CHAPTER- 4

Results and discussion

4.1 General description of the farm

The analysis of different parameters **(Table 4.1)** revealed that the mean farm size (Number of bird), number of family member, No. (Number) of educated person per farmer family and amount of land per farmer were 4336.84±541.99, 6.16±0.47, 1.26±0.23 and 3.51±0.4 with range (Min-Max); 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; (Min-Max) 1200-1000, 3-7, 0-3 and 0.45-6.3 respectively in layer farms. There were found no statistically significance difference ($p > 0.05$) between the broiler and layer farms in terms of farm size (Number of bird) (P=0.41) , number of educated person per farmer family (P=0.74) and amount of land per farmer (P=0.36) at 5% level of significance. But there were found statistically significance difference($P < 0.05$) in Number of family member (P=0.02) between broiler and layer farmers in 5% level of significance.

Table 4.1: Analysis of different parameters related to farms and farm owners.(N=40)

Parameters	**Broiler farm**		**Layer farm**		**P-value**
	Mean± SE	**Range (Min-Max)**	**Mean± SE**	**Range (Min-Max)**	
Farm size (Number of bird)	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 person per farmer family	1.26±0.23	0-3	1.37±0.21	0-3	0.74
Amount of land per farmer	3.51±0.4	0.2-5.6	4.1±0.45	0.45-6.3	0.36

Source: Field survey, July-September, 2012.

4.2. Socio-economic condition of the farmers

Different factors associated with socio-economic condition of the farmers of Gazipur district are listed in **Table 4.2** and specific findings of the study also describe below:

Table 4.2: Factors associated with socio-economic condition of the farmers of Gazipur district.(N=40)

Variables	**Categoris**	**No. of farm/Farm owner**	**Percentage (%) of total farmers**
Type of farmer	Landless (0.00-0.50 acre)	2	5
	Marginal (0.51-1.24 acre)	3	7.5
	Small (1.25-2.47 acre)	5	12.5
	Medium (2.48-4.94 acre)	13	32.5
	Large (≥ 4.95 acre)	17	42.5
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	Taken	11	27.5
	Not taken	29	72.5
Type of family	Single	19	47.5
	Joint	21	52.5
Farming main occupation	Yes	22	55
	not	18	45
Amount of loan (Tk.)	No loan	20	50
	<100000	5	12.5
	100000 - 500000	9	22.5
	> 500000	6	15
Level of knowledge	High	5	12.5
	Medium	10	25
	Poor	25	62.5
Level of managemental skill	High	15	37.5
	Medium	15	37.5
	Poor	10	25

Source: Field survey, July-September, 2012.

4.2.1 Socio-economic status in terms of land

About 42.5% large, 32.5% medium, 12.5% small, 7.5% marginal and 5% landless farmers were involved in farming in Kaligonj upazila of gazipur district **(Table 4.1).** 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 are small categories (Having 6-49 decimal land).

4.2.2 Sources of investment of the farmer

The present study shows that, 57.5% farmer invest their own money in farming and 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 distict.

4.2.3 Size of the farm

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

4.2.4 Training

About 27.5 % of the farmer had taken training of farming and left 72.5% did not take any training at all about poultry farming. It was enumerated that 16.5 % of the poultry farmer had take training in any times of his farming life **(BBS, 2011).**

4.2.5 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% , it is subsidiary occupation. **Mazumder *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 in my study but **Mazumder *et al*.,(2009)** did not consider layer farmers.

4.2.6 Loan

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

4.2.7 Level of knowledge and managemental skill

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

4.2.8 Literacy level of the farmers

The literacy level of the farmers have been grouped into five educational group according to **Sumy *et al.* (2010).** The **Table 4.3** shows the literacy level of the farmers. There were found 15% illiterate, 20% class I-V, 35% class VI-VIII, 20% class VIII- X and remaining 10% are SSC/above. These findings are agreement more or less with **Sumy *et al*. (2010)** that were in a study on backyard chicken owners.

Table 4.3: Literacy level of the farmers (N=40)

Literacy levels Farmers	No. of farmers	Percentage (%)
Illiterate	6	15
Class (I - V)	8	20
Class (VI - VIII)	14	35
Class (VIII - X)	8	20
SSC/ Above	4	10
Total	40	100

Source: Field survey, July-September, 2012.

4.2.9 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 were found (**Table 4.4**) 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 agreement with **Mazumdar *et al.* (2009)** they also find more or less similar findings.

