PRESENT STATUS OF SONALI CHICKEN FARMING IN BOGRA AND JOYPURHAT DISTRICTS

A THESIS

BY

SHAHID MIAH

Registration No. 1605479

Semester: January-June, 2018

MASTER OF SCIENCE (M.S.)

IN

POULTRY SCIENCE

DEPARTMENT OF DAIRY AND POULTRY SCIENCE

HAJEE MOHAMMAD DANESH SCIENCE AND TECHNOLOGY UNIVERSITY, DINAJPUR - 5200

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DEPARTMENT OF DAIRY AND POULTRY SCIENCE

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MAY, 2018

Dedicated to
My
Beloved Parents
And
Teachers

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'The Author

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ABSTRACT

The aim of this study is to review the current status of sonali chicken production, problems and its future prospects in Bangladesh. The study was conducted to review the production system, costing, feeding, management, disease prevalence and others problems and prospects of sonaly chicken and assess the potentiality of sonali chicken rearing in rural areas of Bogra and Joypurhat district of Bangladesh. Data were collected randomly from 70 sonali chicken rearing farmers using a pre-tested interview schedule during February to April 2018 from different areas of Bogra and Joypurhat District. The result revealed that most of the farmers (43%) were middle aged, about (4%) farmers were illiterate, about (43%) wife and (16 %) sons of farmer's household were responsible for sonali rearing. All farmers reared sonali in intensive system. About 59% farmers used rice husk, 6 % use saw dust and 10% use both rice husk and sawdust for bedding material of their birds house. Most of the farmers (56%) mentioned that the most prevalent disease was mycoplasmosis (80 %), gumboro 22.85% and coccidiosis 51.42%. Newcastle disease outbreak was found in 5% of farms and their chicken mortality was 7.83%. About 54.28% farmers maintain vaccination schedule properly and 44.28% of them maintain vaccination schedule but improperly 1.42% farmers did not maintain any vaccination schedule. The price of day old chick was 14.6 ±4.33 Tk. and 58% farmers sell adult birds at the age of 65.14±3.47. 175-190. Most of the farmers (81.25%) stated that the sonali chicken farming is increasing day by day. On the comparison of sonali with broiler production the study showed that the costing is of sonali production lower than broiler farming and the farmers are more benefited about sonali farming than broiler farming. It was concluded that sonali rearing knowledge of the farmers proper vaccination and such as feeding, vaccination, Training housing, prevention and control of diseases are not satisfactory of this areas, training to the farmers, ensuring proper vaccination, financial and technical support to the farmers, ensuring satisfactory market price of their final products could increase the sonali chicken farming with increased household income and employment to youth, rural women and the small-holder marginal farmers.

Key words: Sonali chicken farming, present status, problems, prospect, Bogra, Joypurhat

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CHAPTER-I
INTRODUCTION

Bangladesh is an agro-based developing country and the growth and sustainability of agricultural production are pre requisite for attaining the rate of overall growth of the economy. Livestock is an important sub-sector of agriculture. Poultry is one of the major components of livestock sub-sectors that committed to supply cheap sources of good quality nutritious animal protein to the nation. Poultry farming has turned out to be promising dynamic enterprise with enormous potential for rapid poverty reduction in Bangladesh. Poultry farming provides a substantial economic contribution and generates self-employment opportunities for the unemployed youth generation. A noticeable development has been taken place in poultry farming in Bangladesh. The growth trend of the poultry population of Bangladesh over the past few years. It is observed from the table that the increasing rate is satisfactory throughout the period with little exception.

The overall contribution of the broad livestock in GDP (2016-17) at constant price was 1.6 percent (BER 2011). In agriculture sector, contribution of crops, livestock and forestry were 11.24, 2.57 and 1.71%, respectively. Commercial or intensive poultry farming has now turned into a profitable business in Bangladesh. Poultry industry in Bangladesh has made significant progress during the last two decades where commercial poultry started in 1980 in Bangladesh. Chowdhury (2013) stated that commercial poultry increased significantly during 1980-1990 (6%) and 1990-2000 (8%) in this country.

Bangladesh is still now one of the lowest meat consuming countries in the world. Here per capita meat consumption is only 121.74 gm per head per day and per capita egg consumption is also about 92.75 eggs per head per year. With increasing incomes of the people, the demand for meat, especially the cheaper option of poultry meat, and eggs is set to rise.

More importantly, sonali becomes a promising poultry in Bangladesh due to their smaller body size, less susceptibility to poultry diseases, easy management, consumers choice, high quality but less fiber meat, less labor cost required than broiler farming. Nowadays the rearing s

Sonali is become popular day by day like broiler farming. Scientific feeding, training to the farmers about their management, creating organized marketing channel will be the probable solution for vitalizing the sonali farming in Bangladesh. Traders can sell Sonali at higher prices than local chickens. The Sonali population has been increasing and in 2010 about 150.9 million Sonali Day Old Chicken (DOCs) were produced, representing about 35 percent of the country's total commercial broiler and layer production (Huque, 2011).

