**INTRODUCTION**

In Bangladesh, poultry industry is an important subsector of agriculture. It plays an important role in national G.D.P. and poverty alleviation. Although poultry industry is raising in our country day by day, this industry is not able to fill up the total demand. According to DLS (2007), meat requirement is 120 gm per head per day and 6.26 million metric ton per year. But our achievement is 20 gm per head per day and 1.04 million matric ton per year for the country. Egg requirement is 104 pieces per head per year but our achievement or we are getting 40 pieces per head per year. So we can see that the production can not cope with the high demand by our native chicken& commercial poultry. However in Bangladesh, about 19.8% of animal protein comes from poultry( Anon, 1984). In our country the existing native breeds are aseel, sarail, Naked neck etc. Their productive performance is not sufficient. As a result, researchers developed different strain of broiler and layer. So, people have been rearing different hybrid broiler and layer strain by importing from different countries such as Hubbard Classic, Cobb 500, Cobb 100, Ross etc. commercially. These hybrid strains of broiler are playing a vital role to fulfill the growing demand of day old chicks. Among these broiler strains Cobb 500 is an American strain which shows an excellent productive and reproductive performance in our country in environmentally controlled house (Fattah, 2003).

In Bangladesh,the important economic traits like high egg production, large egg size, faster feathering and rapid body weight gain, good feed conversion ratio and early sexual maturity. This Cobb 500 broiler parent stock is easily adaptable & posses the above mentioned economic traits. So people are interested in rearing this strain. As a result, at present in Bangladesh, there are about hundred private hatcheries and 8 govt. hatcheries (Saleque, 2003). These hatcheries also help us to solve the unemployment problem in our country.

According to Bangladesh Bureau of statistics (BBS.2002) about 89% of the rural household

rear poultry & the average number of per household is 6.8. So with a view to meet the protein gap with in a shortest time, there has been a shift of policy emphasis on intensive poultry farming in recent year. Consequently a number of poultry farms have been established on commercial basis in an around the citie &rural areas. Bangladesh is one of the key players in the South Asian livestock industry, especially in poultry industry, said Ladda Mongkolchaivivat, general manager of NCC Exhibition Organiser Company Ltd of Thailand. About 80,000 poultry firms and up to 20 poultry feed factories operate in Bangladesh. The industry has been growing at 20 per cent annually in the past 15 years.   
Ms Ladda said: "Unfortunately, there is a current bird flue outbreak. This is a definite setback, but we all generally agree that Bangladesh's long-term outlook remabright."There is an impressive growing local consumption on one hand and encouraging potential for export on the other ha

**Objectives**

Objectives of this study are :

* To observe the performance of Cobb 500 (e.g. livability percentage, feed consumption rate, body weight gain, egg production percentage, hatching egg percentage and hatchability percentage)
* To compare the achieved performance with the standard.
* To learn about formulated ration and its performance in breeder farm
* To learn overall management and production system of Cobb 500 parent stock in breeder farm.

**CHAPTER II**

**REVIEW OF LITERATURE**

Poultry production is considered to be one the easiest and cheapest ways of meeting animal product demand. In most developing countries like Bangladesh average intake of protein is still comparatively low. The supply of protein originating from poultry meat and eggs has increased by as much as 8.5% and 6% respectively. Now it is one of the fastest growing industry of the world.

Devegowda (2004) stated that, hatchability problems in females over 50 weeks of age are often associated with poor shell quality.

Donna and Smokeree (2004) stated that, during the incubation period, the thyroid and intestinal tract are still developing and it is crucial to maintain the chick’s body temperature and problems that occur in this time period affect the development of these crucial systems and result in mono compensatory losses in performance.

Hurwitz and Plavnik (1989) concluded that, egg weight was functioning on both age and body weight at the onset of production. The significant correlation between egg weight and body weight was even after a year of production. They also describe that the relationships among egg weight, body weight and age at the onset of the egg production have special importance.

Hyanes and Smith (2003) reported that, high temperature is more harmful than low temperature. it can be incubated eggs for three or four hours at 90°F without killing any embryos, but a temperature of 105°F for 30 minutes will kill many embryos. In general the older the embryo at the time of the high temperature, the greater the death loss.

Krishnappa *et al*. (1992) concluded that, feed restriction during growth (7-22 weeks old) significantly reduce body weight, increase age at sexual maturity and also increase egg production.

Kumpula and Fasenko (2004) stated that, higher embryonic mortality during late incubation (6.1% between 15-21 days) and a greater number of culled chicks (4.9%) in the large egg size category compared to small (mortality=1.8%, culls=1.6%) and medium (mortality=4.3%; culls=2.4%).

Onagbesan *et al.* (2005) reported that egg turning is required during incubation at least until day 12 or 18 but it should not be stopped at day 15 of incubation.

