

CHAPTER I

INTRODUCTION

Bangladesh is an agro-based developing country and the growth and sustainability of agricultural production are prerequisite 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 (Uddin *et al.*, 2014). 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 overall contribution of the broad agriculture sector at constant price was 19.95 percent of GDP in 2010/11. 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 (BER, 2011). Poultry industry in Bangladesh has made significant progress during the last two decades where commercial poultry started in 1980 in Bangladesh. Commercial poultry increased significantly during 1980-1990 (6%) and 1990-2000 (8%) in this country (Chowdhury, 2013)

The production and reproductive performance of chickens under intensive management provide important guidelines for the poultry enterprise in the country (Islam *et al.*, 2003). The hybrid “Sonali” is derived from the cross between Rhode Island Red cock and Fayoumi hen. The average body weight of the cock is 2.5 kg and a hen is around 2 kg (Sarkar, 2007). This crossbreed is very popular for its light weight, body color and taste resembling that of indigenous chicken in our country. Currently, Sonali chickens are widely using as an alternative of indigenous/deshi chicken in the country. Sonali chickens has considerable customer demand both for meat and egg characteristics. Sonali chickens are also suitable to the environment of Bangladesh (Sarkar, 2007).

From the current situation of small-scale production units, it has become essential to get some precise idea on financial statement of sonali chicken production scenario in the country. Sonali was first produced as a layer birds that will give more eggs than deshi chicken in our backyard farming. But now a day it is also used as meat source compensating the demand of deshi chicken due to their taste resemblance. Since it's demand is becoming higher and higher due to its characteristic taste and flavor than broiler chicken. Additionally, it offers less price per unit than indigenous chicken which is another scope of marketing.

These findings would be valuable to the policy makers and extension workers in order to guide policies towards increasing efficiency of the sonali chicken production in Bangladesh. Considering these perspectives, this study was carried with the following objectives:

1. To observe the management practices of Sonali chicken in intensive farming system.
2. To observe the growth performance and production indices of the sonali chickens as broiler.

CHAPTER II

MATERIALS AND METHOD

2.1 Study area and study period:

The present study was conducted on a commercial Sonali chicken farm at Bayzid thana, Chittagong reared in intensive farming system for meat purpose from 04 August to 06 October, 2017.

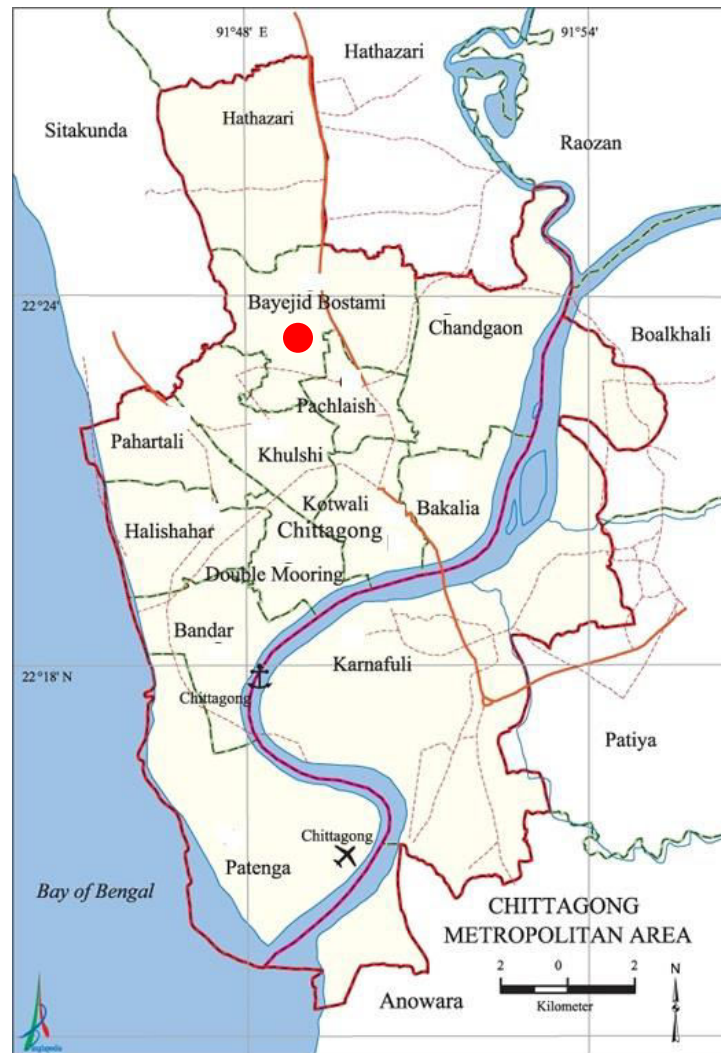


Figure-1: Map showing the study area

2.2 Study Population:

The study population was 1000 Sonali chicken of which 610 birds were female and 390 birds were male. The chickens were reared for 64 days (9 weeks) and then marketed.

