

**PRESENT STATUS OF BROILER FARMING IN  
SELECTED AREAS OF DINAJPUR DISTRICT**

A THESIS

BY

**MD. ABDUL MOMIN**

REGISTRATION NO.: 1205107

SESSION: 2012-2013

SEMESTER: JANUARY-JUNE, 2014

**MASTER OF SCIENCE (M.S.)**

**IN**

**POULTRY SCIENCE**



**DEPARTMENT OF DAIRY AND POULTRY SCIENCE  
HAJEE MOHAMMAD DANESH SCIENCE AND TECHNOLOGY  
UNIVERSITY, DINAJPUR**

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## ABSTRACT

The study was conducted to find out the socio-economic status of farmers and prospect of broiler farming. Seventy five farmers who reared broilers were selected randomly from Sadar, Birol and Chiribondor Upazila at Dinajpur district. Twenty one (21) variables such as age, education, land size, poultry farm size, total income, occupation, counselling, vaccination, training, strain, source of chick, price of day old chick, feed price, use of feed, market age, market weight, market price, batch per year, annual income from broiler, capital and feed conversion ratio were considered. Correlation coefficient were find out between age and education, land and education, education and capital, total income and batch per year, total income and income from broiler, capital and income from broiler, capital and broiler farm size, feed price and no. of bird, education level and income from broiler, income from broiler and batch per year. Significant positive correlations were found in the case of total income and batch per year, total income and income from broiler, capital and income from broiler, capital and broiler farm size, income from broiler and batch per year. Other variables were insignificant. In case of social characteristics like age, total annual income and land size, the mean and standard deviation were  $36.28 \pm 9.28$ ,  $143000 \pm 71352.76$  and  $15.82 \pm 12.88$ , respectively. About 62.67% low income level farmers were involved in broiler farming. As high as 45.33% farmers were educated up to secondary level and next to 41.33% were in case of above secondary level. The average bird number of the farms was 860.93 and 64% farms were small category. In case of main occupation of the broiler farmer 40% were involved in agriculture & 20% were in poultry farming. About 24% farmers visited technical graduates for taking their counselling, 65.33% farmers vaccinated their birds regularly and 45.33% of the broiler farmers had taken training on broiler rearing. Among several broiler strains in the Bangladesh, as high as 33.33% farmer were rearing Cobb-500 strain. The price of Day Old Chick and feed were  $36.15 \pm 6.28$ /chick and  $43.05 \pm 9.43$ /kg respectively. The market ages, weight and price were  $32.68 \pm 2.25$ ,  $1.57 \pm 0.106$  and Tk  $123.64 \pm 5.15$  respectively. So, it can be concluded that educated and low income level peoples from different occupational background practice the broiler enterprises as a main or additional source of income.

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## LIST OF ABBREVIATIONS

| <b>ABBREVIATIONS</b> | <b>ELABORATIONS</b>             |
|----------------------|---------------------------------|
| FCR                  | Feed Conversion Ratio           |
| MS                   | Master of Science               |
| NS                   | Not significant                 |
| BBS                  | Bangladesh Bureau of Statistics |
| ULO                  | Upazila Livestock Office        |
| Kg                   | Kilogram                        |
| No.                  | Number                          |
| r                    | Correlation co-efficient        |
| Sl. NO.              | Serial Number                   |
| Tk.                  | Taka                            |
| CRD                  | Chronic Respiratory Disease     |
| DOC                  | Day Old Chick                   |
| %                    | Percentage                      |

## CHAPTER I

### INTRODUCTION

In respect of nutrition, poultry meat is an excellent source of high quality proteins, fat, minerals and vitamins to balance the human diet. Broilers are now available with the traits of quick growth and high feed conversion efficiency. Broiler farming has already become a prime source of animal protein, source of family income, and gainful employment opportunity to farmers throughout the year. Poultry manure has of high fertilizer value which can be used for increasing yield of all crops. The advantages of broiler farming are (1) initial investment is a little lower than layer farming, (2) rearing period is short, 28-32 days only, (3) good number of flocks can be taken in the same shed, (4) having high feed conversion efficiency, (5) faster return from the investment and (6) poultry meat is higher as compared to red meat.

Poultry provides an immense supply of food for the world's population. All over the world, poultry meat and egg are preferred to other kinds of animal food products for the variety of reasons. It is estimated that almost 25% of the world's meat supply is derived from poultry (i.e. Chicken, Turkey, Duck, Geese, domesticated Quail etc.) and the overall production is increasing steadily. The trend has been more noticeable in developing countries (Prabhakaran, 2003).

Poultry plays a vital role in the agricultural economy of Bangladesh. It is recognized that the climatic condition of Bangladesh is congenial for poultry rearing. Bangladesh is one of the densely populated countries in the world. According to Statistical Pocket book of year 2001 Bangladesh has an area of 147570 sq. km with population of 1,310 million with an annual growth rate of about 1.47%. Land the major resource for the rural economy, which gradually disappearing and fragmenting due to population multiplication. Continuous mounting of population not only affecting the pressure for grain production on land based agricultural system but also reducing the area of cultivable land, resulting poverty in the rural areas. For limited availability of grazing land, the scope for development of industries of large animal is limited. Therefore, small-scale poultry farming can significantly contribute in earning cash within shortest possible time with minimum affecting the cultivable land. Poultry has been recognized as a major enterprise under the self-employment scheme in this country. The densities of poultry are very high in Bangladesh

compared to many other countries in the world. In spite of the high densities country suffer from an acute shortage of animal protein due to lower average production/unit. Poultry sector as an important sector in Bangladesh to bridge the said gap at a faster rate than any other sectors.

Backyard-reared poultry or rural poultry alone cannot meet the demand, and commercial poultry production has become the order of the day. Advances made in poultry breeding, feed and feed processing, poultry nutrition, housing, management and disease control techniques have resulted in improved productivity and profitability in poultry rearing. Commercial poultry production has finally become established and broiler is an important parts of commercial poultry enterprise.

People from different corners practicing overconfidently to make the broiler business as a profitable enterprise. Commercial broiler farming is playing an important role in employment generation and poverty alleviation in the rural areas. It has been using as an important tools for protecting the migration of rural poor to the urban area. Poultry sector is an important sector in Bangladesh to meet up the protein requirements of the people through meat and egg production. Hoffman and Gwin (1954) stated that the chicken meats are an excellent source of essential amino acids for human being. Recent studies (Anonymous, 1998) indicated that about 10% people in Bangladesh are normal and 47, 3 and 4.3% people are suffering from mild moderate and severe malnutrition respectively. According to Anonymous (1995), 36g animal protein is required per person per day but we are getting only 9.56g. This has resulted malnutrition in Bangladesh (Ahmed and Islam, 1990). Broiler meat can efficiently and rapidly fulfill the shortage of protein requirement, since it can be produced at a shortest possible time as compared to other meat-producing animals. To reduce the gap between demand and supply of animal protein, poultry can play an important role. According to BBS (2001) poultry meat alone contribute 29% of the total meat production of the country. Poultry contributes approximately 37% of total animal protein supplied in Bangladesh (Ahmed and Islam, 1990). Bangladesh has a great prospect for rising broilers. Broiler production reveals the fact of minimum expense with maximum return. Small area of available land can be well utilized for commercial broiler farming in densely populated country like Bangladesh (Sarker *et al.*, 2001).

Acceptance into the human diet of poultry meat on a wider scale, have set a tremendous pace in the growth of the poultry industry which is the fore runner of other agro-based industries.

However, the profitability in commercial broiler production depends not only on efficient production, but also on successful marketing of the products. Anyone wishing to attempt commercial broiler production should apart from mastering the techniques of broiler production, at first-hand the marketability of the product in his region or elsewhere to ensure a reasonable profit margin. Production techniques include proper planning when selecting the location and lay-out, proper designing of broiler houses, arranging quality inputs like chicks and feed, adopting appropriate rearing techniques and taking adequate disease-control measures to ensure high efficiency and productivity. Profitability in broiler production also involves proper assessment of demand, planning the size of the activity, possible integration of activities to bring down the cost of production, thorough costing of production activities, foresight into market price situations, and prudent assessment of cost-benefits and the rate of returns in the activity. These situations vary from country to country and even between regions of a country. So, there is a requirement for sufficient statistical data and analysis of those data to understand farming situation of a certain area particularly from the point of farmer's views, which are the key sustainability of broiler industry. In the developing world, a rural poultry farmer is often engaged in mixed farming practices and poultry is an important source of income, employment and organic manure. The farming takes several diversified forms and productivity depends upon land, human resources and skills, infrastructure and capital. Social, economic and political situations also play a significant role. All these factors need to be considered while planning sustainable rural poultry projects. National resources cannot be utilized properly if there have not been much knowledge about the farmers. To explore the insight of the broiler farming of a particular area of the country, farmer's socio-economic status under natural condition is very much important.

To fulfill the said requirement, the present research work was undertaken with the following objectives:

1. To identify the socio-economic status of farmer and prospect of broiler farming at a particular area of Bangladesh
2. To observe the existing broiler farming status
3. To identify the problems and solution of broiler farming
4. To recommend the scope of sustainability of broiler farming in the area

## CHAPTER II

### REVIEW OF LITERATURE

Aganga *et al.* (2000) conducted study to evaluate the production potential of 25 randomly selected, commercial small-scale broiler farms in the Southern region of Botswana. Data were obtained using a structured questionnaire, interviews and direct observations of the birds and their management; all the farmers practical intensive housing on deep litter. The number and size of the poultry houses ranged from one to eight, with floor area of less than 100m<sup>2</sup> to 1,000m<sup>2</sup>. Numbers of chickens in each batch ranged from less than 1000 to 10,000 with about 4 batches in a year. The broiler strains were Ross hybrid, Indian River and Cobb with 56% of the farmers keeping Ross hybrid. Various heating methods were used for brooding with more than 40% using gas as a source of heat. Vaccinations for either gumboro or Newcastle were used by 76% of the farmers. Feed was provided adlibitum. Small-scale broiler farming is on the increase in the Southern Region of Botswana because the majority of the farmers interviewed (75%) started production in the last five years. Production capacity ranged from a few hundreds to 10,000 broiler chickens. One of the major constraints faced by respondent broiler farmers was capital. This study shows that broiler production is a good alternative for smallholders, which can help to alleviate poverty and generate income for the families.

