**CHAPTER-I**

**INTRODUCTION**

 Bangladesh is a developing country. She has small land area about 1, 47,570 sq km but large amount of population about 160 million. So in the recent years poultry rearing becomes popular than any other livestock in our country because of its small size, easy of handling, low feed intake, high multiplication rate , less space requirement, less cost & quick return.

 On the other hand poultry are considered as important source of protein all over the world. The concept of human nutrition has taken as a new dimension and today emphasis has been given on the consumption of high protein and low caloric diet but in reality, shortage of protein especially of animal origin has been severely affected the health of the people of our country. It is obvious that poultry meat and eggs contain high quality proteins and can also be produced more economically than any other growers of equivalent quality. More over, high multiplication rate of chicken also makes it more important than any other animal protein. So in our country the poultry meat products become popular, because these are relatively cheap, convenient and nutritious. According to DLS (2007), meat requirement is 120gm/day/head and 6.26 million metric ton/year. But our achievement is 20gm/day/head and 1.04 million metric ton/year. Poultry meats contributes approximately 37% of the total animal protein supplied in the country (Rahman and Rahman 1998) .So we can say that the production cannot cope at with the high demand by our native chicken. For this the government encourages the people for poultry farming as an industry. In Bangladesh. 50 commercial poultry industry has seen a tremendous development in the recent years. According to number provided by government of Bangladesh livestock department, the total chicken population is steadily increasing from about 143 million birds in 2006 (DLS 2007). Recent data showed that total number of chicken in 2008 is 175.15 million (Krishi dairy 2008).

 Broiler breeder production is one of the profitable production activities than broiler and layer production. A broiler breeder could generate Rs. 786±49.8 % as net profit giving Rs106±7.34% return over the invested capital (Farooq et al. 2001)

 as compared to broiler (Rs. 7 per broiler per flock) (Asghar et al 2000) and layer farming (Rs. 38.26 ±6.66 per layer (Farooq et al, 2003). In Bangladesh commercial poultry farms are supported by 130 parent stock farms and 8 grand parent farm, which however, not always in production (Saleque, 2007). In 2006 the weekly production of day old chicks was 5542000 broiler chicks (Saleque, 2007). Saleque (2007) , reported that in 2006 five grand parent farms produced 60% of the parent broiler. The parent stock growers are always interested to select a strain that is well adaptable under local condition and is capable of producing quality hatching eggs for the hatcheries in accordance with their inherent potentiality (Hossain at al 2005).

 In Bangladesh the existing native breed are Aseel, Sarail, Nacked neck, Yasin 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).

 Cobb 500 is an English strain which shows an excellent production & reproduction performance in standard condition. It has a worldwide reputation for the lowest cost of producing chicken meat. Cobb geneticists have developed this breed by the research of more than 30 years progress using a combination of both traditional pedigree selection and new technology. They have developed a very high breeder performance of Cobb 500 .Such as Cobb 500 starts laying at 18 weeks of age .Age at 5% egg production is 24 weeks of age .At 65 weeks of age - total eggs/hen housed is 175, hatching eggs/hen housed is170, peak hatchability 91%, broiler chicks/hen housed 144 (Cobb breeder management guide 2009). For such high breeder performance M.M AGHA Poultry Limited choose Cobb 500 as a broiler parent stock for rearing.

 Therefore, the present study was undertaken at **M.M. AGHA Limited, Hathazari, Chittagong** to observe the parent stock management practices with the following objectives:

1. To assess and evaluate the management of broiler parent stocks.
2. To compare the achieved performance with the standard

**CHAPTER-II**

**REVIEW OF LITERATURE**

 Colin C. Whitehead (2010)’s recent research has demonstrated the importance of the early nutritional status of the hatched chick in enhancing performance. It is therefore vital that , in formulating diets for the parent birds, attention is paid not only to maximizing egg output and hatchability but also to ensuring that the eggs produced contain adequate amounts of the nutrients vital for supporting the early development of hatching chick.

Dr Tom Smith (2009) suggested that breeder bird must not have a deformed beak, slipped wing, blindness in one or both eyes or any defect that may interfere with normal eating, drinking, and maintaining social stature in the flock. Male birds must be aggressive and have straight, sound legs and toes. Females should reflect good egg laying traits and good health and vigor.

Dr Tom Smith (2009) also suggested that commercial hatching eggs may be collected as often as four or five times daily to ensure egg quality. Keep nest eggs separate from eggs found on the floor so disease organisms are not spread. Do not incubate dirty floor eggs; they may spread disease to clean.

R.Keith Bramwell *et al* (2008) reported that obtaining accurate body weights is a critical part of the process of rearing replacement broiler breeder pullets and managing breeder hens and males. From the first few weeks of age in the pullet house, all feed allocations are determined by the bird’s weekly weight gains. Obtaining accurate body weights is very important to maintaining uniformity, body conformation and the overall development of pullets and young cockerels. Research has shown that accurately and uniformly controlling body weight of both replacement breeders and breeders in the hen house will result in improved performance parameters.

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

K. Rajendran and S. Mohanty (2003) reported that the gross and the net return from egg and others sources is more in cage system than all litter system of management.

Robinson and Wilson (1999) showed that the restricted lighting management programme for broiler breeder can helps to achieve the sexual maturity during 18 to 22 wks of age.

Wilson et. Al (1995) studied with feed allocation and obtained different body weight group of broiler breeders which were regarded as treatment. He got three body weight groups-standard, lower than normal, above than normal body weight. The birds group which have lower than normal body weight can produced less fertile eggs than the other two groups.

Krishnappa *et. Al* (1992) conducted that restricted feeding during growing period (7-22 weeks old) can significantly reduced body weight, increased age at sexual maturity and also increase egg production.

Whitehead *et. Al* (1991) concluded that the egg weight was increase with age. The dietary fatty acid increased egg weight by mechanism different from the causing egg related in body weight that the mechanism involves a stimulation of oviduct protein synthesis.

Hurwitz and Plavnik (1989) concluded that during the onset of production the weight of egg is related to both age and body weight. The egg weight and the body weight was significantly correlated for one year of production. They also describe that the relationships among weight, body weight and age at onset of egg production have special importance.

Spralt and Leeson (1987) reported that the excess intake predominantly fat cause gradually results in increased weight. Excessive body weight females were negatively correlated with hen day egg production .

**CHAPTER-III**

**MATERIALS AND METHODS**

**3.1 The study area:-**

 The study was performed at a renowned poultry farm of Bangladesh named M.M. AGHA Limited, Chittagong where popular broiler parent stock Cobb 500 was reared in Environmentally Controlled House.

**3.2 Study Period:**

 The study was conducted for four weeks of time from 1st January to 30th January, 2013; during my internship placement.

 **3.3 Study Population:**

 M.M. AGHA Poultry farm has four flock of apx 28,000 birds of different age group in four shed. But for the facilities of my study I had selected one flock containing 5500 bird of which 5000 were female birds & 500 were male bird.

**3.4 Aim of study:**

 My main aim was to compare the care, management & production performance of Cobb 500 broiler parent stock in the M.M. AGHA Poultry farm with the recommended care, management & production performance of Cobb 500 in the “Cobb 500 Breeder Management Guide”.

**3.5 What is management?**

 Management is the art and science of combining ideas, facilities, processes, materials and labour to produce and market a worthwhile product or service successfully. Only the efficient management can give the return as per aspect.

**3.6 Key Points of Poultry Parent stock Management:-**

**3.6.1. Bio-security**

Bio-security is necessary to prevent the introduction of disease organisms into the flock by any means. Some of the bio-security practices include:

1. **Farm location and construction**
	* It is best to build up the farm in an isolated area, at least 2-km distance from the nearest poultry farm.
	* Should fence the perimeter of the farm to prevent unwanted visitors.
	* The design and construction of the houses should be in a manner that does not provide openings for wild birds and animals to enter the buildings.
2. **Preventing disease transmitted by humans**
* Restriction of the movement of visitors to the poultry farms.
* If supervisory personnel must visit, they should make an effort to visit the youngest flock first.
* Should visits flock with disease problems last.
* All people entering the farm should follow a bio-security procedure. All workers and visitors should shower and use clean & calendared farm clothes.

