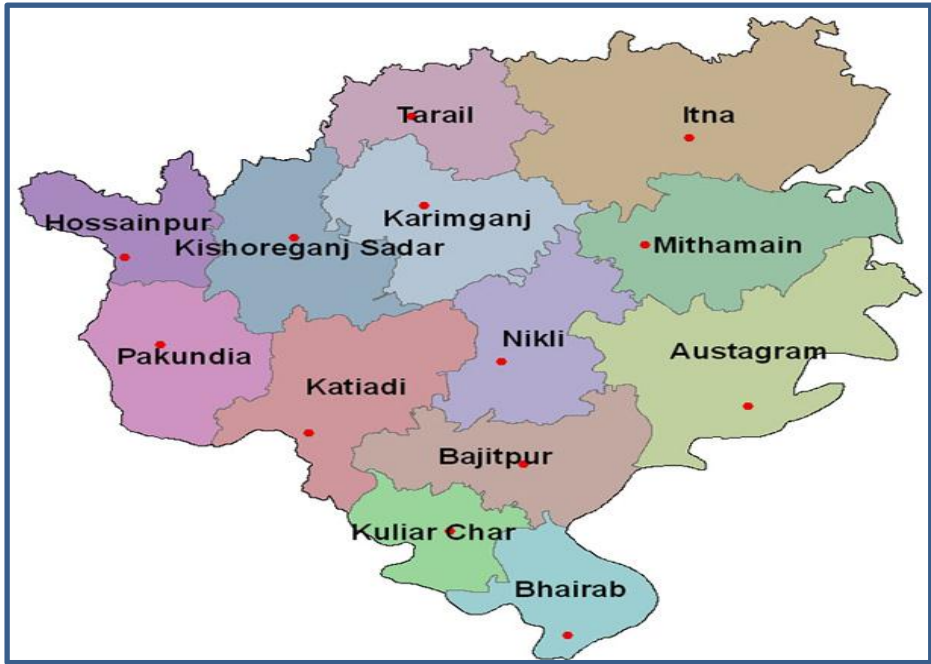


Figure2.2: Different Upazilas in Kishoreganj

2.5 Sampling Procedure:

In an empirical investigation, it is impossible to collect information from the whole population. Therefore, the researchers are often forced to make inferences based on information derived from a representative sample of the population. The sample size and the degree of variation usually affect the quantity and quality of information obtained from the survey. Using appropriate sampling methods, both factors can be controlled (Scheaffer, 1986).

The aim is to devise a sampling scheme which is economical, easy to operate and provides unbiased estimates with small 'variance' (Barnett, 1991). Given limitations in terms of money, time, efforts and data management - sampling is more appropriate method. Further, sampling not only saves cost and time but can also give more accurate results than a census which is more acceptable (Kinnear and Taylor, 1987; Casley and Kumar, 1988). Following steps have been involved in the sampling procedure:

2.5.1 Defining the Population:

Classification of the population is the first step in the sampling procedure. Namely, the sector or element under investigation, the sampling unit, the area or extent of investigation and the duration of investigation (Kinnear and Taylor, 1987). All the poultry farms of the district engaged in poultry production were classified as population of the study.

2.5.2 Sample size:

Casely and Kumar, (1988) suggested that a good survey sample should have both a small sampling error and minimum standard error. This can be obtained if one has unlimited resources. However, compromises have to be made in selecting the sample size due to constraints such as finance, time and data management (Poate and Daplyn, 1993).

Thus on the basis of - nature of research and analysis, number of variables, resource constraints and the importance of decision a sample size of 40 (20 broiler and 20 layer farms) poultry farms engaged in poultry production were selected.

2.5.3 Sampling methods:

Kishoreganj district was selected biasly (Non- random selection). Kishoreganj district has thirteen upazila. From these thirteen upazilas five upazilas (Kishoreganj Sadar, Pakundia, Katiadi, Hossainpur and Bajitpur) were randomly selected and two villages from each upazila were selected (Multi-stage random sampling). From these selected villages two farms of each category (Broiler and Layer) were selected randomly (Stratified random sampling). Each farm rearing at least 1000 bird is taken under consideration.

