

---

## **CHAPTER II**

---

**CHAPTER - II**  
**MANAGEMENT OF POULTRY FARM**

---

2.0 : INTRODUCTION

2.1 : PHYSICAL FEATURES OF COCK

2.2 : MANAGEMENT OF BROILERS AND LAYERS

---

## 2.0 : INTRODUCTION :

In this chapter an attempt is made to throw the lights on the management aspects of poultry business. In which, physical features of cock, and management of Broilers and Layers have been discussed.

### 2.1 - PHYSICAL FEATURES OF COCK -

The body of cock is divided into three parts : head, neck and fleshy body.

#### (1) Head

Head is the anterior part of the body. The head terminates anteriorly in a pointed beak. The beak consists of the toothless Jaw enclosed in honey coverings. The prominent laterally located eyes are provided with upper and lower lids. Earlobe is present on either side of ear.

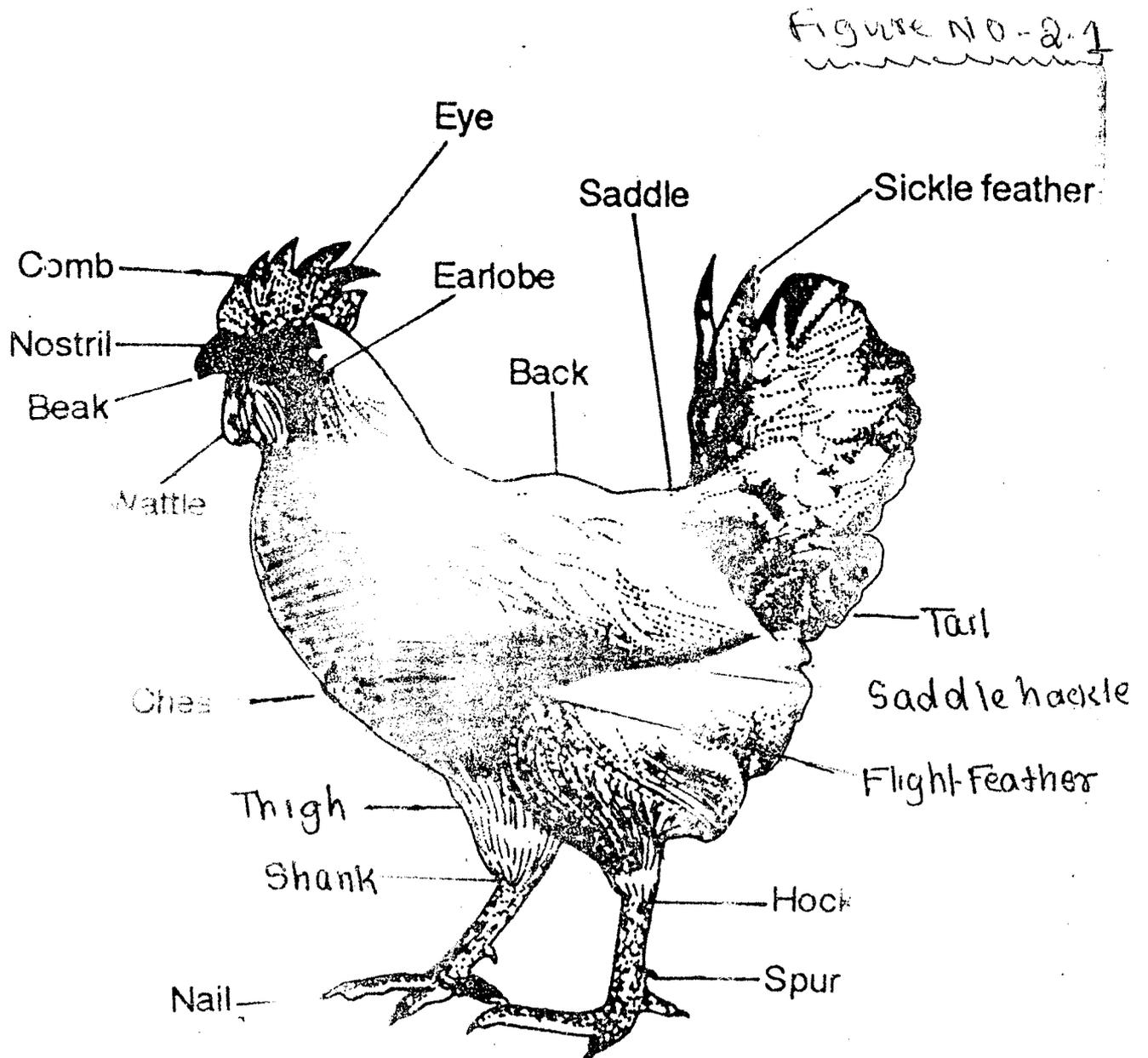
#### (2) Neck

Neck connects the head and fleshy body. The long neck is flexible. There are some narrow feathers on both sides of the neck, which are known as neck hackles.

#### (3) Fleshy Body

All parts of the body except eye, beak and some parts of leg are covered with feathers. Cocks have two

legs and two wings. The fore limbs and hind limbs are converted into wings and legs respectively. The fore limbs are adopted for flying and hind limbs for walking and perching.



## 2.2 - MANAGEMENT OF BROILERS AND LAYERS -

Birds raised for meat purpose are known as Broilers. For business economy and market trend the broilers may be raised upto 6 to 8 weeks.

The broilers consume more feed and water, so the care should be taken to provide plenty of them at all time, normally lighting is not necessary beyond 5 to 6 weeks. But if continued they consume more feed, which results in more weight.

Special type of feed is required for broilers. It is of two types :

1. Broiler Starter - should be given for first four weeks.
2. Broiler Finisher - should be given for remaining period.

The broilers are more delicate birds, but the mortality should never exceed beyond .5% of the broilers housed.

Good Broiler is one, which 1) Grows fast,

2) Gains weight early,

3) Has less feather growth,