**iii. Preventing disease transmitted by animals**

* Whenever possible, all in all out placement cycle of birds should be followed.
* A minimum downtime of two weeks between flock is recommended.
* Should provide an entry barrier to rodents and wild animal.
* Should keep wild birds out of all buildings.
* Should maintain an effective rodent control program.

**3.6. 2. Preparing the poultry house for chicken**

 A clean, comfortable environment for poultry and elimination of any pathogenic organism from previous flock and / or outside contamination preparation of house is essential.

1. **Clean out and disinfection procedures**
* Removal any live or dead bird, all remaining feeds and supplies, all equipment, litter and manure and rodenticides.
* Washing of building and equipment with clean water and detergent.
* Disinfection of building and equipment
* Spreading of clean, dry litter materials.
* Installation of the equipment to receive the chicks
1. **Common floor treatment**
* Floor can be treated with boric acid, aluminum silicate, salt, sulfur powder, lime as per recommendation.
1. **Water line cleaning.**
* Should clean with disinfectant flowing with water along the water line.

**3.6.3. Housing of chicks**

**(i) Before arrival of chicks**

* Checking that everything is in good working order.
* Distribution of feed and water in the house.
* Warming up the house in good time.

**(ii) On arrival of chicks**

* Unloading of all chick boxes and distribution of them in the house.
* Feeding of the chicks 5% glucose solution and vitamin C for stress relief.
* Quickly placing of the chicks near feeders and drinkers.
* After placing the chicks, again checking of the equipment and temperature of the house.

**3.6. 4. Brooding**

 Brooding is necessary to provide proper heat, ventilation and access to feed and water for the chicks so as to optimize desired growth and development. Ideal brooding condition includes:

* At day-old, chicks require a brooder temperature 32 to 35ºC and a house temperature of 26 to 27ºC.
* The brooder temperature can be reduced approximately 2ºC every four days.

**3.6. 5. Drinker and water management**

It is to supply an adequate amount of portable water for chicken considering the following points:

**(A) Water quality**

* Should use a reliable water sanitizer such as chlorine or iodine.
* Testing of the chlorine level of the drinker.
* Testing of the water monthly to ensure acceptable coli form levels.

**(B) Drinker management:**

**(a) Open drinking system:**

* Gradually have to move the chick drinker towards the automatic drinkers.
* Until seven days of age, the top lip of the drinker should be set to the height of the average bird’s back. After 7 days of age, the drinker should be gradually raised.
* The proper water depth is 1.9 cm.
* Drinker should be washed daily.

 **(b) Nipple drinking system:**

* Should make sure the nipple drinker lines and litter are level.
* Just prior to pacing the chicks on the nipple drinking system, triggering all of the nipples to check perfect flowing of water.
* The height of the water lines should adjust in such a way that the lines are at the chick’s eye level for the first two days.

**3.6. 6. Beak trimming**

* Should trim bird’s beaks at 8 to 10 days of age of both sexes and should provide 24 hours of supplemental vitamin k prior to beak trimming.
* Second beak trimming is done only for female at 10 to 12 weeks of age.
* Should allow only experienced person to do the work.
* Should work slowly and carefully.

**3.6. 7. Vaccination**

* Have to be done to develop uniform disease resistance in parents and produce high levels of maternal antibodies that can be passed on to the chicks by the eggs.
* It has several methods (a) Water vaccination, (b) Spray vaccination, (c) Intra-ocular vaccination, (d) Intranasal vaccination, (e) Subcutaneous injection system. (f) Intramuscular injection, (g) Wing web punching and (h) Vaccination through feed.

**3.6. 8.**  **Growing period management**

* To manage environmental conditions and nutrient program to develop the most productive male and female breeders.
* Density: For temperate climate – 6.2 female birds / m² and 3.0 male birds / m whereas. in hot climate – 4.8 female birds / m and 2.75 male birds / m².

**Feeding**

1. Controlled feeding
* Most practiced method is limiting the quality of feed to be eaten daily.
* Starting of control feeding at the end of 7th weeks of age to decrease the fat deposition and make ready for production.
* Stop controlled feeding 17th weeks of age
* Feed ad libitum until 30 weeks and start controlling the feed again.

(b ) Flock uniformity

* The percentage of birds having a body weight between 10% above or below the average weight is called the flock uniformity.

**3.6. 9.** **Ventilation**

* To provide the best air quality to the chicken while maintaining comfortable temperature and humidity in the poultry house which include: (a) Natural ventilation and (b) Tunnel ventilation

**3.6. 10. Lighting**

* To control intensity and duration of light to provide to the birds in order to produce sexual maturation at the desired time and sustain production.

**3.6.11.** **Management of females during production**

 To obtain the maximum numbers and size of hatching eggs through the entire production period female management is important.

**(a)Weighing birds**

* Pullets and males should weighed weekly until 40 weeks thereafter through the end of the production period.
* The supervisor should examine each bird carefully for body condition and sexual activity.
1. **Feeding**
* Feeding for egg production
* Provide cool water-cold weather feeding.
1. **Managing a very high producing flock**
* Should calculate the production percentage of egg
* By correlation of body weight gain with production percentage the amount of feed have to be determined.

**3.6.12. Monitoring of egg mass**

To obtain standard hatching egg size throughout the life of flock :

(a) Egg weighing and

 (b) target fertility and hatchability.

**3.6. 13. Floor management**

* Stocking density 6-8 birds / m²
* Litter management :Regular tiring for prevention of cake formation& disinfactent spraying for prevention of pathogen.
* Nest training and nest ratio 5 to 6 hens /nest.

**3.6.14. Care of hatching eggs**

* Egg collection -3 times daily.
* Egg storage – optimum temperature 12 to 20Cand humidity 75 to 85%.
* Handling of hatching eggs.
* Hatching egg disinfection : Fumigation an disinfection in the hatchery.

**3.6.15. Feeding the male breeder:**

* Ration formulation of male breeder should be different from female birds.
* Germinated grain should be given at the matured age for improvement of semen quality

**3.6**. **16. Male : Female ratio**: Maximum Male:Female 1: 10

**3.6.17. Dead bird disposal :**

* Incineration of dead bid is the best method of dead bird disposal.
* If not possible a pit should be made at a safe distance from the farm house for dead bird disposal.

**3.6.18. Record keeping**

* Breed of male and female.
* Date received.
* Vaccination completed at the hatchery.
* Vaccination completed at the farm.
* Feed, water consumption.
* Egg production.
* Mortality, body weight, egg weight.
* Fertility percentage.
* Hatchability percentage.
* Production cost.

Management is the key factor which can lead the performance of any parent stock and properly and accurately managed stock can produce excellent performance which is desirable for the profitability of the parent stock.

**CHAPTER IV**

**RESULTS AND DISCUSSION**

During my study period I observed the following differences between the existing management of broiler parent stock Cobb 500 at M.M. AGHA Poultry farm and the standard/ recommended management of broiler parent stock Cobb 500 in the “Cobb 500 Breeder Management Guide 2009.” Farm data (achieved /actual) was collected from record book of M .M . AGHA Poultry farm .Standard / Recommended data are collected from the “Cobb 500 Breeder Management Guide 2009.”

**4.1 Preparation of the poultry house:** (Before arrival of a new flock)

 After removing all equipments, litters used for previous flock the shed was cleaned properly with three types of cleaning practice for making the room pathogen free.

**(a)Dry cleaning**

Dry cleaning was done by using different types of sweeping instrument like

brush, coconut leaf made sweeping instrument etc. to remove the dirt as high as possible.