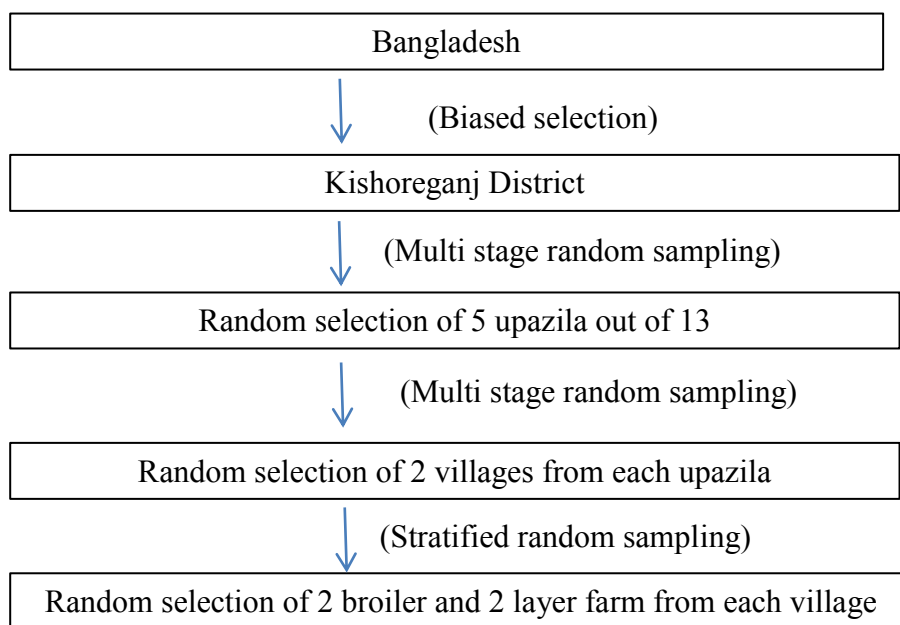


Figure 2.3: The scheme of sampling methods used in current study.

2.6 Methods of data collection:

Data was collected through ‘face to face’ interview using structured questionnaire. The questionnaire was developed after reviewing several published paper to gather knowledge about management practices of poultry farmers. Farm owners/managers who brought the birds at the hospital were interviewed to collect data at bird, flock and farm level. The questionnaire is shown in appendix.



Figure 2.4



Figure 2.5



Figure 2.6



Figure 2.7

Figure 2.4-2.7: Gathering information related to questionnaire

2.7 Analytical techniques:

The data was put on the master sheet in Microsoft Office Excel 2010 and were arranged in tabular form. The obtained data imported to software STATA for analysis. Descriptive statistics (i.e. means, frequencies etc.) was done to estimate the different variables. Unpaired unequal t-test was used to determine the level of significance ($p < 0.05$ and $p < 0.01$) between categorical variables (Uddin et al., 2012).

Results and Discussion

3.1 General description of the farm:

The Table 3.1 revealed that the mean farm size (Number of bird), number of family member, number of educated person per farmer family and amount of land (acre) per farmer were 4336.84 ± 541.99 , 6.16 ± 0.47 , 1.26 ± 0.23 and 3.51 ± 0.4 with range; 1500-10000, 3-10, 0-3 and 0.2-5.6 respectively in broiler farms and 5252.63 ± 708.61 , 4.79 ± 0.27 , 1.37 ± 0.21 and 4.1 ± 0.45 with range; 1200-1000, 3-7, 0-3 and 0.45-6.3 respectively in layer farms. There were found no statistically significant difference ($p > 0.05$) between the broiler and layer farms in terms of farm size (Number of birds), number of educated person per farmer family and amount of land per farmer. But there were found statistically significance difference ($P < 0.05$) in number of family member between broiler and layer farmers.

Table 3.1: Analysis of different parameters related to farms and farm owners (N=40).

Parameters	Broiler farm (N=20)		Layer farm (N=20)		P-value
	Mean \pm SE	Range (Min-Max)	Mean \pm SE	Range (Min-Max)	
Farm size (Number of birds)	4336.84 ± 541.99	1500-10000	5252.63 ± 708.61	1200-10000	0.41
Number of family member	6.16 ± 0.47	3-10	4.79 ± 0.27	3-7	0.02
Number of educated member per farmer's family	1.26 ± 0.23	0-3	1.37 ± 0.21	0-3	0.74
Amount of land per farmer (acre)	3.51 ± 0.4	0.2-5.6	4.1 ± 0.45	0.45-6.3	0.36

Islam *et al.*, (2010) found per farmer have 0.49 acre and Devendra, (1993) showed 0.99- 1.97 acres of land per farmer. Rahman *et al.*, (2002) in their study they observed 47.3% was educated farmer.

3.2. Socio-economic condition of the farmers:

Different factors associated with socio-economic condition of the farmers of Kishoreganj district are listed in Table 3.2 and specific findings of the study are also described below:

Table 3.2: Factors associated with socio-economic status of the farmers in Kishoreganj district (N=40).

Variables	Categories	Farm owner	Percentage (%)
Type of farmer (According to Agricultural Extension Manual, 2016)	Landless <0.02 hectares	2	5
	Marginal 0.02-0.2 hectares	3	7.5
	Small 0.2-1.0 hectares	5	12.5
	Medium 1.0-3.0 hectares	17	42.5
	Large >3.0 hectares	13	32.5
Source of investment	Own	23	57.5
	Bank loan	13	32.5
	With interest from money lender	3	7.5
	Without interest from money lender	1	2.5
Number of birds	< 3000	10	25
	3000-5000	18	45
	> 5000	12	30
Training	Yes	11	27.5
	No	29	72.5
Family Type	Single	19	47.5
	Joint	21	52.5
Farming is main occupation	Yes	22	55
	No	18	45
Amount of loan (BDT.)	No loan	20	50
	<100000	5	12.5
	100000 - 500000	9	22.5
	> 500000	6	15
Level of	High (Above secondary)	5	12.5

educational knowledge	Medium (Secondary)	10	25
	Poor (Primary)	25	62.5
Level of poultry farm management skill	High	15	37.5
	Medium	15	37.5
	Poor	10	25

3.2.1 Socio-economic status in terms of land:

About 32.5% large, 42.5% medium, 12.5% small, 7.5% marginal and 5% landless farmers were involved in farming in Kishoreganj district (Table 3.1). These findings agree with the study of Rahman *et al.*, (2002) in Rajshahi district. These findings indicate that, in this sector, comparatively rich farmers are more involved than poor, although Islam *et al.*, (2010) reported that all of the farmers involved in the farming were small categories having 6- 49 decimal (0.024 -0.195 hectares) of land.