Alam (1997) conducted a study in 4 districts of Bangladesh to evaluate the impact of interventions made by the Smallholder Livestock Development Project (SLDP) on socio-economic conditions of the poor people in rural Bangladesh. One thousand sample households from different types of beneficiary groups were interviewed. It was observed that the membership of the project has consisted of poor and disadvantaged women as defined in the eligibility criterion. The programme has pioneered a number of innovations related to poultry production and provided credit to group members for their adoption and income generation. This has ensured employment of poor women and generated income for them. The total net income per household was Taka 398 (1 US \$ = Taka 43.8) and the average net income per household from SLDP activities was Taka 140 per week. The SLDP income was 35.6 percent of total income of beneficiary households in the study areas. With the increase in income, originating mainly from SLDP activities the beneficiary households made substantial progress in savings. The total cumulative savings per beneficiary after membership was Taka 1181, which was made by Taka 413 from group savings and Taka

768 from own savings. At the same time, the consumption of all for all items especially milk, meat, eggs and grains increased after membership of SLDP. The project has ensured empowerment of women in study areas and increased their participation in decision making. All out all beneficiaries reported that their socio-economic status has improved after their membership in SLDP and 100 per cent of the beneficiaries wanted to continue as members of SLDP in future.

Bhattu *et al.* (1998) reported about the farm size structure and socio economic parameters of broiler farms in three districts of Haryana, India (Hisar, Gurgaon, and Yamunanagar). Results cover: farm size (number of birds), age, educational status, land holding, total monthly income, and ownership of farm. The data were obtained from 100 farms in each district [year not given].

Bhattu *et al.* (1999) conducted a study to find out the impact of farm size (number of birds), educational status and land holding on the adoption of broiler farming in Haryana, India. Three districts, viz. Hisar, Gurgaonand, Yamunanagar, were selected from different climatic zones of Haryana. Majority (78.67%) of the farmers started broiler farming to get additional income. Educational status had a slightly significant association with adoption of broiler farming. Highly educated farmers made greater use of knowledge acquisition and communication sources. Overall, 88.67% of the farmers acquired the latest knowledge through neighbors, progressive farmers, friends and relatives. Land holding had no significant association with knowledge acquisition and communication source. Small and medium sized land holders (up to 10 acres) adopted broiler farming with a greater frequency (85.33%).

Choudhury *et al.* (1998) recorded the Performance of 1227 Hubbard, B-77 and Vencobb chicks on 5 farms on the Andaman and Nicobar Islands. Chicks were reared in a deep litter system. Hubbard birds reached marketable weight (1.5 kg) at an earlier age (44-46 days) than B-77 and Vencobb birds (52-55 and 52 days respectively). Profit ranged from Rs 16.7 to Rs 38.3 per bird, Vencobb birds being the most profitable.

Ershad *et al.* (2004) conducted a study in Jessore District of Bangladesh to observe the efficiency of trained farmers as compared to farmers without training on the production performances of broilers as well as the net profit from broiler production. Three categories of farmers were considered in the present study, viz., Certificate on Livestock and Poultry



(CLP) trained farmers, this category of farmers had 6 months long training on livestock and poultry production, Youth Training Center (YTC) trained farmers, this category of farmer had 3 months long training on livestock and poultry production and General farmers this category of farmers had no formal training on broiler production. The production parameters considered in the study were live weight gain (kgbird<sup>-1</sup>), feed consumption (kg/bird), feed conversion ratio (FCR) and mortality (%). The overall production performances and net profit was found better in both of the trained farmer's categories compared to general farmers. Therefore, it can be recommended that the training of farmers is obvious for efficient and profitable broiler production in the country.

Jabber and Green (1983) observed that in Bangladesh Poultry meat has a great demand because of the limitation and religion taboos on Pork and beef in the market.

Kamruzzaman *et al.* (1999) examined the study on production practices of 30 broiler farms in Gazipur, Bangladesh in 1997 and analyzed productivity, profitability and variability in supply. For measuring productivity, a stochastic moment based production function was estimated following the generalized method of moment procedure. It was found that the variable inputs of production like chicks, feed and electricity were positively contributing to output, but age, education of producers, medicine and vaccine supply were negatively contributing to the mean production of broilers. Age and education of producers, chick cost, medicine and vaccines were found to reduce the variability in production and positively contribute to sustainable broiler production. Feed cost and electricity were adversely affecting the sustainability of broiler production. The total cost of broiler production for 100 birds was Tk. 5851.81 on a cash cost basis and on anon-cash cost basis it was Tk. 5277.31. The returns to broiler production were estimated at Tk. 7248.80 per 100 birds. It was found that seasonal variability in supply, demand and prices of broilers exists and that the broiler producers were severely affected by the downward swing of price fluctuations.

Kanwar *et al.* (2000) reviewed under the following sections: introduction; broiler chicken management; brooding management (litter, brooding temperature, ventilation, sanitation and hygiene, feeding); control of diseases; and economics of broiler farming. It is concluded that broiler farming is highly profitable, and that it can be a subsidiary source of employment and income in Ladakh region (India).

Karim (2001) conducted a study on economic analysis of broiler enterprise under contract farming system in an area of Bangladesh. For the study, the area selected was Bajitpur Upazila of Kishoreganj district. The study showed total cost per bird were estimated at Tk. 78.43 for small farms, Tk. 78.51 for medium farms Tk.78.32 for large farms and Tk. 78.31 for all broiler farms. Variable costs per bird were Tk. 71.33 for small farms and Tk. 71.81 for medium farms and Tk. 71.98 for large farms and Tk.71.75 for all farms. Average amount of gross return per bird stood at Tk. 89.21, Tk.89.40, Tk.90.71 and Tk.89.87 for small, medium, large and all broiler farms, respectively. It may be seen that the variation in return for different farm categories was very insignificant. This of course is expected under contract farming system. The findings of the study also showed that the broiler farms contributed significantly to the creation of self employment in the study area. The study showed that broiler farming is playing a crucial role in creating employment in the rural and semi-urban areas of Bangladesh.

Khan *et al.* (2004) undertook a study to investigate the economic status of 83 broiler farms in Chakwal, Punjab, Pakistan during the year 1998-99. Average variable cost, gross return and net profit per broiler was Rs.  $63.42 \pm 1.97$ , Rs. $77.16 \pm 1.61$  and Rs.  $13.74 \pm 2.29$ , respectively. Average turnover rate of net profit on the invested capital per flock and on an annual basis was  $74.17 \pm 2.36$  and  $127.70 \pm 13.90\%$ , respectively. Flock size, number of flocks per year, and broiler's age at the time of marketing did not affect cost of production and net profit per broiler.

Kingston (1999) reported an overview-of the current situation of the South African broiler industry is presented. Particular reference is made to problems currently facing the sector. Topics covered include volume of production, international trade and tariffs, detection of illegal imports, production costs, and sanitary equality in international trade.

Kristopanidis *et al.* (1996) studied the effect of the most important factors on the profitability for the poultry farming in Greece. The most important factors for poultry production were mortality and age of final live weight (FLW) of broilers, because they affected the total feed consumed and the total FLW of broiler achieved. Analysis of these factors showed that an increase of mortality from 2.5 to 10.0 per cent and the age of FLW of broiler from 53 to 62 days led to a decrease in the profitability by 96.70% and 77.10% respectively.

Miah (1990) conducted a study on small scale poultry farms in Savar areas. The purpose of the study was to gain information about the profitability of small scale commercial poultry farming. The average numbers of birds in small and medium farms were 589 and 3139 respectively. The average annual costs per small and medium farms were Taka 135,788.00 and 567,304.00 respectively. The small and medium farms on an average annually earned Tk. 30779.00 and Tk. 448,0302.00 respectively. He found that the profitability of small scale commercial poultry farms. The study also revealed that profitability of poultry farming depends on the size of individual farms.

Oswin (2001) conducted a study to find out high socio-economic and nutritional factors of poultry (broilers) farming affect the small scale farmers. A questionnaire survey was used to connect information about the social and economic aspects of broiler production and an experiment on the substitution of maize by sorghum in broilers was the nutritional part. The study revealed that small-scale broiler farming is on the increase. Average household size was 5.56 and consisted of 54% women. The majority of the farmers keep between 50 and 500 birds per batch and rear 6-7 batches per year. The major constraints faced by respondent broiler farmer's were cost of stock-feeds, market for their broiler and lack of credit facilities. Cost benefit analysis of the broiler farms shows that, the enterprise is still very profitable. The net income per bird ranged between ZK2, 300 and ZK4, 043.33. On his study shows that broiler production is a good venture for smallholders, which can help to generate income for the families and improve their standard of living.