4) Has efficient conversion of feed into meat.

1. After the disposal of a batch, the house should be cleaned, and new litter spread for the fresh batch. The house may be kept vacant for at least 15 days between two batches.
2. The space required is 1/2 sq.ft. to each chicks.
3. Chicks from one to six weeks old need feeding three to four times a day.
4. It is necessary to keep careful control over the temperature of a brooder from first to last week. i.e. 95°F in first week and then after it is reduced to 5°F every week.

They grow fast and achieve weight upto 1 kg. to 1.8 kg. A farmer can raise four crops of broiler in his shed in a year. It is not economical to rear them beyond 8 weeks of their age. Normally 2 to 2.5 kg. of feed is required to put on 1 kg. of body weight. The life of broiler is short.

The success of the broiler farmer depends upto two main factors :

- (a) He must be able to produce a commercial broiler at the lowest price.
- (b) He must be able to market his product.

Layers are maintained for egg production. A successful poultry farmer is one, who gets maximum egg production from his layers.

1. Pullets should be moved to the layer houses during cold hours of the day. They should be handled carefully without over crowding.
2. Required ten to twelve centimeters feeding space per layer to avoid competition, which results in more culls.
3. At least 6 centimeters water space is required, any reduction will adversely affect egg production.
4. Waterers and feeders should be cleaned daily. Clean and cold water should be provided at all time.
5. In order to avoid wastage, proper shape and size of a feeder is necessary. Never fill the feeder more than one third.
6. Light stimulates egg production - Due to proper lighting programme, layer lays extra 5 to 15% egg production But light failure results in slump in production and moulting.

7. Special attention towards health of poultry and cleanliness of poultry house is required.
8. Eggs should be collected at least 3 to 4 times during the day.
9. Maintenance of feed consumption at normal level is necessary for good egg production.
10. The birds should be shaded at all time.