Robinson and Willson (1996) showed that, broiler breeder when fed Adlibitum or restricted feeding to achieve typical industry target weight during 22 to 26 weeks of age difference were observed. Adlibitum fed hens weighed significantly heavier and produce fewer eggs then restricted fed hens.

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.

Spralt and Leeson (1987) reported that, excess intake is predominantly stored as fat which gradually results in increased body weight. Excessive body weight broiler breeder females were negatively correlated with hen day egg production.

Tona *et al.* (2002) reported that, the egg stored for three days hatched earlier than those stored for 18 days. Eighteen days storage of eggs resulted in longer incubation duration, lower quality score and depressed relative growth.

**CHAPTER III**

**MATERIALS AND METHODS**

**Study Area**

The study was performed at Charoen Pokphand (CP) Bangladesh, Miraisarai, Chittagong. It is a hilly area of Chittagong district of Bangladesh where cobb 500 broiler parent stock is reared.

**Study Period and Population**

The study is done over a flock with total production stage in that farm from 01.01.13 to 31. 01.13. The study population was 8985 in number.

**Types of House**

The Cobb 500 broiler parent stock were reared in controlled house for better performance.

The houses were gable type and east-west in direction. The floor and wall of the houses were made of concrete and the roof were made of tin.

**Preparation of the Houses**

* **Cleaning :**

After removing any live or dead bird , all remaining feeding equipments and litters, the walls and floors were scraped and cleaned thoroughly with phenyl water (2-3 ml/liter). Water tanks, pipes and nipples were cleaned carefully with an alkaline detergent (DSC-1000) and double rinsed with clean water .

* **Disinfection**:

After cleaning, the house was disinfected with 2% chlorinated water. The roof and wall were disinfected by spraying of iosan.

* **Fumigation:**

Before entering new batch fumigation was completed by paraformaldehyde powder.

* **Insect Control:**

Organophosphorous type insecticide (Ectodip Forte) was used immediately after the removal of old breeders. The insecticide (Ectodip Forte) was sprayed over the pits, the litter and the lower part of the walls up to 1 meter height, leaving the insecticide to work for 24 hours.

**Collection of Day Old Chicks**

Day old chicks of Cobb 500 broiler parent stock were collected from USA through the representative marketing company of Bangladesh named Advance Science Co. Ltd.

**Management during whole production stage**

Brooding and growing house was same. Male had separate brooding and growing house.

**Preparation of Chick Guard and Brooder** :

Chick guards were made of slate. Each guard was ready for 500 chicks. Gas-brooder was used as source of heat which was automatically controlled.

**Table 1:Floor Space :**

Floor space required per bird at different ages

|  |  |
| --- | --- |
| 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 |

**Table 2:Temperature**

Temperature management is an important factor for the growth and production of birds. So the following temperature schedule was followed in this Breeder farm

|  |  |  |
| --- | --- | --- |
| **Age of the birds** | | **Temperature** ºF |
| Weeks | Days |
| 1 | 1-2, 3-7 | 95 ºF-98 ºF |
| 2 | 8-14 | 90˚F |
| 3 | 15-21 | 85˚F |
| 4-7 | 22-49 | 80˚F |
| 8 | 50-56 | 75˚F |
| >8 | 56-up to end of production | 70˚F |

**Lighting**

The use of lighting programme in rearing and production is very essential for sexual maturity in both males and females. During rearing and especially after 10 weeks of age, an increase in day length and light intensity tends to advance sexual maturity. So, lighting intensity is an important thing for consideration. The lighting schedule is-

**Table 3: Lighting schedule:**

|  |  |
| --- | --- |
| **Age (in day)** | **Intensity(lux)** |
| 1-3 | 60-40 |
| 3-7 | 40-20 |
| 8-10 | 15-10 |
| 11-72 | 5 |

**Ventilation**

Ventilation is very important to ensure adequate fresh air supply, effective temperature control of the birds. The main function of ventilation is proper oxygenation, keep CO2 at low level, removal of dust and moisture and ammonia from the house. The ventilation was maintained by exhauster fan. Cooling pads were used to keep the environment cool in each shed of Farm which were automatically controlled by sensors.