**(b)Water Cleaning**

Then the house was watered with detergent. After that the room was washed thoroughly with clean water. The liming was done, liming means the whole surface was covered with a layer of lime solution. The lime was used as a disinfectant. Then the room was left for drying for 15 days. During this period routine spray was done with different disinfectant like spraying with formalin (10 litter water +2/3 litter formalin), Disenkape®

(Glytaraldehyde 15% + Chlorobenzyl ammonium chloride-10%) at a concentration of 7 ml /litre of water at the rate of 300 ml solution /m2.

**(c) Fumigation**

After 15 days of drying period, fumigation was done with formalin and potassium per management at the rate PPM: Formalin =1:2 ratios. Then the room was closed for 24 hours. After that it was opened. Before arrival of the chicks, the room was preheated for 2-3 days.

**4.2 Brooder House Management For chick both male and female:**

**4.2.1. Preparation of Brooder House:**

In my study area cage brooding was performed. The hover was set approximately 3 feet above from the chick level. Only gas brooder was used for brooding of chicks. Hard Board was used for prevention of spreading of bird. Paper was used for bedding material.

**4.2.2 Brooding temperature**

**Table 1:-** Comparative study on brooding recommended and actual / kept brooding temperature existing management system of M.M. AGHA poultry farm.

|  |  |
| --- | --- |
| **Day** | **Temp. for brooding (ºC)** |
| **Recommended** | **Kept** |
| 1 | 35-33 | 35-33 |
| 2 | 33-32 | 33-32 |
| 3-7 | 32-29 | 32-29 |
| 7-14 | 29-26 | 29-26 |
| 14-21 | 26-23 | 26-23 |
| 21-28 | 23-21 | 23-21 |
| 28-35 | 21-20 | 21-20 |
| 35 and later | 20 | 20 |

**Source:** Field Survey, 2013

From the above data it can be said that special care was taken during brooding of chicks. For regular monitoring three worker always remain in the brooder house alternatively. The Standard & kept brooding temperature were recorded from the Cobb 500 breeder management guide and the record book of the farm respectively. From the analysis of data it is seen that the farm strictly maintain the brooding temperature

**4.2.3 Air Management /Ventilation:**

Actually temperature and ventilation was maintained there according to the condition of the birds. During brooding when the chicks gathered in the periphery then the hover was placed somewhat above from the previous height. But when the chicks gathered under the hover, then the hover placed down .During summer water is sprinkled over the roof in brooder house.

 And incase of layer birds as they kept in environmentally controlled house so the ventilation is maintain automatically. The ventilation was maintain by switching of the fan.

**4.2.4 Feeding and Watering:**

 During brooding period feed was given by spreading on the paper at an early age .Than with the age increase linear feeder was used there. At first bell drinker was used for drinking of water. With the age increase nipple drinker was used. generally adlibitum water was given . It was 1.8 times more than feed consumption .

**4.2.5 Bedding Material:**

 During cage brooding paper was used as a bedding material. After transfer into grower house litter material was used for bedding material.

**4.2.6 Vaccination programme:-**

Same schedule was practiced for all the birds reared in M . M .AGHA Poultry Farm

**Table 2-** Vaccination schedule for Cobb 500 Broiler Breeder.

|  |  |  |  |
| --- | --- | --- | --- |
| **Age (day)** | **Age (Week)** | **Name of Vaccine** | **Route** |
| 4th | - | IBD Live (INTER) | Eye |
| 5th | - | Cocci Vaccine | Water |
| 6th | - | Debeaking | \_ |
| 7th | 1 | MA5 Clone 30+ ½ dose IBD Killed | Eye & S/C |
| 9th | 2 | Reo live | S/C |
| 12th | 2 | IBD live + ½ dose ND killed | Eye & S/C |
| 13th | 2 | IB 4/91 | I/O |
| 16th | 2 | ND Lasota | Eye |
| 26th | 3 | IBD live | Eye |
| 35th | 5 | Reo Live | S/C |
| 42th | 6 | ND+IB Killed | S/C |
| 45th  | 7 | Fowl Pox | Wing Web |
| 56th | 8 | Fowl Cholera (killed) | I/M or S/C |
| 63th | 9 | Salmonella (killed) | S/C |
| 70th | 10 | 4/91 IB | I/O |
| 80th | 12 | Coryza (Optional) | I/M or S/C |
| 84th | 12 | Fowel cholera (killed) | I/M or S/C |
| 91th | 13 | Salmonella (killed) | S/C |
| 98th | 14 | AE + Pox | Wing Web |
| 105th | 15 | Coryza(Optional) | I/M or S/C |
| 112th  | 16 | ND+IB killed MA5+(IB live) | S/C &Eye  |
| 126th  | 18 | EDS Killed | S/C |
| 147th  | 21 | ND+IB+IBD+Reo killed | S/C |

**Source:** Field Survey, 2013

**4.3. Growing period management Of Female bird:**

**Lighting stimulation**

 The lighting program during growing, production allows for a better control of age at sexual maturity in both males and females. This control is necessary to obtain the optimum number of fertile hatching age, of the correct size. The consequence of too early onset of production are often more detrimental than a slight delay. Too early light stimulation will cause egg bound of hen and death. At the study farm the brooding period lighting was 24 hours and after brooding, by gradual decreasing way the growing period lighting was 8 hours.

**4.4 Management of Female Bird During Laying Period**

**4.4.1 Housing system:-**

 The female birds were kept in the Environmentally controlled house (E.C. House) in the M.M.AGHA Poultry Farm. The Environmental temperature was controlled by cooling pad. There was also exhaust fan to remove the odor keeps the room cool always. Temperature was regularly monitoring by a thermometer.

**The house is facing East-West**

Length of house → 400 feet.

Width of house → 100 feet.

Cooling Pad → 60 feet (30 feet on each side wall along the length

direction

Exhaust fan → 12

Roof of the house → Made by tin.

**4.4.2 Floor System**

Now-a-days the commercial broiler breeder hens are usually reared on different types of floor system. One of them is the stat cum lither system . In the study farm upon which my study was conducted the broiler breeders (of the strain Cobb 500) were reared on slat cum litter system of flooring.

**4.4.3 Slat cum litter system:-**

 In this system, about two-third (60%) areas was covered with slats and one third (40%) areas was covered with litter materials. The litter used was rice husk with a depth of 6 inches. The slats were used in the house through the “ down the edge of house fashion. In this system the middle area contain litter materials and the surrounding area covered with slats. The top of the slat was 16cm above the top of the litter.

**4.4.4 Litter management**

 Rice husk was used as litter material. Before using the rice husk it was made disinfected by spraying with proper disinfectant like formalin (2/3 litre formalin + 10 water) at the rate of 300 ml solution /m2 with concentration of 7 ml /litre. After making the litter materials properly disinfected it was used on the floor. In the brooder house the height of the litter was 4. But other then brooding period it was 6-8 inch height. It was tried always to maintain the litter dry. For that the litter was scratched and rolled ups and down by scratches at least once a week and cake was removed. A part from this, regular spraying was done over the litter with proper disinfectant. The culled litter was sold at the rate of 25 taka per bag.

**4.4.5 Floor space requirement:-**

**Table 3 . Comparative study floor space requirement of chicken.**

|  |  |
| --- | --- |
|  | **Floor space requirement** |
| **Standard (sq ft/bird)** | **Given (sq ft/bird)** |
| Female | Brooding (0-5 days) | 0.36 | 0.36 |
| Growing(6day-16 weeks) | 1.75 | 1.75 |
| Laying(15wks-65wks) | 2.75 | 2.75 |
| Male | Brooding(0-5 days) | 0.36 | 0.36 |
| Growing(6day-16 weeks) | 3.00 | 3.00 |
| Production(16wks-65wks) cage rearing  | 1.5 | 1.5 |

**Source:** Field Survey, 2013

**4.4.6 Feeding and watering:**

 The feed that are supplied to the male and female breeders in their laying period are produced by M.M. AGHA Poultry feed mill. In the farm the male and female birds ware supplied with different in laying period. These feeds having the optimum level of nutrient required for the breeder.