Lighting programme may be started when the birds start laying at the age of 20-22 weeks. In the first week, half an hour artificial light per day is necessary, and it should be increased by half an hour in the following weeks. The artificial light should not be reduced, as it will have adverse effect on egg production.

If the lighting programme is followed systematically one gets 15 to 20 eggs during production cycle, per bird.

Loss of eggs is loss in profit.

#### **2.2.1 : Farm Site and Housing -**

Poultry houses should be located where there is plenty of natural air movement, unobstructed by trees, vegetation, buildings, walls etc. To ensure better cross ventilation the house should be constructed in the

East-West direction to avoid direct sun-rays and rain water flashing inside the sheds. If a series of houses are to be built, there should be a gap of minimum 75 feet between two sheds and each house should not have width of more than 25 feet to facilitate proper cross ventilation.

### 2.2.2 : Cage System -

The modern system of poultry keeping is known as cage system.

When the chicks are 8 weeks old, they are transferred to grower cages. Generally 2" x 2" or 3" x 3" wire mesh is used for these cages. Three grower birds per square foot are housed in such cages.

When the birds are 16 weeks and above, they are transferred to layer cages, 3 to 5 birds are kept in one compartment. Linear feeder troughs and water troughs are attached to these cages from outside.

Now-a-days shallow cages are becoming very popular. These are 18" in length, 16" to 18" in height and 12" in depth. Such one compartment houses 3 hens.

Space provided in cages per bird is given below in sq.inches in Table No. 2.1.

TABLE NO. 2.1

Floor Space Feeding, and Watering requirement for Poultry Birds

Kinds of Birds	Floor Space	Feeding	Watering
1. Chicks	24" - 48"	1"	½"
2. Growers	44" - 48"	2"	¾"
3. Layers	68" - 72"	3"	1"

SOURCE : M/s. Khairmode Poultry Farm, Tasgaon, Sangli.

**Merits of Cages**

1. It is easier to locate ailing and cull birds,
2. Feeding and watering operations are easy.
3. Wastage of feed is minimised and hence savings of feed.
4. Less labour charges, one man can look after two to four thousand birds.
5. Get fresh and clean eggs. Easier to collect, clean eggs are appreciated by customers.
6. Broodiness is reduced.
7. Protection from enemies such as dogs, cats etc.
8. More birds in a given space, hence it saves construction of building expenditure.

9. Diseases do not spread quickly.
10. Easy to collect eggs.
11. Each bird gets uniform space for feeding, watering.

### 2.2.3 : Protection against sun and storm

It is essential, if egg yields are to be maintained during very hot and sunny weather. So houses throughly well ventilated and proper shade, in and out, are essential.

So far as the house is concerned, there must be sufficient windows near the floor - to permit a free circulation of air, to keep the temperature down, windows on the sunny side must be shaded. Extra wide storm - boards can be fitted to serve the double purpose of keeping out rain and sun.

As further aid to coolness, roofs may be painted white, to reflect the sun-rays.

The basic rule for broiler management is to work with one single flock, the same breed of the same age in one farm. Chicks are brooded in this one farm from day one till they are marketed (6 weeks onwards). The entire farm is than cleaned and rested till the next batch of chicks arrives.

**Space per Bird -**

A broiler requires 1 sq.ft. per bird as it attains 1.5 kg. to 1.8 kg. body weight and proportionately lesser space at early growing stages. During the hot summer it's advisable to give 1.2 sq.ft. per bird to avoid heat stress and to avoid mortality due to sudden death (Heart failure).

Many age groups at one farm should be avoided. It is better to have four age groups on the farm, with a schedule of receiving each batch of chicks once in fifteen days. If there are four sheds at the farm, four batches could be used on rotation at fortnightly interval. The fast growing broiler could be marketed between 42 to 49 days and hence, there will be sufficient time for cleaning and disinfection to get the next batch of chicks.