2.3 Data collection:

Data were collected by asking question to the owner and workers providing a questionnaire and direct observation. Informations about house and housing, purchasing day old chick, feeds and feeding, brooding management, lighting, biosecurity, vaccination schedule, medication, mortality, weight gain at different age of weeks, litter management, amount of expenditure, income and profit are collected during the study period.

2.4 Statistical analysis:

All related data were imported in MS Excel 2007 for calculating different production performances and cost benefit analysis.

CHAPTER III RESULTS AND DISCUSSION

Collection of Chick:

The farm owner collects the chicks from regional government hatchery at the rate of 12 tk/chick. Total no. of chick was 1000.

Housing:

A suitable house is the prime need for the rearing of poultry birds in the intensive method. The Sonali chickens of this farm were reared in intensive farming system in a gable type open sided house (figure 2) with an area of 1000 sqft. situated in east-west direction. The height of house is 10 ft. The chickens were reared by “all in all out” system.



Figure 2: Interior view of study farm

Provided floor space, feeder space and waterer space for sonali chickens and different weeks of age are shown in table – 1, 2, 3 respectively.

Table –1: Provided floor space for sonali chickens

Age of the bird	Floor space / bird
1st week	0.5 sq. ft.
2 nd week	0.5 sq .ft.
3 rd to 5 th week	0.8 sq. ft.

Table –2: Provided feeder space for sonali chickens

Age of the bird	Floor space/bird
1 st Week	1 inch
2 nd to 3 rd week	1.5 inch
4 th week to finishing	2 inch

Table– 3: Provided waterer space for sonali chickens

Age of the bird	Waterer space / bird
1 st week	0.5 inch
2 nd to 3 rd week	0.75 inch
4 th week to finishing	1 inch

Brooding:

Birds are brooded for 1 week since it was the hotter period of the year (figure 3). House was prewarmed by starting the brooder 24-48 hours prior to chick arrival. Newspaper, Feeder and waterer were also placed before the chick arrival. The temperature was recorded by using room thermometer. Temperature schedule in rearing period is shown in table – 4.



Figure 3: Brooding of sonali chicks

Table-4: Temperature schedule in rearing period

Age of bird (week)	Temperature
1 st	95° F
2 nd	90° F
3 rd	85° F
4 th	80° F
5 th	75° F
6 th up to finishing	70° F

Litter management:

Rice husk was used as litter material (figure 4). The purpose of using litter on floor is to absorb moisture from dropping to keep floor reasonably dry and to ensure comfortable condition for birds. The thickness of litter was 15-20 cm. It varies with the season.



Figure 4: Rice husk as litter material.

Debeaking

Debeaking is very important for preventing cannibalism which is commonly seen in intensive poultry farming system. Here they perform debeaking once at the age of 15-20 days, where beaks were cut 1/3 for both upper and lower beak. They took some precautionary measure before and after debeaking to minimize the stress. Birds were supplied Vit C and glucose through drinking water before debeaking and Vit K and antibiotic after debeaking.

Feeding practices

Commercially available sonali feed was used for feeding of sonali chickens (figure 5, 6). They use two types of feed, starter (crumble) from 1-4 weeks of age and grower (Pellet) from 5th week to marketing. The amount of proximate components of the provided feed are given in table –5.



Figure 5: Feeding of sonali chickens



Figure 6: Sonali starter and grower feed

Table – 5: Proximate components with their amount in sonali feeds (according to manufacturer)

Proximate components	Sonali starter feed	Sonali grower feed
Moisture (%)	11 - 12	11 - 12
ME (Kcal)	2950	3100
CP (%)	21.0	21.0
EE (%)	5.0	5.0
CF (%)	4.0	4.0
Ca (%)	1.00	1.0
F (%)	0.50	0.50

Average amount of feed consumption per birds at different weeks of age are shown in table – 6.

Table –6: Average amount of feed consumption per birds at different weeks of age

Age of birds in week	Amount of feed consumed by per birds (gram)
1st	16
2nd	21
3rd	26
4 th	31
5th	36
6th	41
7 th	45
8 th	51
9 th	57

Body weight gain in different weeks of age

The average body weight gain of sonali chickens in different weeks of age are shown in table – 7. Here body weight were measured using electronic balance.

Table –7: Body weight gain (average) in different weeks of age

Age of birds in week	Weight gain average (gm)
1st	28.20
2nd	50.00
3rd	85.80
4 th	147.60
5th	216.60
6th	314.40
7 th	425.20
8 th	515.00
9 th	650.20

Vaccination schedule

Vaccination was done against the common infectious diseases, such as new castle disease, Gumboro and coccidiosis. Vaccination schedule used in the study farm is shown in table – 8 and practices of vaccination is shown in figure 7.