3.2.2 Sources of investment of the farmer:

The present study shows that 57.5% farmer invest their own money in farming , 32.5% takes bank loan, 75% manage investment from money lender in terms of interest and remaining 2.5% also takes from money lender but without interest. These findings have similarity with Rahman *et al.*, (2002) in a study in Rajshahi district.

3.2.3 Size of the farm:

The size of the farm reflects the socio-economic status of the farmer. About 30% of the farmers have more than 5000 birds, 45% have 3000-5000 birds and 30% have more than 5000 birds.

3.2.4 Training:

About 27.5 % of the farmer had received training of farming and left 72.5% did not take any training at all about poultry farming. It was enumerated that 8.5 % of the poultry farmer had received training in any times of his farming life (BBS, 2011).

3.2.5 Farming as occupation:

The present study shows that, farming is the main occupation of 55% of the farmers involved in the study and for remaining 45% of the farmers it is a subsidiary occupation. Ahmed *et al.*, (2009) showed that, farming is the main occupation of the 35% of the broiler farmer. This higher value in my finding is due to involvement of layer farmers in my study but Ahmed *et al.*, (2009) did not consider layer farmers.

3.2.6 Loan:

About 12.5% of the farmers involved in my study have taken loan less than BDT. 100000. 22.5% farmers have taken loan between BDT. 100000-500000, 15% have taken more than BDT. 500000 and 50% of the farmers have taken no loan.

3.2.7 Level of knowledge and management skill:

Most of the farmers have poor level of knowledge 62.5%, but level of management skill is high in 37.5% of the farmers. Rahman *et al.*, (2002) found that, 71.43% and 24.29% of the farmers have high and medium level of knowledge respectively. So the findings of my study are more or less similar with Rahman *et al.*, (2002).

3.2.8 Literacy level of the farmers:

The literacy levels of the farmers have been grouped into five educational groups. The Table 3.3 shows the literacy level of the farmers. There are found 15% illiterate, 20% (n=8) have gained primary education, 55% (n=22) have gained secondary education and remaining 10% (n=4) have gained higher secondary education. These findings are in agreement more or less with Sumy *et al.*, (2010) that were in a study on backyard chicken owners.

Table 3.3: Literacy level of the farmers (N=40).

Literacy levels Farmers	No. of farmers	Percentage (%)
Illiterate	6	15
Primary Education	8	20
Secondary Education	22	55
Higher Secondary Education	4	10
Total	40	100

3.2.9 Educational status of farmer's children:

The level of education of the farmer's children reflects the socio-economic position of a family in a society. In my study there are found (Table 3.4) the average number of boys and girls per farm owner attend to primary 0.7 and 0.5, high school 0.75 and 0.45, college 0.1 and 0.07 and university 0.01 and 0.01 respectively. These findings of the study are in agreement with Ahmed *et al.*, (2009) they also found more or less similar findings.

Table 3.4: Distribution of children of farm owner by institute (N=40).

Particulars	Average no. of boys/farm	Average no of girls/farm
Primary	0.7	0.5
High school	0.75	0.45
College	0.10	0.07
University	0.01	0.01

3.2.10 Sources of drinking water and latrine condition:

In present study it is revealed that about 87.5% of the farmer uses their own tube well as a source of drinking water, 5% use shared in tube well and 7.5% use shared in deep tube well (Table 3.5). The shearing of tube well is restricted to some drought months only.

Table 3.5: Sources of drinking water and condition of latrines (N=40).

Particulars	No. of farmer	Percentage (%)
Sources of drinking water		
Own tube-well	35	87.5
Shared-in tube-well	2	5
Shared-in deep tube-well	3	7.5
Latrine condition		
Non-sanitary	0	0
Semi-sanitary	10	25
Sanitary	27	67.5

No farmer use non-sanitary latrine, 25% use semi-sanitary and 67.5% use sanitary latrine. Ahmed *et al.*, (2009) showed using of higher percentage of semi-sanitary latrine among the farmers.

3.2.11 Health statuses of the farmers:

In terms of health status there we find about 30% of the farmers having good health, 47.5% and 22.5% having moderate and poor health respectively. The health statuses of the farmers are shown in figure 3.1.

