**Chapter-I**

**INTRODUCTION**

The economy of Bangladesh is agro based. The poultry is an important sub sector of livestock .The poultry industry in private sector has been growing very rapidly .At the demand of day old chicks is very high .A number of hatcheries has been established by the private entrepreneurs for getting a higher profit within shorter possible time .

The demand of the egg and meat is high in our country but the supply is not enough .Indigenous chicken are principal of suppliers of poultry meat ,egg of the country though their predominance are poor .Rural scavenging .Emerging poultry industry are increasing and high producing commercial exotic strains farmed very intensively by the industrialist.

The backyard poultry units require minimum inputs and are often part of integrated crop- aquaculture-livestock farming systems. Their level of production is relatively low but profitability can be high due to low inputs costs and recycling of on-farm by-products. Commercial production systems use birds of improved genetic stock and reared under semi- intensive or intensive management. There are currently an estimated around 100,000 commercial poultry farms in Bangladesh, supported by 08 Grand Parent Farms and 130 Parent Stock Farms.(National Livestock Development Policy,2007)**.**

In Bangladesh the existing native breed are Aseel, Sarail, Nacked neck etc. Their productive performance is not sufficient. So the commercial poultry industry uses some exotic broiler breed such as Cobb 500, Cobb100, Hubbard classic, Hybro-PN, Hybro-PG, Ross (Saleque & Rozen 2007).

In Bangladesh, the national poultry flock includes mainly chicken, ducks and pigeon, which are kept in different production systems. Poultry production estimates differ depending on the source of information. According to numbers provided by the Government of Bangladesh Livestock Department, the total chicken population is steadily increasing ,from about 143 million birds in 2001 to 195 million birds in 2006.(Bangladesh Bureau of Statistics) (2006,P.172)

The nutritional and disease problem are the major constraints in Bangladesh for the development and maintenance of poultry .Suitable breed and proper knowledge of management results is profitable poultry production which are lake in traditional poultry rearing system .Considering the market facilities and poverty alleviation there are so many small holder commercial farm are just selling up on urban and rural area of Bangladesh and also increasing the hatcheries ,which help to proper supply egg and meat also help in nutritional supply like protein in Bangladesh. Bangladesh has a long historical record of poultry rising under traditional backyard farming. Commercial poultry rising started in Bangladesh is a similar scale by the Department of livestock service (DLS). The DLS introduced the poultry development program through the pure line breeding stock, which brought economic return to the distressed women and unemployed youth along with some interested semi-urban and urban poultry raisers to meet the growing demand of eggs and meat.

The study was conducted Himaloy Poultry Farm and Hatchery to gain the skills in parent stock management practices and mixing up the theoretical knowledge with practical in an established commercial poultry farm (Breeder farm rearing Cobb 500 strain).

Therefore the present study was undertaken with following objectives:

1. To observe the management practices of parent stock (COBB 500).
2. Study the comparison between the achieved performance of the strain with the given recommendated standard.

**Chapter-II**

**REVIEW OF LITERATURE**

Scott et al. (1999) found that feed restriction reduces body weight and hen day egg production proportionately to the restricted level that was with the decreased body weight.

Egg production in relation to body weight – Singh et al. (2000) mentioned that the genetic, phenotypic and environmental correlation of body weight at 12 weeks of age was found to be positive with all traits except age at sexual maturity while 36 weeks body weight was negatively correlated with age at sexual maturity and egg production.

Saleque (2001) stated that the constraints to productivity however, are not only related to disease but also to management systems, lack of supplementary feeding, predators, and inappropriate breeds.

Chowdhury et al. (2003) reported that the exotic broiler parent’s chicks can successfully reared in open sided house.

Julian (2005) reported that the metabolic disorders such as sudden death syndrome (SDS) are observed in broiler breeder hens and are probably due to hypocalcaemia or hypo-kalaemia.

Aviagen (2006) reported for light-proofed houses, 8 h up to 20 weeks of age, and small increases from 11 to 15 h per day at 27 weeks of age, Cobb (2008) recommends a similar programme, differing only in the maximum day length being achieved at 23 weeks of age.