**Vaccination & Medication Management**

Vaccination is a very efficient way of disease control. Maintenance of cool chain is very important for the success of vaccination. Appropriate dilution, route are important. Following schedule was maintained for vaccination inthe farm

**Table 4:Vaccination schedule of the farm**

|  |  |  |
| --- | --- | --- |
| Age | Name of disease | Name of vaccine |
| DAY-1 | IB+ND | MA5+Clone30(live) |
| DAY-6 | Coccidiosis | Immucox2 ( 5 strain ) |
| DAY-7 | Reo | Reo 1133 (live) |
| DAY-10 | Gumboro | D-78(live) |
| DAY-12 | ND | G+ND(Killed) |
| DAY-21 | Gumboro | D-78 (live) |
| DAY-28 | ND | ND (Lasota) |
| Week-6 | Coryza, Fowl Pox, Salmonellosis | Coravac, Ovo-Diptherin, SG9R |
| Week-7 | Mycoplasmosis | M.G.Inac |
| Week-9 | IB, ND, Fowl Cholera | MA5, ND(Lasota) live Multimune K5 |
| Week-10 | Reo | Reo Inac |
| Week-11 | AE + F.Pox | AE+Pox |
| Week-12 | Salmonellosis | SG9R |
| Week-13 | IB, ND | MA5 (live), ND(Lasota) live |
| Week-14 | I.Coryza, Mycoplasnosis | Coravac, M.G.Inac |
| Week-15 | EDS | EDS |
| Week-16 | Fowl Cholera | Multimune K5 |

**Vitamins and Medicine Schedule**

In order to prevent the birds from the different diseases & maintain the proper growth, sexual maturity and production performance, vitamin supplement is necessary.The following vitamin & medicine schedule is followed:

**Table 5:Vitamine and Medicine Schedule**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Age** | | **Vitamins and other drugs used through feed and water** | **Medicine** | |
| Week-1 | Vita-C,Vita-E,Dextrose | | Cinoflox 10% |
| Week-2 | Vit-K,Vita-C,Vita-ES, Chick-Tonic | | Cinoflox 10% |
| Week-3 | Sancal-P vet ,Vita-ES, Acid Pak | | Amprolium 12% |
| Week-4 | Superliv, Chick-Tonic, Vita-ES | | Tiamutin 45% |
| Week-5 | Vit-K, Acid Pak,Vita-ADE | | Tiamutin 45% |
| Week-6 | Rena-ws, Biovit B+C, Vita-E | |  |
| Week-7 | Chick-Tonic, Sancal vet, Acid Pak | |  |
| Week-8 | Vita-ADE,Vita-k, Calphovet | | Tiamutin 45% |
| Week-9 | Superliv, Rena-ws, Vita-ADE | | Amoxicillin 30% |
| Week-10 | Chick-Tonic, Sancal vet, Acid Pak | |  |
| Week-11 | Poulnex, Biovit B+C, Biolyte | | Poulnex |
| Week-12 | Vita-ES, Superliv, Vita-ADE | |  |
| Week-13 | Sancal-P, B-Complex | |  |
| Week-14 | Chick-Tonic,Vitamix-ws, | | Tiamutin 45% |
| Week-15 | Vita-ADE,Acid Pak, Superliv, | |  |
| Week-16 | Poulnex, Rena-ws, | | Poulnex |
| Week-17 | Vita-ES, Vita-ADE,Vita B+C | | Timsen |
| Week-18 | Sancal-P, Chick-Tonic, Acid Pak | |  |
| Week-19 | Superliv, Vita-ADE,Acmezyme | | Tiamutin 45% |
| Week-20 | Ascarex, B-Complex, Acmezyme | | Ascarex |
| Week-21 | Rena-ws, Vita-ADE, Acid Pak | |  |
| Week-22 | Sancal-P,Vita B+C, Vita-ES | |  |
| Week-23 | Vita-ADE, Acmezyme, Sancal-P | |  |

**Ration Formulation**

In order to maintain proper growth, sexual maturity, getting peak production, highest hatchability a balanced ration is very essential. So, the following ration was formulated in CP Bangladesh. The proportion of ingredients chemical composition of the diet is followed

**Table 6:Feed formulation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Ingredients | Starter  (0-5wks) | Grower  (6-18wks) | Pre-Breeder  (19-23wks) | Breeder  (24-upper) |
| Maize | 544 | 442.5 | 442.80 | 600 |
| Soyabean meal | 272.80 | 169.1 | 175 | 216 |
| F.F. Soya | 0 | 0 | 40 | .40 |
| Rice Polish | 100 | 93.0 | 83 | 80 |
| Wheat bran | 35.80 | 100 | 100 | 0 |
| D.C.P. | 10.90 | 9.5 | 10 | 8.6 |
| Lime stone | 21.30 | 22.30 | 25 | 78.2 |
| Metheionine | 1.60 | 1.40 | 1.5 | 1.6 |
| Lysine | 1.2 | 0 | .20 | 0 |
| Salt | 2.70 | 2.4 | 2.00 | 2.3 |
| Sodi bi carb | .70 | 1.0 | 1.3 | 1.5 |
| Toxinbinder | 1.5 | 1.5 | 1.5 | 2.5 |
| V.M. Premix | 3.5 | 3.0 | 3.0 | 3.0 |
| Enzyme | .20 | .35 | .50 | .50 |
| Vit-C | .50 | .50 | .50 | .50 |
| Vit-E | 0 | 0 | 0 | .10 |
| Choline | 1.00 | 1.00 | 1.00 | 1.2 |
| Salmonil | 3.00 | 3.00 | 3.00 | 3.00 |
| Rena phytase | 1.00 | 1.00 | 1.00 | 0 |
| Total | 1000 KG | 1000 KG | 1000 KG | 1000 KG |

**Management During production**

**Selection of hatching eggs**

During selection of hatching eggs following features were considered in the farm, because quality of hatching egg is one of the important contributing factor for efficient hatching.

