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List of abbreviations

Abbreviation	Elaboration
°C	Degree Celsius
Gm	Gram
Kg	Kilogram
S/C	Subcutaneously
%	Percent
sq.ft	Square feet
/	Per
Kcal	Kilocalorie
ml	millilitre

ABSTRACT

Nowadays commercial layer chicken farming is one of the profitable business in Bangladesh to fulfil the demand of animal protein supplement. The present study was carried out at Anower poultry farm in Tangail district during September to October, 2019 to observe the overall management practices of that Hisex Brown layer farm. For this, egg production and management related data were collected, analyzed and compared with the standard level. The average feed intake per day was 120 gm at all age group, while their average weight gain were 1.85 kg, 1.85 kg, 1.90 kg and 1.90 kg at the age of 39th, 40th, 41st and 42nd week; respectively. The mortality rates were 0.036%, 0.071%, 0.089% and 0.089% at the age of 39th, 40th, 41st and 42nd week; respectively. The overall management practices i.e. housing, light management, feed and water management and heat stress management was little bit close to the standard level.

Key words: Hisex brown, layer chicken, management, production performance.

CHAPTER-1

INTRODUCTION

Commercial hybrid broiler and layer production is one of the profitable production activities of meat and eggs that is animal protein supplements in Bangladesh. Commercial farmers use some exotic layer chickens: Hisex, Isa, Arbor acres, Shaver, Lohman, Babcock, B.V. 300 etc. (Saleque and Rozen, 2007). Productive and reproductive fitness of Hisex brown is excellent in environment controlled house but most of the commercial farm is not environmental control that is open house. The Hisex Brown is an exceptionally efficient brown egg layer, producing dark brown eggs with excellent shell strength. Specially selected traits include high peak production and excellent laying persistency (Mabbett, 2010). However, the full genetic potential can only achieve when the bird is provided with all its requirements.

For the successful egg production, there are some points should be considered that is selection of hens, well housed, fed and protected the chickens against disease. In addition, welfare of birds that is proper space, dry litter, clean water and proper adequate balanced nutrition is essential in the chicken flock and it should start from day old of chickens (Valentim et al., 2019). Successful management of laying flocks includes (i) housing and light management (ii) feed and water management and (iii) heat stress management (Mabbett, 2010).

The goal of managing the Hisex brown is to attain the greatest number of eggs in the desired weight. For these reasons, the present study was done with the following specific objective to observe the overall management practices of Hisex Brown layer farm.

CHAPTER-2

MATERIALS AND METHODS

2.1. Study area and study population

The study was performed at Anower poultry farm, Delduar, Tangail, where total of 5572 layers Hisex brown chickens (in two flocks) were reared.

2.2. Duration of the study

The duration of the study was one month; September 11 to October 12, 2019.

2.3. Data collection

Two types of data were collected, first, production data from their register book i.e. feed intake, live weight and egg production and second, management data were recorded by observation and getting information from the predesigned questionnaire (Annexure).

2.4. Calculation method of egg production

The hen day and hen housed egg production was calculated using the following formula (North, 1996).

Hen housed egg production for one day (HHEP): The following formula measure the egg productivity in relation to the number of hens (housed) at the beginning of the laying period (ICAR).

$$\text{HHEP \%} = \frac{\text{No. of egg produced}}{\text{No. of bird housed}} \times 100$$

Hen day egg production for one day (HDEP): The following formula measures the egg productivity of the live hens on any given day. (ICAR)

$$\text{HDEP \%} = \frac{\text{No. of egg produced}}{\text{No. of birds available in the flock on that day}} \times 100$$

The effect of management ((i) housing and light management (ii) feed and water management and (iii) other management issues on egg production of Hisex brown was observed.

CHAPTER - 3

RESULTS & DISCUSSION

3.1 Management of Hisex Brown layer at Anower poultry farm

3.1.1 Housing System: The layers were kept in cage after 15 weeks of age @18”x14” x 17” for 3 birds. It is very important that chicks be housed and cared to provide an environment that will enable them to maintain their thermal balance. In comfortable conditions the hen lay more eggs in a laying cycle.



Fig. 1. Cage rearing system of Hisex Brown at Anower Poultry Farm

3.1.2 Lighting

Lighting schedule of Anower poultry farm showed on Table 1, which was followed by North (1984). It was observed that the rate of egg production and aged sexual maturity are affected by a pattern of lighting.

