PRESENT STATUS, PROBLEM AND PROSPECT OF LAYER FARMING IN PANCHGARH DISTRICT

A THESIS

BY

MD. YOUNUS ALI

REGISTRATION NO. 1105133

SESSION: 2011-2012

SEMESTER: JULY-DECEMBER 2012

MASTER OF SCIENCE (MS)

IN

POULTRY SCIENCE

DEPARTMENT OF DAIRY AND POULTRY SCIENCE

HAJEE MOHAMMAD DANESH SCIENCE AND TECHNOLOGY

UNIVERSITY DINAJPUR-5200

DECEMBER, 2013

PRESENT STATUS, PROBLEM AND PROSPECT OF LAYER FARMING IN PANCHGARH DISTRICT

A THESIS

BY

MD. YOUNUS ALI

REGISTRATION NO. 1105133

SESSION: 2011-2012

SEMESTER: JULY-DECEMBER 2012

Submitted to the

Department of Dairy and Poultry Science

Hajee Mohammad Danesh Science and Technology University, Dinajpur, In partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE (MS)

IN

POULTRY SCIENCE

DEPARTMENT OF DAIRY AND POULTRY SCIENCE

HAJEE MOHAMMAD DANESH SCIENCE AND TECHNOLOGY UNIVERSITY, DINAJPUR-5200

DECEMBER, 2013

PRESENT STATUS, PROBLEM AND PROSPECT OF LAYER FARMING IN PANCHGARH DISTRICT

A THESIS

BY

MD. YOUNUS ALI

REGISTRATION NO. 1105133

SESSION: 2011-2012

SEMESTER: JULY-DECEMBER 2012

Approved as to style and content by:

(Prof. Dr. Mst. Afroza Khatun)	**(Dr. Tahera Yesmin)**
Research Supervisor	Research Co-supervisor

.....

(Prof. Dr. Mst. Afroza Khatun)

Chairman, Examination Committee

And

Chairman

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

DECEMBER, 2013

ACKNOWLEDGEMENT

I would like to express my "Sukriah (Alhamdulillah)" to Almighty Allah, Who has given ability to carry out the research work and complete this thesis successfully. "Darud and Salam" are due to Hazrat Mohammad (Sm.).

I wish to express my sincere gratitude, heartfelt respect and profound sense of appreciation to my supervisor, Dr. Mst. Afroza Khatun, Professor and Chairman, Department of Dairy and Poultry Science, Hajee Muhammad Danesh Science and Technology University, Dinajpur for her scholastic guidance, precious suggestions, constant encouragement and kind co-operation to carry out the course of the research work and in the preparation of this manuscript and I would like to sincere gratitude to co-supervisor Dr. Tahera Yeasmin, Associate Professor, Department of Dairy and Poultry Science, and Mr. Md. Saifur Rahman, Professor and Chairman, Department of Statistics, Hajee Muhammad Danesh Science and Technology University, Dinajpur.

I would like to express my gratefulness and kindest appreciation to all the teachers of Department of Dairy and Poultry Science, Hajee Muhammad Danesh Science and Technology University, Dinajpur, for their valuable suggestions and co-operation during entire study period.

I am grateful to entire staff of Department of Dairy and Poultry Science to assist me during this research. Appreciation is extended to the inhabitants of Panchagarh district for their kind co-operation in collecting data for this study.

HSTU, Dinajpur *Author*

December 2013

ABSTRACT

The present study was conducted at Panchagarh district to assess the potentiality of layer farming in rural areas. A total of n=20 layer farms were selected at random basis from the study area. The purpose was to examine the present status and existing production systems of layer. The problems and prospects of layer farming of selected areas were quantified and assessed. Data were collected using a pre-tested interview schedule from August to September, 2013 to identify problems in rearing layers and to know how much farmers are habituated in using different management technologies. The relevant information that were collected during study period are: age, education, main occupation, land holding, training, monthly income, investment, number of layer, name of layer strain, source of day old chick, rearing, age at culling, egg production, ventilation and lighting system, cleaning, use of droppings, use of footbath, vaccination frequency and marketing channel. Introducing of layer farming, training of layer farmers could increase the layer farming with increased income and employment to youth and small holder marginal farmer. In Panchagarh district, the layer farmers are mostly middle aged people and they got mostly secondary education level. Over all the bio-security, vaccination schedule and production level is satisfactory in the represented area. Among the respondents 22%, 57% and 21% were group as young, middle aged and old aged group respectively. A total of 60% farmers had training on layer farming from YTC, ULO and NGOs. 60% farmers maintain strict bio-security, 30% maintained moderate bio-security and remaining 10% maintained low bio-security. Among the visited farms, 20% farmers practiced disinfection process to disinfect their farms, while the rest of 80% farmers didn't practice disinfection process. Provision of training, credit facility, good quality chick, well developed market can improve the layer production in Panchagarh district.

CONTENTS

CONTENTS

CHAPTER	TITLE	PAGE

CONTENTS

LIST OF TABLES

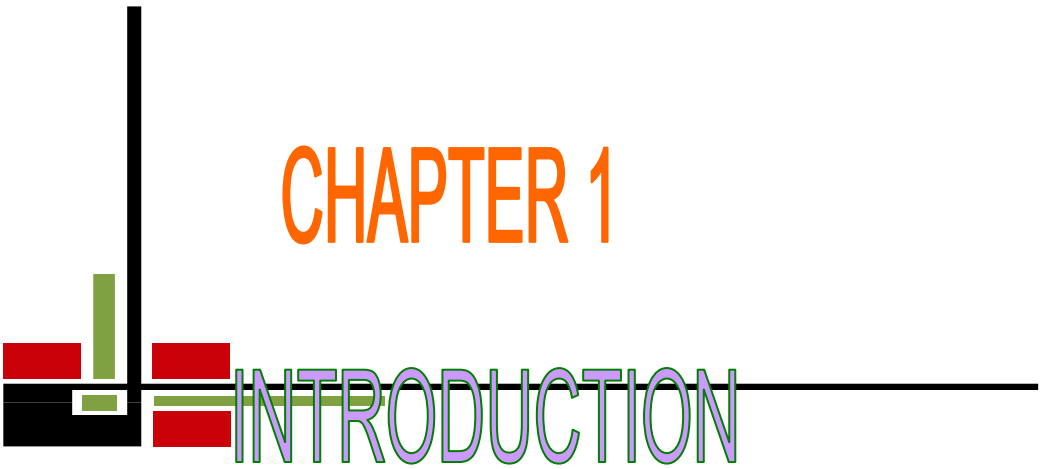
LIST OF FIGURES

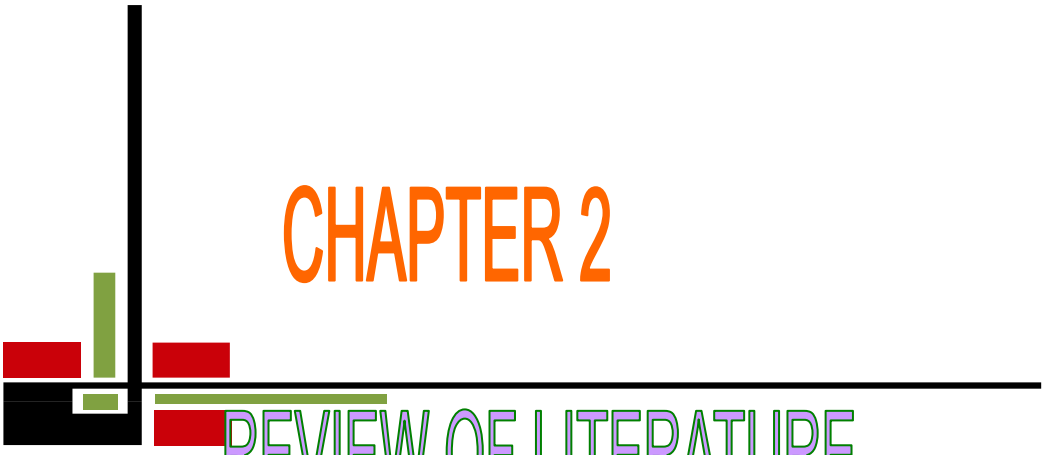
LIST OF ABBREVIATION AND SYMBOLS

FCR	Feed Conversion Ratio
NGOs	Non-Government Organization
Vs	Versus
WHO	World Health Organization
FAO	Food and Agriculture Organization
R	Correlation Co-efficient
Sl. No.	Serial Number
Tk.	Taka
*	5% level of significant
**	1% level of significant
%	Percentage
et. al.,	And others
<	Less than
>	Greater than
BBS	Bangladesh Bureau of Statistics