* The eggs having medium size ranges from 50-62 gm were selected.
* The eggs that were normal ovoid shape were selected.
* Eggs that were like round, flat, elongated, conical and rough surface were rejected.
* Weak, cracked and very much soiled eggs also rejected.
* Eggs that were less soiled were cleaned with 1% H2O2 treated water soaked cloth.

**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. Than those eggs are sent to the hatchery.

**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 CP breeder 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.

**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 CP Breeder Farm 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%.

**Bio Security**

Strict bio security was maintained by the following way-

**Prevention of transmission**

* Entrances of visitors were strictly prohibited.
* The farm houses were environmentally controlled that was why chance of Contamination was minimum.
* Regular spray and washing of egg collection room and around the farm houses.
* The foot water bath water were changed regularly.
* The entrance of supervisory personnel from one shed to another was strictly prohibited. If required younger to older age group was followed.
* All workers and visitors must shower and used clean and calendared farm clothes.
* All in all out system was followed.
* The vehicles that were allowed to enter into the farm area were sprayed and the wheel were washed properly with disinfectant treated water.
* Regular programme was undertaken to control predators like rats, mongoose, snakes cats, dogs and wild birds.
* Chlorine di-oxide was used in foot bath water in every shed.

**Disease control**

* Birds were regularly vaccinated to control disease incidence.
* Disposal of dead birds and wastes in disposal pit.
* Dead birds were dumped in a septic tank, which was distant from farm .

**Feed and water management**

Fresh and clean chlorinated water were provided to the birds. Disinfectants were rotationally changed. Fresh and clean feed ingredients were used for feed formulation and chain feeder was used to minimize contamination.

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**CHAPTER IV**

**RESULT AND DISCUSSION**

**Table 8: Average Performance of cobb500 broiler parent stock of the farm**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sources** | **LA±SD** | **FC±SD** | **BW±SD** | **EP±SD** | **HE±SD** | **HA±SD** |
| CP Farm | 96.20±2.10 | 151.63±8.85 | 3930.195±248.62 | 65.13±14.57 | 60.07±14.72 | 79.33±4.39 |
| Standard | 95.83±1.88 | 143.19±5.81 | 3668.171±233.80 | 64.42±14.48 | 62.81±14.53 | 84.2±4.06 |
| P Value | 0.402 | 2.22E-06 | 4.62E-06 | 0.827 | 0.590 | 9.85E-07 |
| Level of Significance | NS | \*\* | \*\* | NS | NS | \*\* |

LA = Livability(%)

FC = Feed Consumption(gm)

BW = Body Weight(gm)

EP = Egg Production(%)

HE = Hatching Egg (%)

HA = Hatchability(%)

SD =Standard deviation

NS =Non significant

\*\*=highly significant

**Livability :**

From table 8 it is revealed that the mean livability of Cobb 500 parent stock of CP farm is 96.20±2.10. The standard value of livability of Cobb 500 parent stock is 95.83±1.88. There is no statistically significant different (P > 0.05) between the values obtained from CP farm and the Standard.

In case of standard value of livability of Cobb 500 parent stock it was gradually decreased from 20th week to 65th week. From below table it can be observed that the livability percentage of Cobb 500 parent stock decreased gradually in the breeder farm. In statistical analysis the average livability percentage in Breeder Farm was 92.2% whereas in standard is 93.3%.

**Table 9: Livability measurement of cobb 500.**

|  |  |  |
| --- | --- | --- |
| **Age in week** | **Standard value** | **CP farm** |
| 25 | 99.8 | 99.9 |
| 30 | 98.4 | 98.8 |
| 35 | 97.2 | 97.7 |
| 40 | 96.2 | 97.0 |
| 45 | 95.4 | 96.1 |
| 50 | 94.8 | 95.3 |
| 55 | 94.3 | 94.5 |
| 60 | 93.8 | 93.7 |
| 65 | 93.3 | 92.2 |

**Feed consumption**:

The feed consumption of Cobb 500 parent stock was always higher in CP Breeder Farm than standard value. As for example, in CP Breeder Farm at 25th week of age it is 132.696 gm/bird whereas it was 128.00gm/bird in case of standard value. In statistical analysis the average feed consumption in CP Breeder Farm was 151.63 gm/bird whereas the standard is 143.19gm/bird and P value was 2.22E-06<0.01 which indicates the variance was highly significant.