Banerjee (2007) stated that the production cycle may be conveniently divided into three stages or phases. Phase І (22nd week to 42nd week)- egg production 0-85%, increase body weight to mature body weight, eggs of gradually increasing size; phase П (43rd week to 62nd week)- egg production declines up to 65% and phase Ш (63rd week to 72nd week)- egg production less than 65%.

Samad et al.(2007) reported that, it is possible to rear exotic broiler chicks quite successfully in controlled house.

Ahmed (2008) reported that sudden excessive heat or cold lowered the egg production. Due to quick temperature change in the reproductive tract egg formed very slowly. Normally it takes about 23 hours to form an egg in the reproductive tract. Remedy of the problem is temperature controlled by thermometer and application of Vit-C in hot season

Leone and Estevez (2008) studied, it was shown that cover panels also improved reproductive performance in broiler breeder flocks, probably by attracting females to the litter floor and reducing male-male competition for females and over-mating.

Henderson et al. (2009) studied comparing performance of non-beak trimmed birds with birds beak trimmed with either an electro-cautery device or an automated infrared beak trimming device on the day of hatching, little measurable effect of beak trimming on early performance during the first six weeks of life was found.

Estevez (2009) mentioned that perches are provided in the female groups, to accustom the hens to different levels, and for them to develop a sense of balance and to learn how to jump in order to facilitate nesting behaviour later.

D’Eath et al. *(*2010) & Rodenberg et al. *(*2010) both reported that more control and greater accuracy of measurement is thus gained at the expense of greater generality and an understanding of how the birds will perform in the environment in which they are actually to be kept.

[Mariana (](http://en.engormix.com/mbr-44122/mariana-ciacciariello) 2011) studied that the effects of light management on synchronization of sexual maturity, age at sexual maturity, peak production, persistency in lay and total hatching eggs produced in different strains of heavy breeder females.

Robins & Phillips (2011) stated that although environmental factors, such as nutrition and husbandry contributes in growth rate but 50–60% of the increased growth rate is attributed to genetic selection.

**Chapter III**

**MATERIALS AND METHODS**

The management practice of this farm was very good and maintained strictly. The management practices are described-

**3.1 Name of the Farm**: The name of the farm is Himaloy Poultry Farm & Hatchery.

**3.2 Location and duration**: The study was conducted over 30 days of time from 01-01-2013 to 30-01-2013 at Himaloy Poultry Farm & Hatchery Manikchary, khagrachary .The ownen of the farm is Md.M A Hossain.

**3.2 Experimental birds:**

The total number of bird was 5000.The observation was conducted upon three different groups of birds reared in broodings, growing and laying sheds from the age of day old chicks to 50 weeks under two systems of rearing. There are more than one shed in the farm for every single type of rearing system. Moreover, there are more than one shed for different growing stage like brooding shed, growing shed, laying shed etc.

**3.3 House**: There was three controlled house for layer.

**3.4 Brooder house management**:

The brooder house was located separately from other house because it reduces the chance of disease transmission. The brooder home should keep clean at that time .All in and all out system is the best method for this reason. The brooder house was prepared by using 3" litter on floor of brooder house . The brooder house was fumigated and disinfected before 24 hours of arrival of chicks .In this farm the brooder house was controlled house male chicks brooding separately.

**3.5 Brooder and chick guard**:

For brooding one gas brooder was used for 500 birds and the floor space at first week was 0.4 sq ft. which gradually increased day by day . The temperature was 34˚C and then decreased @ 3-4˚C in every week which was standard as per as direction of the manual. For chick guard was made of plain metal sheet because it conserve more heat than partex board .The height of the chick guard was 18 inches and the distance between the brooder and the litter was 69"

**3.6 Floor Space**:

Floor space per bird:

|  |  |
| --- | --- |
| Age | Space(sq.ft/bird) |
| 1-3days | 0.3-0.5 |
| 4-7days | 0.6 |
| 3 weeks | 1.0 |
| 4-8weeks | 2.0 |
| 9-15 weeks | 2.5 |
| 18 to above | 3.0-3.5 |

**3.7 Waterer:**

For the prevention of disease clean and germ free water should be supplied to bird and each 75 birds need one round drinker and 3 days later used nipple drinker (one nipple drinker for 8-10 birds) with round drinker.