ULO	Upozilla Livestock Officer
YTC	Youth Training Centre
KG	Kilogram

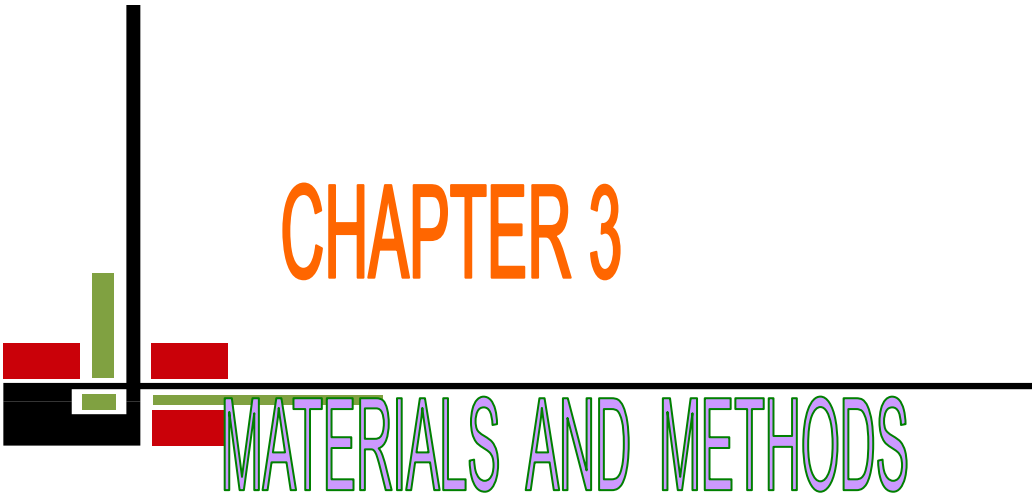
DEDICATED
TO MY
BELOVED PARENTS

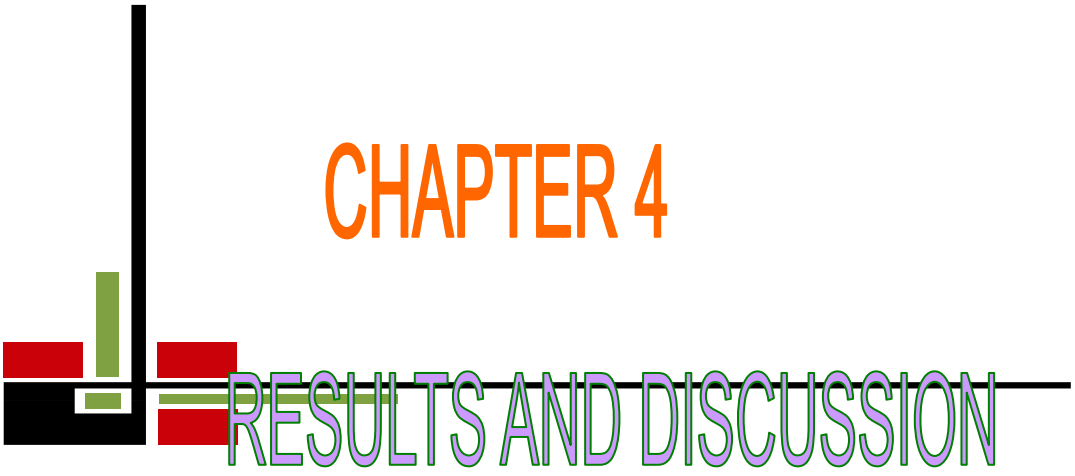

CHAPTER 1
INTRODUCTION

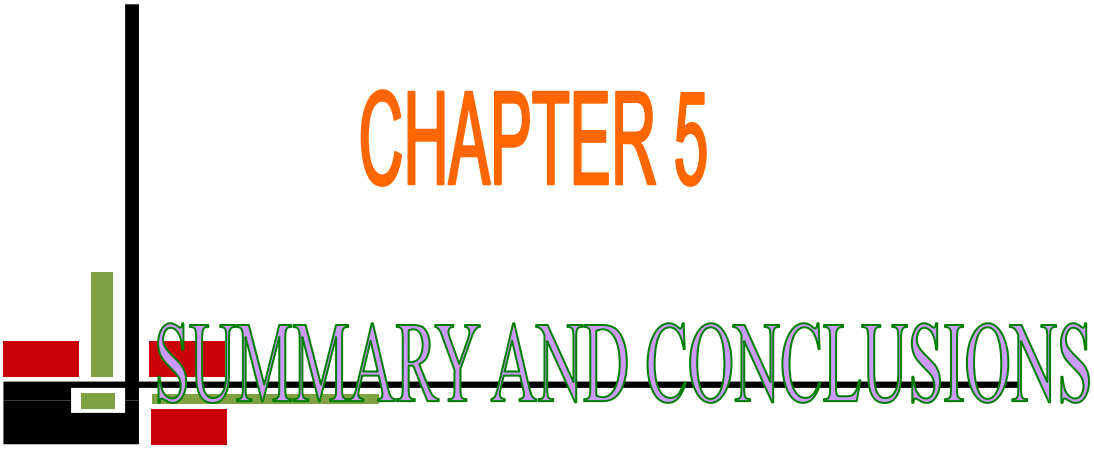


CHAPTER 2

REVIEW OF LITERATURE


CHAPTER 3
MATERIALS AND METHODS


CHAPTER 4
RESULTS AND DISCUSSION



CHAPTER 5

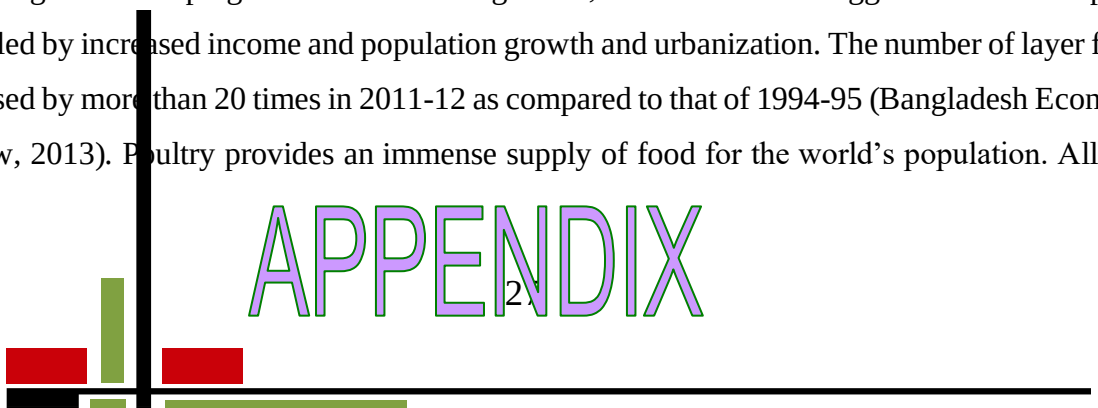
SUMMARY AND CONCLUSIONS


REFERENCES

CHAPTER 1

INTRODUCTION

Bangladesh is agro based country and the population density also is very high. Agricultural development involving allocation of additional land is not possible. Therefore, emphasize should be given to other sectors in agriculture like poultry rearing. The potential for the development of small-scale poultry as well as layer sector has been successfully proved and the contributions of this sector have significant role in the economy of Bangladesh. In recent decades, the demand is increasing in developing countries. In Bangladesh, the demand for egg is increased rapidly, propelled by increased income and population growth and urbanization. The number of layer farms increased by more than 20 times in 2011-12 as compared to that of 1994-95 (Bangladesh Economic Review, 2013). Poultry provides an immense supply of food for the world's population. All over



the globe, poultry meat and egg are preferred to other kinds of animal food products for variety of reasons. It is estimated that 25% of the world meat supply is derived from poultry (Prabhakran, V.M. 2003). The production of meat and egg is increasing steadily. The trend has been more noticeable in developing countries.

Poultry industry is an emerging agribusiness started practically during 1980s in Bangladesh (Haque, T.N. 2001) there has been a tremendous development of this sector in recent years. Commercial layer industry is growing in rapidly in Bangladesh for increased demand of eggs. Estimated layer production had been increasing 27.61% per year during 2001-2007 (Bangladesh Economic Review, 2007) and that became over 32.49 million layers. According to Bangladesh Economic Review in 2013 up to February there were 2466.00 lac Poultry in Bangladesh.

Poultry eggs are important source of high quality proteins, minerals and vitamins in balancing human diet. Specially developed breeds of egg type chicken are now available with an ability of growth and high feed conversion. Depending on the farm size, layer farming can main source of family income or can provide subsidiary income and gainful employment to farmers throughout the year. Poultry manure has high fertilizer value and can be used for increasing yield of all crops.

India has made considerable progress in egg production in the last three decades. High quality chicks, equipments, vaccines and medicines are available there. Technically and professionally, competent guidance is always available to the farmers. The management practices have improved and disease and mortality incidences have reduced. Many institutions are providing training to entrepreneurs. The improved layer population had increased from 35 million in 1961 to 115 million in 1996 (Babu *et al.* 1998). The egg production in the same period increased from 2,340 million to 34380 million. The egg production registered compound growth rate of 6.83% during eighth plan period (1992-97). Layer farming has been given considerable importance in the national policy and has a good scope for further development.

At present egg consumption rate per capita in Bangladesh is not satisfactory. The requirement is 110 per head per year whereas we are getting only 30-40 eggs (BBS and DLS, 2009). Now the egg production in Bangladesh is about 51347 lac up to February 2013 (Bangladesh Economic Review). So it needs to raise more layer farm in Bangladesh to meet up the demand. It is a matter of regret

that farmers especially layer farmer's have minimum knowledge on technology. For this reason, most of the time they fell in loss and abandoned farming. If they gather knowledge on management technology and apply in farming, then they would get a better profit from their business and also could supply required number of eggs for better nutrition. Acceptance of egg on a wider scale, have set a tremendous pace in the growth of the layer industry as forerunner of other agro based industries. However, questions of concern profitability and condition are needed for commercial layer production. The profitability depends not only on efficient production, but also on successful marketing of the products.

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 view of layer industry. The farming takes several diversified forms and productivity depends upon land, human resources and skills, infrastructure and capital. All these factors needed to be considered while planning sustainable layer projects.

The goal of this study was to examine existing management and socio-economic condition of the rural poor farmers. Therefore, the present experiment was aimed at the following objectives:

1. To know the present status of layer farming in Panchagarh district.
2. To have some idea on layer farming in Panchagarh district.
3. To identify the problems and prospects of layer farming in Panchagarh district.
4. To provide some suggestions to improve layer farming in Panchagarh district.

