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POULTRY PRODUCTION UNIT – 2

SYNOPSIS

Poultry farm management:
Farm system, provisions for
good housing, commercial
chick, grower, broiler and
layer management.



POULTRY MANAGEMENT

- Poultry management usually refers to the husbandry practices or production techniques that help to maximize the efficiency of production.
- Sound management practices are very essential to optimize production.
- Scientific poultry management aims at maximizing returns with minimum investment.



Farm system

Basically two systems are commonly followed in our country:

1. Cage system
2. Deep litter system

1. **Cage system:** The cage system of rearing birds has been considered as a super intensive system providing floor area of 450-525 sq.cm. (0.6-0.75 sq.feet) per bird. In cage the birds are kept in one, two or three per cage, arranged in single or double or triple rows.

Advantages

1. Greater number of birds is reared per unit of area
2. Facilitates correct maintenance of records
3. Helps in identifying poor producers and prompt culling
4. Control of vices of poultry cannibalism and egg eating
5. It helps in production of clean eggs
6. Removal of stress factors
7. Easy control of parasitic disease like coccidiosis and worm infestation
8. Prompt steps to control feed wastage.
9. The cage method of housing is ideal for the area of moderated climate conditions where the day temperature in summer does not high and temperature does not fall too low.
10. Egg production of caged layer was reported to be more then those kept in deep litter system.
11. Feed efficiency and egg weight were better in caged birds than the laying flock under deep litter system.



Disadvantages:

1. Difficulties in ensuring proper ventilation to birds especially in summer season and under very high dense conditions.
2. Incidence of leg problem, cage layer fatigue, fatty liver syndrome, flies and obnoxious gases in the house will be on increases
3. Hysteriosis of chicks

Cage fatigue: Cage fatigue is considered to a physiological derangement of mineral electrolytes imbalance. Leg weakness is common in caged birds.

Fatty live syndrome: It is a problem met with caged layers due to increased deposition of fat in the body resulting in death due to internal hemorrhage. Increasing the protein level and the diet strengthened by the addition of choline, vitamin B12, inositol and vitamin-E may be helpful in reducing the incidence of problem.

Proper ventilation, correction of light-intensity, duration, temperature, ideal environmental conditions, and maintenance of comfort in cages will check the conditions of hysteria of chicken in cages.



II. Deep litter system: Deep litter system is commonly used in all over the world.



Advantages:

1. It is an economical
2. Hygienic, comfortable and safe to birds
3. Built up litter supplies vitamin B12 and Riboflavin to the birds
4. Controls diseases and vices
5. It increases the efficiency of production
6. Materials such as paddy husks saw dust, dried leaf, chopped straw and groundnut kernels depending upon the availability can be used as litter materials.

Points to be considered while adopting deep litter system

1. The deep litter system should always kept dry.
2. Only right numbers of birds should be housed
3. The house should be well ventilated
4. The litter should be stirred at least once in a week-wet litter if any should be replaced immediately with new dry litter and birds must be fed a balanced ratio.
5. The time starting deep litter system should be in the dry period of the year as it allows sufficient time (At least two months) for bacterial action.
6. Placing of water should be given due attention to keep litter dry.

Confinement Rearing

Size of flock: Larger size units are more economical than smaller ones under commercial conditions. A unit of 2000 layers is usually considered as economical for commercial egg production. In the case of broilers a unit intake of 250 chicks per week is usually considered as viable.

Stock: Procure the best quality chicks. No amount of good management can convert poor quality chicks into good layers or broilers. More profit can be made in a commercial unit by procuring day old pullet chicks. In broiler units, straight-run chicks would give equally good performance.

Random sample poultry performance test: Government of India has established random sample test units for layers and broilers in four locations, viz. Bangalore, Bombay, Bhubaneswar and Delhi. The test results are published annually and give information about the performance of the various strains and breeds of chicken under identical conditions. This information would help in the choice of the stock.

Number to be procured: In determining the number to be procured, normal losses that might occur due to death and culling have to be allowed. For each 1000 layers to be housed, procure 1100, day-old pullet chicks or 1050 growing pullet chicks or 1000 ready-to-lay pullets. In the case of broilers, the corresponding number would be 250-day-old straight-run chicks for 250 broilers to be marketed at 6-7 weeks of age.

Artificial brooding: Chicks newly hatched out require supplementary heat till they grow feathers. The period of brooding is usually up to 4-5 weeks of age and a little longer in cold season. Artificial brooding can be carried out in deep litter houses or in electrically operated brooder batteries.



On the deep litter, provide 700 cm² floor area per chick till 8 weeks of age. In a hover with one m diameter, 250 chicks can be brooded. The hover can be metal or bamboo basket fitted with a heat source. The size and number of the hovers depend on the number of chicks to be brooded. Units of 250 chicks are ideal for efficient management. The hover can be placed at appropriate height from the floor either by hanging it from the roof or by placing it over bricks or stones so that chicks can go in and out easily. Temperature required for brooding is 1 –2 Watt/chick. Use five bulbs of 60 Watts per unit of 250 chicks.

Electricity is the common source of heat used. Electric bulbs of multiple units are preferred over single bulb to cover the wattage. Infra-red bulbs can also be used for brooding. Hover is not necessary when infrared bulbs are used. The number of bulbs to be used depends on the number of chicks to be brooded. The rule of thumb is that one Infra-red bulb of 250 watts for every 250 chicks. Position the bulb 50 cm above litter. The requirement of chicks for additional warmth decreases as they grow. The warmth as measured by thermometer at 5 cm (2 inches) above the floor level should be checked everyday.