**3.8 Feeds and feeder**:

The experimental farm supplied feed to Day old chick on special flat feeder for 2 days. Then provide linear feeder @ 2.5cm/bird. The starter ration started 24 hrs. after arrival and contained CP-19.5-20%,ME-2950Kcal/kg,lysine-1.07,Methionine-0.43-0.54%.Adlibitum feeding was allowed for 3 weeks. Then weighing which compared with the guide line.

**3.9 Ventilation:**

For proper ventilation the experimental farm used timer fan, exhauster fan also used cooling pad for preventing house from extreme hot.

**3.10 Management of grower:**

**3.10.1 Housing:**

The selected farm has grower shed which was 40 ft wide and 280 ft length .The house was controlled house, where used rice husk as litter. The litter was 1.5" which was changed per week or mix with new litter which depend on the condition of the litter, The floor space was 2.25 sq ft/bird.

**3.10.2 Feeding and feeder space:**

Body weight of 10% bird was taken from each flock once weekly usually at the weekend in empty stomach. Then the amount of feed offered in the next week, depends upon the body weight achieved in comparison with the recommended body weight in the growing stage. Then the whole flock divided into 3 groups was overweight, standard and under weight. The overweight and the standard weight birds given the recommended feeding and the underweight given more feed which increased by recommended plus one gram extra feed for every 50 gm less weight gain. If the target weight achieved then the overfeeding stopped. For grower one feeder (40 cm diameter) used for 20-30 birds. The male birds supplied same feed as supplied female but separately.

**3.10.3** **Controlled feeding**:

Following the recommended rules of the breeder company should control body weight .The birds should be provided with an optimum amount of energy and protein for maintenance and performance thereby preventing them from growing too fat .Controlled feeding started from 7 weeks of age which done by one time per 3 days until 17 weeks of age. In that period given all required feed. If the average body weight of the females is same as the weight given in the schedule feed the birds according to the program me .Increase the feed amount gradually when the average body weight of the females is too low.

**3.10.4 Flock uniformity:**

The percentage of birds having a bird weight between 10% above or below the average weight is called the flock uniformity .A well restricted flock with 75% of the birds in mentioned range can be described as a uniform one .But lower 70% are lacking uniform.

**3.10.5 Drinking water:**

Fresh, pure and clean drinking water is necessary due to 70% weight is water. The number nipple drinker (1 nipple drinker for 8-10 birds) and the amount of water depend upon the body weight and the environmental condition .The selected farm treated water by chlorine dioxide 0.25ml/litter,H2O2-0.03 mili.gm/litter and CuSO4-0.25 gm/litter and supplied ad- libitum at morning and evening.

**3.10.6 Debeaking:**

To prevent cannibalism and feed waste the selected farm started debeaking at 7-8 days of age and again it done 12 weeks age but only for females. The selected farm used electric debeaker.

**3.10.7 Light management**:

It is one of the most important points for a breeder farm because birds are very sensitive to light in terms of its growth and production. Proper lighting should be maintained from first week to last of production. Because of excessive lighting cause early maturation of the birds results short peak production, low fertility and hatchability. The bulb which was 7 feet height above the floor and 1 watt used for 5 sq.ft. area. The distance from one bulb to another was 11ft.

**3.10.8 Sexing :**

It is important to identify male and female birds .Though different type of sexing .The selected farm used color sexing . The females are uniform whitish yellow and the males are uniform brown color.

**3.10.9 Male Sexing** :

It is done when the birds are 12 weeks of age. The selected farm did it when the males are 12 weeks of age. 2% of males mixed when the males were 12 weeks of age and then 4% in 14-16 weeks, 6% in 17-19 weeks and 8-10% in 21-23 weeks of age.