CHAPTER 2

REVIEW OF LITERATURE

Modern poultry production and it's compliance with their execution in practice and it's consequence is a key to success in layer rearing. More start poultry farming without sufficient know how sometime loss in poultry farming. Therefore dropout rate is very high. Such a scenario of layer farm indicate that only introduction of technology is not sufficient to support profitable farming. It is therefore assumed that application of technology and training needed to be assessed. Modern technology no doubt is very important but the degree of learning and practicality is more important.

This review is an attempt to identify the knowledge and practice prevailed in different layer farming is not well know. However, limited information is summarized to get idea on the fate of the commercial layer farming. It is well known that Bangladesh is an agricultural country with a large number poultry. Almost three quarters of rural families in Bangladesh keep Poultry (Okada *et al.,* 1987).

2.1 Rural Poultry production in Bangladesh

In Bangladesh, a variety of poultry species that includes mainly chicken, duck and/or pigeon are reared by most of the households. Occasionally, few farmers keep geese but quails are newly introduced.

Table-1: Status of Poultry

Items	Parameter
Household reporting fowl	15542
Percent of total household	54.13
Number of fowl	112429
Average price per fowl (TK)	106
Household having improved breed fowl	126
Number of improved breed fowl	167
Percent of total fowl	0.15

Average price per improved breed fowl (TK)	241

Source: BBS, 2009

2.2 Layer rearing and layer production

2.2.1: Housing

Free range poultry farming require large farm area. And it is not suitable for large scale poultry farming in Bangladesh. So, you have to make a suitable house for your poultry birds so that they can be kept inside the house all time. Design of poultry house vary according to the breed and farming system. While making a poultry house consider the followings and learn more about how to build a poultry house.

Proper ventilation system is a must for good health of poultry birds. So, poultry house should be well ventilated. There should facilities for entrancing sufficient amount of fresh and clean air and light inside the house. South faced house will ensure flow of sufficient fresh air and help to prevent cold north air. In case of making numerous house in large scale commercial production, at least 40 feet distance should be maintained from one house to another house.

House should properly cleaned and disinfected before bringing the chicks into the farm. Measure should be taken at houses to prevent predators and wild animals.

Should keep proper facility for preventing rain water and cold wind in winter season.

It would be better, if the house located in a calm and quiet place away from residence.

Proper drainage system inside the house should be ensured to clean the house easily.

And all other facilities must be ensured which are necessary for good poultry health and better production.

It's estimated that 70 to 80% of world's layer population are cages along with more than 80% of their replacements (Bell and Weaver, 2002). The major advantage of keeping hens in cages is that they are separated from their droppings. This means that the cycle of re-infection is broken for all diseases in which the infection agent is spread through dropping. It has also been claimed that

inflammation of the oviduct is less frequent in cages than on floor systems (Lindgren *et al.* 1994). Cages have beneficial hygienic effect. Because the concentration of ammonia and dust is generally lower in cages house (Groot and Drost, 2000) and the layer's lungs will be better able to clear ear respiratory infection agents. Because of increased air movement around the chicken result less, susceptibility to elevated housed temperature.

The council directive 1999/74EC, incorporated into law in Spain, states that by January 2003 all new cages system and by 2012 all existing cage must include nests, perches abrasive and litter. Considering the suggestion of Anderson *et al.* (1989) that floor reared pullets are subjected to a drastic change in environment when house in cages, the hypothesis considered was that adaptation problems can cause significant economic losses under commercial conditions and impair animal production.

A number of students have shown that rearing systems affect the production period of hens house in conventional cages (Deaton *et al.* 1985; Anderson and Adams, 1994). For example, Jin and Craig (1988) showed that rearing conditions can effect growth and egg production in laying hens whereas, Anderson and Adams (1994) reported that hens reared in cages produce heavier eggs and are less fearful at the end of production cycle than floor- reared hens.

2.2.2: Feeding

Good and high quality nutritious feeding ensure maximum production. So, good quality balanced diet should be provided to the birds. Various types of poultry feeds are available in the market according to type and age of birds.

Feeding program during the production period

Basic rules of feeding program feeding the birds have to be simple, to reduce the risk of errors at varying levels in the manufacturing and delivery process. There are also additional reasons which are related to the birds directly. For example, birds are very sensitive to the feed presentation and the introduction of new raw materials, for this reason it is recommend a limited number of feed changes.

Amino acids requirements depend of the productivity of the flocks and from the uniformity of the productivity. Amino acids recommendations are based on an average productivity of 60 g per day. At 50 weeks, the egg mass produced is around 58 g. A lot of birds are able to produce more than 60g of egg mass over a period of 50 – 65 weeks. This is the reason why is difficult to reduce the amino acids levels after 50 weeks without affecting the productivity. A deficiency in amino acids reduces in a first time egg weight and in a second time the persistency, around 4 or 5 weeks later. Medullary bone is developed in long bone before the first ovulation. The total calcium contained in this medullary is around 1.5 to 2 grams. A pre-layer feed with a higher calcium level is needed to establish this bone reserve. It has to be used from approximately 16 weeks. Its characteristics are similar to the layer 1, but with a level of calcium of 2 – 2.2%.

It is advisable to use the Layer 1 before 2% lay. If the change is realized later, the earliest birds ingest around 1.8g of calcium and need to produce a shell with 2g of calcium. They will stop or reduce laying for some days and will produce eggs without shell. These birds will exhibit cage layer fatigue later and osteoporosis at end of lay.

May be the risk will be reduced by using a layer 1 instead of a pre-lay feed. However, if the limestone is in 2-4 mm particles form, it is possible to use the layer 1 at 16 weeks. The main reason for the use of pre-lay feed was the risk of under consumption when the limestone used was in powder form. Don't forget to use the Layer 1 before 2% lay.

Layer 1: Layer 1 has to be satisfying the amino acids requirements for growth and production at a moment where the feed consumption is lower. At start of lay feed consumption is lower because the birds have not yet reached their adult body weight. Growth is not completely finished by 28 weeks. With regard to protein, a requirement for growth is added to the requirement for production.

From a practical point of view, it has estimated that it is necessary to increase the concentration of amino acids by about 6 % during the 18-28 week period in relation to the feed consumption observed after 28 weeks. This feed has to be used until the moment that the feed consumption is normal or an average egg size of 60-61g is obtained or around 26-28 weeks. At the onset of lay, it is desirable to encourage feed consumption and quickly to obtain eggs of marketable size. For this, a feed enriched in fat allows to improve the presentation of diet which gives an increase in feed

consumption. Oils rich in polyunsaturated fatty acids are responsible for a large increase in egg weight.

Layer 2: This feed has to be used from 26-28 weeks until 50 weeks or end of lay. If it is possible, it will be good to increase the limestone level at 50 weeks to reduce the percentage of seconds. Birds have daily requirements for amino-acids and minerals, consequently, the percentage of nutrients has to be defined according to the feed consumption observed. The feed consumption depends mainly of the energy requirement and of the temperature

Layer 3: Amino acids requirement: Taking into account persistency in lay, individual variability and egg weight, the requirement for amino acids does not fall throughout the laying period. In an economic context, it may be worth reducing the safety margins slightly. However, the best results, in terms of productivity and feed conversion ratio, are obtained, when one maintains the intake level of amino acids. Any deficiency of amino acids, no matter, which type of amino acid, shows up as a reduction in performance, of which 2/3 is due to a reduction in rate of lay and the remaining 1/3 is a decrease in mean egg weight. It is, therefore, not possible to reduce egg weight towards the end of lay by reducing the amino acid concentration without bringing about a reduction in rate of lay.

Persistency in lay has improved considerably (30 to 35 weeks above 90% lay). An analysis of the individual performance over the period 40-66 weeks shows that 66 % of the birds had performance above average. The 40 % best layers had laid 177 eggs in 182 days and /or 63.2 g of egg mass per day.

2.3 Bio-security

The world Health Organization (WHO) has emphasized the importance of enhancing bio-security along the food chain to reduce the risk disease spread. Bio-security is essentially management of bio-logical and environmental health risks to avoid unnecessary contact between animals and microbes. In addition, bio-security also applies to public health measures that reduce contact between animals and human (WHO, 2006). FAO has defined four sector within the poultry industry based on farm bio-security and the system used to marked product (FAO, 2004).

Sector 1 includes industrial integrated system with a high level of bio-security and birds/product that are marked commercially.

Sector 2 covers commercial poultry production systems with moderate to high bio-security and birds/product that are sold commercially.

Sector 3 involves commercial poultry production systems with low to minimal bio-security and birds/product that are mostly sold via live bird marked.

Sector 4 involves village or urban backyard production with minimal bio-security and birds/products that are consumed locally.

FAO suggests that the probability of infection is higher in production in Sectors 3 and 4 than it is in Sectors 1 and 2. However, if a virus has spread in Sectors 1 and 2, its impact may be higher than that found in Sectors 3 and 4. In line with implementation of improved bio-security measures in Sectors 3 and 4. In line with implementation of improved bio-security measures in Sector 3, a focus group discussion was carried out inviting related post-farm gate stakeholders of the poultry sector in Bali (Sarini, 2009). This discussion indicated that three important stakeholders in the poultry market chain need to be considered: the farmer, slaughterhouse and consumer. It was also agreed by stakeholders that farmers need to implement good bio-security, and that they should receive a financial incentive for doing so.

A study was carried out by Senthikumar *et al.*(1998) to assess the scientific knowledge level of the poultry entrepreneurs regarding commercial layer farming. It was revealed that farmers with large flock size had better knowledge that the farmers with small flock size It implies that, as stakeholders in poultry production, institutions; State Animal Husbandry Department, veterinary colleges/university, private hatcheries etc. might find out the limitations of these groups and give priority to these disadvantaged entrepreneurs while formulation training program.