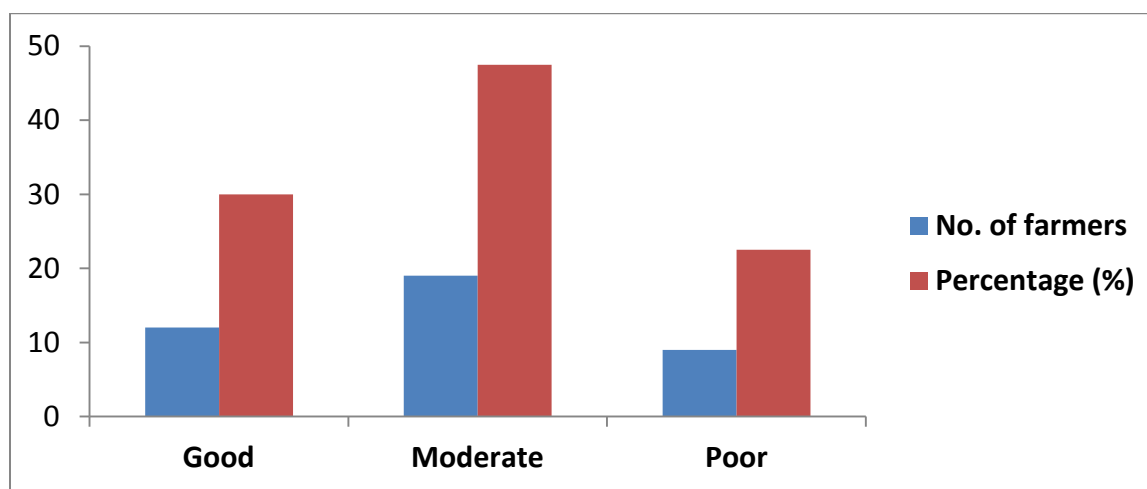


Figure 3.1: Health statuses of the farmers

3.3 Economic analysis:

3.3.1 Per bird annual gross cost (Average):

Per bird average annual gross cost for rearing of broiler and layer are 925.5 BDT. and 1332.5 BDT. respectively (Table 3.6).

Table 3.6: Per bird annual gross cost (Average):

Items	Expenditure					
	Per bird cost in one batch		Total cost (BDT.)	Per bird annual cost		Total cost (BDT.)
	Gross Cost (BDT.)	Depreciation Cost (BDT.)		Gross Cost (BDT.)	Depreciation Cost (BDT.)	
DOC(Day Old Chicks)	45	-	55	50	-	50
Feed	81	-	81	1259	-	1259
Labor	8	-	8	10	-	10
Medication	8	-	8	10	-	10
Housing	-	2	2	-	3.00	3
Equipment	-	0.25	0.25	-	0.50	0.5
Total gross	142	2.25	154.25	1329	3.50	1332.5
Total gross cost for 6 batch in a year: $154.25 \times 6 = 925.5$						

Islam, (1995) studied economic analysis of poultry farms of different sizes in some selected area of Dhaka district. He found that the total costs of per poultry bird per year were BDT. 406.17, 373.86 and 347.54 for small, medium and large poultry farms respectively. Alam, (1997) found the cost per bird was BDT. 106.68 for intensive farm. The higher value of cost in my study due to recent increased of price of feed and other raw materials.

3.3.2 Per bird annual gross return (Average):

Per bird gross return of broiler and layer are shown in the Table 3.7. Per bird gross return of broiler and layer are BDT. 1080 and BDT. 2210 respectively which is higher than per bird net cost. Islam, (1995) found average gross return per poultry bird per year stood at BDT. 614.15, 599.67 and 351.69 for small, medium and large farm respectively. Alam, (1997) found the return per bird was BDT. 129.5 for intensive farm. The higher value of return in my study due to recent increased of price of chicken meat and eggs.

Table 3.7: Per bird annual gross return (Average):

Items	Broiler (BDT.)	Layer (BDT.)
Selling of bird (broiler/spend hen)	1080	180
Selling of eggs (290 pieces)	-	2030
Total gross return	1080	2210
Per bird annual benefit cost ratio (Annual per bird total gross return ÷ Annual per bird total gross cost)	1: 1.17	1: 1.66

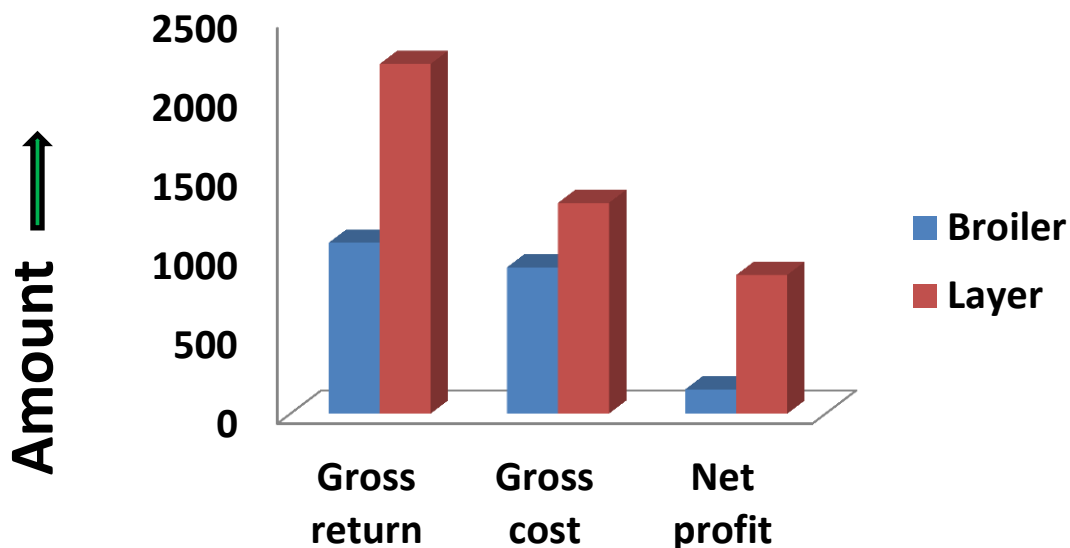


Figure 3.2: Gross return, gross cost and net profit of per broiler and layer.