**3.10.10 Breeding house management**:

The ratio of male and female was 1: 10. The Breeder Farm require special design considerations to allow for proper male/female ratios and mating activity. Generally, relatively large cages and floor system are used for males. Cage height is 25 in. (63.5 cm) to allow enough space for the larger males. the farm uses cages 71 in. (181 cm) wide and 34 in. (87 cm) deep and provides space In recommended for 20 brown variety hens and 2 males,111 in2 (716 cm²) per bird. The same cage could house 23 white variety hens and 2 males at 98 in 2 (630 cm²) per bird. It is extremely important to remove all sex errors to maintain sexing accuracy and performance in the progeny. In addition to sex slips, physical defects, as well as extremely light birds are removed. The viability of the males may vary from flock to flock and the exact number of males must be left to the judgement of the production manager. The cocks were declawed to prevent injury during copulation and were separated from the females during (growing) and rearing period until about two weeks to the laying time. This method was adopted to prevent pre-cocious mating and it afforded the cocks an opportunity to reach the prescribed weight and maturity.

**3.10.11 Nesting arrangement**:

Nesting arrangement supplied when birds were 17 weeks of age. Proper nesting arrangement decreases the breakage% of egg and increase production%.

**3.11 Management during laying stage**:

**3.11.1 Housing**:

Two system is followed in the farm one is slate system another is case system. In slate system the house was 40 ft wide and 280ft long. The birds were transferred in laying house when birds were 19 weeks of age .The laying birds reared on slate system which is 2.5ft above the floor. The house was controlled house and height 7 ft. In case rearing system the size (Height × Width × Depth) of each cage was (30″ × 18″ × 18″) for 4 birds. . In a single shed there were 12 lines of this type of cage. On each line there were 72 cages. Thus the total number of cages in each shed was 864. The number of hens in each case is 2 or sometimes 3. The male birds are reared in different shed in the same building. Two male birds are reared in each cage. The size of case of male is (21″ × 21″ × 21″).

**3.11.2 Feeding and feeder:**

Body weight of 10% birds was taken in morning from each flock once weekly in empty stomach .The feeder space for male was 4" per male in case of circular feeder and 1.5" above the slate and the feeder space for female was 2" and 8" above the slate .The feed supplied once daily with its daily requirement but in case of female the daily feed divided into two parts and supplied two times. The flock was divided into three groups overweight, standard and underweight .For over and standard weighed birds given the recommended feed and for underweight birds given recommended feed plus 1 or 1.5 gm per day for one weeks until the guide line weight achieved.

**3.11.3 Fumigation of hatching eggs:**

After selection hatching eggs were fumigated by paraformaldehyde powder.20 gm of powder were used for the fumigation chambers of the laying shed as 2X concentration. Then those eggs were sent to the hatchery.

**3.11.4 Egg storage:**

After receiving of Hatching eggs in the hatchery those eggs were fumigated again and then stored in storage room in the hatchery. In Himaloy Poultry Farm there was separate cool storage room where 2,00,000 eggs may be stored for 7 days. In that storage room Temperature & Humidity were strictly maintained. So, the storage room’s temperature was 64º F and humidity 75% in the farm.

**3.11.5 Hatching & Setting Temperature of the Hatchery of Farm**

In order to get proper hatchability the hatching & setting temperature must be maintained in the farm. In the setting room temperature was 98.80°F and humidity was 86.00%. In the hatching room temperature was 98.50°F and humidity was 86.00%.

**3.11.6 Waterer**:

Nipple drinker was used and one nipple drinker was used for 8-10 birds.

**3.11.7 Nesting arrangement**:

The selected farm recommended one individual nest for 5 hens which is 35 cm depths. 30cm width,30 cm. height and 22 cm entrance.

**3.11.8** Table- 1: **Nutrient requirement**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **% of Nutrient** | **Starter** | | **Grower** | | **Breeder** | |
| **Recommended (%)** | **Selected**  **Farm**  **%** | **Recommended**  **%** | **Selected**  **Farm**  **%** | **Recommended**  **%** | **Selected**  **Farm**  **%** |
| Crude protein | 19.5 | 19.7 | 17.5 | 17.6 | 17.5 | 18.10 |
| Metabolic energy(kcal/kg) | 2900 | 2950 | 2850 | 2857 | 2850 | 2971 |
| Ca | 1.1 | 1.1 | 1.1 | 1.209 | 3.4 | 3.57 |
| P | 0.45 | 0.42 | 0.42 | 0.45 | 0.4 | 0.425 |
| Lysine | 1.05 | 1.07 | 0.90 | 0.908 | 0.85 | 0.910 |
| Methionine | 0.43 | 0.53 | 0.38 | 0.398 | 0.40 | 0.433 |
| Crude fibre | 2.5 | 2.8 | 3 | 3.56 | 2.5 | 2.954 |
| Fat % | 2.5 | 2.93 | 2.5 | 3.47 | 3.7 | 4.659 |
| Choline  chloride | 0.14 | 0.19 | 0.14 | .20 | 0.13 | 0.165 |
| Na | 0.18 | 0.19 | 0.18 | 0.198 | 0.15 | 0.178 |