Paul *et al.* (2004) to assess the effect of existing and imposed vaccination program on body weight in broiler under farm condition in Bangladesh an experiment was conducted from August to September 2003. Seven different broiler farms in the Sherpur District were taken dividing the farms into two groups. Group I: for existing vaccination and Group II: for imposed vaccination. From all the farms blood samples were collected before vaccination to check maternal antibody level. Infected as well as dead birds were undergone through necropsy examination properly in spot as well as BLRI, Savar, Dhaka. The present study revealed that the birds survived the diseases lost ranges from 1190-1320g (Group I) than those did not face Gumboro 1585-1620g (Group II). Thus, there is a significant variation in body weight in Gumboro affected broilers due to existing and imposed vaccination program under farm condition.

Perry (1999) provides a comprehensive view of the organization, management, and financial performance of US broiler farms. Using data from the US Department of Agriculture's Agricultural Resource Management study (ARMS, formerly known as Farm Costs and Returns Survey), the paper examines farm size, financial structure, household income, management practices, and spousal participation in decision making. It compares broiler operations with other farming enterprises and their earnings with that of the average US household.

Punia *et al.* (1981) reported that poultry development program in the state; Haryana is hardly a decade old. Majority of the big commercial farm is located in urban centers or in semi-urban areas in the state. The emphasis laid in popularizing this enterprise in rural areas has been negligible. It is not only the government efforts which may hold responsible to some extent for slower rate of growth, but there are many other retarding factors like food habits of people, religious belief, values, education, innovations and entrepreneurs, economic viability of the enterprise, technical guidance and skill etc.

Rahman *et al.* (2003) investigated production performance of two broilers strains (Starbro and Hubbard) was investigated in three different season of the year under rural condition of Bangladesh. Both strains reared separately from day old chick to 31 days of age during winter, summer and rainy season (October 2001 to September 2002). Each season was treated was with 2 batches, each of 50 birds as replicates within the treatment. The marketing age in days of Starbro was  $30.00 \pm 0.20$ ,  $32.00 \pm 0.04$ , and  $31.00 \pm 1.80$  and in the case of Hubbard strain it was  $30.00 \pm 0.13$ ,  $29.00 \pm 0.10$ , and  $29.00 \pm 0.51$  in winter, summer and rainy season respectively. They also found market price per kg live weight in taka  $55.00 \pm 1.21$ ,  $56.00 \pm 1.01$ ,  $50.00 \pm 1.41$  in the case of Starbro and incase of Hubbard strain these were  $55.00 \pm 0.38$ ,  $56.00 \pm 0.36$  and  $50.00 \pm 1.20$  in winter, summer and rainy season respectively, the cost of production per kg live weight in taka were for Starbro  $40.95 \pm 2.71$ ,  $45.57 \pm 2.20$ ,  $45.26 \pm 1.39$  and for Hubbard strain  $45.32 \pm 3.41$ ,  $46.74 \pm 3.14$ ,  $42.19 \pm 2.69$  in winter, summer and rainy season respectively. They concluded that Hubbard strains are superior to Starbro and could be grown profitably and uniformly under rural environment in Bangladesh.

Rahman *et al.* (2002) conducted a study on the scientific knowledge and management skill in commercial broiler farming 140 farmers at 6 Thana's of Rajshahi district. In this study he found 45.3% large, 30.7% medium, 12.7% small, 7% marginal and 4.5% landless farmers

were involved in commercial broiler farming. The educational level of the farmer were 47.30% had above secondary, 36% had secondary 2.2% had primary and rest 4.5% had no education qualification. They also found that in case of feed use self-preparation and readymade feed were 60% and 40% respectively, 70% farmers vaccinate their bird regularly and 30% farmer were irregular. 80.7% farmers use deep litter with saw dust or rice husk and 19.3% used slate system. About 54.5% did not have any training on broiler farming, whereas 45.5% farmers had taken their training on broiler farming.

Richetti *et al.* (2002) gave an account of the Capo Bonito poultry breeding settlement in Mato Grosso in Brazil, which has an area of around 2600 hectares. There are 133 small farms in the area, rearing a total of 2763 000 broilers per year. Each farm is capable of housing 14000 broilers per year. The average age of farmers is 46 years, and of these, 44% are illiterate, 44% did not finish primary school education and only 12% completed secondary school education. Details are given of broiler housing, hygiene and management. For an unspecified number of farms in the Capo Bonito settlement, the average number of broiler batches reared per year was 6.0, age at slaughter averaged 49 days, bodyweight at slaughter 2.5 kg. Economic aspects are considered. It is concluded that more diversification is required in the area in order to boost farm incomes.

Safalaoh *et al.* (1998) presented a paper discussing the results of a survey of broiler industry in Malawi in which 103 broiler farmers from the Blantyre Agricultural Development Division (BLADD) were interviewed from July-August 1995. The paper examines demographics education level, general poultry management, disease control, the sources of chicks and breeds used, feeding and marketing. The broiler industry in Malawi is plagued, by a lack of proper knowledge and technology in poultry husbandry and of adequate and reliable veterinary pharmaceutical facilities and services, and of accessible credit, as well as an ineffective extension network and a poor processing and marketing infrastructure. With adequate resources, appropriate research and favorable government policies, solutions to these problems can be found to help advance the broiler industry in Malawi.

Shehrawat and Sharma (1994) conducted a study of 100 educated unemployed rural youths in four villages in Hisar district of Haryana State, India, indicated that they had lost faith in the educational system and felt unwanted in society. They were suffering serious economic problems due to a lack of finance for generating self employment and difficulty in obtaining loans from banks and other agencies. Continued loss of self-confidence and a lack of

vocational training centers at village level were found to be very serious. The most important factors which dissuaded the rural youth from taking up farming as an occupation were found to be attraction towards white collar jobs, uncertainty about the success of field crops, low price of crop produce, assured income in service, low profit in farming as compared with other businesses, crops not insured, agriculture too labor intensive, and loans inadequate. However, the majority of the youths were interested in obtaining training in crop production, dairy farming, poultry farming, cottage and small scale rural industries, and tractor operation and maintenance.

Sumba (1990) observed that the poultry do not get institutional and credit support. He further observed that the poultry do not get institutional and credit support. He further observed that lack of proper marketing opportunity is the major obstacle in the promotion of poultry production in the rural area.

Singh and Sharma (2003) examined the production, technological and marketing constraints faced by the broiler farmers using data collected from 150 broiler farms in 3 districts (Kurukhetra, Bhiwini and Panipat) in Haryana, India. The results revealed that the districts' and farmers' education status were associated with majority of the constraints encountered by the broiler farmers.

Sultana (1981) conducted a study on problems and prospects of poultry raising as a supplementary source of income in some selected households in village Daribhabkhali of Mymensingh district. The study showed that a substantial potentiality exists for expanding the farmyard poultry sector in these households with very low or no additional capital investment. The study also showed that poultry disease represent a major obstacle to the development of poultry in the study area.

Uddin *et al* (2001) conducted a research study on the status of broiler production on 62 broiler farms in Swat, Pakistan, with examination and comparison of records maintained during the year 1998. Marketing of broilers was not practiced on live weight, and average flock size was lower ( $1627 \pm 125$ ) than the available shed capacity ( $1768 \pm 171$ ). Flock size ( $b= 0.002 \pm 0.001$ ), age at marketing ( $b= -0.88 \pm 0.12$ ), and the number of batches per year were  $4.51 \pm 0.29$ . Age and weight at marketing were  $39.0 \pm 0.82$  days and  $1.23 \pm 0.03$  kg respectively. Average variable cost of production, returns and net profit/broiler were Rs.  $53.0 \pm 0.90$ ; Rs.  $54.9 \pm 1.07$  and Rs.  $1.97 \pm 1.09$  respectively.

Mack *et al.* (2005) presents a paper on as global overview of the development of the poultry sector and of the role of small-scale, family-based poultry production in developing countries. Major initiatives undertaken to develop poultry as a tool for rural development and their rationale are presented. The constraints facing the future of small-scale poultry production are discussed, with a particular focus on poultry disease given the current outbreak of highly pathogenic influenza in Asia. The paper stresses the need for more long-term and wider perspectives in the policies and strategies guiding the development of the poultry sector.

Rahaman (2012) conducted a study to identify the socio-economic characteristics of the household poultry farmers and its impact on livelihood improvement. Sixty household poultry farmers were selected from Sadar upazila and Trishal upazila under Mymensingh district. Tabular as well as econometric methods were applied to analyze the data. Attempts were made to identify socio-economic characteristics, calculation of costs, returns, and find out the problems faced by the household poultry farmers. The study revealed that majority of the household poultry farmers were of the age group of 25-45 years and the highest number had secondary education. The average total costs per family were Tk. 9810. The average gross return was Tk. 11087 and net return was Tk. 1277 and benefit-cost ratio was 1.13. Family poultry production brought positive changes in different types of livelihood assets, daily protein intake, savings, women empowerment, change in health and sanitation, etc. Seventy two percent poultry keeper opined their socio-economic conditions got improvement through household poultry farming. The study identified some economical, social and natural, marketing, technical problems, and their provable solutions.

Sultana *et al.* (2012) conducted an experiment for profiling the existing broiler farming at Santhia Upazila under Pabna District during the period from February to March, 2012. Data were collected using an interview schedule from 50 randomly selected respondents who were involved in broiler farming. In this study out of 50 respondents 60% were engaged in agriculture, 36% businessman and 4% were in services. About 48% respondents had small size farms (100-500 birds), 40% had medium (501-1000 birds) and remaining were large size (1001-2000 birds). Most of the respondents reared Cobb-500 strain, those were purchased from Kazi Farms Ltd. Out of 50 respondents 30% took necessary suggestions from the experienced farmers, 90% farmers regularly vaccinated their broilers and 70% farmers taken short training on broiler farming. About 78% respondents considered market

weight as 1.5 kg per bird, whereas the rest 22% sold broiler weighing about 1.8 kg per bird. Most of the respondents (64%) sold broiler at 30-33 d of age and about 80% respondents marketing their broiler at 110-115 taka per kg live bird. About 36% respondents had production cost approximately 90-95 taka per kg bird. In this study, about 36% respondents reported more marketing age of birds, 32% reported higher cost of production and 30% reported lack of training facilities. In conclusion, the result of present study could be considered useful to farmers and researchers to identify the overall problems and their remedies on management and marketing related to broiler production.