Kristensen and Silleabk-Kristensen (1996) and Tauson (1984) reported higher percent lay (74.5% 73%) and peak percent lay tended to be negatively correlated with mortality (r=-.313; P=.127. There was a similar tendency between percent lay and age at point-of-lay (r=-.365; P=0.073). Hen day egg production was negatively correlated with age-at-point-of-lay (r=-0.134; P=0.030). Nair

et al.,(2000) and Petek (1999) reported a higher egg laying period is attributable to seasonal trends in egg consumption. People in the area usually consume eggs in the relatively cooler months of the year. The egg price in hotter months falls to a level where it does not compensate the cost of production and the farmers, therefore, terminate layer production, resulting in a shorter egg laying period. The egg laying period was negatively correlated with age at point-of-lay (r=-0.52; P=0.007).

Farooq *et al.* (2003) reported lower costs in production and cost of production was positively correlated with age at point of lay (r=0.37; P=.070). Zahid (1994) and Farooq *et al.*2003) reported higher gross ret., urns and net profit per layer and lower net., profit per layer is attributable to poor management, higher mortality and lower hen-day egg production. This was also evident from the negative correlation of net profit with mortality (r=-0.63; P=0.0001) and positive correlation with hen-day egg production (r=0.56; p=0.004). Asghar *et al.*(2000), Zahir-ud-din *et al.* (2001) and Farooq *et al.*(2003) also reported reduction in net profit with increased rate of mortality. They also said that net profit per layer is positively correlated with flock size (r=0.47).

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 layer farming in Haryana, India. Three districts; Hisar, Gurgaon and Yamunan agar, were selected from different climatic zones of Haryana. Mojority (78.67%) of the farmers started layer farming to get additional income" Educational status had a slightly significant association with adoption of layer 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.

Elston *et al.*(2002) conducted a study on the scientific knowledge and manage mental skill on commercial layer farming. Among 140 farmers at 6 Thaana's of Rajshahi district Elston found 45.3% large, 30.7% medium, 12.7% small, 7% marginal and 4.5% landless farmers were involved in commercial layer farming. The educational level of the farmer were 47.30% above secondary, 36% secondary 12.2% primary and rest 4.5% had no educational qualification. Elston also found that in case of feed use, self preparation and readymade feed were 60% and 40% respectively, 70%

farmers vaccinated their layers regularly and 30% farmer were irregular. Approximately, 80.7% farmers used deep litter with sow dust and rice husk and 19.3% used slate system. About 54% did not have any training on layer farming, where as 46% farmers had taken their training on layer farming.

2.4 Lighting program

According to Hyline management guide, egg production is very closely related to the changes in day length to which the pullets are exposed. Egg numbers, egg size, livability and profitability can be favorably influenced by a proper lighting program.

1. Start pullets with 20-22 hours of light the first week at lux (3 foot –candles) intensity. Reduce light to 20 hours the second week at lux (1/2 foot –candles). The following week, reduce light duration to reach 8-9 hours day length by 7-9 weeks of age or in open houses, the longest natural day length between 6 and 17 week of age.
2. Provide the light stimulation when body weight is 1.27 kg (2.8 lb).The initial increase should be one or less. Increase light by 15-30 minutes per or biweekly until 16 hours of light is reached. Preferably the period of stimulation should last until 28-32 weeks of age. Light intensity should also be increased at housing to 10-30 lux (1-3 foot candles)
3. Allow no decrease in day length or light intensity in adult layers.

2.5 Ventilation

Controlled ventilation can do a great deal to dilute pathogenic organisms as well as provide an optimum microenvironment when ventilation equipment is designed and operated to provide correct air speed and direction. A general rule for required fan capacity is four cubic meters of air movement per kilogram of body weight per hour (one cubic foot per minute per pound of body weight).The birds optimum environmental temperature and relative humidity are 21-27^{o} C and 40-60% respectively (Hyline Management Guide, 2010).

2.6 Marketing

Marketing is the easiest steps of poultry farming in Bangladesh. You can easily sell your products in your nearest local market. Nowadays, Bangladesh is earning some foreign money by exporting poultry products. Poultry farming is really a lucrative business. It can play a great role for eradicating poverty and unemployment problems.

2.7 Research gap and the present study

The egg production and performance of layers is determined by many factors. The factors are categorized into-1. Related to farmer such as age, education and training and 2. Related to scientific technology such as practice of cage, use of footbath etc. These factors also have relation with other variables. But limited information is available in Bangladesh. As different studies have been already done in this area but layer farmers' benefit in compliance with management technology is not known. The current study was aimed at the problems in compliance with management technology by the layer farmers of Panchagarh district. There is a great potentiality to improve the productivity of layer farming. It is very much important to know the layer production of Panchagarh district before making any recommendation. Therefore, the present research was undertaken to know the present status of layer farming, to identify the problems and to determine the prospects of layer farming in the rural area of Panchagarh district.

CHAPTER 3

MATERIALS AND METHODS

Proper methodology is blatant in conducting any research work. The reliability of any research depends on the appropriate use of methodology. Proper methodology leads to found quality result. The method of data collection depends upon the nature, aims and objectives of the study. An interview schedule was made and pre-tested for collecting fruitful information. To ensure the qualities of data repeated visit were made to collect data and questions were asked in such a manner that the poultry farmers could reply without having any obscurity.

3.1 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). The interview schedule is provided in the appendix I.

3.1.1 Selection of study area

Keeping the objectives in mind, the present study was conducted at Panchagarh district. The area was selected for good communication facilities and consequently less expense for conducting the study. No study of this type was conducted previously in this area.

3.1.2 Sampling technique

Samples of representative farms were selected in such a way that the information from them could meet up the purpose of the survey. A random sampling technique was followed in this study. According to local Livestock Officer, there were approximately 307 poultry farms, of which 59 were layer and rest of them were layer farms. Among 59 layer farms, 20 were selected for data collection. The samples drawn from different categories of farms had shown in Table-2.

Table-2: Layer farms selected in five Upazillas in Panchagarh District.

Name of Upazilla	No. of farm
Panchagarh Sadar	03
Atwary	02
Boda	03
Debigonj	04
Tetulia	08
Total	20

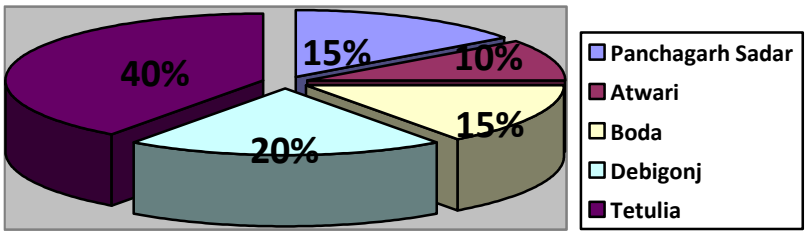


Fig:-1 Pie chart of Selected farms for data collection

3.1.3 Period of data collection

Data were collected from August to October 2013. Collection of data was done through face to face interviews with respondents by several visits at selected farms by the researcher.

3.1.4 Instrument for data collection

The interview schedule was carefully designed keeping the vision of the study in mind The Schedule contained both open and closed form of questions. Most easy, simple and dire questions were used to obtain information. After pre-testing, a set of final survey schedule was developed with necessary rearrangement and modification.