Table 4.4: Distribution of children of farm owner by institute. (N=40)

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

Source: Field survey, July-September, 2012.

4.2.10 Sources of drinking water and latrine condition

In present study it was 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 well (**Table 4.5**). The shearing of tube well is restricted to some drought months only.

Table 4.5: Sources of drinking water and condition of latrines. (N=40)

Particulars	No. of farmer	Percentage (%) of the total farmers
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		
Katcha	0	0
Semi-sanitary	10	25
Sanitary	27	67.5

Source: Field survey, July-September, 2012.

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

4.2.11 Health statuses of the farmers

In terms of health status there revealed that about 30% of the farmers had good health, 47.5% and 22.5% had moderate and poor health respectively. The health statuses of the farmers are shown in **figure 4.1.**

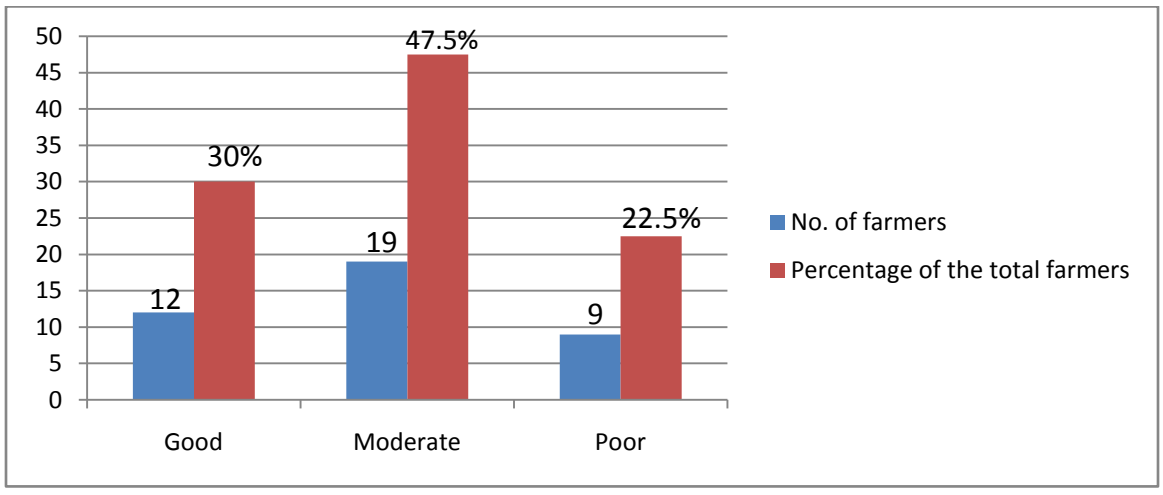

Figure 4.1: Health statuses of the farmers.

4.3 Economic analysis

4.3.1 Per bird annual gross cost (Average)

Per bird average annual gross cost for rearing of broiler and layer are 925.5 Tk. and 1332.5 Tk. respectively (**Table 4.6**).

Table 4.6: Per bird annual gross cost (Average)

	Broiler			**Layer**		
Item	**Per bird cost in one batch**		**Total cost (Tk.)**	**Per bird annual cost**		**Total cost (Tk.)**
	Gross Cost (Tk.)	**Depreciation cost (Tk.)**		**Gross cost (Tk.)**	**Depreciation cost (Tk.)**	
DOC cost	45	-	55	50	-	50
Feed cost	81	-	81	1259		1259
Labor cost	8	-	8	10		10
Medication cost	8	-	8	10		10
Housing cost	-	2	2		3	3
Equipment cost	-	0.25	0.25		0.5	0.5
Total net cost	142	2.25	154.25	1329	3.5	1332.5
Total net cost for 6 batch in a year:154.25*6= 925.5						

Source: Field survey, July- September, 2013.

3.3.2 Per bird annual gross return (Average)

Per bird gross return of broiler and layer are shown in the **Table 4.7**. Per bird gross return of broiler and layer are Tk. 1080 and Tk. 2210 respectively which is higher than per bird net cost.

Table 4.7: Per bird annual gross return (Average)

Items	**Per bird return (Broiler)**	**Per bird return (Layer)**
Selling of bird (broiler/spend hen)	1080	180
Selling of eggs	-	2030
Total return	1080	2210
Per bird annual BCR(Annual per bird total return÷ Annual per bird total net cost)	1.17	1.66

Source: Field survey, July-September, 2012.