## **CHAPTER III**

### **MATERIALS AND METHODS**

#### **3.1.1 Introduction**

For conducting any research work proper methodology is required. The liability of any research depends on the appropriate use of methodology. The method of collection of data depends upon the nature, aims and objectives of the study. The present study was based on field level data from farmers (primary data) and secondary data which depend on many considerations, such as area selection, procedures of sampling, data collection period, preparation of survey questionnaire, methods of data collection, processing of data and analytical techniques. Primary data were collected from the field survey and secondary data were collected from the reliable sources. To ensure the qualities of data repeated visit were made and question were asked in such a manner that the poultry farmers could reply without having any obscurity.

#### **3.1.2 Steps of the study**

Among several methods of data collection, survey method was preferred. The word “survey” refers to a method of study in which an overall picture of a given universe is obtained by a systematic collection of all available data on the subject (Jefferson, 1963). Following steps were followed to conduct the survey.

#### **3.1.3 Selection of the study area**

Keeping the objectives of the research in mind, the present study was conducted at Sadar, Birol and Chiribondor Upazila’s in Dinajpur district.

#### **3.1.4 Reasons for the selection of study area**

Good communication facilities and consequently less expense conducting the study. Researcher's perception about better co-operation from the poultry farmers. No study of this type was conducted previously in this area. This area represents overall scenario of broiler farming at the selected area.

### **3.1.5 Sampling technique**

Samples of representative farms were selected in such a way that the information to be collected must satisfy the purpose of study. A random sampling technique was followed. According to local livestock office there were just about 500 poultry farms, among which 348 of them were registered, and among the registered farms a total of 271 are broiler farms and rest of which layer farms. To address the objectives a total of 75 broiler farms, which have been thought to be representative of the particular area were selected.

### **3.1.6 Period of data collection**

Data were collected from June to August, 2013. Collection of data was done through several visits by the researcher.

### **3.1.7 Instrument for data collection**

The interview schedule was carefully designed in such a way that the aim of the study could be achieved. The schedule contained both open and closed form questions. Most easy, simple and direct questions were used to obtain information. Keeping the major objectives into consideration, a draft survey schedule was prepared. It was pre-tested by interviewing a few farmers of the study area. After pre-testing a set of final survey schedule was developed with necessary rearrangement and modification.

### **3.1.8 Collection of data**

Once the survey objectives and associated data needs and analyses were specified an interview schedule was developed to record the information needed for analysis. It was pre-tested for judging suitability of schedules to respondents. After completion of the pre-tested survey some new information was included and some information was excluded from the draft schedule. Then the draft schedule was improved, re-arranged and modified in the light of the actual practical experience. Attention was given to the general form of the interview schedule to see that the question followed a logical and appropriate sequence care was taken in wording question to ensure that they were unambiguous and easily understood. These questions were most easy and informative for livestock and socio-economic condition. The following information's were considered.

1. General identification and information of the selected respondents. e.g. Age, education, land, farm size, occupation, counseling, annual income, annual income from poultry etc.
2. Information about the bird e.g. strain, no. of bird, source, price of day old chick etc.
3. Information about feed e.g. type of feed used, feed price
4. Information about vaccination, rearing system, litter
5. Information about marketing e.g. marketing age, marketing price, brooding system, lighting system & ventilation.
6. Farmer's problem during chick collection, vaccination and recommendation.

### **3.2.1 Compilation of data**

After completion of final primary data collection, all interview schedules were compiled, coded, tabulated and analyzed according to the objectives of the study.

### **3.2.2 Analysis of data**

The technique of analysis included the classification of tables into meaningful results by arithmetic mean, percentage and ratio. The analysis was done by Statistical Package for Social Science (SPSS) software.

### **3.2.3 Problem faced during the data collection**

In collecting data, the researcher had to face some problems. These are presented below:

1. There was the limitation of time. All data and other necessary information were collected within the shortest possible time.
2. Most of the respondents hesitated to give their actual information about production, income, capital etc. as they were afraid of tax imposition.
3. Most of the respondents were doubtful about the purpose of the study because they have no previous idea.
4. In reply to questions, the respondents used local units of measurement, which were often difficult to convert to standard units.
5. Most of the farmers did not keep any records of their business, therefore, it was difficult to recall information and the researcher had to depend upon their memory.

6. Sometimes the respondents did not co-operate willingly with the researcher because of no direct benefit from supplying information. However, the researcher was very ardent in developing relations with the respondents and the data were collected with fervor and contentment.

## CHAPTER IV

### RESULTS AND DISCUSSION

#### 4.1 Age distribution among broiler farmers

Age of the poultry farmers ranged from 19 to 62 years with a mean 36.28 and a standard deviation of 9.28. The farmers were grouped into 3 categories (Table 4.1.1). It reveals that among 75 respondents 40%, 53.33% and 6.67% were in young age, middle age, and old aged group respectively. Hauque M. (2005) found that among 50 respondents 4%, 30%, 27%, 10% and 2% were in very young, middle aged, old aged and very old aged group respectively. So there is an opportunity for the young and middle age group to employ them in this field and they are quite keen to adopt broiler farming to solve their unemployment problem.

**Table 4.1.1 Age distribution among broiler farmers**

| Age groups in years | Poultry farmers |       | Mean  | Standard deviation |
|---------------------|-----------------|-------|-------|--------------------|
|                     | No.             | %     |       |                    |
| Young age (<30)     | 30              | 40    | 36.28 | 9.28               |
| Middle age (31-50)  | 40              | 53.33 |       |                    |
| Old age (>51)       | 5               | 6.67  |       |                    |

#### 4.2 Level of education

The literacy has its own merit and contribution towards the process of development. Although education is not in itself a sufficient condition for development of agriculture, it is certainly necessary condition (Millor, 1974). The farmers were categorized into 4 groups on the basis of their level of education. According to Table (4.2.1) about 2.67% farmers were illiterate, 10.67 % were educated up to primary level, 45.33 % were educated up to secondary level and 41.33% farmers were in the group of above secondary level. The result also indicates that broiler is a major enterprise under self-employment of the educated person in the study area.

**Table 4.2.1 Distribution of educational level among farmers**

| Educational group              | Poultry farmers |       |
|--------------------------------|-----------------|-------|
|                                | No.             | %     |
| Illiterate                     | 2               | 2.67  |
| Up to primary (1 to 5)         | 8               | 10.67 |
| Up to Secondary (6 to 10)      | 34              | 45.33 |
| Above Secondary (11 and above) | 31              | 41.33 |

These findings are in conformity with those reported by Rahman *et al.* (2002). The educational level of the farmer were 47.30% had above secondary, 36% had secondary 2.2% had primary and rest 4.5% had no education qualification. The higher literacy rate may be due to the fact that most farm owner lives near to the Sadar city of Dinajpur where literacy rate is higher than other upazilas. This indicates that it is possible for a large portion of farmers to adopt new technology' and equipped themselves for the upcoming new era.

#### 4.3 Land size of the farm

The land size of the farm was measured for each respondent in terms of Decimal. The land size of the farm ranged from 5 to 90 decimal with a mean of 15.82 decimal and a standard deviation of 12.88.

**Table 4.3.1 Land size according to tenure status of farmers**

| Category/land size(Decimal) | Broiler farmer |    | Mean  | Standard deviation |
|-----------------------------|----------------|----|-------|--------------------|
|                             | No.            | %  |       |                    |
| Small(5-20)                 | 60             | 80 | 15.82 | 12.88              |
| Medium(21-40)               | 12             | 16 |       |                    |
| Large(>40)                  | 3              | 4  |       |                    |

Analysis of data reveals that 80% farmer's farm land size was small, 16% medium and 4% were large. According to Bangladesh Bureau of Statistics (1998) the average of farm holdings is 1.33 acres. The average farm land size of the farmer in the study area was found 15.82 decimal which are lower than that of farm-holding average of 1.33 acre. These

findings indicate that comparatively poor farmers in terms of land use are involved in the broiler farming.

#### 4.4 Size of broiler farm

The farm size was measured by the no. of the bird, which was classified into four groups; these were very small, small, medium, and large. Average number of bird per farm was 860.93 with standard deviation of 678.72 and the bird no. ranges from 300 to 5000. The table (4.4.1) reveals that 20% farms were very small, 64% were small, 12% farms were medium and 4% farms were in large category. So we can say that small type of farm did attract the producer a lot than the others.

**Table 4.4.1 Distribution of broiler farm size**

| Category               | Broiler farmer |    | Mean<br>(Bird no.) | Standard deviation<br>(Bird no.) |
|------------------------|----------------|----|--------------------|----------------------------------|
|                        | No.            | %  |                    |                                  |
| Very Small (<500)      | 15             | 20 | 860.93             | 678.72                           |
| Small (501-1000)       | 48             | 64 |                    |                                  |
| Medium (1001-2000)     | 9              | 12 |                    |                                  |
| Large (2001 and above) | 3              | 4  |                    |                                  |

Perhaps the most of the farmers think that it was easy for them to manage a farm sized in the small and very small category.

#### 4.5 Annual income of the farmers

Income of the respondent referred to the total earning (Tk.) by them from agriculture source, livestock, fishing, business and other mean of non-agricultural sources.