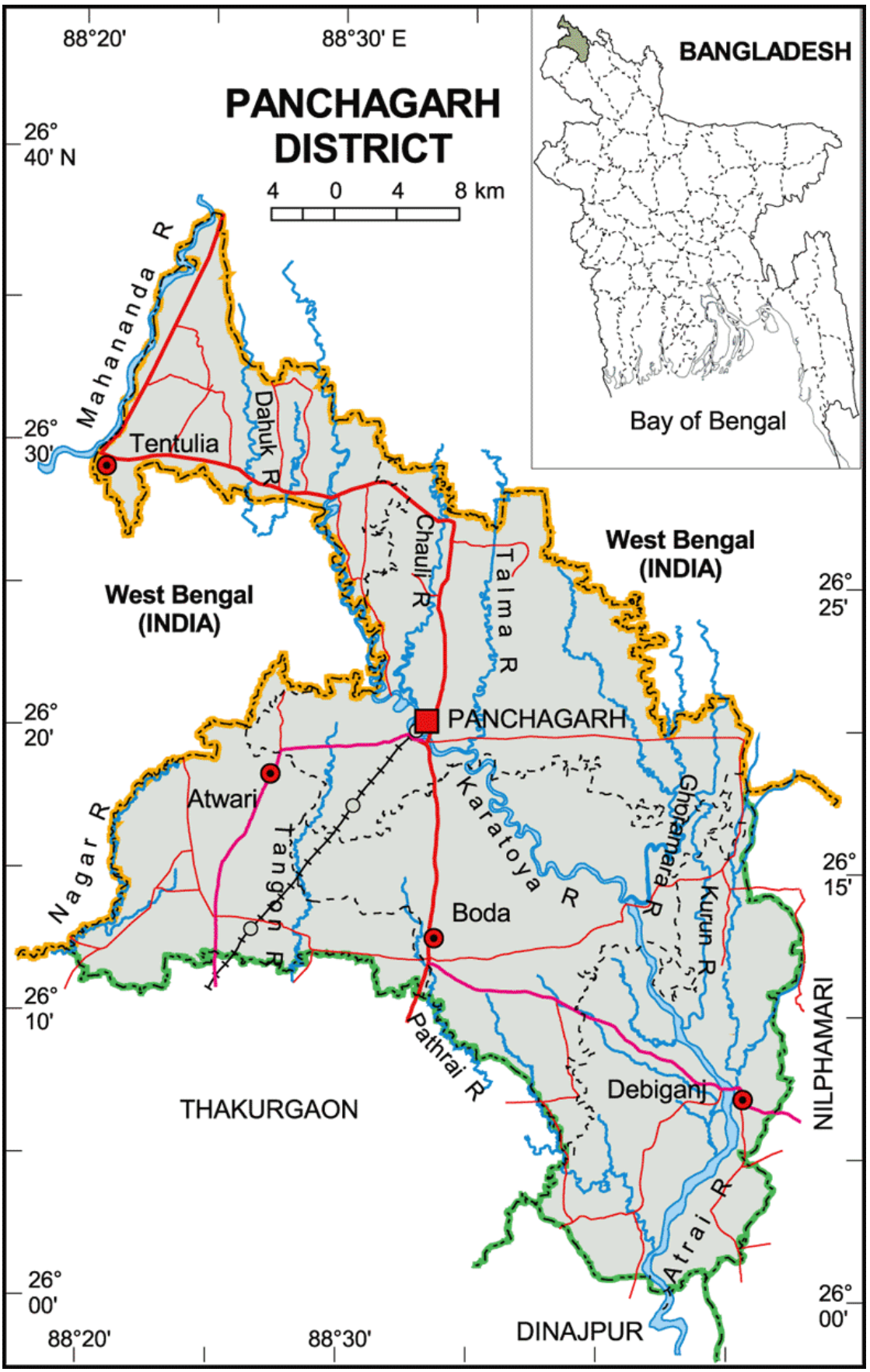

PANCHAGARH DISTRICT
BANGLADESH
Bay of Bengal
88°20'
88°30' E
26° 40' N
26° 30'
26° 25'
26° 20'
26° 15'
26° 10'
26° 00'
4 0 4 8 km
Mahananda R
Dahuk R
Chauli R
Talma R
Karatoya R
Nagar R
Tangon R
Pathrai R
Gudamara R
Kurun R
Atrai R
Tentulia
Atwari
Boda
Debiganj
PANCHAGARH
West Bengal (INDIA)
West Bengal (INDIA)
THAKURGAON
NILPHAMARI
DINAJPUR

Fig:-2 Map of Panchagarh District

Table-3: General Information of livestock in Panchagarh district.

Category	Registered	Un- registered
Cattle farm	323	19
Goat farm	26	7
Pig farm	-	4
Poultry farm	307	-
Parent stock	16	-

(Source: District livestock Office, Panchagarh)

3.1.5 Collection of data

The data were collected through an interview questionnaire. All possible efforts were made to explain the purpose of the study to respondents in order to get valid and pertinent information. Interview was conducted with the respondents in their farm premises during their assured period. While starting interview with any respondent, the researcher took all possible care to establish rapport with them. It was pre-tested for judging suitability of schedules to respondents. Then the draft questionnaire was improved, rearranged and modified in the light of the actual practical experience. Attention was given to the general form of the interview schedule to observe whether that the question followed a logical and appropriate sequence.

The following information were considered for the study:

1. General information of the selected respondents; age, education, land holding, farm size, occupation, counseling, investment and annual income from layer farming.
2. Information on the layer; strains, number of layer, source of day old chick.
3. Information on feed; type of feed, times of feed supply.
4. Information on rearing system, lighting, ventilation and vaccination frequency.
5. Information on marketing of egg and spent hens.
6. Farmers' problem during chick collection, marketing, vaccination.

3.1.6 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.

3.1.7 Analysis of data

The technique of analysis included the classification of tables into meaningful results by arithmetic mean, percentage and standard deviation.

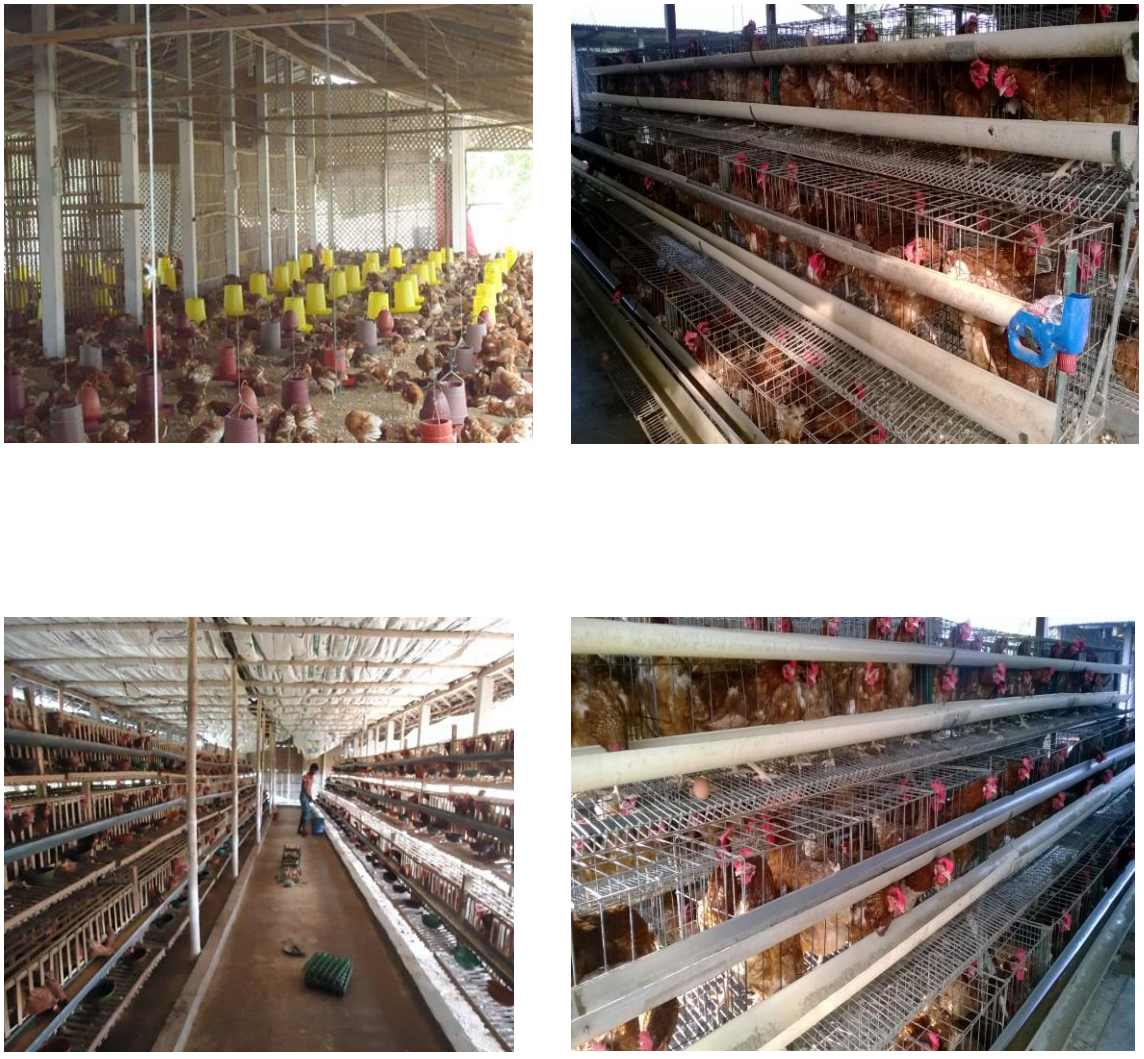


Fig:-3 Some Pictures of visited layer farm

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Use of cage in rearing layer

In the surveyed area, all the farmers used cage in rearing layer. About 60% farmers took training from ULO, YTC and NGOs prior to start farming. Thus, they gained a basic knowledge on cage rearing. Rest 40% who do not take training are somewhat less knowledge for rearing layer. All management procedures such as egg collection, feed supply, cleaning etc, are easier in cages than that of floor. During brooding and pre-laying stages, all farmers reared the replacement pullet on floor. They transferred replacement pullets to cage just prior to laying. They had idea that layers come into production at around 20 weeks of age and considered 17-20 weeks as adjustment period. So, they transferred the pullet at the age of 17 weeks. They reported that condition can affect growth and egg production in layers and management in cage system is more scientific and easier than floor system.

4.2 Lighting, Ventilation and Fumigation

A total of 30% farmer had least knowledge on lighting and ventilation and rest 70% were in vague about photoperiod and photo intensity. They had no knowledge on the effect of lighting intensity in egg production. Among the visited farms, 75% farmers used electric fan for ventilation and the rest of the 25% farmers practiced natural ventilation in the hot humid days during summer. Among the visited farms, 20% farmers practiced disinfection procedure to disinfect farm at the end of a production cycle. Rest of the 80% farmers didn't practice disinfection process. As a result the risk of disease entrance of the farm increased.

4.3 Use of footbath

In the surveyed farms, 60% farmers maintained strict, 30% maintained moderately and remaining 10% maintained slightly bio-security according to FAO bio-security scale. For maintaining bio-security, 50% farmers used strong wire net fence around the shed to protect their layers from predator. They rarely allowed visitors to their farm and used footbath containing different disinfectant solution in front of the doors and gates. In case of moderately maintained bio-security, 20% farmers used fence around the shed and they allowed visitors in their farm. The remaining 30% farmers maintained least bio-security for lack of sufficient knowledge.

The present findings revealed that farmers followed guideline of WHO partially by using footbath in front of the gates and doors.

4.4 Age of layer farmers

Age of the layer farmers ranged form 32 to 56 years. The farmers were stratified into 3 age categories (Table 4.1). It is evident that 22% farmers were young, 57% farmers were middle aged and rest 21% farmers were old. The average age of layer farmers was 39 years and the value of standard deviation was 7.196.