Table 1. Numbers of poultry population in Bangladesh (numbers in lakh)

years	chicken	duck	Total poultry
2009-10	2280.35	426.77	2707.12
2010-11	2346.86	441.20	2788.06
2011-12	2428.66	457.00	2885.66
2012-13	2490.10	472.53	2962.64
2013-14	2553.11	488.61	3041.72
2014-15	2617.70	505.22	3122.93
2015-16	2683.93	522.40	3206.33
2016-17	2751.83	540.16	3292.00

Source: *BER 2017*

This country has already marked for its poverty, external dependence and unemployment problem. In this situation, Sonali chicken farming would be an excellent and appropriate way to promote the nutritional and economic security of the people living in rural, tribal and inaccessible areas in a sustainable manner. Sonali chicken production provides higher returns to the farmers. This enterprise is gaining popularity in the country day by day due to its high yield potentiality, less susceptibility to diseases than broiler, consumers preference, low mortality rate and high quality meat yield. Although proper management and appropriate level of input use are important for achieving such higher yield and profits.

Very few research works had been done on the potentiality, productivity and profitability of sonali chicken rearing. To increase the productivity of sonali chicken, the present status, problems and prospects are needed to be assessed for economic rearing of Sonali

chicken in Bangladesh. Therefore, the present experiment was undertaken to know the present status and existing production system of sonali chicken and assess the problems and prospects of Sonali chicken rearing in the rural areas of Bogra and Joypurhat district.

Objectives of the study

- To study the socio-economic parameter of Sonali farming in Bogra and Joypurhat district.
- To compare the cost benefit analysis of Sonali with broiler.
- To identify problems and gives some recommendation in Sonali farming.

CHAPTER-II
REVIEW OF LITERATURE

History of sonali chicken farming in Bangladesh

Sonali chicken is the crossbreed of Fayoumi female and RIR (Rhode Island Red) male developed in 1986, has been reported to perform better with respect to egg and meat production, rapid growth and low mortality under scavenging, semi-scavenging and intensive farming system. It has been taking its place besides the indigenous chicken due to its well adaptability and acceptability in the environmental conditions of Bangladesh. It was introduced in 1996– 2000 in northern parts of Bangladesh.

The Sonali has he similar phenotypic appearance with the local chicken that creates its higher market demand than exotic breed. As an important segment of livestock production, the Sonali chicken industry in Bangladesh is considered a great avenue for the economic growth and simultaneously creates numerous employment opportunities. About 76 percent of Sonali beneficiary has improved their conditions by rearing this type of poultry (Hossen *et al.*, 2012).

It is mentioned that a substantial majority of the population suffers from vary in gdegrees of malnutrition, including protein-energy deficiency, micro-nutrient deficiencies, iodinedeficiency disorder, iron deficiency, anemia, and vitamin deficiencies, who semajorportionare recovered from poultry sector.

Cattle and fish production require alonger time. But poultry production is relatively faster and easier, if government and private sector initiatives goside by side. A recent

report titled‘ Climate change as a security risk’ indicated to the probablelossl and through flooding in this part of the world. Bangladesh is a densely populated country. Agricultural land is limited and is reducing a tone percent per annual. A solution to the is sue of farm land depletion could befor mulation of a sensib leand realisticl and-use policy. Poultry is most probably the only sector that can grow vertically and produce maximum amount of egg and chicken using the minimum land. Moreover, from the poultry industry, biogas and organic fertilizer can be prepared we well.

Livestockis an important sector in the national economy. These sector is playing an important role in the national economy by contri but in significantly to agriculture and the gross national product. Again, it plays a significantrole in the rural socio-economic condition as maximum house holds are directly in volved in livestock production. In the nineties total investment in the poultry sector was only Tk15 hundred core, but now it is more thanTk15 thousand core. Poultry sector will create employment opportunity for10 million peopleas claimed by poultry leaders in around tabletitled―Present Cris is and Prospects of Poultry Industry in Bangladesh (Source: Financial Express, Bangladesh 23 July, 2010).

Recently declin in gtrend in the poultry industry has been creating a problem for the country. The poultry farmers are suffering severely from the lack of security of the irfarms and investment. Every year, thousands of farms are collapsing due to birdflu out break and many for the ir in capability to buy high priced poultry in gredients and absorblosses from market pricefall. Solvent farmers are becoming poor overnight. The out break of some diseases coupled with risen feed cost appears to be the major set backs for this industry in Bangladesh.

Hossen *et al.,* (2012) conducted a study to find the problems and prospects of sonali farming in Joypurhat district. Data was collected randomly from different sonali farms. The study outlined major concerns focusing on the entire problems. The following points have been finally considered as comprehensive issues. Lack of quality chick, lack of day old chick, high price of feed but low price of live birds, marketing problems, lack of quality vaccine, insufficient bank loan and weak national policy. Although these farmers faced these problems but they inclined to sonali farming to overcome all the problems due to sonali farming provided as additional income, as a profession, as a profitable business, need less capital, production management is easier, low morbidity and mortality, less

disease susceptibility and uses household labors. It was represented that the educated person is 80.66 percent in respect of different level of farm size.

Uddin *et al*., (2014) conducts a study to attempts an economic analysis and resource use efficiency for Sonali chicken production covering five villages of Sadar Upazila under Gazipur district. Primary data were collected from 60 purposively selected Sonali chicken rearers for this study. Descriptive and functional analysis was employed to achieve the objectives of the study. The major findings of the study are that total cost for 1000 birds were estimated at Tk. 120613 per batch. Average gross margin and average net returns for 1000 birds was calculated at Tk. 57240 and Tk. 52059 per batch. An average gross return for 1000 birds was estimated at Tk. 172672 per batch. Benefit cost ratio was found 1.4 for Sonali chicken production. Labor, veterinary and medicine and electricity cost had positive and significant impact on Sonali chicken production. Resource use efficiency was calculated by the ratio of marginal value product and marginal factor cost. Finally, the study also identified some of the major problems associated with Sonali chicken farming and suggested some possible steps for overcoming these problems.

