

# Management practices, Growth performance and Production of Sonali chicken in Brahmanbaria, Bangladesh



A Production Report Presented in Partial Satisfaction of the Requirements for  
the Degree of  
Doctor of Veterinary Medicine (DVM)  
By

.....  
**Signature of the Author**

Name: **Fazle Rabbi**

Roll No: 15/28

Reg. No: 01443

Intern ID: 26

Session: 2014-15

Faculty of Veterinary Medicine  
Chattogram Veterinary and Animal Sciences University  
Khulshi, Chattogram-4225, Bangladesh

# Management practices, Growth performance and Production of Sonali chicken in Brahmanbaria, Bangladesh



A Production Report Submitted as per Approved Styles and Contents

Approved by

.....  
**Signature of the Supervisor**

**Name: Mr. Md. A. HALIM**

Designation: Professor

Department: Agricultural Economics and Social Sciences

Faculty of Veterinary Medicine

Chattogram Veterinary and Animal Sciences University

Khulshi, Chattogram-4225, Bangladesh

## TABLE OF CONTENTS

<b>Contents</b>	<b>Page no.</b>
Abstract	4
Chapter I: Introduction	5-6
Chapter II : Materials and Methods	7
Chapter III : Results and Discussions	8-16
Chapter IV : Conclusions	17
References	18
Acknowledgements	19

## ABSTRACT

The current study was carried out to evaluate information on the productivity of sonali chicken, their rearing practices and opportunities in intensive farming. This study was performed to identify and described the performance of sonali chicken farm of Bijohnagar upazilla under Brahmanbaria district. A sonali chicken farm was selected for the study where the number of birds were 1000(female:600 ,male:400). The chickens were reared for 64 days (9 weeks) and then marketed. Average feed intake during 9 weeks 61gm per bird.After 9 weeks The average body weights of female and male birds were 805gm. The FCR, performance efficiency factor, feed price ratio, performance efficiency index, livability and cost benefit ratio were 3.07, 262.2, 2.22, 249.1, 95% and 1.42 respectively. The study found that raising Sonali birds particularly for meat production, where they performed better than other birds in terms of adaptability and benefit-cost ratio. The live weight of sonali chickens was lower than that of commercial broilers but Sonali meat raised almost twice the price of commercial broiler meat. So, raising sonali birds has good potential in supplying meat for the whole country, increasing incomes and generating employment.

---

**Key words:** Sonali chicken, FCR, Performance efficiency factor, Feed price ratio, Performance efficiency index, Livability, Cost benefit ratio.

## 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 RIR 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 cross is popular for its light weight, body color and taste resembling that of indigenous chicken. Currently, Sonali chickens are widely using as an alternative of indigenous/deshi chicken in the country. Sonali chicken has considerable customer demand either for meat or egg characteristics. Sonali chickens are suitable for 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 days 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 it's 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 METHODS**

#### **2.1 Study area and study period:**

The present study was conducted on a commercial Sonali chicken farm at Nolgoria village, Singarbil union, Bijoynagar upazilla, Brahmanbaria district, Chattogram reared in intensive farming system for meat purpose from 07 October to 10 December, 2019.

#### **2.2 Study Population:**

The study population was 1000 Sonali chicken of which 600 birds were female and 400 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. The summation, frequency distribution and other calculations were done and expressed accordingly.

## CHAPTER III

### RESULTS AND DISCUSSIONS

#### **Collection of Chick:**

The farm owner collects the chicks from Bogura non-government hatchery at the rate of 20 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 house (figure 1) with an area of 1000 sqft. directed in east-west. The height of house was 10 ft. The chickens were reared by “all in all out” system.