**2.2.4 : Brooding -**

Chicks should get optimum brooding temperature at least for the first three weeks as they can not metabolise their own heat requirement. To facilitate correct brooding, brooding guards should be used for every 250 chicks with a diameter of 8 ft. over the Litter. The circular guards are made of either metal or hard card board with a height of 18 inches to conserve heat and check the chicks from staying

away from the brooder. The height of the bulbs should be minimum 18 inches from the ground level. During the first week the chicks require temperature in the brooder around 95°F (35°C) and there after a drop of 5°F (2.8°C) every week.

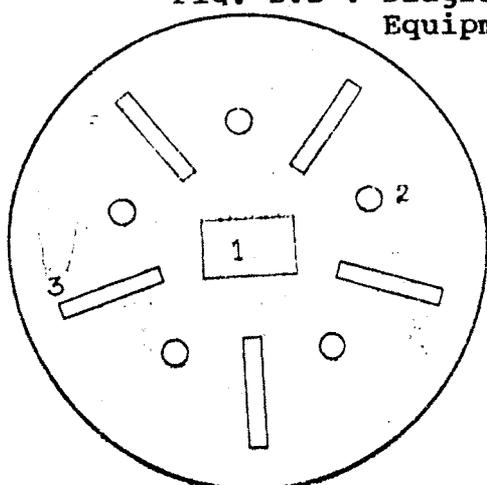
For easy calculation, while providing infra-red bulbs, the requirement 2 watts per chicks should be considered. For 250 chicks 2 infra-red bulbs of 250 watts should be provided during the first week (Total 500 watts).

Excess brooder temperature too will have detrimental effect on the growth of chicks which causes dehydration and chicks look as if soaked in water with wet feathers.

1. Brooding is necessary for layers and broilers chicks.
2. Brooding arrangement should be kept ready two days before arrival of chicks.
3. Brooder temperature should be maintained at 95°F in the first week and then reduced by 5°F every week.
4. The beaks of the chicks should be dipped in medicated water before placing them under the brooders.
5. Vit. A and antibiotics should be provided in water for first 10 days.

6. The chicks should be vaccinated by lasota F-1 during the 1 to 10 days.
7. After 5 to 6 weeks brooder should be removed.
8. Sufficient space, waterers, feeders, should be made available for growing chicks to avoid mortality.

**Fig. 2.2 : Diagram of Circular Brooder with guard and Equipment**



1. Brooder (Radiant)
2. Feeders
3. Chicks waterers,
4. Guard 18" height  
8' diameter.

#### 2.2.5 : Night lighting -

The artificial lighting of poultry houses during the winter months has proved increase in egg production. The beauty of winter night lighting is that it produces the extra eggs without forcing the birds, or without doing them any harm whatever.

In the winter months, with the shorter days, the birds will be on the roosts from, perhaps, 4.30 in the afternoon until 7.30 the following morning. They spend better part of the 24 hours, in idleness and very small

part in activity. By artificially lighting the house, for the period, they can be made to eat more, which in turn leads to more eggs, one secures 15 extra eggs a day from every 50 birds. Table No. 2.2 shows the required temperature in the brooder.

**TABLE NO. 2.2**  
**Require Temperature in the brooder**

Age (in days)	°F	°C
1 - 7	95°F	35°C
8 - 14	90°F	32.2°C
15- 21	85°F	29.4°C
22- 28	80°F	26.6°C
29- 35	75°F	23.9°C
36 days onwards	70°F	21.1°C

SOURCE : P.A. Bhat - Guidelines for Poultry Management,  
Page No. 23.

#### 2.2.6 : Nutrition (Feed and Water) -

Once the chicks are let under the brooder, they require water for the first two hours to restore the fluid level which is lost due to transport stress. Water helps the chicks to recover fast from the stress. They should

have continuous access to feed and water throughout day and night till they are pulled out for slaughter, first four weeks the chicks are to be provided with starter mash and thereafter finisher mash. The standard feed formula in Table No. 2.3 is given according to the feed ingredients.

Yellow Maize is a main feed mixing material, for one kg. of feed, Maize required is 380 gms. to 500 gms., Soyabean meal required is between 135 to 260 gm., whereas mineral mixture remains constant at 25 gms.