**3.11.9 Lighting:**

For proper growth and production lighting management system is necessary for poultry. The selected farm kept birds in 16 hrs lighting. But when body weight decreases then the birds were kept in extra one hour lighting. In the selected farm lighting started4 am and it was continue for 16 hours that means at 8 am.

**3.11.10** Table-2: **Lighting schedule is given below**

|  |  |  |
| --- | --- | --- |
| **Age (weeks)** | **Age (days)** | **Light (hours)** |
| 1 to 3 | Day-old to 21 | Decreasing from 24 hours at day 1 to 8 hours. |
| 3-20 | 21-140 | 8 |
| 20-21 | 140-147 | 11 |
| 21-22 | 147-154 | 13 |
| 22-23 | 154-161 | 14 |
| 23-60 | 161-420 | 16 |

**3.11.11** **Table -3: Light intensity**

|  |  |
| --- | --- |
| **Age(week**) | **Light intensity(Lux)** |
| 1st to 5th week | 40-60 lux |
| 6th to 18th week | 10-20 lux |
| 19th to 50th week | 20-30 lux |

**3.11.12 Egg collection**:

Proper egg collection helps to reduce breakage of egg and increase production % egg collection started at 7 am which continue up to 12 pm (collection done one hour interval) and 2 pm and 5.30 pm.

**3.11.13 Bio-security:**

The bio-security measures which were taken as follows:

1. Chicks were vaccinated as per schedule.
2. Entrance of personnel was restricted, prohibited and before entrance everybody were fixed dress for shed after bathing.
3. Area adjacent to the farm was frequently cleaned and disinfectant morning and evening two times.
4. Foot bath used for entrance.
5. Allow fresh feed were supplied to the birds before supplied the feed were checked for its quality.
6. For water disinfestations three were used and disinfectant sprays in house every 15 days interval.
7. The shed were kept free of rodent.
8. Water tank clean everyday and nest, drinker and feeding equipment are washed regularly.
9. Protection was also taken to prevent wilds into the shed.

**3.11.14 Table-4:** **Vaccination Schedule**

|  |  |
| --- | --- |
| **Age/Day** | **Vaccine** |
| 1st | IB Live |
| 2nd | ND Live |
| 5th | IBD Live |
| 6th | Coccidia |
| 10th | ND+IBD Killed |
| 14th | IBD Live |
| 21st | IB+ND Live |
| 24th | IBD Live |
| 41st | Fowl Pox |
| 48th | ND Killed |
| 56th | Cholera |
| 63rd | Coryza |
| 70th | IB+ND Live |
| 75th | AE Live |
| 81st | Fowl Pox |
| 91st | Cholera |
| 98th | Coryza |
| 102nd | IB+ ND Live |
| 105th | IB +ND+IBD Killed |

**3.11.15 Table-5: Medication schedule**

|  |  |
| --- | --- |
| **Age/Day** | **Vitamins/Medicine** |
| 1st | Dextrose, vitamin-C, vitamin-E |
| 2nd to 6th | Vitamin-C, Vitamin-E, Multivitamin, Enrofloxacine , Acid pak 4 way |
| 7th to 8th | Vitamin-C, Vitamin-E, Vitamin-K, Multivitamin, Enrofloxacine, Acid pak 4 way |
| 9th to 11th | Vitamin-C, Vitamin-E, Vitamin-K ,Acid pak 4 way |
| 12th to 14th | ADȝE |
| 15th to 16th | Amporl12%(optional) |
| 17th | Fresh water |
| 18th to 19th | Tiamutin 45%,Sancal P |
| 20th to 23rd | Acid pak 4 Way |
| 24th to 27th | Multivitamin |
| 28th to 29th | Tiamutin 45%,Sancal P |
| 30th to 34th | Fresh water |
| 35th to 39th | B-Complex, Acid pak 4 Way |
| 40th to 44th | Multivitamin, Acid pak 4 Way |
| 50th to 51st | Tiamutin 45%,Sancal P |
| 45th to 46th | Fresh water |
| 52nd to 55th | Fresh water |
| 56th to 58th | B-Complex, Acid pak 4 Way |
| 59th | Multivitamin, |
| 60th | Multivitamin,Poulnex |