4.3.3 Benefit Cost Ratio

The BCR is shown in table .The result of BCR (Benefit Cost Ratio) is 1.17 in broiler and 1.66 in layer. The BCR is higher in layer farming, so layer farming is more profitable.

4.4 Common management Practices in poultry farm

Table: 4.8: Management of broiler farm in selected area of Gazipur district.

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

Source: Field survey, July- September, 2012

Table 4.9: Management of layer farms in sof Gazipur district.

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 case	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
	All	4	20
Vaccination	Regular	14	70
	Irregular	4	20
	Not at all	2	10
Waste disposal (litter material)	To open air	5	25
	To a pit	5	25
	Biogas	3	15
	Sell	2	10
	Fish feed	2	10
	Use in crop production	3	15
Biosecurity			
Enclosure	Present	1	5
	Absent	19	95
Footbath	Present	9	45
	Absent	11	55
Disinfectant spray	Use	10	50
	Not	10	50
Visitors	Restricted	5	25
	Moderately restricted	8	40
	Allowed	7	35
Isolation	Yes	2	10
	Not	18	90
Migrating birds	Restricted	15	75
	allowed	5	25

Source: Field survey, July-September, 2012.

4.4.1 Housing

The poultry houses in the Gazipur district, that are found in 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 were 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 4.9 and 4.10).**

The poultry house floor should made by concrete. **Farooq *et al*. (2002)** showed the mortality of bird lower in concrete floor (12.43±1.45%) than in those on brick+mud made floors (14.36±1.55%). **Farooq *et al*. (2002)** also reported that, maintenance of broiler under good hygiene 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. For broiler 1/2 to 2/3 of each side should keep open. In present study the use of wire netting is more or less similar as open sides house because of free access of air.

In present study there were found most of the roof of farm made of corrugated iron sheets. This findings have similarity with **Chabo *et al.* (2000)** who reported that the most common material used in roofing poultry house is corrugated iron sheets.

4.4.2 Floor management

In current study it was revealed that in 100% cases broilers are reared in floor and 35% of the layer farm rear their bird in floor **(Table 4.9 and 4.10). Ratsaka *et al.* (2012)** conducted a study to compare floor and case 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 4.9 and 4.10). Mizu *et al.* (1998)** reported that in Bangladesh different types of litter such as saw dust, sugarcane bagasses, rice husk, wheat straw, sand and ash are used.

4.4.3 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 farmer use pot / bucket feeder and in 65% of the layer farm the feeder are attached with case **(Table 4.9 and 4.10).**

In terms of type of feed used, 15% of the broiler farmer used self prepared and readymade mash feed and remaining 70% use readymade pellet feed. In layer none of the farmer use readymade pellet but, 60% use readymade mash and remaining 40% use self prepared feed **(Table 4.9 and 4.10). Jahan *et al.* (2006)** in a study on poultry farm of Bangladesh Agricultural University, 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 was found that, the broiler are maintained with adlibitum feeding where as 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 4.9 and 4.10).**

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 study in which all experimental birds were fed a commercial layer ration @ 110 gm per bird per day.

4.4.4 Water management

In this study it was found that, 85% and 20% of layer farmer, 15% of both broiler and layer farmer use hanging plastic feeder and pot/bucket respectively. In 65% of the layer farms, the drinker is attached with the case **(Table 4.9 and 4.10).**

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 4.9 and 4.10).**

4.4.5 Waste management

In terms of waste management there were found 15% of the broiler and 25% of the layer farmer dispose waste material (droppings and litter) to open air, 20% of broiler and 25% of layer farmer dispose to a pit, 25% of broiler and 15% of layer farmer used the litter in biogas plant, 5% of the broiler and 10% of the layer farmer sell to the market, 10% of the both broiler and layer farmer use as fish feed and 25% of broiler and 15% of layer farmer use to crop production **(Table 4.9**

and 4.10). 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.

4.4.6 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 have chance to entry of migrating bird. In layer farm these parameters are 5%, 55%, 50%, 35%, 90%, and 25% respectively. **(Table 4.9 and 4.10).**

4.4.7 Others managemental practices

About 25% of the broiler and 40% of the layer farmer manage disease by the help of vets. 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 farm **(Table 4.9 and 4.10).**

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

a. Floor rearing of broiler.

b. Manually water supply by labor.

c. Floor rearing of layer.

d. Case rearing of layer.

e. Farmer spray on her body before entering the farm.

f. Throwing the poultry droppings in open air.

Figure 4.2: Activities in the poultry farm of Gazipur district.