The figure 3.2 shows that gross return, gross cost and net profit is higher in layer than broiler. This indicates that although rearing cost is high in layer farm but it is more profitable than broiler farming ultimately.

3.3.3 Benefit Cost Ratio (BCR):

The benefit cost ratio is shown in Table 3.7 .The result is 1: 1.17 in broiler and 1: 1.66 in layer. The benefit cost ratio value in my study is almost similar to the findings of Alam, (1997), he found 1: 1.22 cost benefit ratio for intensive farms.

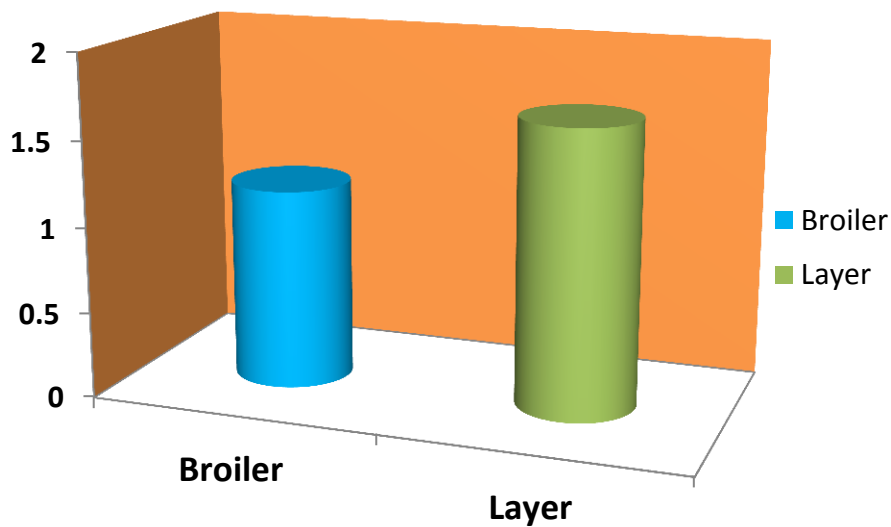


Figure 3.3: Benefit cost ratio for broiler and layer (Per bird).

The figure 3.3 shows that benefit cost ratio (per bird) is higher in layer than broiler. So we may say that layer farming is more profitable.

3.4 Common management Practices in poultry farms under study:

Table: 3.8: Management of broiler farm in study area of Kishoreganj district (N=20).

Variables	Categories	No. of farms	% of farms
Housing			
Floor	Concrete	15	75
	Muddy	5	25
	Slats	0	0
Roof	Iron sheets	17	85
	Concrete	2	10
	Bamboo & leaf	1	5
Sidewall	Wire netting	19	95
	Bamboo splint	1	5
Floor			
Rearing system	Floor	20	100
	Case	0	0
Litter material	Rice husk	15	75
	Saw dust	3	15
	Wood shavings	2	10
Frequency of litter change/month	2 times	8	40
	3 times	6	30
	4 times	6	30
Feeding			
Feeder type	Hanging plastic feeder	17	85
	Pot/ bucket	3	15
	Attached	0	0
Feed type	Self prepared	3	15
	Readymade mash	3	15
	Readymade pellet	14	70
	Use in crop production	5	25
	Allowed	7	35
Use of fan	Yes	12	60
	Not	8	40

Variables	Categories	No. of farms	% of farms
Water			
Drinker type	Hanging drinker	17	85
	Pot/ bucket	3	15
	Attached	0	0
Water supply	Manual	8	40
	Pump	12	60
Disease management	own effort	5	25
	By quack	8	40
	By vets	5	25
	All	2	10
Vaccination	Regular	12	60
	Irregular	4	20
	Not at all	4	20
Waste disposal (litter material)	To open air	3	15
	To a pit	4	20
	Biogas plant	5	25
	Sell	1	5
	Fish feed	2	10
	Crop field	5	25
Biosecurity			
Enclosure surrounding the farm	Present	0	0
	Absent	20	100
Footbath	Present	2	10
	Absent	18	90
Disinfectant spray	Use	5	25
	Not	15	75
Visitors	Restricted	4	20
	Moderately restricted	9	45
	Allowed	7	35
Isolation of birds	Yes	2	10
	Not	18	90
Migrating birds	Restricted	13	65
	allowed	7	35

Table 3.9: Management of layer farms in study area of Kishoreganj district (N=20).