**TABLE NO. 2.3**

**Standards Feed Requirements (Feed Formula)**

Ingredients	Broiler Starter (0 - 4 weeks)				Broiler Finisher (5 - 7 weeks)			
	(in Kg.)				(in Kg.)			
	I	II	III	IV	I	II	III	IV
Yellow Maize	450	320	300	400	500	420	400	380
Jawar	105	-	-	-	125	-	90	-
Rice Polish	-	100	90	75	-	120	100	100
Broken Rice	-	130	175	75	-	100	40	150
Groundnut Extraction	50	50	-	120	-	-	60	120
Groundnut Expellar	70	70	-	90	70	100	-	60
Soyabean meal	140	190	260	-	140	135	145	-
Sunflower meal	60	60	70	90	50	40	60	35
Dry fish/ Fish meal	100	50	80	125	90	60	80	110
Mineral mix.	25	30	25	25	25	25	25	25
	1000	1000	1000	1000	1000	1000	1000	1000

SOURCE : Indian Poultry Farm, Manglore. Page No. 5

Table No. 2.4 shows that in the first week birds have a body weight at 125 gms. and feed consumption is 118 gms. Thereafter body weight increases every week between 175 gms. to 350 gms. and feed consumption from 136 gms. to 185 gms. At the end of 8th week, body weight of chick is 2250 gms. and cumulative feed consumption is near about 5 kg.

**TABLE NO. 2.4**

**Body weight and Feed chart**

Weeks	Body weight (Gms)	Feed consumption (Gms)	Cumulative feed consumption (Gms)
1	125	118	118
2	300	254	372
3	520	361	733
4	785	498	1231
5	1140	798	2029
6	1510	870	2899
7	1850	945	3844
8	2250	1128	4972

(Based on the data collected from Commercial Farms)

- NOTE : 1) Body weight figures are averages, depending on the breed, feed and management etc.  
 2) Feed consumption figures depend on energy level of the feed and temperature.

Table No. 2.5 shows the average feed and water consumption of pullets.

TABLE NO. 2.5

Average feed and water consumption of pullets

Age week	Feed Consumption per day (Gms)	Water (for 100birds) (Litres)
1	8	2
2	12	4
3	20	7
4	26	9
5	35	10
6	40	11.5
7	44	13
8	46	14.5
9	48	15.5
10	50	17
11	53	18
12	58	19.5
13	60	20
14	62	20.5
15	64	21
16	66	21.5
17	70	22
18	75	22.5
19	78	23
20	85	24

SOURCE : Completed from - 1) Indian Poultry Farm, Manglore.

2) Poultry Production -  
- Sunil Kumar Das

3) Guidelines for Poultry Management - P.A. Bhat.

If one notices the birds eating less than the previous day then it is a clear indication that a problem has arisen. It is to be taken as a warning sign for disease, or perhaps the feed is defective, if the feed is the cause of the problem or poor weight gain it can be detected immediately.

#### 2.2.7 : Feed Storage -

The small poultry keeper will of course, store his feed on any handy shelf or in a corner of out-building. However, proper arrangements have to be made for the storage of foods, otherwise quantities will be spoilt by deterioration.

The store should be as near as possible in the centre of the poultry farm to minimise the labour of carrying feed. When old building is used as a feed store, the precaution must be taken, like spraying the walls, roof, and floor, with disinfectant solution before carrying the feed. Grains are best to kept in wooden bins, especially during the summer. *Keep*

#### 2.2.8 : Buying Poultry -

Whenever possible buyers should make a personal examination of stock offered to them and assure themselves that the birds are healthy and good quality.

- (1) The eyes should be large, dry, bright and clean. The small eyes indicate inefficiency as an egg producer, and watering eyes or those which are dull are evidence of poor health.
- (2) Reject birds with a breast bone that feels "Knife edged" such will never lay more than enough eggs to pay for their food.
- (3) If any uncleanliness is seen, in the mouth and throat, there is a sure sign of coming trouble.
- (4) A tail that hangs below the horizontal when bird is standing normally is probably suffering from some internal problem.