**Table 4.5.1 Classification of farmer on the basis of annual income**

| Annual income(Taka)           | Broiler farmers |       | Mean (taka) | Standard deviation |
|-------------------------------|-----------------|-------|-------------|--------------------|
|                               | No.             | %     |             |                    |
| Low income (45000-100000)     | 28              | 37.33 | 143000.00   | 71352.76           |
| Medium income (100001-200000) | 33              | 44    |             |                    |
| High income (200001-360000)   | 14              | 18.67 |             |                    |

It was ranged from Tk. 45000 to 360000 annually with a mean of Tk.143000.00 and standard deviation of 71352.76. 37.33% of the farmers are in the low-income group, 44% farmers are in the medium income group and 18.67% farmers are in the high-income group. It gives a clear indication that among 75 broiler farmers medium income level groups were more interested in broiler farming next to the low-income level. The high income group is less involved in the broiler rearing. It was probably due to their unwillingness to adapt the rearing of poultry. It is well established that relatively less amount of capital is required in rearing of broiler compared to other enterprises. So proper motivation, adaptation of new technology and other logistic supports may require for broiler production.

#### 4.6 Main occupation of the farmers

The Table no. 4.6.1 reveals that 40%, 22.67%, 10.67%, 20%, 1.33% and 5.33% farmer were involved in agriculture, business, service, poultry farming, study and others respectively as their main profession. Being a part of agriculture based economy it was not surprising that 40% of poultry farmers had choose their main profession as agriculture, which was highest. This is in conformity with that of Rahman (2004).

**Table 4.6.1 Choices of main occupation among broiler farmers in the study area**

| Occupation      | Poultry farmers |       |
|-----------------|-----------------|-------|
|                 | No.             | %     |
| Agriculture     | 30              | 40    |
| Business        | 17              | 22.67 |
| Services        | 8               | 10.67 |
| Poultry farming | 15              | 20    |
| Student         | 1               | 1.33  |
| Others          | 4               | 5.33  |

The analysis of the Table 4.6.1 reveals that poultry farming as main occupation was ranked at number 3 (20%) among 75 respondents: Involvement of people from different occupation particularly from agriculture (40%), business (22.67%), service (10.67%) also indicates that peoples from different professional background also show a positive attitude towards broiler farming as a way of alternative earning source. A good number (20%) of farmers were quite interested in taking broiler farming as their main occupation.



#### 4.7 Counselor of the farmers

From the Table 4.7.1 it was evident that awareness among farmers about the management practices of broiler farming may be quit high because, out of 75 respondents as high as 24% farmers were taking their necessary suggestion from the technical graduates and among the test 16% said that they does not take suggestions from any one, 17.33% of the farmer did go to veterinary doctor, 5.33% of the farmer take their counseling from NGO, 17.33% of the farmer take their counseling from experienced farmer or private expert, and 20% did go to the dealer through which they had bought chick or feed.

**Table 4.7.1 Choice for the counseling among the farmers**

| Counselor          | Poultry farmers |       |
|--------------------|-----------------|-------|
|                    | No.             | %     |
| None               | 12              | 16    |
| NGO                | 4               | 5.33  |
| Technical Graduate | 18              | 24    |
| GO                 | 13              | 17.33 |
| Private Expert     | 13              | 17.33 |
| Dealer             | 15              | 20    |

Although highest group (24%) of farmer in the study area expressed that they took their counseling from the technical graduate, but the quota was far below from the desired level. Because it is a fact that in broiler rearing management aspect and disease preventive measurements is more important. In that case proper counseling from the technical hands will leads the farmers to make their business profitable and sustainable.

#### 4.8 Vaccination of birds

Among 75 respondents 65.33% farmers vaccinated their birds regularly and 34.67% farmers did not vaccinate their birds regularly. Rahman *et al.* (2004) reported that 70.00% broiler farmers vaccinated their birds regularly and 30.00% farmers vaccinated irregularly. For effective broiler production regular vaccination is must as because modern strains are very susceptible to common diseases.

#### 4.9 Training of farmers

Among 75 respondents in the study area 45.33% had training on broiler farming from local YTC (Youth Training Center), Upazila Livestock Office, NGO's and other different broiler farming related agencies. Rahman *et al.* (2002) found that 45.5% farmers had training and about 54.5% did not have any training on broiler farming. Unemployment as well as scarcity for skilled labor has always been a considering actor in broiler production. For the development of skills training is obvious.

**Table 4.9.1 Training**

| Training  | Poultry farmers |       |
|-----------|-----------------|-------|
|           | No.             | %     |
| Taken     | 34              | 45.33 |
| Not taken | 41              | 54.67 |

Broiler is now shaping up to an industry which will require more skilled and well trained man power. Thus maximum opportunity for training and development of training program as well as facilities should be ensured.

#### 4.10 Choices of broiler strain among the farmers

The Tables (4.10.1) reveals that the 75 farmers reared 6 different broiler strains. Analysis of data shows that 33.33% farmers were rearing Cobb-500, 10.67% Arbor Acres, 9.33% Ross broiler, 28% Hubbard classic, 17.33% Lohman meat and 1.33% Fast feather. Whereas Rahman *et al.* (2003) found that, among different strains about 50.5%, 30.50%, 10.60% and 8.4% farmers reared Kasila, Starbro, Anikand, Arbor Acres respectively. Most farmers preferred Hubbard because of better performances as had been concluded by Rahman *et al.* (2003). They reported that Hubbard strain could be grown profitably and uniformly under rural condition in Bangladesh. After introduction of Cobb-500, the strain becomes popular and to be first choice of the farmers, as because the birds have faster growth rate with better efficiency of feed utilization compared to other broiler strains available in the country.

**Table 4.10.1 Choice of strain among farmers**

| Name of strain  | Poultry farmers |       |
|-----------------|-----------------|-------|
|                 | No.             | %     |
| Cobb-500        | 25              | 33.33 |
| Hubbard classic | 21              | 28    |
| Arbor acres     | 8               | 10.67 |
| Ross-308        | 7               | 9.33  |
| Lohman meat     | 13              | 17.33 |
| Fast feather    | 1               | 1.33  |

**4.11 Sources of broiler chick****Table 4.11.1 Sources of day-old chicks in the study area**

| Name of company                 | Poultry Farmers |       |
|---------------------------------|-----------------|-------|
|                                 | No.             | %     |
| Aftab Bahumukhi Farm Ltd.       | 21              | 28    |
| C.P. Bangladesh Co. Ltd.        | 17              | 22.67 |
| Kazi Farms Ltd.                 | 13              | 13.33 |
| Paragon Poultry Ltd.            | 1               | 1.33  |
| Nilsagor Agro-industries Ltd.   | 13              | 13.33 |
| Aman Poultry & Hatchery Ltd.    | 2               | 2.67  |
| Nourish Poultry & Hatchery Ltd. | 8               | 10.67 |

It is evident from the table no 4.11.1 that out of 75 broiler farms 28%, 22.67%, 13.33%, 1.33%, 13.33%, 2.67% and 10.67% farmers collect their day old chick from Aftab Bahumukhi Farm Ltd., C.P. Bangladesh Co. Ltd., Kazi Farms Ltd., Paragon Poultry Ltd., Nilsagor Agro-industries Ltd., Aman Poultry & Hatchery Ltd., and Nourish Poultry and Hatchery Ltd. respectively. It reveals that Aftab Bahumukhi Farm Ltd. was dominating the chick supply. It may be due to their quality in service as well as well better marketing strategies.

#### 4.12 Fluctuation of DOC market price

**Table 4.12.1 Price range of DOC**

| Taka/chick | Poultry farmers |       | Mean  | Standard deviation |
|------------|-----------------|-------|-------|--------------------|
|            | No.             | %     |       |                    |
| 27         | 1               | 1.33  | 36.15 | 6.28               |
| 29         | 1               | 1.33  |       |                    |
| 30         | 6               | 8     |       |                    |
| 32         | 4               | 5.33  |       |                    |
| 33         | 12              | 16    |       |                    |
| 35         | 17              | 22.67 |       |                    |
| 37         | 1               | 1.33  |       |                    |
| 38         | 7               | 9.33  |       |                    |
| 40         | 7               | 9.33  |       |                    |
| 42         | 4               | 5.33  |       |                    |
| 43         | 1               | 1.33  |       |                    |
| 45         | 4               | 5.33  |       |                    |
| 46         | 1               | 1.33  |       |                    |
| 47         | 1               | 1.33  |       |                    |
| 48         | 3               | 4     |       |                    |
| 50         | 3               | 4     |       |                    |
| 52         | 1               | 1.33  |       |                    |
| 57         | 1               | 1.33  |       |                    |

Price of chick in taka was ranged from Tk. 27.00 to Tk. 57.00 per DOC with a mean of Tk. 36.15 along with a standard deviation of 6.28. As shown in table 4.12.1 according to respondents 22.67% of them collected chicks at a rate of Tk.35, next 16% farmer bought at a rate of Tk.33 and 9.33% farmers got their chicks with a price rate of Tk. 38. The mean price of DOC broiler was found higher (36.15) than that was reported by Delwara (2004), which was Tk. 20.68. The wide range of fluctuation for the price of DOC might be due to variation of season, demand, quality of the chick and hatchery farms reputation.