Akter and Uddin (2009) argue that as an important sub sector of livestock production, the poultry industry in Bangladesh plays a vital role in economic growth and simultaneously creates numerous employment opportunities. The poultry industry, as a fundamental part of animal production, is committed to supply the nation which a cheap source of good quality nutritious animal protein in terms of meat and eggs.

Talukdar *et al.*, (2017) was conducted a study to determine the prevalence of infectious diseases in Sonali chickens at Bogra Sadar Upazila, Bogra, Bangladesh. He was recorded Infectious Bursal Disease (IBD) 14.72% cases. Similarly Newcastle Disease, Coccidiosis, Collibacillosis, Mycoplasmosis were in 11.24%, 13.95%, 14.72%, 12.79% cases, respectively. Mixed infection of IBD, ND and Coccidiosis found in 16.67% birds. On the other hand, mixed infection of IBD, ND and colibacillosis he recorded in 15.89% cases. He concluded that several infectious diseases are commonly present in Sonali chicken in the study area of Bangladesh. Mixed infections are more prevalent as compared to single infection. Proper hygienic management and appropriate vaccination should be taken in consideration for effective control the diseases.

Khan *et al.,* (2006) observe that Local chickens dominate Poultry production in Bangladesh. In Sylhet mainly poor families, who have arrived from outside and are land lessrear Poultry. Most of the house holds (58.33%) had 0-15 chicken. Most of the families (75%) reared their chicken in combined house with duck. Materials used for housing were similar too the parts of the country. Mainly femalemember were involved in poultry rearing. About fifty percent farmers go to nanaver age less than 70 eggs per year per bird. A few farmers (5.56%) in formed that they had collected more than130 eggs from a bird in a year. Highest egg production was observed in winter season (52.78%) followed by summer, spring and lateautumn.

Biswas *et al.,* (2006) in a 1-year-long prospective longitudinal study, we determined the causes of loss of 'Sonali' (male symbol Rhode Island Red x female symbol Fayoumi) chickens at key-rearers' households of the smallholder livestock development project-2 (SLDP-2) area in Bangladesh. A key rearer is a smallholder of chickens in the 'village poultry-production chain' (undertaken by SLDP-2 under the financial assistance of the DANIDA) who rears at least five Sonali and some 'Deshi' (non-descriptive and indigenous) chickens in their homesteads based on semi-scavenging system. The aim of this program is to ameliorate poverty, especially among women. Two co-ordination centers (set at the Potua khali and Noakhali districts) supervised the development activities. We selected two upazilas (lower administration units) randomly from each of the two districts and in every selected upazila, we selected at random 125 key-rearer households. Incidence rates of loss of Sonali chickens from disease, predation, selling and slaughtering were 0.025, 0.023, 0.081 and 0.039 per bird-month at risk, respectively. The major predators of Sonali chickens in the study area were foxes, a kind of wild cat (Felischaus), mongooses and human thieves. Colibacillosis (both single and mixed infections) had a contributory role in the death of 28% of dead Sonali birds collected for diagnosis; salmonellosis, Newcastle disease and internal parasites contributed to the next highest (14, 11and Sonali intensive meat producing farms achieved higher net returns as well as BCRs per bird and per batch than those of commercial broiler farms. With the same flock size, farmers rearing semi-scavenging Sonali could raise almost twice as much income of farmers rearing local non-descript birds under the traditional production system.

Rahman *et al.,* (2015) was conducted a study to assess the technical, economic and social performance of Sonali birds compared with the performances of commercial broiler, commercial layer and local non-descript/*deshi* chickens. The study was conducted in four districts of Bangladesh: Joypurhat, Mymensingh/Gazipur, Bogra and Naog-aon.

The economic performances of different types of birds revealed that the net change in inventory was positive for all enterprises in the study areas. The major cost items were human labour, feed, veterinary services, electricity and transport. Most farms raising non-descript and semi-scavenging Sonali birds used crop by-products for feeding. As a result, their feed costs were lower than those of other enterprises.

In all regions, almost all the farmers of all types of bird started their businesses with their own resources. Some borrowed from family members or moneylenders. Sonali intensive, commercial broiler and commercial layer farms employed more hired labour, while Sonali semi-scavenging and local non-descript farms depended mainly on family labour. The study found that Sonali birds were used mainly for meat production, where they performed better than other birds in terms of adapt-ability and BCR. People also prefer Sonali chickens to indigenous birds.

The study team recommends carrying out further detailed study into the productive and reproductive performance of Sonali birds in comparison with that of commercial broilers to establish the long-term sustainability of Sonali production systems.10%) proportional mortalities.