|  |  |
| --- | --- |
| **Age/Day** | **Vitamins/Medicine** |
| 61st to 64th | Acid pak 4 Way |
| 65th to 69th | Fresh water |
| 70th to 74th | Acid pak 4 Way |
| 75th to 77th | Multivitamin, |
| 78th to 79th | Tiamutin 45%,Sancal P |
| 80th to 82nd | B-Complex, Vitamin-K |
| 83rd to 84th | Vitamin-K |
| 85th to 87th | Multivitamin, Acid pak 4 Way |
| 88th to 89th | Fresh water |
| 90th to 92nd | Multivitamin, Acid pak 4 Way |
| 93rd to 96th | Fresh water |
| 97th to 99th | ADȝE ,Acid pak 4 Way |
| 100th to 103rd | B-Complex |
| 104th to 107th | Multivitamin |
| 108th to 109th | Tiamutin 45%,Sancal P |
| 110th to 115th | Multivitamin |
| 116th to 119th | B-Complex, Acid pak 4 Way |
| 119th | Poulnex |

**Chapter IV**

**RESULTS & DISCUSSION**

**4.0 Body weight gain and uniformity table discussion** –

Proper body weight gain and uniformity helps a flock for better production. The selected farm flock average body weight was – the starter body weight gain slightly less than standard. (Starter weight 252.2 gm but in guide line 256 gm), but in grower > 18 wks of age the body weight gain is slightly more than (grower 1171.67 gm but in guide line 1104 gm), > 18 wks of age 2145.21 gm, but in guide line 2324.30 gm) for male. But in case of female the body weight gain same as the guide line, except layer (in selected farm it was 1856.18 gm but in guide line it was 1879.10 gm).(Shown in Graph-01 & 02). The management procedure of the case system is more sophisticated than slat system. As management procedure in slat cum litter system is slightly difficult, it show less performance than case system.

**4.1 Uniformity:**

The uniformity of male fluctuation was seen before 24 wks of age than it was also fluctuate 4 – 5 wks interval. But the uniformity of female is constant after 16 wks of age (As a standard).