Variables	Categories	No. of farms	% farms
Housing			
Floor	Concrete	16	80
	Muddy	4	20
	Slats	0	0
Roof	Iron sheets	17	85
	Concrete	3	15
	Bamboo & leaf	0	0
Sidewall	Wire netting	20	100
	Bamboo splint netting	0	0
Rearing system	Floor	7	35
	Case	13	66
Feeding			
Feeder type	Hanging plastic feeder	4	20
	Pot/ bucket	3	15
	Attached with cage	13	65
Feed type	Self preparation	8	40
	Readymade mash	12	60
	Readymade pellet	0	0
Amount of feed/ day	Less than 115 gm	5	25
	115- 120 gm	12	60
	More than 120 gm	3	15
Frequency of feeding/day	2 times	14	70
	3 times	4	20
	4 times	2	10
Egg collection	Manual	20	100
	Automated machine	0	0

Variables	Categories	No. of farms	% farms
Water			
Drinker type	Hanging drinker	4	20
	Pot/ bucket	3	15
	Attached	13	65
Water supply	Manual	6	30
	Pump	14	70
Use of fan	Yes	13	65
	Not	7	35
Disease management	Own effort	3	15
	By quack	5	25
	By vets	8	40
Vaccination	All	4	20
	Regular	14	70
	Irregular	4	20
Waste disposal (litter material)	Not at all	2	10
	To open air	5	25
	To a pit	5	25
	Biogas	3	15
	Sell	2	10
	Fish feed	2	10
Biosecurity	Use in crop production	3	15
	Enclosure		
	Present	1	5
Footbath	Absent	19	95
	Present	9	45
Disinfectant spray	Absent	11	55
	Use	10	50
Visitors	Not	10	50
	Restricted	5	25
	Moderately restricted	8	40
Isolation	Allowed	7	35
	Yes	2	10
Migrating birds	Not	18	90
	Restricted	15	75
	allowed	5	25

3.4.1 Housing:

The poultry houses in the Kishoreganj district that have been found during this study are mainly made of concrete (75% of the broiler and 80% of the layer houses) and remaining are made of mud (25% of broiler and 20% of layer houses). Corrugated iron sheet made roof were found 85% cases of both broiler and layer houses, concrete roof were found 10% of broiler and 15% of layer houses. Roof made of bamboo and leaf was found in 5% cases of broiler house but not found in layer house. In most of the cases sidewall of the house consists of wire netting (95% cases in broiler and 100% cases in layer house). Only one case of broiler (5%) the sidewall consists of bamboo splint netting. (Table 4.8 and 4.9).

The poultry house floor should be made by concrete. Farooq *et al.*, (2002) showed the mortality of bird lower in concrete floor ($12.43 \pm 1.45\%$) than in those on brick and mud made floors ($14.36 \pm 1.55\%$). Farooq *et al.*, (2002) also reported that, maintenance of broiler under good hygienic conditions on well finished concrete floor, providing the required space per broiler following recommended vaccination are the key factors to reduce mortality among the broilers.

Abreu *et al.*, (2011) found no difference in live performance parameters (Live weight, Feed intake, FCR) but total mortality and sudden death were higher in bird reared on dirt floor compared to concrete floor. North and Bell, (1990) suggested a concrete or similar type of floor is mandatory. In terms of side wall, North and Bell, (1990) suggested that the side wall should remain open. The height of the opening depends on climatic condition. In present study the use of wire netting is almost similar to open side's house because of free entrance of air.

In present study there we find most of the roof of farms are made of corrugated iron sheets. These findings have similarity with Chabo *et al.*, (2000) who reported that corrugated iron sheets were the most common material used in roofing poultry house.

3.4.2 Floor management:

In current study it is revealed that in 100% cases broilers are reared in floor and 35% of the layer farm rears their bird in floor (Table 3.8 and 3.9). Ratsaka *et al.*, (2012) conducted a study to compare floor and cage rearing of broiler. Feed intake, body weight gain and FCR of the chickens in that study were not affected by the system of rearing.

About 75% of the broiler farmer use rice husk, 15% use saw dust and 10% use wood shavings these findings are found in current study (Table 3.8 and 3.9). Mizu *et al.*, (1998) reported that in

Bangladesh different types of litter such as saw dust, sugarcane bagasse, rice husk, wheat straw, sand and ash are used.

3.4.3 Feeding:

In present study it was revealed that 85% of the broiler and 20% of the layer farmer use hanging plastic feeder, 15% of both broiler and layer farmers use pot or bucket feeder and in 65% of the layer farm the feeder are attached with case (Table 3.8 and 3.9).

In terms of type of feed used 15% of the broiler farmer use self-prepared and readymade mash feed and remaining 70% use readymade pellet feed. In layer 60% farmers use readymade mash and remaining 40% use self-prepared feed (Table 3.8 and 3.9). In a study on poultry farm of Bangladesh Agricultural University, Jahan *et al.*, (2006) found the highest, intermediate and lowest body weight gain by crumble, pellet and mash feeding respectively. Mendes *et al.*, (1995) showed that, bird feed mash diet had a better feed conversion ratio (FCR) than pellet.