Rouf *et al.,* (2017) was designed a study to identify the prevalence and pathology of Infectious Bursal Disease (IBD) of Sonali chicken at different upazila in Gaibandha Distict of Bangladesh in a short six month duration starting from Janury to June 2014. Eight sonali chicken farms with sum of 3230 birds of various age groups from four different upazila like Sadar, Palashbari, Suddulapur and Gobindogonj were suspected for Infectious Bursal Disease (IBD). On the basis of detail about farm history, clinical signs and postmortem investigation of infected chicks, the prevalence of IBD was 10%, 10.95%, 7.89% and 12% in Sadar, Palashbari, Suddulapur and Gobindogonj upazila respectively with an overall prevalence 10.21% at Gaibandha district. The prevalence of IBD in sonali chickens was the highest (11.98%) at 4^{th} week of age and the lowest (7.88%) at 6^{th}week of age. No sonali chick was identified as positive for IBD in their first

two weeks of age. The highest mortality was observed at Gobindogonj upazila (5%) and the lowest (3.80%) at Palashbari upazila with total mortality rate 4.19%. The necropsy findings of infected chicks revealed hemorrhages on thigh and brest muscles; enlarged, edematous, hyperemic and hemorrhagic Bursa of Fabricious followed by atrophy. In some cases kidneys were found swollen. Severe lymphoid depletion and reactive cells infiltration in the intermolecular space were found in histopathological studies by using H & E stain. Therefore, it was concluded that susceptibility of chicks to IBD is influenced by its age. Ruffled feather, depression, whitish diarrhea with hemorrhagic muscles and in flamed, edematous, hyperemic Bursa of Fabricious is attributable to Infectious Bursal Disease (IBD).

Banerjee (2004) finds that in comparison with other livestock, Poultry requires less investment to start the farming. People from low income group may also start the business on a small scale. Poultry farming creates the opportunities for fulltime or part-time employment opportunity particularly women, children or elderly person on the farm operation.

Dutta *et al.,* (2013) was designed a study to assess the production performance and economic efficiencies of Broiler, Cockrel, Foumi, RIR and Sonali available in Rajshahi. He observed that the meat productivity of broiler attain the height the BWG as well as FCR compared to the sonali and fayoumi where as Fayoumi showed the lowest value for BWG and ISA brown for FCR .The body weight gain was statistically significant between the breeds although insignificant difference in BWG existed between sonali and ISA brown.

Marketing systems play a decisive role in vibrant economies as mechanisms for both exchange (necessary for specialization and hence leads to higher economic growth) functions and the proper coordination of the exchange (through price signals) which reflect and shape producer and consumer incentives in supply and demand interaction. If small scale domestic producers are to take advantage of the projected domestic demand growth, then marketing systems in the supply chains linking producers to consumers must be able to support low cost production and timely delivery of the products (Andrew *et al.,* 2008).

In Bangladesh, information concerning the chicken marketing system is lacking. Despite the high demand for poultry products, producers in Bangladeshis are not market oriented and the production system is characterized by its low productivity and scavenging type. This in turn leads to very small supply compared to the high potential the country has in the sub sector. Research effort to increase chicken production and productivity has been underway in Bangladesh. But review of past research works indicate that the research largely concentrated on the biological aspects of poultry production such as supplementary feeding and breeding (Alemu and Tadele, 1997). Increased production, however, needs to be accompanied by efficient marketing system that adds place, form, time, and possession utility to the product along the supply chain. The marketing system for local poultry in Bangladesh, particularly in the study areas is poorly developed. This study was intended to analyzing poultry marketing system, business support services and their role, constraints and opportunities of the sub sector and factors that affect chicken market participation and volume of poultry supplied to the market to generate information about the entire supply chain of poultry in the study area.

Diseases of Sonali chicken

Hassan *et al.,* (2017) was performed an experiment on pathological investigation of diseases in Sonali cross bred at Joypurhat district of Bangladesh was carried out from January, 2013 to June, 2013.He was collected a total of 294 dead birds he from different Sonali farms and history, clinical signs, characteristic gross morbid lesions and histo-pathological study he done. He was recorded the highest proportional incidence of the disease in Sonali was (25.51%) for infectious bursal disease (IBD) followed by Coccidiosis (21.09%), Newcastle Disease (19.39%), Colibacillosis (15.31%), Salmonellosis (8.5%), Fowl pox (5.10%), miscellaneous disease conditions (2.04%), Deficiency Disorders (1.36%), Aspergillosis (1.02%) and Aflatoxicosis (0.68%). The findings indicate that infectious bursal disease (IBD) was the major disease problem in Sonali farming at Joypurhat.

CHAPTER-III
MATERIALS AND METHODS

3.1 Steps of the study

Data collection method

Among different method of data collection survey method was preferred. The interview schedule is provided in the appendix 1. Following steps were followed to conduct the survey.

3.2 Selection of the study area

The survey was conducted in two districts of Bangladesh: Joypurhat and Bogra (Figure 2). These districts were considered representative in terms of availability of Sonali chicken. At least three upazilas were selected from each district based on the concentration of poultry rearing.

3.3 Sampling procedure

Before selecting survey samples, a list of upazilas and villages was prepared in consultation with government officials, the local offices of non-governmental and poultry dealers/agents. Farms were selected randomly from the sample frame, which was created through discussions with different shareholders. Data and information were collected from a specific locality at the same time to avoid survey errors.

3.4 Sources of data

The study used both primary and secondary data. The main source of primary data were the 300 farmers from whom both qualitative and quantitative data were collected. Secondary data and information were collected from 70 sonali farm of different area of Bogra and Joypurhat district.