The feeds ware supplied by automatic chain feeder. Usually the feeds were given once daily for a short period usually at 5.00 am for 10-14 minutes.

For watering nipple drinker is used according to the height of the bird. 1 nipple is used for 5 bird water supply adlibitum.

 **Table 4 : Feed ingredients used for feed formulation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name of Ingle** | **Starter** | **Grower** | **Layer** | **Male breeder feed** |
| Maize | 60 | 50 | 56 | 50 |
| Soyameal  | 28 | 20 | 22 | 15 |
| Full fat soy  | - | - | 4 | - |
| Rice polish | 3 | 11.2 | 8 | 15.4 |
| Calcium | 2 | 8.3 | 8 | 3 |
| DCP | 2 | 1.8 | 2 | 1.6 |
| DORB | - | 12 |  | 15 |

**Source:** Field Survey, 2013

**4.4.7 Lighting Management:-**

 Lighting is an important thing for the breeders at the period of layering specially. During this time light should never be reduced in time or in intercity. Broiler breeder hens come into lay in response to increases in the day length when male at the appropriate time. The response of the hens to light stimulation is based on their condition, body weight and age. Cobb 500 Parents should be reared in light proof housing. The light intensity in such house must be less than 0.5 lux when the lights are switched Dark out houses should provide total light control. Start chicks on 24 hours of light reducing to 8 hour by 23 weeks of age. The age at which 8 hours day length is reached will depend on feed consumption time. Generally the 8 hour day length can be started when the birds consume their every day restricted amount of feed in 5 hours or less

**Recommended lighting program in E.C housing:**

**Table 5 :** Comparative study on lighting management :

|  |  |  |  |
| --- | --- | --- | --- |
| **Age (weeks)** | **Age (days)** | **Light (hours)** | **Light intensity (lux)** |
| 1 to 3 | Day-old to 21 | Decreasing from 24 hours at day 1 to 8 hours by 14-21 days | Days 0-2 maximum light (>20 lux) reducing to 20 lux by day 7 |
| 3-2020-2121-2222-2323-60 | 21-140140-147147-154154-161161-420 | 811131416 | 5-1040-6540-6540-6540-65 |

 **Source:** Field Survey, 2013

The farm also used the above lighting schedule.

**4.4.8 Body weight gain & uniformity monitoring:-**

The Body weight of 10% birds were taken from each flock once weekly at the weekend in empty stomach. The main objective during rearing is to reach the target body weight and uniform growth rate according to the standard. It is a great advantage for flock management to achieve a uniform flock during laying. It is crucial to maintain uniformity n the flock. When flock uniformity become low, it is necessary place those higher and heavier birds in separate pan. The lighter bird should be given extra feed for achieving weight and the heavier birds should restrict the feeding till reduces the weight.

 In the study farm body weight were taken from 10% of birds weekly at the weekend in empty stomach. Here great emphasize is given on the average body wt according to the age related body wt of breeder management guide and Calculation of average body wt was done based on the body wt of breeder management guide.

 **4.4.9 Laying nest:-**

In slat cum litter system of rearing nest was supplied to the hen for egg laying .One nest containing 24 boxes. A single box was 12×12×12 inches and a single box was offered for 4 hens. Tenis balls were kept in the nest to stimulate the bird for laying. During that period regular culling of non productive hens were done to decrease the cost . There were 30 nests in one house .These nests were arranged on slat in one row at an equal distance from each other.

**4.4.10 Male & Female ratio:-**

In the study farm Female & Male were kept separately. Females were kept in slat cum litter system in EC house and male in cage system in the open sided house system. The male : Female 1:10

**4.4.11 Reproduction:-**

The artificial insemination was practiced in every alternative day.First semen was collected from male and then insemination were done. Each cock gave 0.5-0.7 ml of semen per ejaculation .Where the dose on each insemination was 0.1 ml/hen.

**4.4.12 Egg collection:**

In environmental controlled house, eggs were collected manually. Then eggs were cleaned, dried and stored in the storage room. At temp 18-20ºC, The eggs were collected 8 times daily at 7.am, 8.am, 9.am, 10.am, 12.am, 2.pm, 5.pm, 9.pm.

**4.5. Male Management**

The key to obtaining good hatchability from today’s broiler breeders is to develop feeding and management programs that allow a correct development of the male’s reproductive system while controlling their growth potential and capacity to deposit breast muscle.The male growth profile is the single most important factor that correlates with flock fertility. Males should be weighted at least weekly from one to 30 weeks of age and at least very other week thereafter.

**Housing system:**

The males were reared separately in the cage system. Size of cage was 2.3 (L)×1.4(W) sq ft .Two birds were kept in each cage . The males were reared in open sided house. The roof was made of tin. Fogger & springler were used for temperature control.

**Feeding & watering:-**

Feeds are given manually in feed trough of the nest. The management procedure of the cage system was easier than slat cum litter system. 1 nipple drinker was used for watering of 4 birds of 2 nests . Cock was fed upto 115 day to 140g of feed at an increasing manner from 21 weeks to 65 weeks of age. From the 21 weeks (at the matured age) the males were fed 10g germinated feed daily for the improvement of semen quality.

**4.6. Hatchery Management:**

**4.6.1 Hatching Egg Collection:-**

 In M .M. AGHA Poultry Farm Artificial insemination was practiced for breeding in floor system rearing of hen. Male and female ratio was 1:10. Cobb500 starts egg production from 18weeks of age, but when 5% egg production was found AI procedure was started & hatching eggs were collected. Eggs were collected from shed 6-8 times in a day. After collection broken , dirty and deformed eggs were separated. The dirty eggs were cleaned with luke warm water (45°C) having 50%H2O2 and cotton. Then the eggs were dried. Clean eggs were spraying only with Densin kap®(Glycol 40% 17% Formaldehyde 40% 15% Gluteraldehyde 50% 5% Benzalconium chloride 13% 80%) (disinfectant).

 **4.6.2 Storage of eggs:**

Eggs were stored in cooling room which temperature was 18-20°C and relative humidity was 85%.The room was equipped with a cooler unit and humidifier. A ceiling fan was there to maintain a continuous flow- of air. Eggs can be stored in the cooling room for 3 days. During storage egg should be set small end down & large end up (Siddiki Abuzar 03).

**Table 6 : Suggestive egg storage conditions: (Md Elias Hossain 2000)**

|  |  |  |  |
| --- | --- | --- | --- |
| Period of stage | (0-4)days | (5-7)days | (8-14) days |
| Temperature (°C) | 17-18 | 16-17 | 14-16 |
| Relative humidity (%) | 80 | 85 | 85 |
| Egg position | Broad end up | Broad end up | Broad end up |

 **Source:** Field Survey, 2013 In the study farm the above conditions were maintained for egg storage.

**4.6.3 Transporting of hatching eggs from farm to hatchery:**

Eggs were transported from farm to hatchery by their own disinfected egg lorry. After loading of egg into the lorry fumigation was done .

**4.6.4 Fumigation of eggs:**

Fumigation of egg was done by mixing 200 ml formalin (40% solution in water of formaldehyde gas) and 100 ml potassium permanganate. Fumigation of hatching eggs was done thrice with single strength for thirty minutes.

**4.6.5 Receiving of egg in Hatchery:**

Again fumigation of eggs were done before unloading the eggs from the lorry with same disinfectant spray . .