In current study it is found that, the broiler are maintained with ad libitum feeding whereas the amount of feed per bird per day in case of layer are categories as less than 115 gm. (25% of the farm), 115-120 gm. (60% of the farm) and more than 120 gm. (15% of the farm) (Table 3.8 and 3.9).

Elliot, (2002) reported that the amount of feed required depends on poultry breed, size and chemical composition of the ingredients used to making feed.

Mahmud *et al.*, (2008) conducted a study in which all experimental birds were fed a commercial layer ration at 110 gm. per bird per day.

3.4.4 Water management:

In this study it is found that, 85% broiler and 20% of layer farmer, 15% of both broiler and layer farmer use hanging plastic feeder and pot or bucket respectively. In 65% of the layer farms, the drinker is attached with the cage (Table 3.8 and 3.9).

The scenery of water supply is that, 40% of broiler and 30% of layer farm perform water supply manually and 60% of broiler and 70% of layer farm use pump (Table 3.8 and 3.9).

3.4.5 Waste management:

In terms of waste management there are found 15% of the broiler and 25% of the layer farmers dispose waste material (droppings and litter) to open air, 20% of broiler and 25% of layer farmers dispose to a pit, 25% of broiler and 15% of layer farmers use the litter in biogas plant, 5% of the broiler and 10% of the layer farmers sell it to the local market, 10% of the both broiler and layer farmers use as fish feed and 25% of broiler and 15% of layer farmers use to crop production (Table 3.8 and 3.9). Similar study was conducted by Sarker *et al.*, (2009) they showed that 20% of small farmer could not use their poultry litter for any particular work.

3.4.6 Biosecurity:

The Biosecurity practices of the farms involved in present study is not so good. In broiler farms there is no enclosure found, footbath present only in 10% of the farm, disinfectant spray use only 25% of the farm, in about 35% of the farm the visitors are allowed, 90% of the farm have no isolation facilities and about 35% of the farms have chance to entry of migrating bird. In layer farm these parameters are 5%, 55%, 50%, 35%, 90%, and 25% respectively (Table 3.8 and 3.9).

3.4.7 Others management practices:

About 25% of the broiler and 40% of the layer farmers manage disease by the help of veterinarians. Regular vaccination is performed in 60% of broiler and 70% of layer farms. Egg collection is manual in all of the layer farms. Fan is used in about 60% of broiler and 65% of layer farms (Table 3.8 and 3.9).

So we can conclude that the overall management practices in layer farms is somewhat improved than broiler farms.



Figure 3.4: Floor rearing of broiler.



Figure 3.5: Manually water supply by labor.



Figure 3.6: Floor rearing of layer.



Figure 3.7: Case rearing of layer.



Figure 3.9: Farmer spray on her body before entering the farm



Figure 3.10: Throwing the poultry droppings in open air.

Limitations and Recommendations of the study

4.1 Limitations:

There were some limitations in my study:

- The study period was limited and study area restricted to a particular district, for this reason the findings may not reflect the whole country.
- There was limited recording system in poultry farms under study as a result it was difficult to select valid data.
- Some of the farmers were not cooperative to give information.

4.2 Recommendations:

In the study area, a lot of problems and difficulties were found in poultry production. To overcome the difficulties of poultry rising and to make poultry production more profitable in the country as well as uplifting the socio-economic status of the farmers, the following recommendations are put forward for the improvement of existing production of poultry.

- Feed standardization and quality control act of poultry feed need to be formulated immediately.
- Regular vaccination is a prerequisite for any improvement in poultry production. Necessary steps should be taken to reduce the losses from diseases.
- The marketing system is generally informal and poorly developed in rural areas.. The existence of a local market offering good sales opportunities and adequate transportation and communication system facilities are an obvious prerequisite for development of poultry industry.
- To get rid of the problem of credit, the provision of short-term loan for chickens business Should be made with immediate effect on easy terms and conditions.
- The government and non-government organizations should play vital role in making provisions for chicken's feed in the country, so that the chickens raiser can purchase feed with reasonable price.
- In order to provide necessary veterinary services to the chickens, the government should establish new veterinary care centers with adequate veterinary technicians, field assistants and modern logistic supports.

- The treatment facilities should be extended by arranging effective disease control programs in the country.
- Availability of day old chicks should be ensured.
- Stains should be ensured to the farmers.
- Provision of financial support to the farmers.
- Farmers need to be trained on chickens health care and management and concerned local NGO can take this responsibility.
- Farmers should establish the biosecurity steps, establishment of standard for each of the steps, strictly maintaining these steps, regular correction and standardization of biosecurity steps.