Table 1. Lighting schedule of Anower poultry farm

Age/day/week	Light/day(in hour)	Watt/sq. ft
1-3 day	24 hours	0.56 watt
4-6 day	23 hours	0.50 watt
7-8 day	23 hours	0.37 watt
1-2 weeks	23 hours	0.25 watt
2-3 weeks	22 hours	0.19 watt
3-4 weeks	18 hours	0.19 watt
4-5 weeks	16 hours	0.19 watt
5-6 weeks	14 hours	0.19 watt
6-10 weeks	13 hours	0.19 watt
11-18 weeks	12 hours	0.19 watt
18-20 weeks	11 hours 30 minutes	0.19 watt
20-21 weeks	12 hours	0.25 watt
21-22 weeks	12 hours 30 minutes	0.25 watt
22-23 weeks	13 hours 30 minutes	0.25 watt
23-24 weeks	13 hours	0.25 watt
24-25 weeks	14 hours	0.25 watt
25-26 weeks	14 hours 30 minutes	0.25 watt
>26-27 weeks	16 hours	0.25 watt

3.1.3 Feeding management

The chemical composition of feed that are used in Hisex brown layers at Anower poultry farm is presented in Table 2. The quality and quantity of feed with method of feeding has a major contribution in the productive performance of chickens. This feed accounts for 65–70% expenditure in production of poultry.

Table 2. The chemical composition of feed that are used in Hisex brown layers at Anower poultry farm

Age	Group	Type of feed	ME kcal/kg	Protein (%)	CF (%)	Ca (%)	P (%)	Approx. quantity required
>21 Weeks	Layers	Layer mash	2650	18	6	3-3.5	0.5	40kg (110g/day /bird)

Here, CF= Crude fiber; Ca= Calcium; P= Phosphorus

3.1.4 Watering

For the prevention of diseases clean and germ-free water were supplied to bird and each 100 birds need one round drinker in case of brooder condition, but when birds were shifted to the cage where, they used a plastic bowl for each 3 birds.

3.1.5 Vaccination

Vaccination schedule that are used at Anower poultry farm is presented on Table 3. It was seen that they used all the vaccines as routine basis, which assist to prevent their chickens against diseases.

Table 3: Vaccination schedule at Anower poultry farm

Age (day/week)	Name of the vaccine	Route of administration
1 st day	Mareks	S/C in neck
5 th day	BCRDB+IB	Eye drop or drinking water
12 th day	IBD	Eye drop or drinking water
17 th day	BCRDB+IB	Eye drop or drinking water
22 nd day	IBD	Eye drop or drinking water
28 th day	ND (killed)	S/C in neck
35 th day	Fowl pox	Wing web
8 th week	ND+ Infectious Coryza	Drinking water
10 th week	Fowl Pox + Fowl Cholera	Wing web or S/C
14 th week	Fowl Cholera	Breast muscle
16 th week	Infectious Coryza	Breast muscle
18 th week	IB+ND+EDS	Breast muscle or S/C

Here, BCRDB= Baby chicks Ranikhet disease vaccine; IBD= Infectious bursal disease; ND= Newcastle disease; IB= infectious bronchitis; EDS= Egg drop syndrome.

3.1.6 De-worming

De-worming was done at the age of 45 days of the birds and second time de-worming was done at the age of 90 day.

3.1.7 Debeaking

Debeaking was done at the age of 84 days of birds by using debeaker.

3.1.8 Fumigation: They fumigate their farm with potassium per manganate (ppm) and formalin and they used the ratio of ppm (g): formalin (ml), 1: 2 and their fumigation time was 20 minutes.

3.1.9 Biosecurity

In Anower Poultry farm ,the biosecurity management is admirable which is almost same as modern farm .There is restricted movement,footbath at the entry gate.Routinely disinfectant all the equipment and Properly disposal of the wastage.

3.2 Production performances of birds at Anower poultry farm

The production performance of Hisex brown layers are presented in table 4 and this production performance was compared with the standard.

Table 4. Comparison between observation and standard level of Hisex brown layer

Age (week)	Total birds (average)	Dead birds per week	Standard			Observation			
			Feed intake per hen per day (g)	Body wt. per hen per week (kg)	Mortality rate (%)	Feed intake per hen per day (g)	Body wt. gain per hen per week (kg)	Mortality rate per week (%)	Total eggs produced per week
39	5572	2	120	1.910	1.6	120	1.85	0.036	33620
40	5570	4	120	1.915	1.7	120	1.85	0.071	33587
41	5566	5	120	1.920	1.8	120	1.90	0.089	33562
42	5561	5	120	1.930	1.8	120	1.90	0.089	33533

It was seen from the table 4, that the highest production of egg was achieved at 39th weeks of age than others and after that age the egg production become lower as the age rises. It is similar to the egg production of commercial layer which commences at about 19th week of age, rises sharply to a peak at about 26th to 27th weeks of age and then declines gradually (Rahman, 2003 and Islam et al. 2016).