#### 4.13 Feed price

**Table 4.13.1 Feed price**

| Taka/kg feed | Poultry farmers |       | Mean  | Standard deviation |
|--------------|-----------------|-------|-------|--------------------|
|              | No.             | %     |       |                    |
| 41           | 3               | 4     | 43.05 | 1.09               |
| 42           | 27              | 36    |       |                    |
| 42.5         | 1               | 1.33  |       |                    |
| 43           | 14              | 18.67 |       |                    |
| 44           | 21              | 28    |       |                    |
| 44.5         | 4               | 5.33  |       |                    |
| 45           | 5               | 6.67  |       |                    |

The price of broiler feed ranged from Tk. 41.00 per kg to Tk. 45.00 per kg with a mean of Tk. 43.05 per kg and standard deviations of 1.09. From the Table 4.13.1 it is evident that 36% of farmer reported that feed price is Tk. 42.00 per kg. The lowest price for the broiler feed was Tk.41.00 per kg and the highest price was Tk.45.00 per kg.

#### 4.14 Use of feed

Among 75 broiler farms all of the farmers use ready feed. Whereas Rahman et al. (2002) found that 40% and 60% farmers use ready made feed and self prepared feed. These variations might be due to the fact that it was easy and less hazardous for the farmers to buy, transport, store and use ready made feed and also less fluctuation of price of ready made feed through the year round is relatively less than the price of individual feed ingredients in market.

#### 4.15 Market age of the broiler

Out of 75 broiler farmers 1.33% of them started to sale their bird at 28 days of age, 22.67% at 30 days of age, 40% at 32 days of age, 1.33% at 33 days of age, 26.67% at 35 days of age, 6.67% at 36 days of age and 1.33% at 40 days of age. The average market ages were 32.68 days with standard deviation 2.25. The variations of market age of boiler are due to season, geographical distribution, disease incidence of the farms etc.

**Table 4.15.1 Market age of broiler at the study area**

| Age (days) | Poultry farmers |       | Mean  | Standard deviation |
|------------|-----------------|-------|-------|--------------------|
|            | No.             | %     |       |                    |
| 28         | 1               | 1.33  | 32.68 | 2.25               |
| 30         | 17              | 22.67 |       |                    |
| 32         | 30              | 40    |       |                    |
| 33         | 1               | 1.33  |       |                    |
| 35         | 20              | 26.67 |       |                    |
| 36         | 5               | 6.67  |       |                    |
| 40         | 1               | 1.33  |       |                    |

Rahman *et al.* (2003) reported mean market age (days) 30 days in winter, 32 days in summer and 31 days in rainy season in case of Starbro strain and 30 days in winter, 29 days in summer and 29 days in winter incase of Hubbard strain. This variation may be due to seasonal or geographical distribution.

#### 4.16 Market weight of the bird

The average market weight of broiler was 1.57 kg per bird and with a standard deviation of 0.106. It ranged from 1.4kg to 2.0 kg per bird. Average market weight is higher (1.57 kg) than that was reported by Hauque M (2005), who found 1.50 kg of live weight/bird.

**Table 4.16.1 Distribution of poultry farms based on the market weight of live birds**

| Market weight (kg)/bird | Poultry farmers |       | Mean | Standard deviation |
|-------------------------|-----------------|-------|------|--------------------|
|                         | No.             | %     |      |                    |
| 1.4                     | 5               | 6.67  | 1.57 | 0.106              |
| 1.5                     | 35              | 46.67 |      |                    |
| 1.6                     | 20              | 26.67 |      |                    |
| 1.7                     | 10              | 13.33 |      |                    |
| 1.75                    | 3               | 4     |      |                    |
| 1.8                     | 1               | 1.33  |      |                    |
| 2.0                     | 1               | 1.33  |      |                    |

#### 4.17 Market price of live broiler in the study area

Average market price was Tk.123.64 with a standard deviation of 5.15. It ranged from Tk. 115 per kg to Tk. 140 per kg. Average market price is much higher (Tk.123.64) than that was reported by Rahman *et al.* (2003), which was Tk. 53.66 per kg. From the analysis of the Table 4.17.1; it reveals that there was a wide range of fluctuation in market price. This might be due to the fact that farmers were captivated by the middlemen. As broilers are to be sold within a limited amount of time so they have less bargaining ability. The price fluctuations of live broiler also may be due to the factors such as seasonal variation, Eid festival, fish availability and social events (picnic, party etc.).

**Table 4.17.1 Market price of the broiler in the study area**

| Price (Tk/kg) | Poultry farmers |       | Mean   | Standard deviation |
|---------------|-----------------|-------|--------|--------------------|
|               | No.             | %     |        |                    |
| 115           | 3               | 4     | 123.64 | 5.15               |
| 117           | 1               | 1.33  |        |                    |
| 118           | 4               | 5.33  |        |                    |
| 120           | 25              | 33.33 |        |                    |
| 122           | 7               | 9.33  |        |                    |
| 125           | 15              | 20    |        |                    |
| 127           | 5               | 6.67  |        |                    |
| 128           | 2               | 2.67  |        |                    |
| 130           | 8               | 10.67 |        |                    |
| 132           | 1               | 1.33  |        |                    |
| 135           | 2               | 2.67  |        |                    |
| 137           | 1               | 1.33  |        |                    |
| 140           | 1               | 1.33  |        |                    |

#### 4.18 Batch per year reared by farmer in the study area

About 41.33% farmers rear 6 batches per year, 17.33% rear 7 batches per year, 25.33% of the farmers rear 5 batches per year, 4% farmers rear 8 batches per year, 2.67% farmers rear 9 batches per year and 9.33% rear 4 batches per year with a mean 5.89 batch per year with a standard deviation of 1.09.

**Table 4.18.1 Batch per year by the farmer**

| Batch per year | Poultry farmer |       | Mean | Standard Deviation |
|----------------|----------------|-------|------|--------------------|
|                | No.            | %     |      |                    |
| 4              | 7              | 9.33  | 5.89 | 1.09               |
| 5              | 19             | 25.33 |      |                    |
| 6              | 31             | 41.33 |      |                    |
| 7              | 13             | 17.33 |      |                    |
| 8              | 3              | 4     |      |                    |
| 9              | 2              | 2.67  |      |                    |

**4.19 Annual income from broiler**

Annual income from poultry ranged between Tk. 26430.00 to Tk. 312750.00 with a mean of Tk.95715.73 per year and a standard deviation of 56825.15.

**Table 4.19.1 Annual income from broiler in the selected area**

| Tk./year      | Poultry farmers |       | Mean     | Standard deviation |
|---------------|-----------------|-------|----------|--------------------|
|               | No.             | %     |          |                    |
| 26430-50000   | 24              | 32    | 95715.73 | 56825.15           |
| 50001-100000  | 23              | 30.67 |          |                    |
| 100001-312750 | 28              | 37.33 |          |                    |

Results of the present study revealed that about 32 % out of 75 respondents ranges between Tk. 26430.00 to Tk. 50000 per year and 30.67 % farmers annual income from broiler is in between Tk. 50001 to Tk. 100000 per year. It was may be due to the fact that most of the farm sizes were in the very small (20%) and small group (64%) which was found in the Table.4.4.1

**4.20 Initial capital investment in the broiler farming**

In case of capital invested by the farmers was categorized into three groups. The average capital invested by the farmers to the study area was Tk. 66240.00 with a standard deviation of 39067.45. Highest 56% farmers were categorized into the range between Tk. 15000 to



Tk. 50000, and 29.33% farmers were categorized in the range between Tk. 50001 to tk. 100000, and only 14.67% farmers were categorized in the range 100001 to above.

**Table 4.20.1 Initial capital investment among broiler farmers**

| Capital range | Poultry farmers |       | Mean  | Standard deviation |
|---------------|-----------------|-------|-------|--------------------|
|               | No.             | %     |       |                    |
| 15000-50000   | 42              | 56    | 66240 | 39067.45           |
| 50001-100000  | 22              | 29.33 |       |                    |
| 100001-Above  | 11              | 14.67 |       |                    |

#### **4.21 Feed conversion ratio (FCR)**

The average feed conversion ratio was 1.72 with a standard deviation of 0.06. Out of 75 respondents 73.33% found their broilers FCR in the range between 1.65-1.75. Feed conversion ratio (FCR) of the Cobb-500 broiler strain was found to be superior to other strains in this study. This performance might be partly due to the capacity of this strain (Cobb-500) to consume greater quantities of feed, resulting in higher intakes and hence greater live weight, weight gain and improved FCR than in other broiler strains. The improved FCR of Cobb-500 birds indicate that this strain is more efficient in converting feed to meat more rapidly than in other strains. Genetic potentiality may be one of the important factors for this improved FCR of Cobb-500 birds.

**Table 4.21.1 Feed conversion ratio (FCR) of broilers**

| Category (FCR) | Poultry farmers |       | Mean | Standard deviation |
|----------------|-----------------|-------|------|--------------------|
|                | No.             | %     |      |                    |
| 1.65-1.75      | 55              | 73.33 | 1.72 | 0.06               |
| 1.76-1.85      | 14              | 18.67 |      |                    |
| 1.86-1.95      | 6               | 8     |      |                    |

## 4.22 Study on correlations among some selected variables

**Table 4.22.1 Correlations among some selected variables**

| Sl. No. | Variables                            | Correlation(r) | Significance Level |
|---------|--------------------------------------|----------------|--------------------|
| 01.     | Age vs. Education                    | -0.226         | NS                 |
| 02.     | Land vs. Education                   | 0.054          | NS                 |
| 03.     | Education vs. Capital                | 0.140          | NS                 |
| 04.     | Total income vs. Batch Per year      | 0.244          | *                  |
| 05.     | Total income vs. income from broiler | 0.859          | **                 |
| 06.     | Capital vs. income from broiler      | 0.921          | **                 |
| 07.     | Capital vs. broiler farm size        | 0.880          | **                 |
| 08.     | Feed price vs. no. of bird           | -0.029         | NS                 |
| 09.     | Education vs. Income (broiler)       | 0.156          | NS                 |
| 10.     | Income (broiler) vs. batch per year  | 0.252          | *                  |

N.B: \* =  $P < 0.05$ ; \*\* =  $P < 0.01$ ; NS=Non-significant;

### 1. Age vs. education

The information presented in the Table 4.22.1 indicates some interesting socio-economic characteristics of the broiler farmer in the study area. Age and educational level are non-significantly and negatively correlated ( $r = -0.226$ ). That means higher aged educated portion of the farmer are not interested in the broiler farming.