**4.6.6 Selection and grading of hatching eggs:**

Eggs having the following criteria were discarded­**-**

* Small sized egg
* Mis shaped egg
* Large egg
* Double yolked egg
* Thin shelled egg

 Uniform sized eggs were selected for good hatchability. The weight of hatching eggs should be 53 to 56 gms (Mahmud Jamilur 03) After selection of hatching eggs were disinfected with Densinkap® solution spray and eggs having little dirt were washed with luke warm water containing 50% H202.

**4.6.7 Hatchery Operation And Get Hatches:**

There are two types of incubator used in M.M. AGHA Hatchery:

**a. V. J. Equipment:** The no. of V. J. Equipment is one. Capacity of the setter is 90720. Capacity of the hatchery is 20300.

**b. Karamsar:** There are total 11 setter machine in the hatchery. Capacity of each setter machine is 14760. No. of Hatcher machine is 6. Capacity of Hatcher machine is 5040.In setter trays are marked by three different color –green, red, blue which capacity of egg 56,56 & 52 respectively. Eggs are set alternatively in the setter in multistage system and in every three days in Hatcher.

**Table7: Temperature and humidity maintained in different types of incubator of AGHA Poultry Hatchery.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Season** | **Particulars** | **Karamsar** | **V.J. Equipment** |
| Summer | Temperature(°F) | Setter | 99.5 | 98.5 |
| Hatcher | 98.5 | 98.2 |
| Relative Humidity (%) | Setter | 86.5 | 86.5 |
| Hatcher | 87.8-88.0 | 87.8-88.0 |
| Winter**Source:** Field Survey, 2013 | Temperature(°F) | Setter | 99.8 | 98.8 |
| Hatcher | 98.8 | 98.5 |
| Relative Humidity (%) | Setter | 86.5 | 86.5 |
| Hatcher | 87.8 | 88.0 |

**4.6.8 Preparation of setter and loading of eggs in setter.**

 All the setting trays were washed with water and bleaching powder. Then the trays were sprayed with antiparasitic acid solution (50% H202-2 L, Acetic acid-l.0 L, 50% H2S04 -11.0 ml mixing)@3ml / L water. Then the trays were dried in the sunlight. Before setting of eggs setter has to be fumigated by mixing 40cc formaldehyde and 20gm potassium permanganate for each 9.3 sq. meter space. The pot where the chemicals were mixed should be large enough. After keeping the pot in setter the door has to be immediately closed for 3 hrs. After fumigation eggs were trayed vertically with the broad end uppermost. Second fumigation was made in the setter after placing of eggs in trays by 17.5gm KMnO4 &25cc formalin for each 9.3 sq. m. for 30 minutes. Then machine was started. Temperature of the setter was adjusted at 99.5°F and relative humidity remain 60%. A thermometer was fitted in inside the incubator for maintaining proper temperature. The incubator has a glass window fitted in front of the hatching egg tray, through which the temperature reading was taken. A water tray with sponge over in it was kept inside the incubator and was filled with water about hatching time. For the best hatch results 21% O2 and 0.5% CO2 are required. Eggs remain in setter for 18 days.

**4.6.9 Turning of eggs.**

 In the setter machine eggs were set by large end up. Eggs were turned in every 3 hours interval automatically till 18th day of incubation. Eggs were checked in the inside of the setter machine by using torchlight. Checking was done to determine bursting of eggs. During checking a little formalin was given in a plate and kept in the setter machine.

**4.6.10 Candling of eggs.**

 Candling is done at the 18th day of incubation when eggs were transferred from setter to hatchers. Candling was done in a dark room. During candling, infertile eggs were removed. Infertile eggs tend to explode and contaminated the neighboring eggs. It resulting a poor hatch. Transfer and candling was done as fast as possible to avoid too much cooling down of the eggs.

**4.6.11 Preparation of hatcher and transfer of eggs from setter to hatcher.**

When piping occurs within 5 to 10% eggs. Then eggs were transferred from setter to hatcher. Beforetransferring eggs, hatcher trays were removed, cleaned, washed and in the same way as the setter trolley. Then fumigation was done in the hatchery by using 50 part KMnO4 and 100 parts formalin (1:2) in a earthen pot. During fumigation ventilators and the door remain closed. Formaldehyde and potassium permanganate create a gas by chemical reaction which is effective in killing germs. The Hatcher door was kept closed for at least one hour. Then all ventilators and the door were opened. When gas was completely expelled out the eggs were transferred to the hatcher trolley. Temperature and humidity of the hatcher are 98.5°F and 75% respectively. Formalin (40 ml in 60 ml water) was taken in a plate and kept at the corner of the machine. A correct functioning thermometer and hygrometer (wet bulb thermometer) was kept visible in each hatcher. The water from the egg during incubation influence the quality of chicks. if more water loss from the egg\_ the following result are found such as Dry chicks, small chicks, early hatch, reduced hatch etc. If less water loss from the egg the following result are found such as unhealed navels, weak chicks, red hock, delay hatch etc. (Mahmud 1ami1 2003).

**4.6.12 Detection of any fault in incubator:**

Detection of any fault in incubator is accomplished by the following technique:-

.i) Firstly average egg weight was taken before loading in the setter (Loading wt).

ii) Further average egg weight is taken before transporting eggs from setter to hatcher (Transferring w-t.).

iii) **The result was obtained by the following way:­-**

Loading wt. - Transferring wt

Weight loss = × 100

 Loading wt.

**iv. Interpretation:**

a. If weight loss is in between 10-12 % then there is no defect in machine.

b. If weight loss is less than 9% then temperature and humidity fall from the standard level.

c. If weight loss is more than 12.5% then temperature and humidity raise from the

 standard level.

**4.6.13 Take out of chicks:**

On the 21st day all chicks were hatched. Ventilation was opened completely. Humidifier was switched off at the same time. This allows the chicks to dry properly. The trolleys were only taken out if the hatcher after all eggs has been hatched.

**4.6.14 Grading of chicks:**

After hatching chicks were graded. Grading was done by the following way

**Grade-A:**

* Health and rigor (round bright eyes, sturdy legs, ability to stand firmly,)
* Well grown
* Trueness of type
* Freedom of any deformity

**Grade-B:**

Chicks with unhealed navels, stand up well.

**Grade-C**:

Chick with crooked legs or toes, odd shaped beaks. eyes missing, pasty vents

are discarded.

**4.6.15 Delivery of the chicks:**

Before delivering of the chicks some medicinal treatment was given.

Beconex -50 ml

Dextrose- 1000 ml

Gentamycin-50 mg

All are mixed and then injected @1.0 ml to each chick at the neck region s/cly. Glucose supplementation is necessary as additive in day old chicks (Motaleb, 2002).Chicks were then packed in bamboo baskets/paper box with small hole for ventilation .. 40 & 50 chicks per box are packed in summer and winter respectively. Some paper pieces are kept in the boxes as bedding the baskets are kept in a well ventilated area. It is advisable to deliver the chicks at night during summer due to cool weather (lslam & Sultan2005).

**4.6.16 Disposal of hatchery waste:**

Bins fitted for collection of hatching debris were closed and removed from the room in which hatching takes place as soon as possible. They were well washed, disinfected. Any hatching debris from incubators in which disease has been diagnosed or is suspected and contaminated material were buried

**4.6.17 Standard/Recommended Biosecurity Maintenance For Parent stock management.**

Good biosecurity must encompass all the operations carried out by a caretaker of breeding stock. Good biosecurity maintenance ensure the prevention & transmission of diseases. So each form should maintain strict biosecurity in the following way-

* Should Choose an isolated area when developing new parent farm facilities.
* Each farm must have a perimeter fence to prevent unauthorized entry of people, vehicles and animals. Only essential personnel should enter the farm.
* Farms should contain flocks of a single age. As a general rule, the distance between flocks of different ages should be no less than 600 M (2000 ft). when single age placement is mot possible and caretakers must enter flocks of different ages, always work in the youngest birds first.
* The farm houses should be environmentally controlled. So it will help to keep the chance of contamination.
* All building must be vermin & wild bird proof.
* All farm workers and the supervisory personnel who need to enter the farm must shower & change in to a clean uniform.
* Uniforms of the workers should be clean color coded and calendared. So it will help to control personnel movement and disease transmission within the farm or age group.
* Foot water bath should be used be fore entering each age group shed and regular changes of foot water bath water should be done.
* No other poultry livestock or domestic pets of any kind should be allowed on parent farm.
* Isolation of sick bird should be done in different shed .
* Post mortem of the bird should be done in a separate room far from the shed.
* Dead birds should be disposed by incinerating the carcass on farm.
* A vermin control program should be practiced at all times. It is important to maintain a clean, rubbish free environment. Rotate brands of bait regularly to prevent vermin developing resistance. Any spilled feed should be cleaned up immediately.
* Feed delivery vehicles should not enter the farm, but should fill feed bins from outside the perimeter fence. Any vehicle that must enter the farm must be washed and disinfected at the gate.
* All in all out system should be followed.