3.5 Period of data collection

Data were collected from February to May, 2018. Collection of data was done through several visits each of the poultry farms by the researcher.

3.6 Reasons for the selection of the study area

Availability of the sonali chicken farm in the study area is the main reasons for the selection of the study area. Good communication facilities and less expense conducting the study. Joypurhat and Bograare the sonali chicken zone and the farmers are more co-operative to the researcher.

3.7 Sampling techniques

Samples of representative farm were collected in such a way that the information to be collected must satisfy the purpose of study. A random sampling was followed. It was pre-tested for judging for suitability of schedule for respondents. After compilation of the pre-tested survey some new information was included and some excluded from the draft schedule. Then the draft schedule was improved, rearranged, 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 socioeconomic condition. The following information's were considered.

3.8 Compilation of data

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

3.9 Problems faced during data Collection

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

1. Most of the respondents hesitated to give their actual information about their production income, capital, etc.
2. Most of the respondents were doubtful about the purpose of the study because the have no previous ideas.
3. There was the limitation of time. All of the necessary information were collected within the shortest possible of time
4. In reply to question, the respondent used local units of measurement, which were often difficult to convert these to standard units.

5. Most of the farmers did not keep any records of their business, therefore it was difficult to recall and the researcher had to depend upon their memory.
6. Sometime the respondent did not co-operate willingly with the researcher as their have no direct benefit by supplying information. However the researcher very ardent in developing relations with the respondents and data were collected with fervor and contentment.

3.10 Data processing and analysis

Data collected from the field were entered into computers using MS Excel. For the analysis of the data, a combination of descriptive statistics (mean, standard deviation, averages, percentages, etc.) and mathematical techniques (gross margins, net returns, benefit/cost ratios [BCR], etc.) were used to obtain meaningful results.

CHEPTER-IV
RESULTS AND DISCUSSION

4.1 Education of sonali farmers

In the study area, it was showed that 5.71% farmers were illiterate followed by 14.28% had primary education, 44.28 had up to secondary education and rest 35.71% had above secondary level of education (Table 1).

Table: 1 Education of sonali farmers

Educational group	Poultry farmers	
	No.	%
Illiterate	4	5.71
Up to primary(1-5)	10	14.28
Up to secondary(6-10)	31	44.28
Above secondary(11-above)	25	35.71

4.2 Age of sonali farmers

Age of the Sonali farmers ranged from 25 to 70 years. The farmers were stratified into 3 age categories; namely young <32, middle age 33-50 and old >50 (Table 2). The average age of Sonali farmers was 47.11. The stratification agrees with Rahman (2009). He observed the average age of Sonali farmers was 43.52 years.

Table: 2 Age of sonali farmers

Age group of poultry farmers (years)	Poultry farmers		Mean (age)	Standard deviation
	No.	%		
Young age(<32)	16	26.66	47.11	14.31
Middle age(33-50)	30	42.85		
Old age(>51)	24	34.28		

4.3 Size of the farm

According to flock size of the birds, the farmers were classified into four categories; namely very small, small, medium and large. Average number of birds per farm was 1917 with standard deviation of 1055 and number of birds per farm ranged from 300 to 5000. The (Table 3) revealed that 5.71% farm were very small 12.85% small, 20% medium and 11.42% farmers were large category.

Table: 3 Size of the farm

Size of the farm	Poultry farms		Mean	Standard deviation
	No.	%		
Very small(<700)	8	5.71	1917	1055
small(700-1500)	18	12.85		
Medium(1501-2500)	28	20.00		
large(>2500)	16	11.42		

4.4 Member involved in sonali rearing

In taking care and management of duck, wife, son and daughter of the farmer were responsible. Table shows that 80% of wife of farmers' household were responsible to take care of ducks rather than son, daughter and others.(Table 4)

Table: 4. Member involved in sonali rearing.

Members	No.	%
Wife	30	42.85
Son	11	15.71
Wife and daughter	7	10
Son and daughter	8	11.42
Brother	4	5.71
Employed labor	10	14.28

4.5 Rearing system

All the farmers in the study area reared Sonali in intensive system.

Table: 5. Bedding materials

Name of the bedding materials used	Poultry farms	
	No.	%
Rice husk	59	84.28
Sawdust	6	4.28
Mixture of sawdust and rice hull	10	7.14

Variation of bedding materials in the house was observed. It was shown that 94% farmers used rice husk for bedding materials and rest 6% farmers use saw dust and 15% use mixture of rice husk sawdust for bedding materials in chicken house. Figure shows that about 42% farmers used sand as bedding materials, followed by 28% farmers used sand and ash, 8% farmers used ash, 8% farmers used paper and rest of the farmers used curtain, ash and paper in duck house.(Table 6)

4.6 Disease prevalence in the study area

It was observed that most prevalent diseases of sonali farms were Mycoplasmosis, Colibacillosis, Salmonellosis, Coccidiosis and Infectious Bursal Disease in the study areas. About 80 % farmers stated that their chicken were affected with Mycoplasmosis, 51.42% farms were affected with Coccidiosis and 41.42% farms were affected with Colibacillosis, gumboro was found in 22.85 percent farms respectively (Table 6).