CHAPTER- 5

Conclusion

Poultry farming is a great opportunity for the rural people and youth as a means of income generation. The optimum development in poultry sector may be achieved with the help of practicing proper management system. There is a wide scope for the development of poultry farming in the countrywide because rural poor people have enough time for rearing poultry. It will be really very helpful for income generation, women empowerment and filling up nutritional gap for the rural family as well as whole country. Some improvements in the status of litter management, vaccination, record keeping, drinking water and housing have been taken place in c poultry farming. Socio-economic position on subsidiary occupation, monthly household income and expenditure, cash in hand, savings with bank, household assets, number of school going children, monthly consumption of meat, eggs, vegetables, milk and fish, sources of drinking water, condition of latrines and health status of farmers were improved and the annual cost for treatment of poultry is reduced after adopting proper management system along with the close supervision of veterinarians. Since most of the people irrespective of caste and religion prefer chickens and eggs, its demand and price is increasing day by day. Most of the poultry farmers are medium farmers while some of them are landless. It is also revealed that layer farming is more profitable than broiler farming. So we may easily say that farmers can adapt layer farming for maximum profit as long term business. In context of the present study we may say that with the help of hygienic management system overall socio-economic improvements are achieved easily and quite rapidly. As a result, Now-a-days tendency to initiate poultry farming with proper management system is increasing day by day which is observed in rural areas for making the maximum level of profit.

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Appendix

Questionnaire for data collection on “Farmers’ Socioeconomic status and common management practices in poultry farming at a selected area in Bangladesh.

Farm identity no: **Date:**

Name of the farm:

Address:

Name of the farm owner & address:

.....

Type of farm: Broiler/Layer **Number of bird:**.....

Farmer’s information:

Educational level: **Level of knowledge:**..... **Managerial skill:**

Source of investment : own fund/ loan/ both . **Other occupation:**.....

Main occupation: yes/ not . **Amount of land:** acre. **Training:** Taken/ Not taken

Family Information

Type of family: **Family member no:**

Table: Information of family members.

Family members	Educational status	Occupation	Income/ year (Tk.)
1			
2			
3			
4			

Source of drinking water: **Latrine condition:**

Health status of the farmer:

Information of income and expenditure of the farm:

Annual egg production: **Annual meat production:**kg

Feed cost/year:Tk. **Housing cost/year:** Tk.

Equipment cost/year:Tk. **Labor cost/year:** Tk. **Total cost:**Tk.

Income from egg / year:.....Tk. **Income from selling of bird/year:**.....Tk.

Net income:Tk. **If have loan the amount:**.....Tk.

Management

Housing: Floor **Roof:**..... **Sidewall:**.....

Rearing in : Case / floor **Litter material:**

Feeder type:

Drinker type : **Feed:** **Frequency of feeding:** times in a day

Amount of feeding : gm/ adlibitum **Water supply by :** Manual/ pump .

Use of fan: yes/ not **Use of nest:** yes/not. **Egg collection:** Manual/ automatic machine.

Litter change: times in a momth. **Waste dispose:** To a pit/ open air/ to biogas plant.

Disease management: own effort/ quack/by vet/all **Vaccination:** Regular/ Irregular/ not.

Bio-security:

Enclosure: Present/ Absent **Footbath:** Present/Absent **Disinfectant spray:** Use/no

Visitors: Strictly restricted/Moderate restricted/Allowed **Isolation of diseased bird:** yes/no

Entry of migrating bird: Restricted/ Allowed.

Signature of interviewer:

ACKNOWLEDGEMENT

At first I am really thankful to almighty GOD who has given me strength and opportunity to complete the report – Occurrence of ND and IBD and observing post mortem lesions in Kishoreganj district of Bangladesh.

Completion of any work or responsibility gives nice feelings but the accomplishment of this work as the partial fulfillment of the requirements for the degree of Doctor of Veterinary Medicine(DVM) in (CVASU), not only has given me the pleasure but also has given me the confidence to move ahead and showed me a new opening to knowledge. Standing at this opening, it is an honor to revoke the names of the person and the organization I am grateful to.

I would like to extend my gratitude to my supervisor Mr. Sohel Rana, Assistant Professor, Department of Agricultural Economics and Social Science, CVASU. My heartfelt thanks to him for his support and creative directions. I had autonomy to decide my ways with the progress under his persistent feedback.

Special thanks to Dr. Mohammad Ali, District Livestock Officer, Kishoreganj and Dr. Bahadur Ali, Veterinary Surgeon, District Veterinary Hospital, Kishoreganj for their cordial cooperation at the time of conducting the research work.

The author highly expresses his sincere gratitude and gratefulness to Dr. A.K.M. Saifuddin, Director of External Affairs, CVASU.

Finally the author expresses his good wishes and warmest sense of gratitude to all his friends and families.

.....
The Author

Biography

Myself AUMIT DAS, the author of this report would like to introduce as Intern DR of CHITTAGONG VETERINARY and ANIMAL SCIENCES UNIVERSITY (CVASU) have passed four years of academic career in faculty of veterinary medicine and attended several meetings related with veterinary medicine in Bangladesh and India. I have passed my Secondary School Certificate (SSC) from Dhaka Board in 2008 (G.P.A-5.00) and Higher Secondary Certificate (HSC) also from Dhaka Board in 2010 (G.P.A-5.00). As a student of veterinary medicine, the main mission and vision of my life is to do something better like a creative job or any other research work by dint of my academic knowledge and experience for the development of livestock as well as the development of the economic condition of our country. I strongly assure that I have done all the works furnished here in this report and I hold the entire responsibility of the information given here which are collected from different books, journals and websites.