**4.2** **Table-06: Body weight gain and uniformity table**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Male | | | | Female | | |
| Week | Target weight | Achieved weight | Uniformity | Target weight | Achieved weight | Uniformity |
| Starter | | | | | | |
| 1 |  | N/C |  |  |  |  |
| 2 |  | N/C |  |  |  |  |
| 3 |  | N/C |  |  |  |  |
| 4 | 310 | 283 | 57 | 250 | 291 | 63 |
| 5 | 440 | 328 | 58 | 350 | 350 | 50 |
| Grower | | | | | | |
| 6 | 560 | 466 | 57 | 420 | 440 | 55 |
| 7 | 660 | 710 | 59 | 520 | 573 | 67 |
| 8 | 730 | 803 | 65 | 600 | 640 | 69 |
| 9 | 860 | 923 | 64 | 680 | 750 | 60 |
| 10 | 970 | 1001 | 57 | 770 | 822 | 75 |
| 11 | 1070 | 1156 | 62 | 840 | 886 | 59 |
| 12 | 1150 | 1201 | 60 | 910 | 972 | 65 |
| 13 | 1250 | 1310 | 64 | 1000 | 1033 | 55 |
| 14 | 1370 | 1487 | 64 | 1060 | 1120 | 69 |
| 15 | 1460 | 1533 | 57 | 1160 | 1210 | 61 |
| 16 | 1540 | 1672 | 70 | 1260 | 1318 | 72 |
| 17 | 1650 | 1798 | 55 | 1360 | 1371 | 73 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Layer** | | | | | | |
| 18 | 1750 | 1823 | 65 | 1460 | 1458 | 76 |
| 19 | 1945 | 1980 | 52 | 1600 | 1599 | 78 |
| 20 | 2045 | 2098 | 68 | 1700 | 1670 | 80 |
| 21 | 2135 | 2108 | 65 | 1770 | 1654 | 72 |
| 22 | 2200 | 2052 | 70 | 1820 | 1739 | 82 |
| 23 | 2240 | 2109 | 69 | 1850 | 1721 | 79 |
| 24 | 2280 | 2088 | 62 | 1880 | 1660 | 80 |
| 25 | 2285 | 1935 | 85 | 1880 | 1789 | 89 |
| 26 | 2290 | 1962 | 70 | 1880 | 1750 | 89 |
| 27 | 2295 | 2039 | 70 | 1890 | 1793 | 87 |
| 28 | 2305 | 2188 | 85 | 1890 | 1830 | 87 |
| 29 | 2350 | 2072 | 75 | 1905 | 1886 | 80 |
| 30 | 2350 | 2089 | 60 | 1905 | 1837 | 82 |
| 31 | 2350 | 2180 | 79 | 1905 | 1869 | 80 |
| 32 | 2350 | 2198 | 70 | 1905 | 1920 | 79 |
| 33 | 2373 | 2205 | 70 | 1915 | 1873 | 79 |
| 34 | 2373 | 2200 | 65 | 1915 | 1884 | 81 |
| 35 | 2373 | 2204 | 82 | 1915 | 1925 | 85 |
| 36 | 2373 | 2239 | 75 | 1915 | 1915 | 89 |
| 37 | 2395 | 2256 | 65 | 1925 | 1890 | 89 |
| 38 | 2395 | 2292 | 73 | 1925 | 1910 | 85 |
| 39 | 2395 | 2262 | 70 | 1925 | 1942 | 86 |
| 40 | 2395 | 2265 | 71 | 1925 | 1930 | 85 |
| 41 | 2425 | 2268 | 78 | 1935 | 1925 | 83 |
| 42 | 2425 | 2301 | 69 | 1935 | 1938 | 88 |
| 43 | 2425 | 2208 | 80 | 1935 | 1933 | 87 |
| 44 | 2425 | 2199 | 77 | 1935 | 1983 | 85 |
| 45 | 2450 | 2215 | 65 | 1945 | 1991 | 83 |
| 46 | 2450 | 2180 | 66 | 1945 | 2003 | 82 |
| 47 | 2450 | 2100 | 75 | 1945 | 2013 | 80 |
| 48 | 2450 | 2107 | 74 | 1945 | 2076 | 81 |
| 49 | 2480 | 2175 | 60 | 1955 | 1983 | 82 |
| 50 | 2480 | 2195 | 70 | 1955 | 1965 | 82 |

 Graph – 01



Graph -2

**4.3 Hen house egg production discussion**:

The proper management follows better production the selected farm hen house production was 83.23% which was same as standard or guide line and the peak production % also same as standard. Due to the early age production (24 wks age) the production % was less but it is was slightly more .But peak production started 29 weeks of age (same as guide line) which was constant for 35 weeks of age. Then the production % was decreased slightly but greater than 75% which is significant.

**4.4** Table 07: **Hen house egg production**

|  |  |  |
| --- | --- | --- |
| Age at weeks | Achieved Egg production (%) | Recommended Egg production(%) |
| 24 | 10.20 | 5 |
| 25 | 18.37 | 15 |
| 26 | 37.25 | 40 |
| 27 | 55.14 | 65 |
| 28 | 71.69 | 76 |
| 29 | 80.23 | 82 |
| 30 | 81.51 | 84 |
| 31 | 83.23 | 83.3 |
| 32 | 80.16 | 82.5 |
| 33 | 83.23 | 81.3 |
| 34 | 80.16 | 80 |
| 35 | 83.75 | 79.1 |
| 36 | 78.16 | 78.2 |
| 37 | 77.24 | 77.3 |
| 38 | 78.62 | 76.4 |
| 39 | 77.50 | 75.5 |
| 40 | 75.58 | 74.6 |
| 41 | 79.26 | 73.7 |
| 42 | 78.02 | 72.7 |
| 43 | 77.05 | 71.9 |
| 44 | 78.15 | 71 |
| 45 | 77.25 | 71 |
| 46 | 75.26 | 70.1 |
| 47 | 73.29 | 69.2 |
| 48 | 74.25 | 68.3 |
| 49 | 73.90 | 67..4 |
| 50 | 74.28 | 66.5 |