**Table 10: Feed consumption measurement of Cobb 500.**

|  |  |  |
| --- | --- | --- |
| **Age in week** | **Standard value** | **CP farm** |
| 25 | 128 | 132.69 |
| 30 | 145 | 160.32 |
| 35 | 150 | 160.22 |
| 40 | 148 | 157.11 |
| 45 | 146 | 153.63 |
| 50 | 144 | 150.14 |
| 55 | 142 | 145.12 |
| 60 | 139 | 141.13 |
| 65 | 138 | 123.18 |

# Body weight:

From table 8 it is revealed that the mean value body weight of Cobb 500 parent stock of CP farm is 3930.195±248.62. The standard value of body weight of Cobb 500 parent stock is 3668.171±233.80. There is statistically significant different (P > 0.05) between the values obtained from CP farm and the Standard. The observed body weight of cobb 500 parent stock at 25th week in CP Breeder Farm was 3189 gm which was higher than the standard value 3000 gm. The average body weight of CP breeder farm was 3930.195gm whereas standard value was 3668.171gm.The P value was 4.62E-06<0.01 that means the variance was highly significant.

**Table 11: Body weight measurement of cobb 500**

|  |  |  |
| --- | --- | --- |
| **Age in week** | **Standard value** | **CP farm** |
| 25 | 3000 | 3198 |
| 30 | 3440 | 3540 |
| 35 | 3540 | 3840 |
| 40 | 3640 | 3965 |
| 45 | 3720 | 4012 |
| 50 | 3795 | 4060 |
| 55 | 3850 | 4039 |
| 60 | 3900 | 4110 |
| 65 | 3950 | 3946 |

**Egg production:**

From the data we can see that the egg production percentage of CP Breeder Farm was always lower than standard value. The average egg production percentage in CP Breeder Farm was 65.13% whereas the standard was 64.42%. The P value was 0.827>0.05 which means the variance was non significant. It indicates that, the egg production performance in the farm is satisfactory.

**Table 12: Egg production measurement of cobb 500**

|  |  |  |
| --- | --- | --- |
| **Age in week** | **Standard value** | **CP farm(%)** |
| 25 | 15 | 11.30 |
| 30 | 83.5 | 83.51 |
| 35 | 80 | 80.50 |
| 40 | 75 | 74.62 |
| 45 | 70 | 66.91 |
| 50 | 65 | 62.44 |
| 55 | 59.5 | 59.62 |
| 60 | 53.3 | 53.36 |
| 65 | 47 | 43.94 |

**Hatching egg :**

## The percentage of hatching egg production is an important parameter of parent stock chicken. Because its ultimate output is chick production. In this study, it can be observed that in the farm it was gradually increased then gradually decreased. The average hatching egg percentage in CP Breeder Farm was 60.07% whereas in case of standard it was 62.81%. The P value was 0.590>0.05 which indicates their variation was statistically no significant.

**Table 13: Hatching egg production measurement of cobb 500.**

|  |  |  |
| --- | --- | --- |
| **Age in week** | **Standard value(%)** | **CP farm(%)** |
| 25 | 11.3 | 10.12 |
| 30 | 81 | 77.37 |
| 35 | 77.6 | 77.75 |
| 40 | 72.4 | 72.23 |
| 45 | 67.6 | 64.36 |
| 50 | 62.7 | 60.14 |
| 55 | 57.4 | 57.53 |
| 60 | 51.4 | 51.62 |
| 65 | 45.4 | 42.05 |

## **Hatchability :**

From table 8 it is revealed that the mean value body weight of Cobb 500 parent stock of CP farm is 79.33±4.39. The standard value of hatchability of Cobb 500 parent stock is 84.2±4.06. There is statistically significant different (P > 0.05) between the values obtained from CP farm and the standard. This study data indicates that the average hatchability percentage of the farm was 79.33% which is lower than the standard value 84.2%. The P value is 9.85E-07 which indicates that the variance was highly significant.

**Table 14: Hatchability measurement of cobb 500**

|  |  |  |
| --- | --- | --- |
| **Age in week** | **Standard value(%)** | **CP Farm(%)** |
| 25 | 78 | 74.5 |
| 30 | 86 | 83.02 |
| 35 | 89.8 | 83.85 |
| 40 | 88.5 | 81.75 |
| 45 | 87 | 78.74 |
| 50 | 84.5 | 66.21 |
| 55 | 82 | 83.51 |
| 60 | 79.5 | 81.17 |
| 65 | 76.3 | 69.66 |

**CHAPTER-v**

**Conclusion**

Finally of this study it could be said that, the performance of cobb- 500 Broiler Parent Stock in **CP Bangladesh Company Limited** of Chittagong district is slightly different than the standard performance recommended by the company .Livability percentage, egg production percentage and hatching egg percentage are non significant but feed consumption, body weight and hatchability are highly significant. Although there were some manage mental deference in this farm than standard recommendation like- vaccination, medication, lighting, ration formulation etc. due to same genetic strain the performance is slightly different. I think this difference may be reduced, if this farm maintain same vaccination schedule, medication, ration formulation and manage mental practices as recommended by the company.