**Biosecurity Maintenance in the study farm (M.M. AGHA poultry Farm)**

1. This farm chosen an isolated area for developing new parent farm.
2. This farm hade a perimeter fence to prevent unauthorized people, vehicles and animals.
3. All the sheds of the farm houses were environmentally controlled. So. It help to minimize the contamination.
4. All the workers took shower wore clean, color coded and calendared clothes before entering into the farm.
5. Foot water bath was used before entering into each shed.
6. There were different worker for working i9ntoo different shed.
7. Regular disinfection procedures are followed both outside the shed and inside the shed. Liming outside the shed and disenkap(R) spray were regularly used inside the farm.
8. Feed delivery vehicles entered into the farm after disinfectant spray .
9. That farm contained four environmentally controlled shed for female bird zone open sided shed for male birds against each age group of female birds. For this there was a chance of pathogen transfer through semen, caretaker or insurant of AI during semen collection from the open sided houses and artificial insemination in the environmentally controlled house.
10. This farm contains different age group flock at different shed. The distance from one shed to another shed was apx 800 ft only. So there was a chance of

Contamination from one flock to another flock.

1. There was no isolation shed for sick birds. Sick birds are kept within a net in corner of the same flock. So, there was a chance of transmission of microbes easily from sick bird to healthy bird.
2. There was no pest mortem room. Post mortem was done outside the shed at a distance of apx 50ft from the main shed. So, there was a chance of contamination.
3. All the house was not rodent prof & wild bird proof. Rat mongoose & snake sometimes attach the flock.

**Comments:**

(**1-8**)  Good practice

(9-13)  Mismanagement.

**Table 8: Comparative study of recommended and given feed to the Cobb 500 birds**.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Age****(weeks)** | **Feed intake****Grams (female)****Recommended** | **Feed intake(Grams)****(female Given** | **Age****(weeks)** | **Feed intake Grams****(male)****Recommended** | **Feed intake****(male) Grams Given** |
| 1 | Ad libitum | Ad libitum | 1 | Ad libitum | Ad libitum |
| 2 | 20 | 20 | 2 | Ad libitum | Ad libitum |
| 3 | 38 | 38 | 3 | Ad libitum | Ad libitum |
| 4 | 44 | 44 | 4 | 60 | 60 |
| 5 | 47 | 47 | 5 | 62 | 62 |
| 6 | 49 | 49 | 6 | 65 | 65 |
| 7 | 51 | 51 | 7 | 68 | 68 |
| 8 | 53 | 53 | 8 | 70 | 70 |
| 9 | 55 | 55 | 9 | 74 | 74 |
| 10 | 56 | 56 | 10 | 76 | 76 |
| 11 | 58 | 58 | 11 | 78 | 78 |
| 12 | 59 | 59 | 12 | 80 | 80 |
| 13 | 60 | 60 | 13 | 82 | 82 |
| 14 | 61 | 61 | 14 | 85 | 85 |
| 15 | 64 | 64 | 15 | 87 | 87 |
| 16 | 68 | 68 | 16 | 89 | 89 |
| 17 | 74 | 74 | 17 | 91 | 91 |
| 18 | 81 | 81 | 18 | 93 | 93 |
| 19 | 89 | 89 | 19 | 99 | 99 |
| 20 | 97 | 97 | 20 | 106 | 106 |
| 21 | 105 | 105 | 21 | 113 | 113 |
| 22 | 111 | 111 | 22 | 120 | 120 |
| 23 | 116 | 116 | 23 | 125 | 125 |
| 24 | 121 | 121 | 24 | 129 | 129 |
| 25 | 126 | 126 | 25 | 135 | 135 |
| 26 | 131 | 131 | 26 | 135 | 135 |
| 27 | 140 | 140 | 27 | 135 | 135 |
| 28 | 149 | 149 | 28 | 135 | 135 |
| 29 | 158 | 158 | 29 | 135 | 135 |
| 30 | 166 | 166 | 30 | 135 | 135 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Age****(weeks)** | **Feed intake****Grams (female)****Recommended** | **Feed intake(Grams)****(female Given** | **Age****(weeks)** | **Feed intake Grams****(male)****Recommended** | **Feed intake****(male) Grams Given** |
| 31 | 166 | 166 | 31 | 135 | 135 |
| 32 | 163 | 163 | 32 | 135 | 135 |
| 33 | 164 | 164 | 33 | 135 | 135 |
| 34 | 162 | 162 | 34 | 135 | 135 |
| 35 | 162 | 162 | 35 | 135 | 135 |
| 36 | 163 | 163 | 36 | 136 | 136 |
| 37 | 165 | 165 | 37 | 136 | 136 |
| 38 | 165 | 165 | 38 | 136 | 136 |
| 39 | 165 | 165 | 39 | 136 | 136 |
| 40 | 165 | 165 | 40 | 137 | 137 |
| 41 | 165 | 165 | 41 | 137 | 137 |
| 42 | 165 | 165 | 42 | 138 | 138 |
| 43 | 165 | 165 | 43 | 138 | 138 |
| 44 | 165 | 165 | 44 | 138 | 138 |
| 45 | 165 | 165 | 45 | 138 | 138 |
| 46 | 165 | 165 | 46 | 138 | 138 |
| 47 | 165 | 165 | 47 | 138 | 138 |
| 48 | 1655 | 1655 | 48 | 138 | 138 |
| 49 | 165 | 165 | 49 | 139 | 139 |
| 50 | 165 | 165 | 50 | 139 | 139 |
| 51 | 165 | 165 | 51 | 139 | 139 |
| 52 | 165 | 165 | 52 | 139 | 139 |
| 53 | 165 | 165 | 53 | 139 | 139 |
| 54 | 165 | 165 | 54 | 139 | 139 |
| 56 | 165 | 165 | 56 | 139 | 139 |
| 57 | 165 | 165 | 57 | 139 | 139 |
| 58 | 165 | 165 | 58 | 140 | 140 |
| 59 | 165 | 165 | 59 | 140 | 140 |
| 60 | 166 | 166 | 60 | 140 | 140 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 61 | 170 | 170 | 61 | 140 | 140 |
| 62 | 170 | 170 | 62 | 140 | 140 |
|  |  |  |  |  |  |
| 63 | 170 | 170 | 63 | 140 | 140 |
| 64**Source:** Field Survey, 2013 | 170 | 170 | 64 | 140 | 140 |

From the above data it can be said that the farm fulfilled the feed requirement of Cobb 500.