### 2. Land vs. education

The co-relation between owned land of the farmer and education of the farmer is positive (0.054) but non-significant. Higher the land possession, higher is the economic status of the farmer which indicates that they are keen to learn, so they may be more interested in learning new things about poultry farming.

### 3. Educational level vs. capital

Educational level of farmers and capital invested by them was also found positively correlated (0.140) which was not significant. As the educational level of the farmers increased they are more interested in investing money in poultry farming.

#### **4. Total income vs. no. of batch**

Total income of the farmer and no. of batch per year is positively correlated (0.244) at 5% significant level. If the number of batch per year is increased the amount of total income will be raised. Because higher no. of batches, the income from broiler will be increased which contribute to the total income of the farmers.

#### **5. Total income vs. income (broiler)**

Total income is significantly and positively correlated (0.859) with income from poultry at 1% level of significance. As the income from poultry increased total annual income of the farmers also increased.

#### **6. Income (broiler) vs. capital**

Income from poultry is positively correlated ( $r = 0.921$ ) with the capital invested in farming at 1% significant level. So, it can be concluded that higher the capital higher the income from the broiler farming.

#### **7. Capital vs. broiler farm size**

Poultry farm size is positively correlated ( $r = 0.880$ ) at 1% significant level with the capital. So if the size of the poultry farm is increased the amount of capital will be increased.

#### **8. Feed price vs. no. of bird**

Price of feed was negatively correlated ( $-0.029$ ) with the no. of bird which was not significant. As the no. of bird is increased the cost of feed will be lower.

#### **9. Income (broiler) vs. educational level**

Income of the farmer was found positively correlated (0.156) and non-significantly with the level of education of the farmer in the study area.

#### **10. Income (broiler) vs. no. of batch per year**

Income of the farmer from broiler was found positively significantly correlated ( $r = 0.252$ ) with the no. of batch per year at 5% level of significance. As the no. of batch per year was increased the income of the farmer from the poultry source was also increased.

## **4.23 Some common features identified among the broiler farmers in the study area**

### **4.23.1 Litter**

All broiler farmers in the study area used rice husk as litter materials. Because, the study area is one of the surplus area for rice production in Bangladesh. So there are a number of rice mills from which rice husk is produced as by-product. Rice husk is therefore available almost all the year round at a cheaper rate. Thus, the farmers prefer to use rice husk as litter material.

### **4.23.2 Rearing system**

All the farmers in the study area were found floor rearing. This might be due to the availability of the rice husk in this area for which they can use it as litter material. Deep litter rearing system was adorable for the farmers of the study area.

### **4.23.3 Brooding, lighting, ventilation**

In case of brooding system the entire 75 respondents replied that they use electric brooder system for brooding the chicks. In case of lighting and ventilation farmers use to rely on the nature. They don't control the lighting hour. Most of the farmers provide a little bit of lighting during night. In the case of ventilation most of the farmers did not provide proper ventilation. While in hot and humid summer they use paddle star fan or ceiling fan. And they also provide cold water, electrolytes, and vitamins. Most farmers also use wet gunny bag on the roof to combat heat stress. Some farmers also provide feed to the bird at the cooler part of the day.

### **4.23.4 Use of feed**

100% farmers in the study area were using readymade feed.

### **4.23.5 Mortality**

Under good management practices, mortality rate was observed between 5 to 10%.

## **4.24 Problems faced by the farmers and necessary recommendations**

During the collection of data from different broiler farms, farmers provided some information relevant to their enterprise, about their problems, their success, and some

solutions from their own point of view in the light of their field experiences. An attempt was made to draw those pictures in this section of paper.

### **Inadequate capital**

For the proper running of any kind of enterprise sufficient capital is the pre-requisite. From the available data and correlation studies it was clear that, capital in broiler farming is positively correlated with land, farm type and size of the farm.

### **Price fluctuation of day old chick depending on demand**

Some farmer told that some times when the demand for the day old chick rises the dealer of the companies sometimes increase the price of chick to take the advantages of the situation.

### **Lack of quality of chicks**

Sometimes farmers did get some inferior quality chicks, which affect their profitability to a great extent.

### **Smuggled chick from the neighboring country**

Some farmers reported that inferior quality chicks sometimes get our country across the border area in an unauthorized manner, which is also making a negative effect in this sector.

### **Vaccines**

Due to lack of ideal preservation, transportation, vaccination at the wrong time; high price of the vaccines and getting no result after vaccination was a matter of concern in the study area.

### **Unscrupulous poultry feed sellers**

Taking the advantage, the unscrupulous poultry-feed sellers often advise the poultry-farmers to use unnecessary anti-biotics, vitamins and other drugs to gain instant financial benefit. This indiscriminate use of drugs not only retards the normal growth of poultry birds but also it incurs the production cost of poultry. It badly affects the poultry farmers financially. Further, excess use of antibiotic induced adverse effects on the consumer's health.

### **Higher price of feed and inferior quality of feed**

According to the broiler farmers of the study area price of the feed was high. The feed was generally being used by them was ready made feed from feed mill which were quit inferior quality except some renowned company like CP co. Ltd., Aftab Bahumukhi Farm etc.

### **Disease problems**

The most common diseases in the study area were reported by the farmers were Ranikhet, Gumboro, Coccidiosis, CRD and deficiency of vitamin etc. Broiler farmers particularly small farmers are less efficient to ensure the biosecurity. So these sorts of diseases appear on regular basis.

### **Lack of loan facilities**

Like any other business poultry business also require capital. But farmers with limited amount of money and with his economic vulnerability had less opportunity to get this. They do not have enough facilities to obtain credit. Although some Government and Non-Government Organization provide some loans which are not good enough to satisfy the requirement.

### **Instable market**

Instable market is a great denying factor against flourishing broiler industry. Neither the producer nor the government had any grip to the market. It lies in the hand of middlemen who are the main purchaser of the marketable products from the producer. Farmers are totally in the hand of those people.

### **Lack of knowledge about transportation and marketing of the product**

Most farmers did not know the proper transportation method of their product. They do not even have the knowledge about marketing.

### **Flood and other natural calamities**

Bangladesh is a flood prone country. Every year flood affected the country, which causes a lot of damage to broiler farm. It also reduces the buying ability of the general people, which in turn reduce the demand of product by the farmer during those times.

### **Misinformation about bird flu**

Some experienced farmers reported that last couple of years they were suffered by bird's flu. Many farmers had lost their interest in this profession.

### **Higher cost of electricity**

Most of the farmers in the study area run with the electricity supplied to them by "pollibiddutsomiti". The cost of electricity is pretty high.

### **Some recommendation**

- A long term planning and poultry industry should be provided
- Provide subsidies in poultry feed and equipment's
- Rates for electricity utilized in the broiler production should be at par prevailing charges in other agricultural enterprises.
- The poultry farmers should be encouraged by inducing bank credit at minimum interest rate and the credit should be available to them easily.
- To generate a government body to monitor and ensure quality control in chicks and feed.
- The farmers recommended that the government should fix the price and control price to a limit up to stability so that the producers can get richly deserved price.
- Some poultry farmers reported that government should seal the border line so that illegal chicks cannot enter into Bangladesh from the neighboring countries.
- Short term training program on broiler farming should be arranged so that the farmers can keep themselves up to date.
- Emphasis should be given on disease prevention than the cure of birds.
- Availability of commercial day old chicks among the farmers at reasonable rate should be ensured.
- For indemnity, safety, and security poultry insurance system should be introduced immediately.

## CHAPTER V

### SUMMARY AND CONCLUSION

The present study was conducted in Sadar, Birol and Chirirbondor Upazilas in Dinajpur district to investigate the socio-economic status of the farmers, to observe the existing broiler farming status, to identify the problems and also to find out the solution for flourishing and sustainability of broiler farming as well as along with to share thoughts and views of the broiler farmers in the selected area.