**CHAPTER VI**

**Recommendation**

The average productive and reproductive performance of cobb 500 broiler parent stock can improved by

* Maintaining proper temperature and humid during storage, setting, hatching.
* Proper turning of eggs in the incubator.
* Appropriate selection and grading of Hatching egg.
* Maintaining proper ventilation, vaccination and feeding management system.

**CHAPTER VII**

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**APPENDIX-1**

**English version of interview schedule**

Department of Dept of Dairy & Poultry Science,Chittagong Veterinary & Animal Sciences University

Khulshi, Chittagong-4202

An interview schedule for research study entitled **‘production performance Cobb 500 broiler parent stock at Charoean Pokphand u(CP) Bangladesh Com.Ltd., Miraisarai, Chittagong**

**Please answer the following questions:**

**01. Year of the farm establishment**

Ans:………………………………………………………………………………………

**02.Area of the farm(Acre)**

Ans:……………………………………………………………………………………

**03.Name of the parent stock**

**Ans:……………………………………………………………………………………**

**04.Source of collection**

**Ans:…………………………………………………………………………………….**

**05.Present number of bird**

**Ans:……………………………………………………………………………………..**

**06.Number of male and female**

**Ans:……………………………………………………………………………………**

**07.Male & female ratio**

**Ans:……………………………………………………………………………………**

**08. Feed consumption per day**

**Ans:……………………………………………………………………………………**

**09. Lighting period per day (Hour)**

**Ans:…………………………………………………………………………………….**

**10. Egg production per day**

**Ans:…………………………………………………………………………………….**

**11. Percentage of egg production**

**Ans:……………………………………………………………………………………**

**12. Average weight of per egg**

**Ans:…………………………………………………………………………………….**

**13.Time of egg collection**

**Ans:……………………………………………………………………………………..**

**14.Hatching percentage**

**Ans:**

**15. Hatchability percentage**

**Ans:………………………………………………………………………………………………..**

**16. Livability percentage**

**Ans:……………………………………………………………………………………**

**APPENDIX-II**

**Table 7:Data of Charoen Pokphand (CP) Bangladesh Com. limited**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Age (in week) | livability(%) | | feed consumption  (gm) | | body weight(gm) | | egg production  (%) | | hatching egg(%) | | Hatch  ability(%) | | |
|  | Stan  dard | CP Farm | Stan  dard | CP Farm | Stan  dard | CP Farm | Stan  dard | CP Farm | Stan  dard | CP Farm | | Stan  dard | CP Farm | |
| 25 | 99.8 | 99.92 | 128 | 132.696 | 3000 | 3189 | 15 | 11.37 | 11.3 | 10 | | 78 | 74.5 | |
| 26 | 99.7 | 99.84 | 129 | 144.405 | 3100 | 3420 | 35 | 41.33 | 29.8 | 25 | | 80 | 75.2 | |
| 27 | 99.1 | 99.6 | 132 | 176.818 | 3200 | 3409 | 60 | 78.88 | 55.2 | 64.11 | | 82 | 75.96 | |
| 28 | 98.7 | 99.41 | 135 | 160.147 | 3300 | 3486 | 78 | 78.59 | 73.3 | 69.38 | | 84 | 78.57 | |
| 29 | 98.6 | 99.1 | 140 | 160.382 | 3380 | 3575 | 82.5 | 82.7 | 79.2 | 74.89 | | 85 | 81.05 | |
| 30 | 98.4 | 98.82 | 145 | 160.322 | 3440 | 3579 | 83.5 | 83.52 | 81 | 77.73 | | 86 | 83.02 | |
| 31 | 98.2 | 98.56 | 150 | 163.519 | 3460 | 3749 | 83 | 82.33 | 81 | 77.7 | | 87 | 83.88 | |
| 32 | 97.95 | 98.33 | 150 | 160.247 | 3480 | 3795 | 82 | 82.61 | 80.5 | 78.85 | | 88 | 83.67 | |
| 33 | 97.7 | 98.15 | 150 | 160.196 | 3500 | 3718 | 81 | 81.23 | 79.5 | 77.95 | | 89 | 82.92 | |
| 34 | 97.45 | 97.97 | 150 | 160.234 | 3520 | 3837 | 80 | 80.44 | 78.5 | 77.54 | | 90 | 81.62 | |