Table: 6 Disease prevalence in the study area

Disease	No. of farms	%
Mycoplasmosis	56	80
Coccidiosis	36	51.42
Gumboro	16	22.85
Salmonellosis	21	30
Colibacillosis	29	41.42
Aspergillosis	3	4.28
Marek	4	5.71
Newcastle disease	5	7.14

4.7 Mortality of birds

Mortality of ranged 0-35% with an average of 7.82%. The farmers were categorized into three groups; namely low (<10%), medium (10-20%) and high (>20%) (Table 7).Table shows that about 69% farmers reported that their birds mortality was 10-20%.About 9% of the farmers reported that their birds mortality was above 20%.

Table7. Mortality of birds

Mortality rate	Poultry farms		Mean	Standard deviation
	No.	%		
Low (<10%)	54	68.51	7	5.14
Medium (10-20%)	10	17.14		
High (>20%)	6	8.57		

4.8 Land size of the farm

The land size of the was measured for each respondent in terms of decimal. The land size of the farm ranged from 5 to 45 decimal with a mean of 17.05 decimal and standard deviation of 9.07.(Table 8)

Table: 8 Land size of the farm

Category/Land size(decimal)	Poultry farms		Mean	Standard deviation
	No.	%		
Small(5-20)	54	77.14	17.05	9.07
Medium(21-40)	12	17.14		
Large(>40)	4	5.71		

Analysis of data revealed that 77.14% of the farmers farm land size was small, 17.14% medium and 5.71%were large. According to Bangladesh Bureau of Statistics (1998) the7farm holding is 1.33 acres. The average farm land size in the study area was found 17.05 decimal which are lower than that of farm holding average of 1.33 acre. These finding indicates that comparatively poor farmers in term of land use are involved in the sonali chicken farming.

4.9 Sources of DOC (Day Old Chick)

Most of the farmers take their Day Old Chick from local hatchery. There were various local hatchery like Akash, Ayon, PalliBandhu, Sharna Krishan and others local hatchery in the study areas.

4.10 Counselor of the farmer

The table showed that 34.28% of the farmer take their suggestion from technical graduate, 11.42% from Government organization 8.57%, from NGO 40% , from dealer and 5.71% did not take any suggestion from any one (Table 9).

Table: 9 Counselor of the farmer

Counselor	Poultry farms	
	No.	%
Technical graduate	24	34.28
GO	8	11.42
NGO	6	8.57
Dealer	28	40
None	4	5.71

4.11 Vaccination of the birds

Among total 70 farmers the 54.28% farmers vaccinated their birds regularly, 44.28% vaccinated irregularly and 1.42% farmers did not vaccinated their birds.(Table 10)

Table: 10 Vaccination of the birds

Category	Poultry farms	
	No.	%
Vaccinated regularly	38	54.28
Vaccinated irregularly	31	44.28
Non-vaccinated	1	1.42

4.12 Price of DOC

The price of Day Old Chick ranged from 9 taka to 25 taka with mean of 14.4 and standard deviation of 4.33 Tk. (Table 11).

Table: 11 Price of Day Old Chick ranged (DOC)

Taka/DOC	Poultry farms		Mean	Standard deviation
	No.	%		
9-12	12	17.14	14.6	4.33
13-15	10	14.28		
16-19	7	10		
20-23	5	7.14		
24-above	2	2.85		

4.13 Feed price

The price of Day Old Chick ranged from 9 taka to 25 taka with mean of 14.4 and standard deviation of 4.33 Tk. (Table 12).

Table: 12 Feed price of Day Old Chick ranged

Taka/kg feed	Poultry farms		Mean	Standard deviation
	No.	%		
37	10	14.28	38.62	1.33
37.50	12	17.14		
38	16	22.85		
39	14	20		
40	8	11.42		
41	10	14.28		

The price of Day Old chick ranged from 9 taka to 25 taka with mean of 14.4 and standard deviation of 4.33 Tk.(Table 12).

4.14 Market age of the birds

From the fowling table it was reported that the market age of the birds ranged from 60 to72 with mean of 65.14 and standard deviation of 3.47.The market age of the birds varying depends on the feed consumption and weight gain of the birds and due to fluctuation of the market price of the birds.(Table 13).

Table: 13 Market age of the birds

Market age	Poultry farms		Mean	Standard deviation
	No.	%		
60	6	8.57	65.97	3.39
62	6	8.57		
64	12	17.14		
65	18	25.71		
68	10	14.28		
70	14	20		
72	6	8.57		

4.15 Farmers training for the sonali farming

From the table below it is found that 8.57% of the farmers taken training and about 91.42% of the farmers did not taken any training. For the optimal production and profit the development training program on sonali farming for the farmers is necessary. (Table 14)

Table: 14 Farmers training for the sonali farming

Training	Poultry farmers	
	No.	%
Taken	6	8.57
Not taken	64	91.42

4.16 Market weight of the birds

The market weight of the birds ranged from 675gm to 760gm .The average weight of the birds is 737.28gm with standard deviation of 20.88gm (Table 15).