Table-4 Categorization of Layer farmers according to age

Category	Farmer (%)	Range (years)		Mean	SD Value
		Maximum	minimum		
Young (<36 years)	22	56	30	39	7.196
Middle aged (36-50 years)	57				
Old (>50 years)	21				

4.5 Education

The literacy has its own merit and contribution towards the process of development in any sector. Although education is no itself a sufficient condition for development of agriculture, it could be considered as one of the necessary condition, (Petek,1974). They were categorizing into 4 groups on the basis of their education according to Table 4.6.1. It was found that 13% farmers had no

educational qualification, 23% had up to primary level, 35% were up to secondary and 29% farmers were up to mark of secondary or above. The result also indicated that layer farming was a major enterprise under self-employment of educated person.

Table-5 Education of layer farmers

Category	No of farmers	Farmers(%)
Illiterate	2	13%
Primary	5	23%
Secondary	7	35%
Above Secondary	6	29%

4.6 Experience

Layer farming experience indicates the proper management knowledge of layer farmers. The layers farmers were classified into 3 categories in terms of having experienced. Among them, 64% farmers had shorter (<2 year), 29% farmers had moderate (2-10 years) and rest 7% had longer experience (>10 years). The experience ranged from 5 month to 12 years with average of 3.5 years and the value of standard deviation was 3.207.

Table-6 Experience of layer farmer

Category (experience)	Farmer (%)	Range		Mean	SD Value
		maximum	minimum		
Shorter(<02years)	64	12 years	5 month	3.5 years	3.207
Moderate(2-10years)	28				

Longer(>10 years)	7				

4.7 Size of layer farm

The farm size was measured by number of layer, which was classified into four groups very small, small, medium, large. Number of average layer per farm was 600 and the layer number ranged from 460 to 1400. The Table 4.7.1 revealed that 57% farms were small, 14% farms were medium and 29% farms were in very small category. Perhaps most of the farmers believe that it was easy for them to manage a farm sized in small category and the value of standard deviation was 270.294 .

Table-7 Categorization layer farms according to their layer number:

Category (flock size)	Farm (%)	Range (no. of layers)		Mean (layers)	SD Value
		maximum	Minimum		
Very Small (<500)	29	1400	460	600	270.294
Small (500-1000)	57				
Medium (1000-2000)	14				
Large (>2000)	0				

4.8 Member involved

Proportionately 87% employed labour was responsible to take care of layers. It may be concluded that traditionally owners were the sole raiser of layer farming. In layer farming most of the farmers operate their farms through employed labour.

Table-8 Member involved in Layer farming

Rearer responsibility	Rearer (%)
Wife	02
Son	10
Mother	01
Employed labour	87

4.9 Housing materials

Farmer used a variety of materials for layer housing. 15% farmers used bamboo, 10% farmers used brick, 20% farmers used bamboo, soil and iron net 55% farmers used bamboo, concrete and iron net as materials for layer housing.

Table-9: Housing materials

Materials of layer house	No. of farm	Farmer (%)
Bamboo	3	15
Brick	2	10
Bamboo, soil and iron net	4	20
Bamboo, concrete and iron net	11	55

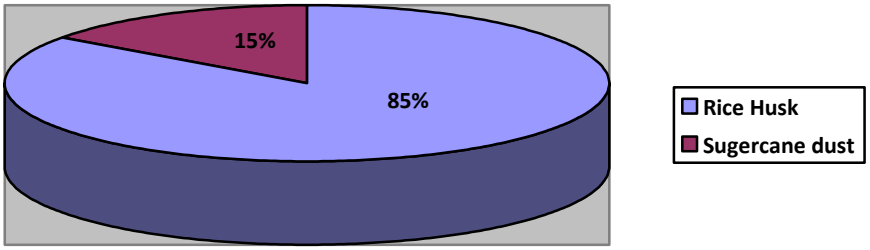


Fig:-4 Bedding materials for layer

4.10 Marketing of layer

4.10.1 Source of layer Chick

They indicated that for no-existence of layer hatcheries in study areas. The farmers obtained layer chicks from the agents of different hatchery owners.

Table-12 Source of layer chick

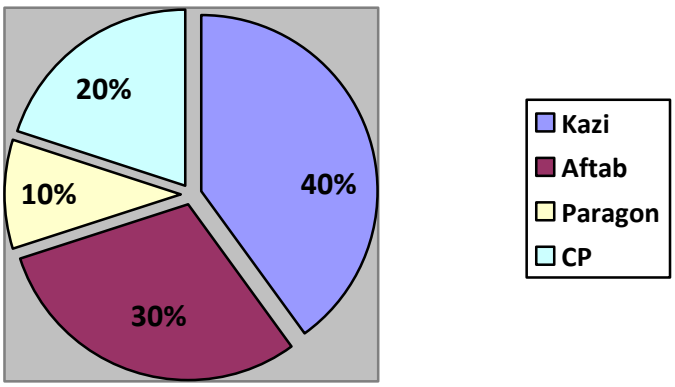


Fig:-5 Source of layer chick

4.10.2 Cost of layer chick

The cost of layer chick varied from Tk. 20 to Tk. 75 (Table 4.23) 14% farmers purchased layer chick by 20-25 tk. and 57% farmers purchased layer chick by Tk 26-50 and 29% farmers purchased chicks above 50 tk. The average cost of layer chick was Tk. 41 and the value of standard deviation was 12.035.

Table-10 Cost of layer chick (Tk./ layer chick)

Category	Farmer (%)	Range (Tk.)		Mean	SD Value
		maximum	minimum		
Low (20-25Tk.)	14	75	21	41	12.035
Medium(26-50 tk)	57				
High (>50Tk)	29				

4.11 Monthly income (Tk.)

Income of the respondents referred to the earning (Tk.) by them from farming ranged from Tk. 9000.00 to 57500.00 monthly with mean of Tk. 25100.00 and the value of standard deviation was 13871.5. A total of 35% farmers were fall into low income group, 45% farmers were in medium and 20% farmers were in high income group. It gave a clear indication that the medium income level group was more interested in layer farming next to the high income level. The low income group was less involved in layer farming. This might be because of their limited capital. It was well establish that layer farming requires farming relatively high amount of capital compared to other enterprise.

Table-11: Classification of farmer on the basis of monthly income (Tk.)

Category	Layer farmer		Mean	SD Value
	No	%		
Low income (Up to 15000)	7	35	25100.00	13871.5
Medium income (15000-35000)	9	45		
High income (More than 35000)	4	20		

4.12 Training

In the surveyed area, 60% farmers had training on layer farming from local YTC, ULO and NGOs. Jin *et al.* (2000) found that 60% farmers had training and about 40% did not have any training on layer farming. Unemployment as well as scarcity for skilled labor has always been a considering factor in layer production. For the development of skill, training is obvious. Layer farming in Bangladesh is now shaping up to an industry which will require more skilled and well trained man power. So, more opportunity for training and development of training program as well as facilities should be measured.

Table-15 Training

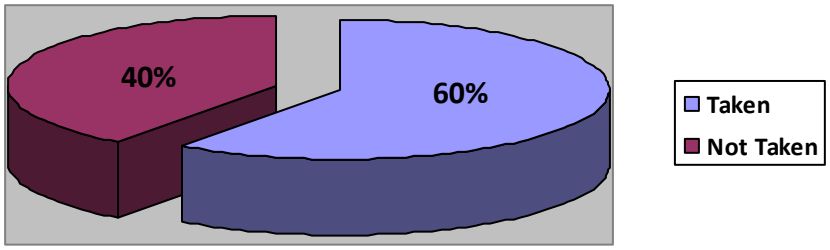


Fig:-6 Training received by farmers.

4.13 Egg Production

Most of the farmers in Panchagarh district reared Hyline brown. But in the farmer's level better environment and strict bio-security were not maintained properly. Thus the production level in this district didn't attain at standard level. The value of standard deviation was 10.016.

Table-12 Egg production (%)

Egg production	Layer farm		Mean	SD Value
	No	%		
Low (UP to 80%)	5	25	86	10.016
Middle (81-90%)	8	40		
High (More than 90%)	7	35		

4.14 Age at culling

Standard age at culling of Hyline brown is 78 weeks. However, in the study area farmers cull their layers at an average age of 81 weeks and the value of standard deviation was 10.318.

Table-13: Age (week) at culling

Category	Layer farm		Mean	SD Value
	No	%		
70-80 week	3	15	81	10.318
80-90 week	17	85		

4.15 Mortality of layer

Standard mortality of Hyline brown is 2-4% (Hyline management guide). But in this study, mortality of layer was at an average 10.49% and the value of standard deviation was 3.056. It happened due to unable to maintain optimum environment for the layer. As a result profitability of farmers reduced which was similar with the previous report of Farooq *et al.* (2003).

Table-14: Mortality of layer

Category (Mortality %)	Layer farmer		Mean (Mortality %)	SD Value
	No	%		
4-8	3	15	10.49	3.056
8-14	17	85		

4.16 Problem faced during data collection

In collecting data, the researcher had to face the following problem:

1. Most of the respondents hesitated to provide their information on production, income and investment. Because they were afraid of tax imposition. They considered researcher as an officer of taxation.

2. Most of the farmers did not keep any records of their business so it was difficult to recall information and the researcher had to depend upon their memory.
3. Sometimes the respondents did not co-operate willingly with the researcher because of no direct benefit from supplying information.
4. Some respondents gave misleading information on occurrence of diseases. As they though that interviewer may cause harm to them.
5. A total of the layer farmers had no previous knowledge to respond to such study.
6. During data collection, farmers was sometimes absent, as a result, difficulties involved to collect information.