**4.5 Hatchability:**

The hatchability percentage less than the guideline at the beginning but it was higher than guide line later which is significant. The highest hatchability was started at the 42 weeks (which is 90.62%) which is higher than strain specification (88.1%). But according to strain specification the highest hatchability started >90% at the 29 weeks of age. (Shown in Graph-03)

The hatchability percentage started more than 80% after 30 weeks of age, but according to the strain guideline it is start 28 weeks of age. The hatchability percentage was less because for male the selected farm allowed the same ration which was allowed also for female. The body weight of male also lower than the standard which causes also low fertility and hatchability.



Graph -3



Graph -4

**4.6** **Table 08: Hatchability Percentage**:

|  |  |  |
| --- | --- | --- |
| Age(week) | Achieved  Hatchability (%) | Recommended Hatchability(%) |
| 24 | 78.80 | 72 |
| 25 | 78.24 | 78 |
| 26 | 78.78 | 80 |
| 27 | 79.30 | 82 |
| 28 | 68.70 | 84 |
| 29 | 69.83 | 85 |
| 30 | 82.25 | 86 |
| 31 | 83.28 | 87 |
| 32 | 86.85 | 88 |
| 33 | 86.67 | 89 |
| 34 | 88.38 | 90 |
| Age(week) | Achieved  Hatchability (%) | Recommended Hatchability(%) |
| 35 | 85.63 | 89.9 |
| 36 | 87.41 | 89.8 |
| 37 | 89.54 | 89.6 |
| 38 | 89.62 | 89.4 |
| 39 | 84.76 | 89.1 |
| 40 | 87.26 | 88.9 |
| 41 | 88.50 | 88.5 |
| 42 | 91.60 | 88.1 |
| 43 | 90.60 | 87.7 |
| 44 | 91.04 | 87.3 |
| 45 | 89.79 | 86.9 |
| 46 | 80.76 | 86.5 |
| 47 | 89.52 | 86.1 |
| 48 | 87.53 | 85.7 |
| 49 | 89.30 | 85.2 |
| 50 | 85.70 | 84.7 |

**Chapter V**

**Conclusion & Recommendation**

As a developing country the people of our country can not get proper protein. This problem can partially solved by the egg production. The poultry business can also help to reduce the unemployment problem. By commercial broiler and layer farming the meat and egg demand of the country can be partially fulfilled. By establishing the parent stock farm we can produce commercial broiler and meat production more easily and economically as well as save a large amoun of foreign exchange. Which is required for importation of poultry. For this reason few large scale poultry breeder farm are established in our country. Himaloy Poultry farm is one of them. Here the personnel are skilled, technical and trained so the management egg production and chick Production are satisfactory.

From the current study it may be conducted that it is possible to achieve target egg production of layer parent stock close to the standard, reared in controlled housed with proper management. The production average observed hen day egg production of the flock at 30th , 35th, 40th , 45th, 50th weeks were 81.51%, 83.75%, 75.58%, 77,26%, 74.25% respectively. The average hatchability observed at 30th ,35th ,40th ,45th ,50th weeks were 82.25%, 85.63%, 87.26% ,89.79% ,85.70% respectively. Though the production percentage is same as guide line but the hatchability percentage lower than guide line but the percentage was greater than 80% which indicate that it is satisfactory.

**Recommendation:**

1. Selection and grading of good quality egg.
2. Maintenance of proper vaccination ,ventilation and feed supplement.
3. Proper management of biosecurity programme .
4. Hygienic management should be taken properly.
5. Vehicle disinfection should be done properly.

**Chapter VI**

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