Table: 15 Market weight of the birds

BWG/bird	Poultry farms		Mean	Standard deviation
	No.	%		
675-690	4	5.71	737.28	20.88
691-705	6	8.57		
706-720	8	11.42		
721-735	25	35.71		
736-750	17	24.28		
751-above	12	17.14		

4.17 Farm size based on the annual income of the farmers

Income of the farmers refers to the total earning by the farmers from agriculture, livestock, fishing, business and other mean of non-agriculture sources.(Table 16)

Table: 16 Farm size based on the annual income of the farmers

Annual income (taka)	Poultry farmers		Mean	Standard deviation
	No.	%		
Low income(<100000)	38	74.28	128485.7	67189.53
Medium(100000-2000000	24	14.28		
High income(>200000)	8	411.42		

4.18 Batch per year reared by the farmers in the study area

In the study area about 5.71% of the farmer rear 2 batch per year, 17.14% of the farmer rear 3 batch per year, 42.82% rear 4 batch per year and 34.28% of the farmers rear 5 batch per year with mean of 4.05 and with the standard deviation of .87 in the study area (Table 17).

Table: 17 Batch per year reared by the farmers in the study area

Batch per year	Poultry farms		Mean	Standard deviation
	No.	%		
2	4	5.71	4.05	0.87
3	12	17.14		
4	30	42.85		
5	24	34.28		

4.19 Feed Conversion Ratio

The Feed Conversion Ratio was varied from one farm to another. These variations was due to management, quality of feed and chick and disease prevalence in the study area. The average FCR was 2.67 with standard deviation of 0.15 in the study areas.(Table 18)

Table: 18 Feed Conversion Ratio

FCR Range	Poultry farmers		Mean	Standard deviation
	No.	%		
2.40-2.55	16	22.85	2.67	0.15
2.56-2.70	26	37.14		
2.71-2.85	18	25.71		
2.86-3.00	10	14.28		

Table: 19. Comparative cost benefit analysis of 1000 sonali and 1000 broiler

Field of costing	Cost of 1000 sonali chicken rearing (taka)	Cost of 1000 broiler rearing (taka)
Feed cost	2000kg×38.62 =77240	2500 kg×43 =1,07,500
Day Old Chick cost	1000×14.6 =14600	1000×36 =36000
Medicine and vaccination cost	9000	10000
Labor cost	7000	7000
Litter cost	1500	2000
Electricity cost	1500	1000
Transportation cost	2000	2500
Others cost	1000	2000
Total cost	113840	1,68,000
Total sale	930×0.728 kg =677kg×210 =1,42,178	900×.1800 kg =1620×115 =1,86,300
Profit	Total sale-total cost =1,42,178-1,13,840 =28,338	Total sale-total cost =1,86,300-1,68,000 =18,300
Benefit-Cost ratio	24.89 %	10.89 %

Sonali chicken farming require less investment to start and also provide higher cost benefit compare to the broiler farming (Own analysis). Production cost of per 1000 sonali chicken is 113840 tk,where the production cost of 1000 broiler is 1,68,000 Tk . Due to lower production cost and comparatively higher pricing sonali farming provide higher cost benefit ratio (Table 19).

4.20 Some common features in the study area

4.20.1 Litter

Most of the sonali farmers use deep litter system: Most of the farmers use rice husk for bedding materials of their birds. Rice husk is used due readily availability of the rice mill and availability of the rice husk in the entire round and for cheaper cost of the rice husk.

4.20.2 Brooding

Brooding management is poor in the study area though brooding is the most important factor poultry farming. Most of the farmers follow spot brooding, some of them follow whole house brooding. Many of the farmers does not use thermometer as a result proper temperature is not maintain during period.

4.20.3 Ventilation

Most of the farmers does not keep proper ventilation system in the shed. Most of the shed covered with polithin or cloth and as a result ammonia gas is entrapped with in the shed and produced different diseases like ascites , respiratory problems and others.

4.20.4 Lack of capital

It is a very common problem for the farmers. Due to lack of adequate capital they take their chick, feed and medicine from dealer at high price and as a result they become less profitable.

4.20.5 Antibiotic uses

Many of the farmers use antibiotics indiscriminately and at improper doses. In such cases the organisms become resistant against this antibiotics and when the diseases become outbreak it cannot be controlled by this antibiotics.

4.20.6 Improper biosecurity management

It is observed that in most of the farms strict biosecurity management did not maintain properly. Visitors and others personnel could easily enter into the farms. The farmers did not use foot bath. Wild birds, rodent and insect controlling in poor in these farms.

4.20.7 Recommendations to improve sonali farming

a) Training is necessary to all sonali farmers for better brooding management, feeding and other management to get better production.
b) Proper vaccination schedule against common diseases should be ensured.
c) Good quality of Day Old Chick (DOC) should be supplied to the farmers. Vaccine and medicine should be available in the market.
d) Government should give financial and technical support to farmers for rearing chicken.
e) Biosecurity management is the most important part in poultry farming. Proper biosecurity management should be ensured to reduced disease prevalence and for optimal weight gain of the chicken.
f) Government should establish strict rules and regulation against feed ,vaccine and medicine companies to ensure quality.
g) Government should ensure proper market price of the ready birds.
h) Sonali chicken rearing in the rural areas of Bangladesh could be a good source of income, nutrition and employment generation, especially for the unemployed youth and the small-marginal farmers.

4.20.8 Essential operations to be carried out prior to receiving chicks

- Cleaning and disinfection of poultry house.
- Spreading litter material.
- Form a circle of about 5 feet diameter with brooder guard which can hold about 200 to 250 chicks.
- Newspaper, heat source, feeder and waterer arrangements inside the brooder guard.
- Spread ground maize or fine mash / crumble feed on the newspaper.
- Check the brooder for proper temperature of 90 to 95^0 F.