4.17 Problems of layer farming

1. Limited knowledge of farmers about the production performance of improved breeds/varieties of layer.
2. Most of the farmers do not know how to prevent diseases in layer farm.
3. Farmers have no training on layer production.
4. Complains of neighbor regarding layer farming create unhygienic condition.
5. Government has less technical support in layer farming.
6. Transportation problem.
7. High cost of electricity and electricity problem.
8. Unsteady condition of the market.
9. Feed supply and feed quality is not constant.
10. Sub-standard day old chick.

4.18 Recommendations

1. Good quality day old chick should be ensured.
2. Government should give financial and technical support to layer farmers.
3. Training is necessary to layer farmers for better management of layer farming.
4. Vaccine and medicine should be available in market.
5. Market should be stable and electricity supply should be ensured.

CHAPTER 5

SUMMARY AND CONCLUSIONS

The present study was conducted at Panchagarh District to assess the potentiality of layer farming. It was also done to identify problem in rearing layer in the existing farming system. A total of 20 layer farms were selected at random from the study area. Data were collected using standard and pre-tested interview schedules during the period from August to October, 2013. The major findings of the study are summarized below.

Among the respondents 22%, 57% and 21% were group as young, middle aged and old aged group respectively. A total of 60% farmers had training on layer farming from YTC, ULO and NGOs. Most of farmers collected their chicks from Kazi farm through local dealer or agent. They reared Hyline brown strain. All farmers in the surveyed area used cage in rearing layer. But during brooding and pre-laying stage, the farmers reared the replacement pullet on floor. Standard production percentage of the strain is 93-96%. But in the farmer's condition, it ranged between 60 to 93% with an average of 86%. It might be happened for unable to maintain optimum environment for layer. Standard age at culling of Hyline brown is 78 weeks. However, in this district farmers cull their layers at the average age of 81 weeks.

In the surveyed area, 60% farmers maintain strict bio-security, 30% maintained moderate bio-security and remaining 10% maintained low bio-security. For bio-security, 60% farmers used wire net fence around the layer shed and used footbath containing different disinfectant solution in front of the gates and doors. They rarely allowed visitors to their farm. However, 30% farmers used fence around the shed and allowed visitors in their farms, 10% farmers rarely used footbath in front of the shed for lack of sufficient knowledge. Among the visited farms, 20% farmers practiced disinfection process to disinfect their farms, while the rest of 80% farmers didn't practice disinfection process.

On the other hand 75% farmers were not aware of interval between batches of layer. However, rest of 25% farmers strictly maintained interval between batches of layer. So farmers had to gain knowledge on interval between batches and practice it. Most of the farmers had no knowledge on ventilation. Among the visited farms, 25% farmers used fan for ventilation and rest of 75% farmers practiced natural ventilation. They used fan during the hot humid days. Standard mortality of Hyline brown is 2-4% (Hyline Management Guide, 2010). In this study, mortality of layers was found at an average of 10.49%. It might be happened not to maintain optimum management and bio-security of the layer.

The above findings and discussions draw the following conclusions: The highest proportions (57%) were middle aged and they were quite keen to adopt layer farming to solve their unemployment. So there has an opportunity for the young group to employ themselves in this sector. Provision of training and credit facilities could be a good approach to the layer farmers for developing their efficiency and performance in operating the farm. Higher investment might be prerequisite for flourishing of layer industry in this country. Well developed market facilities ensuring stable but ideal price is one of the prerequisite for fostering this industry. The government through their extension agent should arrange necessary training to interested farmers.

REFERENCES

Asghar, N. J. and Tauson R. 2000. Aviary systems and conventional cages for laying hens. Effects on production, egg quality, health and birds location in three hybrids. Acta Agriculturae Scandinavica Section A, Animal Science, Copenhagen, 41(3): 191-203

Anderson, K. E. 1989. Behavioral adaptation of floor-reared white Leghorn pullets to different cage densities and cage shapes during de initial set., tling-in period. Poultry Science, Savoy, 68(1): 70-78.

Anderson, K. E. and Adams, A.W. 1994. Effect of floor versus cage rearing and feeder space on growth long bone development, and duration of tonic immobility in single comb white Leghorn pullets. Poultry Science, Savoy, 73(7): 958-964.

Abrahamsson, G. E. 2003. Poultry behavior, health and integument of four hybrids of laying hens in modified and conventional cages. British poultry science, London, 37(3): 521-540.

Alam, R. N. and Tanson, R. 1998. Performance and egg quality of laying hens in aviary system. Journal of Applied Poultry Research, Athens 7(3): 225-232.

Babu, I. K., Shaoo, G., Mishra, S. C., Mishra, P. R. and Nayak, J. B. 1998. Effect of litter thickness on the hygiene and mineral value of poultry litter. Indian Journal of poultry Science, 28 (1):71-73.

BBS (Bangladesh Bureau of Statistics) 2009. Statistical Yearbook of Bangladesh, 2009. Planning division, Ministry of planning, Government of People's Republic of Bangladesh, Dhaka.

Bangladesh Economic Review 2013, 2009.

Bell, L. and Weaver, T. M. 2002. Behavioral adaptation of floor-reared white Leghorn pullets to different cage densities and cage shapes during de initial settling in period. Poultry Science, Savoy, 68: 70-78.

Bhattu Bloom, B. S., Engelhardt M., Furnst, E., Hill, W. and Krathwal, D. R. 1999. Taxonomy of educational objectives- The cognitive domain Longmans Green. New York.

Cunnigham, R.T. 2003. Factors affecting the use of perches in cages by laying hens. British Poultry Science, London, 39, n.2, 186-190.

Deaton, J. W. 1985. Noted difference in the digestive system in cage and floor-reared commercial egg-type pullets. Poultry Science, Savoy, v.64, n.5, pp. 1035-1037.

DLS, Annual Progress Report. 2009. Department of Livestock Services. Ministry of Fisheries and Livestock. Government of the People's Republic of Bangladesh.

Elston, J. J. & Rahman, M. L. 2002. Laying hen behaviur. Effect of cage type and startle stimuli.

Farooq, M., Zhoor-ul- Haq, Main M. A., Durrani F. R. and Syed M. 2003. Cost of production gross return and net profit in commercial egg production. Pakistan journal of Veterinary Science, 23(1):41-47.

FAO, (Food and Agricultural Organization), 2002. Diffusion of innovations. Fourth Edition, pp.166-167.

Groot, K. and Drost, W. 2000. Rearing without early access to perches impairs the spatial skills of laying hens. Applied Animal Behavior Science. Amsterdam, 67(3): 217-228.

Guru, N. J. 2003. Effects of modifying layer cages with perches on stress physiology, plumage and pecking and bone strength of hens. Australian Journal of Experimental Agriculture, Melbourne 37(5): 523-529.

Haque, T. N. 2001. Noted difference in the digestive system in cage and floor-reared commercial egg-type pullets. Poultry Science, Savoy, 64(5): 1035-1037.

Henuk, I. M. and Digkle, W. J. 2002. Effect of floor versus cage rearing and feeder space on growth long bone development, and duration of tonic immobility in single comb White Leghorn pullets. Poultry Science, Savoy, 73(7): 958-964.

Jefferosn, Y. 2003. Comparison of egg shell quality and hygiene in two housing systems standard and furnished cages. In: symposium on the quality of eggs and eggs.

Jin, L. and Carig, J. V. 1988. Some effects of eggs and floor rearing on commercial White Leghorn pullet during growth and first year on egg production. Poultry Science, Savoy, 67(10), 1400-1406.

Kristensen, I. S. and Sillebak, K. 1996. Ecological production of egg and crops. Technical and economic farm result in 1994-95. Beretning Statens Husdybrugsforsog. 730: 93-163.

Kumar, V. P. and Mahalati S. 1998. Cost analysis of layer farm in South- West Madhya Pradesh. Indian Journal poultry Science 33(1): 110-112.

Guiness, Mc. 2002. Some performance traits and abdominal fat contents of three Egyptian indigenous laying breeds. First international conference on production and health in semi-arid areas, El Aris. September. 3:.471-481.

Nair, B. C. and Ghadoliya, M. K. 2002. Economic viability of layer farming in the state of Goa. Indian. Journal poultry Science 35(1): 73-76.

Okada, I., Maeda, Y. K., Ota, T., Namikawa, T. Amano, W. and Kurosava, Y. 1987. Genetical studies on breed difference of the native chicken of Bangladesh. In "Genetic study on breed difference of the native domestic animals in Bangladesh. Part 2. Hiroshima University, 27-45.

Petek, M. 1999. Production traits and economic efficiencies of different genotypes of layer reared by enterprises in Bursa province and its near vicinity. Vet. eriner Fakultesi Dergisi Uludag Universitesi. 18(1-2): 65-77.

Prabhakaran, V. M. 2003. Health and production in improved cage designs. Poultry Science, Savoy, 77(12):1 820-1827.

Rahman, N. and Short, K. 2003. Egg shell density in furnished cages: Effect of dustbath and perch provision. British Poultry Science, London, 41(1): 77-78.

Sarini, N. P. 2009. Bio-security understanding of the post farm gate of non industrial commercial poultry sector, Journal Soca, 9(3): 314-319.

Senthil, K. and Belsare, V. P. 1998. Performance of white leghorn birds under field condition. Poultry Advisor. 27(6): 43-46.

Smith, S. F. 1993. Nesting and dust bathing by hens in cages: Matching and mis-matching bet., ween behaviour and environment. British poultry Science, London, 34(1): 21-33.

Smith, A., Farooq M., Mian M. A., Perveez and Khurshid A. 2000. Economic of broiler production in Mardan Division. J. Rural Development & Administration. (3): 56-64.