The mortality rate was 0.036%, 0.071%, 0.089% and 0.089% in that farm according to the observation, respectively at the age of 39th, 40th, 41st and 42nd weeks. The standard levels are 1.6%, 1.7%, 1.8% and 1.9%, which was higher than the observed mortality. So that it is very good for the farm that the mortality rate is very lower than the normal standard. Average amount of feed intake per day per bird was 120 gm which was also similar to the standard level.

In case of live weight gain, the standard levels were 1.910 kg, 1.915 kg, 1.920 kg and 1.930 kg per bird, respectively at the age of 39th, 40th, 41st and 42nd weeks and the observed values were 1.85 kg, 1.85 kg, 1.90 kg and 1.90 kg, respectively in that farm. Weight gain was almost similar to the standard level that means the production performance and the weight gains were good in that farm because of good management system and no wastage of feed. It is as like as better performance of egg type layers with the increases in flock size.

CHAPTER –4

LIMITATIONS

The following limitations what I have faced during experimental period

1. The duration of the study was short.
2. Feed formulation of that farm were not fully followed by standard level of HISEX Brown layer.
3. Biosecurity was not fully maintained in the farm.
4. Electricity supply was not regular.
5. Crisis of manpower.
6. The farm was not away from locality.

CHAPTER-5

CONCLUSION

Although the studied farm followed the rules of layer farming method, the egg production did not reach to the peak production in comparison with standard level, but mortality was lower during rearing of chicks and laying period. It may be concluded that with good management, egg production in a layer farm can be increased up to the standard level. It can also be assured that the layer farming will be more profitable by getting standard level of production if biosecurity within the farm is strictly maintained.

CHAPTER-6

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APPENDIX

Questionnaire for Data Collection

Name of the Farm:.....

Owner Name:.....

Address: Union..... Thana..... Dist:.....

Contact No:.....

A. Farm information

1. Type of farm: Layer/Broiler

2. Total No of birds:.....

3. Rearing system: Floor /Cage.....

4. Starting age of rearing

5. Breed/ Strain:.....

6. Total area of farm:.....

7. Duration of rearing

B. Housing management

1. Total Number of shed:..... brooder house..... grower cum finisher house

2. Area of each shed:.....

3. Space per bird:.....

4. No. of pan/bird..... Light/bird.....

5. About preparation of house for birds:

.....
.....
.....

C. Feeding management

1. Feed type: pellet/ Grain.....

2. Amount of feed/bird

3. Feeding schedule:.....

4. Water source:.....

5. Amount of feed at different level(per bird):

Starter.....Grower.....finisher

6. Frequency of water supply: Adlibitum Routine

D. Lighting schedule

1. Lighting at different level: Starter.....

Grower.....Finisher.....

2. Total no of light/shed.....

3. Duration of light: Natural Artificial.....

E. Production information

1. No. of egg per batch:

2. Laying Time: Morning..... Afternoon..... Evening.....

3. Market price/egg:

F. Disease management

1. Common diseases at farm:

- I.
- II.
- III.
- IV.
- V.

2. About Vaccination schedule at farm:

.....
.....
.....

3. Management of disease condition: Self management Quack Veterinary doctor

4. Feature of Veterinary doctor calling: Actively occasional In critical situation

Not at all.

G. General management

1. Common chemicals used at foot bath or, for surface disinfection or any shorts of sterilization:

- I.
- II.
- III.
- IV.
- V.

2. Egg collection schedule:

3. Litter material:

Name of the interviewee: Name of the interviewer.....

Date: Date:

Signature..... Signature

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BIOGRAPHY

This is **Md. Abdullah Al Mamun**, son of **Md. Abdus Salam and Mariom Begum** from Tangail. I have completed S.S.C in 2010 and H.S.C in 2012. I got admitted into Doctor of Veterinary Medicine (DVM) course under Chattogram Veterinary and Animal Sciences University in 2013-2014 session. As an upcoming Veterinarian I would like to dedicate my rest of the life for the welfare of animals. I am keen to be a field veterinarian as well as a skilled poultry practitioner.