| 35 | 97.2 | 97.75 | 150 | 160.228 | 3540 | 3835 | 79 | 80.42 | 77.6 | 77.87 | | 89.8 | 83.85 | |
| 36 | 97 | 97.6 | 150 | 160.201 | 3560 | 3832 | 78 | 78.78 | 76.2 | 76.25 | | 89.5 | 82.99 | |
| 37 | 96.8 | 97.44 | 150 | 160.256 | 3580 | 3870 | 77 | 77.61 | 75.3 | 75.06 | | 89.3 | 82.56 | |
| 38 | 96.6 | 97.31 | 150 | 159.144 | 3600 | 3840 | 76 | 76.78 | 74.3 | 74.3 | | 89 | 82.01 | |
| 39 | 96.4 | 97.18 | 150 | 159.14 | 3620 | 3988 | 75 | 75.89 | 73.3 | 73.64 | | 88.8 | 80.93 | |
| 40 | 96.2 | 97.07 | 148 | 157.11 | 3640 | 3965 | 74 | 74.62 | 72.4 | 72.43 | | 88.5 | 81.75 | |
| 41 | 96 | 96.86 | 148 | 156.166 | 3660 | 4009 | 73 | 72.91 | 71.4 | 70.59 | | 88.3 | 79.9 | |
| 42 | 95.85 | 96.63 | 148 | 154.704 | 3675 | 3992 | 72 | 71.59 | 70.4 | 41.14 | | 88 | 77.78 | |
| 43 | 95.7 | 96.42 | 148 | 154.664 | 3690 | 3996 | 71 | 70.88 | 69.5 | 68.9 | | 87.8 | 77.78 | |
| 44 | 95.55 | 96.27 | 146 | 154.142 | 3705 | 4018 | 70 | 69.52 | 68.5 | 66.85 | | 87.5 | 77.18 | |
| 45 | 95.4 | 96.14 | 146 | 153.638 | 3720 | 4012 | 69 | 66.91 | 67.6 | 64.36 | | 87 | 78.74 | |
| 46 | 95.25 | 96.02 | 146 | 153.599 | 3735 | 4451 | 68 | 66.17 | 66.6 | 63.7 | | 86.5 | 78.51 | |
| 47 | 95.1 | 95.87 | 146 | 151.876 | 3750 | 4107 | 67 | 64.93 | 65.6 | 62.86 | | 86 | 74.99 | |
| 48 | 95 | 95.76 | 144 | 150.591 | 3765 | 4086 | 66 | 62.38 | 64.7 | 60.34 | | 85.5 | 71.03 | |
| 49 | 94.9 | 95.63 | 144 | 150.599 | 3780 | 4111 | 65 | 62.44 | 63.7 | 59.18 | | 85 | 75.15 | |
| 50 | 94.8 | 95.38 | 144 | 150.153 | 3795 | 4060 | 64 | 62.45 | 62.7 | 60.14 | | 84.5 | 66.21 | |
| 51 | 94.7 | 95.17 | 144 | 148.131 | 3810 | 4035 | 63 | 62.25 | 61.8 | 59.99 | | 84 | 76.8 | |
| 52 | 94.6 | 95 | 142 | 147.09 | 3820 | 4113 | 62 | 61.97 | 60.8 | 60.02 | | 83.5 | 81.01 | |
| 53 | 94.5 | 94.84 | 142 | 145.099 | 3830 | 4057 | 60 | 61.88 | 59.8 | 59.62 | | 83 | 83.98 | |
| 54 | 94.4 | 94.67 | 142 | 145.158 | 3840 | 4057 | 59 | 60.6 | 58.6 | 58.39 | | 82.5 | 84.3 | |
| 55 | 94.3 | 94.55 | 142 | 145.122 | 3850 | 4039 | 58.3 | 59.61 | 57.4 | 57.53 | | 82 | 83.51 | |
| 56 | 94.2 | 94.44 | 140 | 144.074 | 3860 | 4039 | 57 | 59.79 | 56.2 | 57.8 | | 81.5 | 84.02 | |
| 57 | 94.1 | 94.23 | 140 | 144.104 | 3870 | 4051 | 55.8 | 56.92 | 55 | 54.97 | | 81 | 83.56 | |
| 58 | 94 | 94.11 | 140 | 143.075 | 3880 | 4097 | 54.5 | 55.91 | 53.8 | 54.14 | | 80.5 | 83.51 | |
| 59 | 93.9 | 93.89 | 140 | 143.138 | 3890 | 4098 | 53.3 | 55.3 | 52.6 | 53.53 | | 80 | 83.06 | |
| 60 | 93.8 | 93.71 | 139 | 141.138 | 3900 | 4110 | 52 | 53.36 | 51.4 | 51.62 | | 79.5 | 81.17 | |
| 61 | 93.7 | 93.54 | 139 | 141.137 | 3910 | 4115 | 50.8 | 52.71 | 50.2 | 50.91 | | 79 | 79.33 | |
| 62 | 93.6 | 93.33 | 139 | 141.137 | 3920 | 4122 | 49.5 | 51.48 | 49 | 49.7 | | 78.5 | 78.47 | |
| 63 | 93.5 | 93.04 | 139 | 141.094 | 3930 | 4165 | 48.3 | 49.52 | 47.8 | 47.53 | | 77.8 | 76.11 | |
| **APPENDIX-III** | | | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **t-Test: Two-Sample Assuming Equal Variances** | | |
|  | | |
| **For Livability** |  |  |
|  | *Variable 1* | *Variable 2* |
| **Mean** | 95.8378 | 96.20902 |
| Variance | 3.556098 | 4.427984 |
| Observations | 41 | 41 |
| Pooled Variance | 3.992041 |  |
| Hypothesized Mean Difference | 0 |  |
| df | 80 |  |
| t Stat | -0.84122 |  |
| P(T<=t) one-tail | 0.201366 |  |
| t Critical one-tail | 1.664125 |  |
| P(T<=t) two-tail | 0.402731 |  |
| t Critical two-tail | 1.990063 |  |