Senthil, K., Nita Khandekar, S. and Narmatha, A. 1998. Knowledge level among poultry entrepreneurs on scientific layer farming. Division of extension education, Indian veterinary research institute, izatangar, bareilly (u.p.) 122- 243.

Tanson, R. 1984. Education of procedures for scoring the integument of laving hens. Independent scoring of plumage condition. Acta Agriculture Scandinavica Section A, Animal Science. Copenhagan, 34(3): 400-408.

World Health Organization (WHO) 2006, public Health Interventions for prevention and Control of Avian Influenza. A Manual for Improving Bio-security in the Food Supply Chain: Focusing on Live Animal Markets.

Zahid, J. K. 1994. Economic of layer production on commercial poultry farms in urban Faisalabad. M.Sc Thesis. Faculty of Agricultural Economic and Rural Sociology University of Agriculture, Faisalabad.

Zahir, U., Farooq, M., Durrani, F. R., Chand, N. and Ahmed, J. 2001. Status of broilers production in Swat, Pakistan. Livestock Research for Rural Development, 13(3): 108-122.

APENDIX-I

INTERVIEW SCHEDULE

DEPARTMENT OF POULTRY AND DAIRY SCIENCE

HAJEE MOHAMMAD DANESH SCIENCE AND TECHNOLOGY UNIVERSITY, DINAJPUR-5200

Questionnaire (English Version) for conducting survey to assay "status of layer farming in Panchagarh District''

Date----------

1. Farmer's information:
   Farmer's name..... Mobile----------
   Father/Mother/Husband's name.....
   Village..... Post Office..... Union.....
   Upozilla----------
2. Age:----------
3. Occupation
   Main occupation----------
   Secondary occupation----------
4. Educational qualification:
   1. Illiterate 2.Upto Primary
   3. Above Primary up to Secondary 4. Above Secondary
5. Did you take any training before starting poultry farming? -------Yes/No

6. Major Income:---------- Secondary Income:----------

   1. From Cultivable land----------

   2. From Poultry----------

   3. From Livestock----------

4. From fishery----------

5. From service----------

6. From business----------

7. From other source----------

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/No]

Capital:

Own Capital/ Loan

Labour use:...../500 bird

9. Do you have the power supply? [Yes/No]

10. Source of land:

1. Homestead

2. Own land under own cultivation

3. Own land given to other or borga

4. Land taken from others or borga

5. Land taken from others or lease

6. Others

11. Land size of the farm:----------(DECIMAL)

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

1. Very small (less than 500)

2. Small (500-1000)

3. Medium (1000-2000)

4. Large (2000 and Above)

13. Information about poultry reared in the farm

Type of Bird	Strain	No. of Bird	Source	Price of DOC
Layer				

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

15. Information about feed:

What type feed is generally being used?

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

Do you follow the feeding standard? --------- [Yes/No]

Do you use production promoter? ---------- [Yes/No]

Have you any feed mixing machine? ---------- [Yes/ No]

Do you use unconventional feed? ---------- [Yes/ No]

Cost of feed

Readymade ----------taka/kg

Hand mixed ---------- tk/kg

Face any problem: -------- [Yes/No]

16. Vaccination:

Do you follow the vaccination schedule regularly? ---------- [Yes/No]

Vaccination schedule----------

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 source?

Source of litter: ----------

Are these materials available the entire year round? ---------- [Yes/No]

What do you do with the litter after use? ----------

[Dump, Use in Agriculture, Fish feed, Others]

18. Marketing and means of Transportation of final Product:

How many eggs produce per day? ----------no of eggs

Mention the price of Egg ----------tk/egg

Who are the purchaser of your product? ----------

Do you take it to the near market? ---------- [Yes/ No]

Mention the problem faced during marketing ----------

---

19. Production:

How many eggs do you get in a year? ----------

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

What is the average production of the bird? ----------

Total feed intake of the birds ----------

FCR rate of layer bird ----------

20. Mortality: ----------

21. Some management queries:

a) Rearing system [Cage/Litter]

b) Ventilation

c) Lighting system

Please name some diseases which appear frequently in the farm ----------
---

22. Problems in farming:

23. Opinion of the farmer:

24. After laying how many birds are alive:

25. Birds age at present:

26. Before laying mortality:

27. Mortality

'খাদ্য, ঔষধ, ভ্যাকসিন ও ডিম পাড়ার রেকর্ড'

মেসার্স বিসমিল্লাহ পোল্ট্রি, যতনপুকুরী, পঞ্চগড়।
জাত:- ইসা ব্রাউন ব্যাচ নং: ০২ ইং।
প্রাথমিক সংখ্যা: ২০৫০
বর্তমান সংখ্যা: ২০১৬
জন্মতারিখ: ২২।৩
বয়স: ৩২

তারিখ	বয়স	ভ্যাকসিন	খাদ্যের পরিমাণ (কেজি)	দর প্রতি (কেজি)	মোট মূল্য	ঔষধের নাম	পরিমাণ	মোট মূল্য	১নং ডিম	২নং ডিম	মোট ডিম	উৎপাদন %	আদর্শ উৎপাদন	মুরগির সংখ্যা	মৃত/ ছাঁটাই	অবশিষ্ট	ম
১।১১।২৩			১১৮	৩৬.৩৪	৪২৮৮	মানকেলানি. ইয়েল	১১০.২৫০.		১৫০	-	৯৫০			২০২৩	-	২০২৩	
২।১১।২৩			১১৮		৪২৮৮	ইয়েল, মানকেলানি.	১৫০. ১১০		৯৪০		৯৪০			-	-	-	
৩।১১।২৩			১১০		৪০৩৩	ইয়েল. মানকেলানি.	১৫০. ১১০		৯৬০		৯৬০			২০২৩	০২	২০২১	
৪।১১।২৩			১১০		৪০৩৩	—	—		৯৬০		৯৬০			-	-		
৫।১১।২৩			১১০		৪০৩৩	লিভোবিট প্রভিফাস্ট	১১০. ১১০		৯৬৪		৯৬৪						
৬।১১।২৩	৩৩		১১০		৪০৩৩	লিভোবিট প্রভিফাস্ট.	১১০. ১১০		৯৬৪		৯৬৪						
৭।১১।২৩			১১০		৪০৩৩	লিভোবিট প্রভিফাস্ট.	১১০. ১১০		৯৫৫		৯৫৫						
৮।১১।২৩			১১০		৪০৩৩	—	~~১১০ ১১০~~		৯৪৫		৯৪৫						
৯।১১।২৩			১১০		৪০৩৩	A.D3.C.	১১০. ১১০		৯৫৫		৯৫৫						
১০।১১।২৩			১১০		৪০৩৩	A.D3. C	১১০. ১১০		৯৪০		৯৪০						
১১।১১।২৩			১১০		৪০৩৩	A.D3. C	১১০. ১১০		৯৫০		৯৫০						
১২।১১।২৩			১১০		৪০৩৩	A.D3. C	১১০. ১১০		৯৪৫		৯৪৫						
১৩।১১।২৩	৩৪		১১০		৪০৩৩	—	—		৯৫০		৯৫০						
১৪।১১।২৩			১১০		৪০৩৩	এভিলা. রেনাফাইটস. রেনালেযার	৩৫০.৩৫০.৭৫০		৯৫০		৯৫০						
১৫।১১।২৩			১১০		৪০৩৩	লেরাটে, C	৩৪০. ১১০		৯৪০		৯৪০			২০২৪	০১	২০২৩	
১৬।১১।২৩			১১০		৪০৩৩	C.	১১০		৯৫০		৯৫০						
১৭।১১।২৩			১১০		৪০৩৩	রেনালেযার. রেনাফাইটস. W.S. এভিলা.	৭৫০.৩৫০.২০.৩৫০		৯৫০		৯৫০						
১৮।১১।২৩			১১০		৪০৩৩	W.S	২০		৯৪০		৯৪০						
১৯।১১।২৩			১১০		৪০৩৩	W.S. নিউট্রিলাক.	২০. ১১০		৯৫০		৯৫০						
২০।১১।২৩	৩৫	[illegible]	১১০		৪০৩৩	নিউট্রিলাক.	১১০		৯৪৫		৯৪৫						
২১।১১।২৩			১১০		৪০৩৩	নিউট্রিলাক. ভিটাজিংক	১১০. ১১০		৯৫৫		৯৫৫						
২২।১১।২৩			১১০		৪০৩৩	নিউট্রিলাক. ভিটাজিংক.	১১০. ১১০		৯৪৫		৯৪৫						
২৩।১১।২৩			১১০		৪০৩৩	ইয়েল. এমবো লোসিট. রেনালেযার. রেনাফাইটস এভিলা	১১০. ১১০. ৬৫০.৩৫০.৩৫০		৯৪৫.		৯৪৫.						
২৪।১১।২৩			১১০		৪০৩৩	এভিলা. রেনাফাইটস. ইয়েল. ভিটাজিংক. রেনালেযার	৩৫০. ৩৫০. ১১০ ১১০.৬৫০		৯৩৫.		৯৩৫.						
২৫।১১।২৩			১১০		৪০৩৩	—	—		৯৪০		৯৪০						
২৬।১১।২৩			১১০		৪০৩৩	—	—		৯৪০		৯৪০						
২৭।১১।২৩	৩৬		১১৮		৪২৮৮	মানকেলানি.	১১০		৯৪০		৯৪০			২০২৩	০১	২০২২	
২৮।১১।২৩			১১৮		৪২৮৮	মানকেলানি	১১০		৯৩৫		৯৩৫						
২৯।১১।২৩			১১৮		৪২৮৮	—	—		৯৬০		৯৬০						
৩০।১১।২৩			১১৮		৪২৮৮	এভিলা. রেনাফাইটস	৩৫০.৩৫০		৯২৫		৯২৫						