4.20.9 Essential operations to be carried out after receiving chicks

- After arrival of chicks, moist the beak and leave the chicks under heating source.
- Maintain a brooder temperature of 90 to 95^0F for the first week and then reduce 5^0F every week until it reaches the room temperature.
- First and second day provide electrolytes and vitamins in drinking water to overcome stress.
- Watch the behaviour of chicks in order to find out whether temperature provided is correct or less or more.
- In case of too much temperature, we can reduce the heat by reducing the power of the bulb or we can raise the heating element.
- In case of too low temperature, we have to supplement more heating source or we can further down the heating element.
- 24 hours lighting programme may be adopted during 0-8 days of age.
- One hour darkness may be provided to train the chicks in case of any power failure.
- Remove the old newspaper after 3 days and destroy it by burning. If necessary, spread another set of newspaper.
- Remove brooder guard after 7 to 10 days depending upon the season.

CHAPTER- V
CONCLUSION

The study concluded that most of the farmers are middle aged. Proper biosecurity management should be maintained in the study areas. Government should provide necessary steps to improve the production systems. In the study area, the farmers were not taken any training on the farming method. So government should provide them necessary training on Sonali chicken production. Chicken rearing knowledge such as breeding, feeding, housing, prevention and control of diseases are not satisfactory of the farmers. Therefore, a need-based extension program should be introduced among the farmers giving more focus on building awareness and ability about sonali chicken production.

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APPENDICES

INTERVIEW SCHEDULE

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Questionnaire (English version) for conducting survey to assay "Present status, problems and prospect of sonali chicken farming in some selected areas of bogra and joypurhat district in Bangladesh"

Date:…….

1. Farmers information:

Farmer's name…… Mobile no……

Father's /Mother's/Husband's name……

Village…… Post office…….Union……

Upazilla……..

2. Age……years

3. Occupation:

Main occupation…….. Secondary occupation……..

4. Educational qualification:

a. Illiterate b. Up-to primary

c. Above primary up-to secondary d. Above secondary

5. Did you take any training before starting poultry farming? (√) Yes / No

If yes then from where……..

a. GO b. NGO c. University d. Others

6. Major income sources: Secondary income……

1. From cultivable land.....tk/year
2. From livestock…….tk/year
3. From poultry……tk/year
4. From fishery……..tk/year
5. From service……tk/year
6. From business……tk/year
7. From others sources……tk/year

7. Counseling:

I. From where do you take your technical support? ……..

None / NGO/ Technical graduate / Private Expert / Dealer

8. Cost benefit:

Are you benefited? : (Yes / No)

- Capital: Own capital / Loan
- Labor use……Man/500 birds
- Labor cost……....tk
- Feed cost……tk
- Litter cost……tk
- Medicine cost……tk
- Day Old Chick(DOC) cost.....tk
- Others cost……..tk
- Total sales ……tk

9. Do you have the power supply? (√)Yes / No

10. Source of land:

1. Homestead
2. Own land under own cultivation

3. Own land give to other /borga

4. Land taken from others /borga

5. Land taken from others or lease

6. Lease

10. Land size of the farm :……(Decimal)

12. Farm size on basis of no. of birds reared by the farmer (√):

I. Very small (<500)
II. Small(501-1000)
III. Medium(1001-2000)
IV. Large(2001-above)

13. Information about poultry reared in the farm:

Type of birds	No. of shed	No. of birds / shed	Sources of DOC	Price of DOC (tk/chick)
Sonali				

14. What kind of problems do face in case of collecting quality chick ?

……

……

……

15. Information about feed:

What type of feed is generally being used? (√)

1. Readymade formulated feed / 2. Own mixed feed

Do you follow any 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:

1. Readymade …….tk/kg / 2. Hand mixed……..tk/kg

Do you face any problem? If yes, please mention the problems [1. Yes /2. No]

……

……

16. Do you follow the vaccination schedule regularly? (√) [1. Yes /2.No]

Name of the vaccine used……

……

- From where do you collect your vaccine? (√)

  [1. GO / 2. NGO / 3.Dealer / 4. Private Experts / 5. Others]

17. Marketing and means of transportation of final products

- Marketing age of birds……days
- Please mention the market price…….tk/kg
- Who are the purchaser of your products?…….
  ……
- Do you take it to the near market? (√) [1. Yes, / 2. No]
- Please mention the problems you faced during marketing
  ……
  ……..

18. Litter:

- What are the litter materials used as litter sources?
  ……
- Sources of litrer …….
- 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]

19. Production:

- How many batches do you rear in a year?.....
- At how many days do you sell your birds ?.....days
- What is the average body weight of the birds?

  -Weight at 1st day……...…….gm

  - Weight at selling days……gm
- Total feed intake of the birds…….kg
- Total body weight of the birds.....kg
- Feed Conversion Ratio (FCR):……

20. Mortality……. %

21. Some management queries:

a) Rearing system: (√) 1.Cage, 2.Litter
b) Ventilation type: (√) 1.Natural air flow system 2.Mechanical air movement
c) Brooding system:(√) 1.spot brooding; 2.whole house brooding; 3.partial house brooding;
d) Brooding period……days
e) Lighting system……..
f) Numbers of feeder and drinker uses/1000 birds: .....feeder , ...drinker

Please mention some diseases which appear on frequent basis on your farm

……

……..

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

……