|  |  |  |
| --- | --- | --- |
| **Test: Two-Sample Assuming Equal Variances**  **For Feed Consumption** | | |
|  |  |  |
|  | *Variable 1* | *Variable 2* |
| **Mean** | 143.1951 | 151.6332 |
| Variance | 33.81098 | 78.38452 |
| Observations | 41 | 41 |
| Pooled Variance | 56.09775 |  |
| Hypothesized Mean Difference | 0 |  |
| df | 80 |  |
| t Stat | -5.10089 |  |
| P(T<=t) one-tail | 1.11E-06 |  |
| t Critical one-tail | 1.664125 |  |
| P(T<=t) two-tail | 2.22E-06 |  |
| t Critical two-tail | 1.990063 |  |

|  |  |  |
| --- | --- | --- |
| t-Test: Two-Sample Assuming Equal Variances  **For Body Weight** | | |
|  |  |  |
|  | *Variable 1* | *Variable 2* |
| Mean | 3668.171 | 3930.195 |
| Variance | 54664.7 | 61814.46 |
| Observations | 41 | 41 |
| Pooled Variance | 58239.58 |  |
| Hypothesized Mean Difference | 0 |  |
| df | 80 |  |
| t Stat | -4.91597 |  |
| P(T<=t) one-tail | 2.31E-06 |  |
| t Critical one-tail | 1.664125 |  |
| P(T<=t) two-tail | 4.62E-06 |  |
| t Critical two-tail | 1.990063 |  |

|  |  |  |
| --- | --- | --- |
| t-Test: Two-Sample Assuming Equal Variances  **For Egg Production** | | |
|  |  |  |
|  | *Variable 1* | *Variable 2* |
| Mean | 64.42683 | 65.12902 |
| Variance | 209.787 | 212.4387 |
| Observations | 41 | 41 |
| Pooled Variance | 211.1129 |  |
| Hypothesized Mean Difference | 0 |  |
| df | 80 |  |
| t Stat | -0.21882 |  |
| P(T<=t) one-tail | 0.413676 |  |
| t Critical one-tail | 1.664125 |  |
| P(T<=t) two-tail | 0.827351 |  |
| t Critical two-tail | 1.990063 |  |

|  |  |  |
| --- | --- | --- |
| t-Test: Two-Sample Assuming Equal Variances  **For Hatching Egg** | | |
|  |  |  |
|  | *Variable 1* | *Variable 2* |
| Mean | 62.81707 | 61.07171 |
| Variance | 211.183 | 216.8434 |
| Observations | 41 | 41 |
| Pooled Variance | 214.0132 |  |
| Hypothesized Mean Difference | 0 |  |
| df | 80 |  |
| t Stat | 0.540186 |  |
| P(T<=t) one-tail | 0.295285 |  |
| t Critical one-tail | 1.664125 |  |
| P(T<=t) two-tail | 0.59057 |  |
| t Critical two-tail | 1.990063 |  |

|  |  |  |
| --- | --- | --- |
| t-Test: Two-Sample Assuming Equal Variances  **For Hatchability** | | |
|  |  |  |
|  | *Variable 1* | *Variable 2* |
| Mean | 84.29512 | 79.33829 |
| Variance | 16.52148 | 19.29278 |
| Observations | 41 | 41 |
| Pooled Variance | 17.90713 |  |
| Hypothesized Mean Difference | 0 |  |
| df | 80 |  |
| t Stat | 5.303565 |  |
|  |  |  |