In this study, 75 broiler famers were selected randomly. Data were collected using standard and pre-tested interview schedules. Information obtained through the interview schedule was transferred in to software named Statistical Package for Social Science (SPSS). Twenty one (21) variables were selected for the studies which were age, educational level, land size, poultry farm size, total annual income, main occupation, counselor of the farmer, vaccination, training, broiler strain, chick source, price of chick, feed price, use of feed, market age, market weight, market price, batch per year, annual income (broiler), capital, feed conversion ratio (FCR) etc. The selected characteristics, were coded, compiled, tabulated and analyzed in to statistical means such as range, mean, percentage and standard deviation were used in describing the respected variables. Correlation Co-efficient (2-tail) were computed to determine the relationship between

1. Age vs. Education
2. Land vs. Education
3. Education vs. Capital
4. Total income vs. Batch per year
5. Total income vs. Income(poultry)
6. Capital vs. Income (poultry)
7. Capital vs. Broiler farm size
8. Feed price vs. No. of birds
9. Education level vs. Income (broiler)
10. Income (broiler) vs. Batch per year

Age distribution reveals that 40% of the farmers were in young group, 53.33% were in middle aged group and 6.67% were in old aged group. Incase of education level only 2.67%



have no education at all, 10.67% were educated up to primary level, 45.33% were educated from primary up to secondary level and 41.33% were educated above secondary level. In case of land size, among 75 broiler farmer, 80%, 16% and 4% were in small, medium and large category respectively with a mean of 15.82 decimal. In case of broiler farm size 20% farms were in very small category, 64% in small, 12% in medium and 4% were in the large category. The average bird no. among the farmer was 860. The average total annual income of the broiler farmer was Tk. 143000.00. About 37.33% farmers were in low income group and 44% were in medium income group and 18.67% were in high income group. The choice for the main occupation among the farmers 40%, 22.67%, 10.67%, 1.33%, 20%, and 5.33% were agriculture, business, services, students, poultry farming and others respectively. For counseling 16% did not go to any one, 5.33% from NGO, 17.33% from GO, 17.33% from private expert, 24% from technical graduates and 20% from dealer. 65.33% of the farmer vaccinated their bird on regular basis and rests of the farmer were irregular in this respect. 45.33% farmers had taken training on broiler farming and rest of the farmer did not have any training. In case of strain of bird, most farmers showed their preference to the Cobb-500, 33.33% and then Hubbard strain 28%, Lohman meat 17.33%, Arbor Acres 10.67%, Ross 9.33%, Fast feather 1.33%. The chicks were collected from Aftab Bahumukhi Farm Ltd. 28%, Kazi Farms Ltd. 13.33%, C.P. Bangladesh Co. Ltd 22.67%, Nilsagor agro-industries Ltd. 13.33% and Nourish poultry and Hatchery 10.67% with an average cost of Tk. 36.15 per Day Old Chick. The average broiler feed price in the study area was Tk. 43.05 per kg feed. 100% of the farmers in the study area use ready feed. The average market age was 32.68 day with a standard deviation of 2.25 and the market weight ranged from 1.40 kg per bird to 2.00 kg per bird with a mean 1.57 kg. The mean market price of the broiler was Tk. 123.64 per kg which ranged from Tk. 115 to Tk. 140 per kg. The average batch per year in the study area was 5.89. The mean annual income from the broiler was Tk. 95715.73 and the average capital invested by the farmer was Tk. 66240.00

Correlations, between some variables were computed. In that case correlation between land and education; education and capital; education and income (broiler) were found positive non-significant level. Correlation between age and education; feed price and no. of bird were found although negatively correlated but non-significant. Correlation between total income and batch per year; income from broiler and batch per year were found positively correlated at 5% level of significance. Correlation between total income and income from

broiler; capital and poultry farm size; capital and income from broiler were found positive at 1% level of significance.

Considering the above findings and discussions draw the following recommendations & conclusions

Suitable credit facilities and appropriate training may be provided to the concerned people for developing their efficiency and good performance. Sufficient training programs on broiler farming should be arranged, so that the farmers can keep themselves up to date. Depending on demand, price fluctuation of day old chick and lack of quality chicks, availability and quality of vaccines, high price of feed, lack of quality feed, training facilities and vaccination failure due wrong use or inferior quality etc. were the major problems for broiler production faced by farmers in the study area. The government should fix and control the price to a limit up to stability so that the farmers can get deserved price. Availability of commercial day old chicks with reasonable market price should be ensured. For indemnity, safety, and security, poultry insurance system should be introduced immediately.

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## APPENDICES

### INTERVIEW SCHEDULE

Department of Dairy and Poultry Science  
Hajee Mohammad Danesh Science and Technology University,  
Dinajpur-5200

Questionnaire (English version) for conducting survey to assay "status of broiler farming in selected areas of Dinajpur district"

Date: .....

1. Farmer's information:

Farmer's Name: ..... Mobile/Phone:.....

Father/mother/husband's Name: .....

Village: ..... Post office: ..... Union:.....

Upazilla:.....

2. Age: ..... Years

3. Occupation:

Main occupation.....

Secondary occupation.....

4. Educational qualification (√):

1. Illiterate

2. Up to primary

3. Above primary up to secondary

4. Above secondary

5. Did you take any training before starting poultry farming?  [Yes=1, No=2]

If the answer is yes, than from where

[1=GO, 2=NGO, 3=YTC, 4=University, 5=Others]

6. Major Income:  Secondary income:

1. From cultivable land: ..... tk

2. From livestock: ..... tk

3. From poultry: ..... tk

4. From fishery:..... tk

5. From service:..... tk

6. From business:..... tk

7. From other source:..... tk

7. Counseling:

From where do you take your counseling?

[1=None, 2=NGO, 3=Technical graduate, 4=GO, 5=Private Experts, 6=Dealer]



8. Cost benefit:

Are you benefited?  [Yes=1, No=2]

Capital= Taka

Own capital:  [Yes=1, No=2]

Loan:  [Yes=1, No=2]

Labor use: ...../1000 bird

9. Do you have the power supply?  [Yes=1, No=2]

10. Source of land:

- a. Homestead
- b. Own land under own cultivation
- c. Own land given to other or borga
- d. Land taken from others or borga
- e. Land taken from others or lease
- f. Others

11. Land size of the farm: .....(Decimal)

12. Farm size on the basis of no. of bird reared by the farmer

- 1 Very small (<500)
- 2 Small (501` -1000)
- 3 Medium (1001 -2000)
- 4 Large (2000 and above)

13. Information about poultry reared in the farm

| Type of Bird | Strain | No. of bird | Source | Price of DOC |
|--------------|--------|-------------|--------|--------------|
| Broiler      |        |             |        |              |

14. What kind of problem do you face in case of collecting quality chicks?  
 .....  
 .....

15. Information about feed:

What type of feed is generally being used?

[1=Readymade formulated feed, 2=Own mixed feed]

Do you follow the feeding standard?  [1=Yes, 2=No]

Do you use growth promoter?  [1=Yes, 2=No]

Have you any feed mixing machine?  [1=Yes, 2=No]

Do you use unconventional feed?  [1=Yes, 2=No]

Cost of feed:

Readymade=.....'taka/kg

Hand mixed=.....tk/kg

Face any problem:  [1=Yes, 2=No]

16. Vaccination

Do you follow the vaccination schedule regularly?  [1=Yes, 2=No]

Name of used vaccine

.....  
.....

From where do you collect your vaccines?

[1=GO, 2=NGO, 3=Dealer, 4=Private Experts, 5=Others]

17. Litter:

What are the materials you use as litter Sources?

Source of litter: -----

Are these materials available the entire year round?  [1=Yes, 2=No]

What do you do with the litter after use?

[1=Dump, 2=Use in agriculture, 3=Fish feed, 4=Others]

18. Marketing and means of transportation final product

Marketing age of the broiler-----days

Please mention the market price ----- Taka/kg

Who are the purchasers of your product?

.....  
.....

Do you take it to the near market?  [1=yes, 2=no]

Would you please mention the problem you faced during marketing?

.....  
.....

19. Production:

How many batches do you rear in a year?.....

What is the average body weight of the bird? -----kg

Total feed intake of the birds: .....

20. Mortality: .....

21. Some management queries

a) Rearing system:  [1=cage, 2=litter]

b) Ventilation type:-----

c) Brooding system:-----

d) Brooding period:.....days

e) Lighting system-----

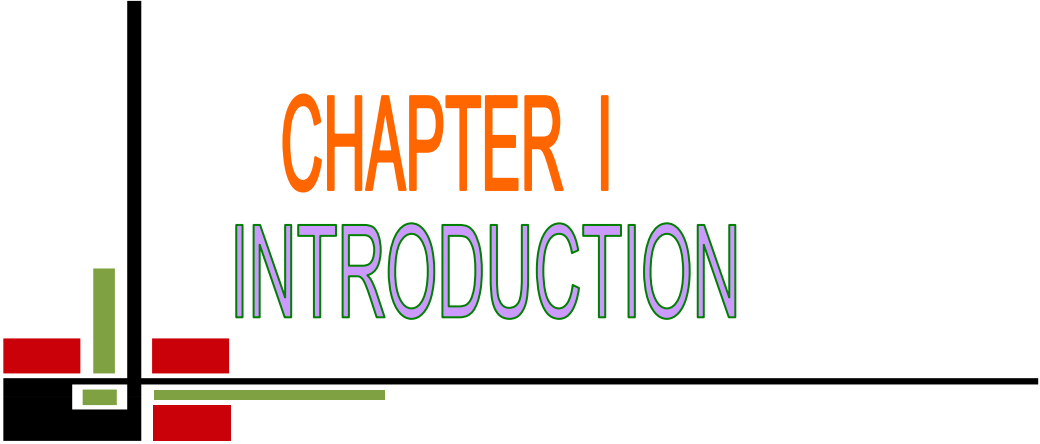
Please name some of the diseases, which appear on frequent basis in your farm

.....  
.....

From your point of view socio-economic impact of poultry farming in our personal life

.....

DEDICATED  
TO MY  
BELOVED PARENTS



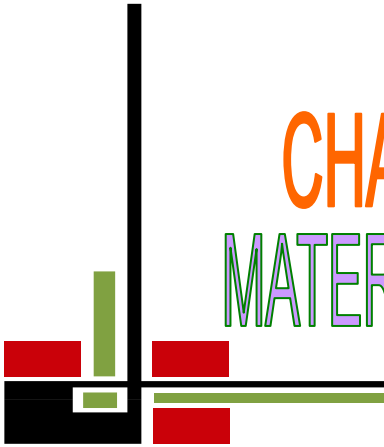
# CHAPTER I

## INTRODUCTION



# CHAPTER II

## REVIEW OF LITERATURE



**CHAPTER III**  
MATERIALS AND METHODS



# CHAPTER IV

## RESULTS AND DISCUSSION



# CHAPTER V

## SUMMARY AND CONCLUSION





# REFERENCES



# APPENDICES