#### 2.2.9 : Hints on buying Day-old Chicks -

As soon as birds arrive the boxes should be taken to a warm room to open. The chicks may be cold and tired, ~~so~~ should placed in a warm spot to rest.

In an hour they should be examined.

- (1) They should be even in size, in feather and in bone.
- (2) They should be lively and strong on their legs.
- (3) If day-old chicks are to pass muster, both eyes should be fully open, bold, black and bright.
- (4) Beak should be short and stout.

- (5) Chicks whose legs are noticeably thin compared with other birds should be avoided.
- (6) Chicks which have half closed - or encrusted eyes - are useless.

Chicks with any of the above defects certainly will not make profitable adults and should be returned to sender at once.

#### 2.2.10 : Stress -

Following are the few factors which cause the break-down of normal function and are termed as Stress.

- (1) Over crowding harms weight gains, egg production and encourages feather picking. It is also one of the reasons of increase in the disease.
- (2) Birds should be handled as less as possible.
- (3) Moving birds from brooder house to grower house to layer house.
- (4) Sudden change in feed tends to breakdown of normal function.
- (5) Sudden noise or stranger's entry near or into the house should be avoided as it leads to pilling.
- (6) Sudden change and extreme cold or heat has adverse effect on health and production.

- (7) Due to diseases, the normal function of the birds will be change.
- (8) Day old chicks or adult birds should be preferably transported at cool hours of the day.

During stress in order to minimise, antibiotic, vitamin mixture should be given in drinking water.

#### 2.2.11 : Culling -

In a layers flock all the birds do not lay eggs all the while. Some of the birds give eggs regularly while some birds are irregular layers, while a few birds may not lay at all. It is uneconomical to keep the birds which do not lay. So the non-laying birds should be removed and only the egg laying birds should be kept in a flock. This process of removing the non-laying birds is known as culling.

Culling is to be done once in a week. The first culling should be done normally after two months of lay. This gives a time for the birds which are late developers or layers.

#### 2.2.12 : Poultry Manure -

Most poultry keepers <sup>a</sup>now days realise that manure has some value, but even so, they do not take full use of what they have.

With only a garden, properly prepared poultry manure is beneficial to practically all flowers, all fruits and all vegetables, particularly peas, beans, cauliflowers, onions, sugarcane, rose garden etc.

Farmers also apply a light dressing of poultry manure to corn crops with potatoes.

There has lately grown up a very good trade in air-dried poultry manure and many hundreds of tons are being despatched yearly to gardeners and farmers. The fresh manure is put through a special drying plant and emerges in the form of a fine, dry powder, clean to handle and in every way convenient. Due to improved technology, the poultry manure is used to produce manure gas.

Rice husk, ground nut kernels etc., saw dust like waste material are used as litter material. But as dropping of poultry is mixed in this material daily it is converted into a best type of manure.

It contains approx. 3% Nitrogen, 2% Phosphorus, 2% Potash, in addition to minerals like Iron, Copper, Zinc and Calcium.

The use of chemical fertilizers has increased, but due to its use soil texture decreases. But poultry manure helps better production and soil texture is also improved.

The cost of such manure is Rs. 250 to 300 per tonne. 40 Birds produce one tonne of such manure. In other words a bird gives Rs. 6 to 7 worth manure.

The 3.2 million tonnes of manure, whose efficiency is equivalent to that of 13.8 lakh tonnes of chemical fertilizers.

Thus poultry farming has become one of the highly profitable enterprise for the Indian farmers. But traditional outlook, age-old methods and lack of commercial sense have made the latest scientific know-how less effective. However, desire to start self employment schemes mainly in small-scale sector, in the young generation, has given a push to this hitherto neglected area.

At present, it has become imperative to know the technique of scientific poultry keeping as modern poultry keeping has become as much science as an art.