**Table 9 :Comparative study of recommended and achieved body weight gain of Cobb 500 Female and Male.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Age****(Weeks)** | **Body weight gain****Grams****(Female)****Recommended** | **Body weight gain****Grams****(Female)****Achieved** | **Age****(Weeks)** | **Body weight gain****Grams****(Male)****Recommended** | **Body weight gain****Grams****(Male)****Achieved** |
| 1 | 160 | 165 | 1 | 150 | 120 |
| 2 | 285 | 283 | 2 | 330 | 300 |
| 3 | 410 | 415 | 3 | 520 | 510 |
| 4 | 540 | 542 | 4 | 690 | 655 |
| 5 | 645 | 655 | 5 | 840 | 838 |
| 6 | 750 | 758 | 6 | 1000 | 990 |
| 7 | 850 | 855 | 7 | 1140 | 1150 |
| 8 | 950 | 958 | 8 | 1270 | 1280 |
| 9 | 1050 | 1050 | 9 | 1400 | 1440 |
| 10 | 1160 | 1165 | 10 | 1520 | 1550 |
| 11 | 1250 | 1258 | 11 | 1650 | 1650 |
| 12 | 1335 | 1340 | 12 | 1780 | 1790 |
| 13 | 1420 | 1425 | 13 | 1920 | 1940 |
| 14 | 1505 | 1520 | 14 | 2060 | 2075 |
| 15 | 1590 | 1598 | 15 | 2210 | 2220 |
| 16 | 1680 | 1685 | 16 | 2350 | 2360 |
| 17 | 1790 | 1796 | 17 | 2500 | 2535 |
| 18 | 1930 | 1930 | 18 | 2640 | 2650 |
| 19 | 2090 | 2085 | 19 | 2800 | 2830 |
| 20 | 2250 | 2255 | 20 | 2960 | 2980 |
| **Age****(Weeks)** | **Body weight gain****Grams****(Female)****Recommended** | **Body weight gain****Grams****(Female)****Achieved** | **Age****(Weeks)** | **Body weight gain****Grams****(Male)****Recommended** | **Body weight gain****Grams****(Male)****Achieved** |
| 21 | 2510 | 2515 | 21 | 3250 | 3280 |
| 22 | 2675 | 2678 | 22 | 3355 | 3370 |
| 23 | 2845 | 2850 | 23 | 3470 | 3490 |
| 24 | 3010 | 3025 | 24 | 3590 | 3598 |
| 25 | 3105 | 3110 | 25 | 3700 | 3710 |
| 26 | 3200 | 3212 | 26 | 3790 | 3800 |
| 27 | 3290 | 3280 | 27 | 3880 | 3900 |
| 28 | 3385 | 3390 | 28 | 3960 | 3990 |
| 29 | 3480 | 3488 | 29 | 4030 | 4050 |
| 30 | 3570 | 3555 | 30 | 4090 | 4150 |
| 31 | 3595 | 3595 | 31 | 4140 | 4200 |
| 32 | 3615 | 3615 | 32 | 4180 | 4250 |
| 33 | 3635 | 3640 | 33 | 4210 | 4290 |
| 34 | 3655 | 3660 | 34 | 4235 | 4335 |
| 35 | 3675 | 3680 | 35 | 4260 | 4270 |
| 36 | 3695 | 3687 | 36 | 4285 | 4290 |
| 37 | 3715 | 3730 | 37 | 4310 | 4317 |
| 38 | 3735 | 3740 | 38 | 4335 | 4350 |
| 39 | 3755 | 3760 | 39 | 4360 | 4375 |
| 40 | 3770 | 3770 | 40 | 4385 | 4392 |
| 41 | 3785 | 3788 | 41 | 4410 | 4425 |
| 42 | 3800 | 3810 | 42 | 4435 | 4438 |
| 43 | 3815 | 3830 | 43 | 4460 | 4470 |
| 44 | 3830 | 3840 | 44 | 4485 | 4488 |
| 45 | 3845 | 3852 | 45 | 4510 | 4510 |
| 46 | 3860 | 3865 | 46 | 4535 | 4525 |
| 47 | 3875 | 3870 | 47 | 4560 | 4555 |
| 48 | 3890 | 3898 | 48 | 4585 | 4489 |
| 49 | 3905 | 3910 | 49 | 4610 | 4612 |
| 50 | 3915 | 3930 | 50 | 4635 | 4637 |
| **Age****(Weeks)** | **Body weight gain****Grams****(Female)****Recommended** | **Body weight gain****Grams****(Female)****Achieved** | **Age****(Weeks)** | **Body weight gain****Grams****(Male)****Recommended** | **Body weight gain****Grams****(Male)****Achieved** |
| 51 | 3925 | 3938 | 51 | 4660 | 4655 |
| 52 | 3935 | 3945 | 52 | 4685 | 4670 |
| 53 | 3945 | 3955 | 53 | 4710 | 4708 |
| 54 | 3955 | 3960 | 54 | 4735 | 4735 |
| 55 | 3965 | 3980 | 55 | 4760 | 4763 |
| 56 | 3975 | 4000 | 56 | 4785 | 4790 |
| 57 | 3985 | 4010 | 57 | 4785 | 4783 |
| 58 | 3995 | 4025 | 58 | 4810 | 4812 |
| 59 | 4005 | 4035 | 59 | 4835 | 4838 |
| 60 | 4015 | 4045 | 60 | 4860 | 4865 |
| 61 | 4020 | 4048 | 61 | 4885 | 4890 |
| 62 | 4025 | 4055 | 62 | 4910 | 4917 |
| 63 | 4030 | 4080 | 63 | 4935 | 4945 |
| 64 | 4035 | 5000 | 64 | 4960 | 4990 |

**Source:** Field Survey, 2013

From the analysis of the above data it can be said that there are very insignificant amount of differences between the standard body wt gain & achieved body wt gain. so, it may be concluded that the Cobb 500 female and male performed well under control housing system. In our country.

**Table 10: Comparative study of recommended and achieved weekly egg production %**

|  |  |
| --- | --- |
| **Age****(week)** | **Weekly Egg Prod%** |
| **Recommended** | **Achieved** |
| 24 | 5 | 2 |
| 25 | 15 | 13 |
| 26 | 35 | 34 |
| 27 | 60 | 50 |
| 28 | 78 | 70 |
| 29 | 82.5 | 79 |
| 30 | 83.5 | 82 |
| 31 | 83.5 | 83 |
| 32 | 83 | 83 |
| 33 | 82 | 81 |
| 34 | 81 | 81 |
| 35 | 80 | 80 |
| 36 | 79 | 79 |
| 37 | 78 | 78 |
| 38 | 77 | 77 |
| 39 | 76 | 76 |
| 40 | 75 | 74 |
| 41 | 74 | 74 |
| 42 | 73 | 72 |
| 43 | 72 | 72 |
| 44 | 71 | 71 |
| 45 | 70 | 70 |
| 46 | 69 | 68 |
| 47 | 68 | 68 |
| 48 | 67 | 66 |
| 49 | 66 | 66 |
| 50 | 65 | 64 |
| 51 | 64 | 64 |
| 52 | 63 | 62 |
| 53 | 62 | 62 |
| 54 | 60 | 60 |
| 55 | 59.5 | 59 |
| 56 | 58.3 | 58 |
| 57 | 57 | 57 |
| 58 | 55.8 | 54 |
| 59 | 54.5 | 54 |
| 60 | 53.3 | 53 |
| 61 | 52 | 51 |
| 62 | 50.8 | 50 |
| 63 | 49.5 | 49 |
| 64**Source:** Field Survey, 2013 | 48.3 | 47 |

The egg production achieved at 24 weeks of age was 2% which was lower than the recommended production i.e. 5%. The peak production was 83% achieved at 31 weeks of age which is approximately equal to the recommended egg production i.e.83.5%. The average egg production was somewhat lesser than the target production but as it was near about close to the target egg production % of that strain so it can be said that Cobb 500 performed well under control housing system in our country.