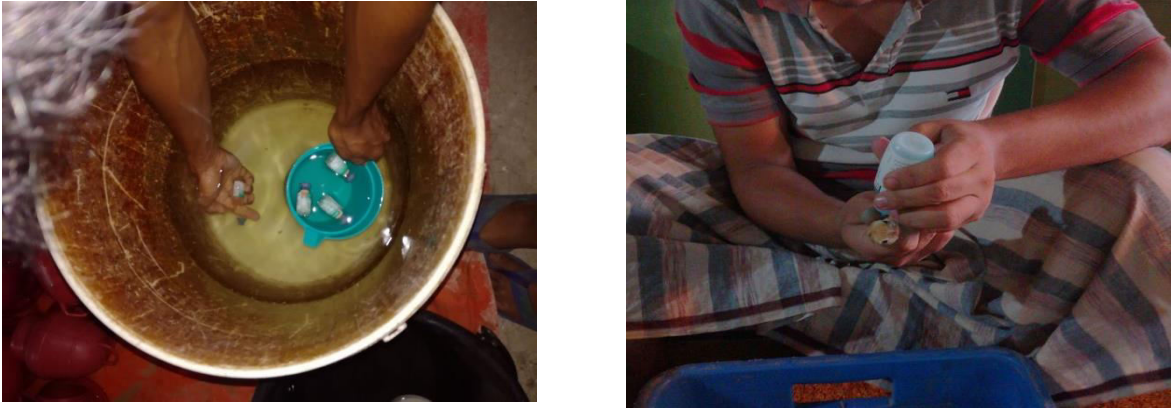


Figure 7: Vaccination of sonali chicks

Table - 8 Vaccination schedule for sonali chickens

Age	Name of the Diseases	Name of the vaccines	Route of administration
Day 5	New castle disease	ND live	Eye drop
Day 11	Gumboro	IBD Killed	Eye drop
Day 18	Gumboro	IBD live	Eye drop
Day 20	Coccidiosis	Immucox	Drinking water
Day 24	New castle disease	ND live	Eye drop
Day 28	New castle disease	ND killed	Eye drop

Lighting schedule

The birds were provided with continuous lighting for the first six week and one to two hours of dark period per day was maintained for better metabolism.

Feed conversion ratio (FCR)

FCR is the mass of the feed intake divided by the body mass gain. FCR shows that how efficiently a bird can convert the feed into body mass. Birds that have low FCR value are considered efficient users of feed. Here the FCR of the study farm was 2.25 and it was calculated by the following formula:

$$\text{FCR} = \text{Total intake of feed} \div \text{Total body weight gain (from day 1-64)}$$

$$= (1500 \text{ kg} \div 665 \text{ kg})$$

$$= 2.25$$

Uniformity:

The uniformity of Sonali chickens in different weeks of age are shown in table 9.

Table –9: Uniformity observed in different weeks of age

Age (week)	Uniformity (%)
1	88
2	87
3	87
4	87
5	86
6	86
7	86
8	86
9	86

Different performance indices of the birds of our study farm were calculated and are shown below.

Performance efficiency factor:

$$= (\text{Live weight in kg} \div \text{feed efficiency}) \times 100$$

$$= 665 \div 2.25$$

$$= 295.5$$

Feed price ratio:

$$= \text{Total value of meat or live chicken produced} \div \text{total value of feed consumed}$$

$$= 111720 \div 60000$$

$$= 1.86$$

Performance efficiency index:

$$\{ \text{Total saleable live wt (kg)} \div (\text{No. of chicks purchased} \times \text{feed efficiency}) \} \times 100$$

$$= \{ 631750 \div (1000 \times 2.25) \} \times 100$$

$$= 280.7$$

Livability:

$$\text{Livability} = (\text{No of alive birds at market age} \div \text{No of birds purchase}) \times 100$$

$$= (950 \div 1000) \times 100$$

$$= 95\%$$

Cost benefit ratio (BCR):

$$= \text{Total income} \div (\text{Depreciation cost} + \text{Recurrent cost})$$

$$= 111720 \div (10000 + 83000)$$

$$= 111720 \div 93000$$

$$= 1.20$$

BCR 1.20 indicates profit.

CONCLUSION

The present study was conducted to know the detailed information about the management practices and production performances of sonali chickens reared intensively as broiler up to 9th week of age. The average daily feed intake and weight gain in 1st, 5th and 9th week were 16 gm, 28.20 gm; 36 gm, 216 gm and 57 gm, 650.20 gm respectively. The uniformity of sonali chickens at 1st, 5th and 9th were 88%, 87% and 86% respectively. The FCR, performance efficiency factor, feed price ratio, performance efficiency index, livability and cost benefit ratio were 2.25, 295.5, 1.86, 280.7, 95% and 1.20 respectively. It can be concluded that sonali chickens has overall good performance that can fulfill the customer's demand and can be used widely as an alternative of indigenous/deshi chicken.

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BIOGRAPHY

I am Md. Ali Murtaza, son of Mr. Iqbal Hossen and Mrs. Rokeya Mahmuda. I have passed Secondary School Certificate (SSC) Examination in 2007 (G.P.A-4.88) followed by Higher Secondary Certificate (HSC) Examination in 2009 (G.PA-4.40). Now I am an intern veterinarian under the Faculty of Veterinary Medicine in Chittagong Veterinary and Animal Sciences University. In the future I would like to work as a veterinary practitioner and to understand the challenges facing small scale and backyard poultry flocks as well as the impacts of housing systems on poultry health and welfare on large scale facilities in Bangladesh.