**Figure 1: House for sonali chickens**



Average floor space, feeder space and waterer space are shown in table – 1, 2, 3 respectively:

**Table – 1: Average available floor space for sonali chickens**

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

**Table – 2: Average feeder space of sonali chickens**

<b>Age of the bird</b>	<b>Floor space/bird</b>
1 <sup>st</sup> Week	1 inch
2 <sup>nd</sup> to 3 <sup>rd</sup> week	1 ½ inch
4 <sup>th</sup> week to finishing	2 inch

**Table – 3: Average waterer space of sonali chickens**

<b>Age of the bird (week)</b>	<b>Waterer space / bird</b>
1 <sup>st</sup>	.5 inch
2 <sup>nd</sup> to 3 <sup>rd</sup> week	.75 inch
4 <sup>th</sup> week to finishing	1 inch

**Brooding:**

Birds were brooded for 1 week (figure 2). House was prewarmed by starting the brooder 24-48 hours before chick arrival. Paper, Feeder, waterer were also placed before the chick arrival. The temperature was recorded by room thermometer.



**Figure 2 : Brooding of chicks**

Temperature schedule in rearing period is shown in table – 4:

**Table – 4: Temperature schedule in rearing period**

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

### **Litter management:**

Rice husk was used as litter material (figure 3). The purpose of using litter on floor is to absorb moisture from birds, 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 3: Rice husk used as litter material.**

### **Feeding practices**

Commercially available sonali feed was used for feeding of sonali chickens (figure 4, 5). The amount of proximate components are given in table - 5 :



**Figure 4: Feeding of sonali chickens**



**Figure 5: sonali starter and grower feeds**

**Table – 5: Proximate components and their amount in feeds**

<b>Proximate components</b>	<b>Sonali starter feed</b>	<b>Sonali grower feed</b>
Moisture (%)	11 - 12	11 - 12
ME (k cal )	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

Amount of feed consumed by per birds in different weeks of age are shown in table – 6:

**Table – 6: Amount of feed consumed by per birds in different weeks of age**

Age of birds in week	Amount of feed consumed by per birds (gram)
1 <sup>st</sup>	18
2 <sup>nd</sup>	24
3 <sup>rd</sup>	28
4 <sup>th</sup>	34
5 <sup>th</sup>	39
6 <sup>th</sup>	44
7 <sup>th</sup>	50
8 <sup>th</sup>	56
9 <sup>th</sup>	61

The average body weight gain of Sonali chickens in different weeks of age are shown in table – 7:

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

Age of birds in week	Weight gain average (gm)
1 <sup>st</sup>	32.20
2 <sup>nd</sup>	70.00
3 <sup>rd</sup>	105.80
4 <sup>th</sup>	177.60
5 <sup>th</sup>	266.60
6 <sup>th</sup>	410.40
7 <sup>th</sup>	540.20
8 <sup>th</sup>	685.00
9 <sup>th</sup>	805.00

### Vaccination schedule

Vaccination was done for most important infectious diseases, such as new castle disease, Gumboro and Coccidiosis. Vaccination schedule for sonali chickens is given in table – 8, and practices of vaccination is shown in figure 6:



**Figure 6: Practices of vaccination**

**Table - 8 Vaccination schedule for sonali chickens.**

<b>Age</b>	<b>Name of the Disease</b>	<b>Name of the vaccine</b>	<b>Route of administration</b>
Day 5	New castle disease	ND live	Eye drop
Day 11	Gumboro disease	IBD Killed	Eye drop
Day 18	Gumboro disease	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 at the first 2-3 days post placement to help chicks find feed and water more easily. The start of light stimulation has to be linked to flock development, not to flock age. Lighting program according to different age groups are shown in table 9 .