**Table 11: Comparative study of recommended and achieved weekly Hatch % of egg**

|  |  |
| --- | --- |
| **Age****(weeks)** | **Weekly Hatch% of egg** |
| **recommended** | **achieved** |
| 24 | 72 | 70 |
| 25 | 78 | 76 |
| 26 | 80 | 80 |
| 27 | 82 | 82.5 |
| 28 | 84 | 85 |
| 29 | 85 | 86 |
| 30 | 86 | 87 |
| 31 | 87 | 87 |
| 32 | 88 | 88.9 |
| 33 | 89 | 91 |
| 34 | 90 | 91.5 |
| 35 | 89.8 | 91 |
| 36 | 89.5 | 91 |
| 37 | 89.3 | 91 |
| 38 | 89 | 91 |
| 39 | 88.8 | 90 |
| 40 | 88.5 | 90 |
| 41 | 88.3 | 90 |
| 42 | 88 | 89.5 |
| 43 | 87.8 | 90 |
| 44 | 87.5 | 89.5 |
| 45 | 87 | 90 |
| 46 | 86.5 | 89 |
| 47 | 86 | 89 |
| 48 | 85.5 | 88 |
| 49 | 85 | 88 |
| 50 | 84.5 | 87.5 |

|  |  |
| --- | --- |
| **Age****(weeks)** | **Weekly Hatch% of egg** |
| **recommended** | **achieved** |
| 51 | 84 | 87.5 |
| 52 | 83.5 | 86 |
| 53 | 83 | 86 |
| 54 | 82.5 | 86 |
| 55 | 82 | 86 |
| 56 | 81.5 | 85 |
| 57 | 81 | 86 |
| 58 | 80.5 | 85 |
| 59 | 80 | 84 |
| 60 | 79.5 | 83 |
| 61 | 79 | 81 |
| 62 | 78.5 | 80 |
| 63 | 77.8 | 79 |
| 64 | 77 | 78 |

**Source:** Field Survey, 2013

The maximum hatchability % was observed 91.5% at 34 weeks of age which was somewhat higher than the starboard hatchability that is 90% in that weeks. In all times the achieved hatchability % were more than the recommended hatchability %. On the basis of above finding it may be concluded that Cobb 500 performed very well under control Housing system in our country.

**Table 12 : Comparative study of Standard and achieved weekly Mortality % of Cobb 500** .

|  |  |
| --- | --- |
| **Age****(Weeks)** | **Mortality%** |
| **Standard** | **Actual** |
| 1 | 0.5 | 1.04 |
| 2 | 1 | 1.68 |
| 3 | 1.3 | 1.94 |
| 4 | 1.6 | 2.06 |
| 5 | 1.8 | 2.13 |
| 6 | 2 | 2.18 |
| 7 | 2.2 | 2.32 |
| 8 | 2.4 | 2.48 |
| 9 | 2.6 | 2.70 |
| 10 | 2.8 | 2.84 |
| 11 | 3 | 3.01 |
| 12 | 3.2 | 3.22 |
| 13 | 3.4 | 3.43 |
| 14 | 3.6 | 3.58 |
| 15 | 3.8 | 3.58 |
| 16 | 4 | 3.65 |
| 17 | 4.2 | 3.77 |
| 18 | 4.4 | 3.86 |
| 19 | 4.6 | 3.91 |
| 20 | 4.8 | 3.96 |
| 21 | 5 | 3.98 |
| 22 | Transfer to Layer House |  |
| 23 |  |

|  |  |
| --- | --- |
| **Age****(Weeks)** | **Mortality%** |
| **Standard** | **Actual** |
| 24 | 0.10 | 0 |
| 25 | 0.20 | 0.02 |
| 26 | 0.30 | 0.20 |
| 27 | 0.90 | 0.38 |
| 28 | 1.30 | 0.80 |
| 29 | 1.40 | 1.37 |
| 30 | 1.60 | 2.04 |
| 31 | 1.80 | 2.85 |
| 32 | 2.05 | 3.62 |
| 33 | 2.30 | 4.38 |
| 34 | 2.55 | 4.87 |
| 35 | 2.80 | 5.44 |
| 36 | 3.00 | 6.09 |
| 37 | 3.20 | 6.79 |
| 38 | 3.40 | 7.41 |
| 39 | 3.60 | 8.11 |
| 40 | 3.80 | 8.81 |
| 41 | 4.00 | 9.66 |
| 42 | 4.15 | 10.03 |
| 43 | 4.30 | 10.52 |
| 44 | 4.45 | 11.22 |
| 45 | 4.60 | 11.92 |
| 46 | 4.75 | 10.00 |
| 47 | 4.90 | 11.02 |
| 48 | 5.00 | 11.05 |
| 49 | 5.10 | 11.06 |
| 50 | 5.20 | 11.45 |

|  |  |
| --- | --- |
| **Age****(Weeks)** | **Mortality%** |
| **Standard** | **Actual** |
| 51 | 5.30 | 11.90 |
| 52 | 5.40 | 11.36 |
| 53 | 5.50 | 11.80 |
| 54 | 5.60 | 12.00 |
| 55 | 5.70 | 12.01 |
| 56 | 5.80 | 12.06 |
| 57 | 5.90 | 12.08 |
| 58 | 6.00 | 12.09 |
| 59 | 6.10 | 13.00 |
| 60 | 6.20 | 13.12 |
| 61 | 6.30 | 13.32 |
| 62 | 6.40 | 13.08 |
| 63 | 6.50 | 13.89 |
| 64 | 6.60 | 13.90 |

**Source:** Field Survey, 2013

From the above data it is seen that Mortality% of Male & Female in different weeks of age are variable the standard value. From the medication register it was found that there was incidence of Newcastle disease & Infectious Bronchitis disease is the M.M. Agha Poultry Farm. May be that was the cause of higher mortality.

**CHAPTER –I V**

**PROBLEMS AND RECOMMENDATION**

M. M. AGHA Poultry Farm is a leading parent stock farm in our country .It gets popularity for supplying good quality chicks to the broiler farmer. During my study period I had seen that their management was very good . So the body weight gain , production% and the hatching% of Cobb 500 were higher than the recommended value .But I had observed the mortality% was somewhat higher than the standard value and I also observed the lesions of Newcastle Disease and Infectious Bronchitis Disease after post mortem of bird . I think the prevalence of these diseases were due to some mismanagement in Biosecurity maintenance which I had observed in that farm .I think that if they maintained the following Biosecurity Rules strictly they could minimize the mortality% of Cobb 500:

1. For decreasing chance of contamination all shed should contain a single age group of birds.
2. Both male & female should kept in environmentally controlled house.
3. Separate isolation shed should be established.
4. Post mortem room should be established and a great distance should be kept from the hen rearing shed.
5. All the house should make vermin proof.
6. Strong rodent control program should take regularly.
7. Post mortem room should be established and a great distance should be kept from teh rearing shed.
8. All the house should make vermin proof.

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**CHAPTER-VI**

**CONCLUSION**

From the current study it may be concluded that it is possible to achieve target body weight , production , hatching percentage of egg of Cobb 500 in our country .Result showed that the average observed weekly body weight gain and recommended body weight gain of Cobb 500 female at 21weeks, 28 weeks, 32 weeks, of age were 2515gm vs 2510gm , 3390gm vs 3385gm , 3615gm vs 3615gm respectively . The average observed weekly body weight gain and recommended body weight gain of Cobb 500 male at 21weeks, 28 weeks, 32 weeks of age were 3280gm vs 3250gm , 3990gm vs 3960gm , 4250gm vs 4180gm respectively .The average observed weekly egg production percentage and recommended egg production percentage of Cobb 500 at 24weeks, 28 weeks, 32 weeks of age were 2%vs 5% ,70%vs78%, 83%vs83% respectively . The average observed weekly hatchability percentage of egg and recommended hatchability percentage of egg of Cobb 500 at 24weeks, 28 weeks, 32 weeks of age were 70%vs 72% ,85%vs84%, 88.9%vs88% respectively . From the analysis of data it can be said that there are very insignificant amount of differences between the observed data and recommended data .Therefore it may be inferred that Cobb 500 performed well under the existing management system.

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