**Table – 9: Lighting schedule for Sonali chickens.**

<b>Age (week)</b>	<b>Light (hrs)</b>
1 – 6	24
7 – 9	23

**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:

$$\begin{aligned} \text{FCR} &= \text{Total intake of feed} \div \text{Total body weight gain (from day 1-64)} \\ &= (2478 \text{ kg} \div 805 \text{ kg}) \\ &= 3.07 \end{aligned}$$

**Uniformity:**

The uniformity of Sonali chickens in different weeks of age are shown in table 10:

**Table – 10: Uniformity observed in different weeks of age**

<b>Age (week)</b>	<b>Uniformity (%)</b>
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 the study farm were calculated and are shown below:**

**Performance efficiency factor:**

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

$$= 805 \div 3.07$$

$$= 262.2$$

**Feed price ratio:**

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

$$= 220000 \div 99120$$

$$= 2.22$$

**Performance efficiency index:**

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

$$= \{ 764750 \div (1000 \times 3.07) \} \times 100$$

$$= 249.1$$

**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):**

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

$$= 220000 \div (25000 + 130000)$$

$$= 220000 \div 155000$$

$$= 1.42, \text{ BCR } (1.42) > 1, \text{ that indicates profit.}$$



## **CHAPTER IV**

### **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 9<sup>th</sup> week of age. The average daily feed intake and weight gain in 1<sup>st</sup>, 5<sup>th</sup> and 9<sup>th</sup> week were 18 gm, 32.20 gm; 39 gm, 266.60 gm and 61 gm, 805.00 gm respectively. The uniformity of Sonali chickens in 1<sup>st</sup>, 5<sup>th</sup> and 9<sup>th</sup> were 88%, 87% and 88% respectively. The FCR, performance efficiency factor, feed price ratio, performance efficiency index, livability and cost benefit ratio were 3.07, 262.2, 2.22, 249.1, 95% and 1.42 respectively. The mortality rate was very low that indicates birds were well adapted to the environmental conditions. It is interesting to note that the market prices of Sonali birds are far higher than those of commercial broilers. Such price incentives will encourage people to rear more Sonali birds for meat production. People also prefer Sonali chickens to indigenous birds for its valuable taste. It is concluded that sonali chickens has overall good performance that can fulfill the customer's demand and can be use widely as an alternative of indigenous/deshi chicken.

## REFERENCES

- Uddin, M. T., Mitu, S. J., & Begum, I. A. (2014). Production of Sonali chicken in selected areas of Gazipur district-an economic study. *Bangladesh Journal of Animal Science*, 43(1), 56-61.
- BER (Bangladesh Economic Review) (2011). Economic Advisers Wing, Finance Division, Ministry of Finance, Government of Peoples Republic of Bangladesh, Dhaka.
- Chowduary, S. D. (2013). Opportunities and Challenges Facing Commercial Poultry Production in Bangladesh Eighth International Poultry Show and Seminar. *WPSA-BB, Dhaka, Bangladesh*.
- Islam, S., Uddin, M. S., Sarker, N. R., Faraque, S., & Khatun, R. (2003, May). Study on the productive and reproductive performance of 3 native genotype of chickens under intensive management Executive summaries of research report. In *Ann. Res. Rev. Workshop* (pp. 11-12).
- Sarkar, P. K. (2007). Comparative study on the productivity and profitability of commercial broiler cockerel of a layer strain and crossbreed (RIR ♂ × Fa♀). MS thesis, Dept. of Poultry Science, Bangladesh Agricultural University, Mymensingh, 32 pp.

## **ACKNOWLEDGEMENTS**

I am ever grateful and very much obliged to the Almighty without Whose grace it Would have never possible to pursue this study in this field of science and to complete this production report writing for the degree of Doctor of Veterinary Medicine(DVM). I would like to show my deepest sense of gratitude, sincere appreciation and profound regard to my respectable supervisor Mr. Md. A. HALIM Professor, Department of Agricultural Economics and Social Sciences, Faculty of Veterinary Medicine, Chattogram Veterinary and Animal Sciences University for his scholastic supervision, valuable advice, valuable suggestions and construction criticisms in all phase of this study. I would like to show my deepest sense of gratitude and thanks to Professor Dr.Abdul Ahad, dean, Faculty of Veterinary Medicine, Professor DR. A. K. M. Saifuddin, director, External Affairs, CVASU for their inspiration, cordial co-operation and valuable suggestions for completion of the report.

The Author