The distribution of chicks under the hover is a better indication of warmth than the thermometer. If the chicks are active, busy eating and drinking, it indicates that the temperature under the hover is comfortable. Generally one watt per chick appears satisfactory under our climatic conditions.

Litter management: Litter materials such as wood shavings; saw dust, paddy husk, peanut shell, paddy chaff, chopped straw and such other materials that absorb moisture well can be used depending upon the cost and availability. Spread the litter to a depth of 5 cm on the floor before introducing chicks and build it up to a depth of 15 cm by adding litter material, at the rate of about 2 cm per week. This would require approximately 10 kg of litter material/sq.meter. Litter should be raked thoroughly at frequent intervals, say at least twice a week, during the cold and rainy season, once a week during the hot season and the day after deworming. Litter should be kept dry always. During the cold and rainy season and on the area of floor where watering utensils are placed, special attention should be paid daily to check the litter condition. If required, top-dress with fresh litter. It is desirable to use dry lime at the rate of 10 kg per 10 m³ and rake the litter.

Light: Artificial light should be discontinued from the time the chicks no more require additional warmth. Dim light of a 40-watt bulb for every 250 chicks can be provided during the night for broiler chicks.

Age weeks	Floor space Sq.ft./Chick	Feeding space inches/chick	Watering space inches/chick
1	0.2	1.5	0.5
2	0.2	2.0	0.7
3	0.3	2.0	0.7
4	0.4	2.5	0.8
5	0.6	2.5	0.8
6	0.8	3.0	1.0
7	0.9	3.0	1.0

Age in weeks	Temperature under hover, at 5 cm above floor (°C)
0-1	35
0-2	32
2-3	29
3-4	26
5-5	23

Floor space, feeding space and watering space for chicks (Source: Central Avian Research Institute)

Temperature requirement of chicks during different ages

Management of Poultry Farms

Poultry farm management mainly refers to husbandry procedures or production techniques that increase efficiency. To maximise output, proper poultry management methods are critical. Scientific poultry management strives to maximise profits while requiring a minor investment.

House for Brooders

- The brooder home should be free of draughts, rainproof and predator-proof. For proper ventilation, brooding pens should have wire mesh windows.
- The chicks' respiratory tracts are irritated by the dusty atmosphere. Furthermore, dust is a route for disease transmission.
- Ammonia fumes are produced when too much moisture rubs the respiratory tract and eyes. Good ventilation creates a comfortable, draft-free environment.



Hygiene and Sanitation

- All portable equipment, like feeders, waterers and hovers, should be cleaned and disinfected before returning to the house.
- All litter must be scrapped and disposed of. Under stress, both the interior and exterior of the house should be cleaned.
- Any professional disinfecting solution should be used at the appropriate concentration to disinfect the house. To keep insects at bay, an insecticide should be sprayed.
- Ticks and mites can be controlled with malathion spray, blow lamping, or both. After each cleaning, new litter should be scattered. If necessary, pesticides should be combined with waste at the specified doses.



Space for Water

- A plentiful supply of clean and fresh water is critical.
- During the first two weeks, a provision of 50 linear cm of water space per 100 chicks must be increased to 152-190 linear cm at 6 to 8 weeks.
- When switching from a chick fountain to a water trough, leave the fountains running for several days until the chicks have discovered the new water source.
- To avoid rotting, keep the waterers at the height of 25 cm above the rear elevation of the chicks.
- Probiotics or other stress medicines might be given to the water.
- Every day, all the water should be cleaned. It might be beneficial to train a few chicks to drink one at a time.



Waste Management

- An overly dry and dusty litter could be several signs that the birds aren't getting enough water. Breathing too many dust particles can cause respiratory issues.
- Depending on availability and cost, suitable litter materials such as sawdust and rice husk should be scattered to a length of 5 cm.
- It's not a good idea to use mouldy materials. To prevent caking, the litter should be stirred often. If there are any wet litters, they should be removed immediately and replaced with dry new waste. This eliminates ammonia odour.



Management of Illness

- A disease-free atmosphere is essential for successful chicken production.
- Diseases affect fowls in a variety of ways. Different types of infection from virus, bacterium, fungus and other agents and food deficiency or nutritional deficiencies may cause the condition.
- Cleaning, sanitation, pesticide spraying and disinfectant spraying should regularly keep the environment clean.
- In addition, to control the illness and grow backyard birds, all domestic birds are immunised. Vaccination is a biological preparation that is often used



Poultry Production and Management

Here are some points to remember about poultry production:

- The farms specialise in either egg or chicken (broiler) production, and these poultry businesses are treated independently of agricultural output
- All of the feed is purchased as composite mixtures to be supplemented with wheat, and the primary protein source is soy meal. Because poultry management has all domestic birds are immunised limited acreage, most excrement is shipped to crop fields
- Huge enclosed rooms with artificial ventilation and usually mechanical feeding are used for production
- Broilers are raised “all-in-all-out” with 50-100,000 chickens in a single batch, taking 40 days and 3.5 kg of feed on average to attain a slaughter weight of about 2 kg
- The cleansed house is left unoccupied for two weeks after the manure is removed before the next batch is placed. The young chicks are raised in

- The model covers indoor systems. Cage systems (about 50% of egg output) or free-range systems (primarily in large buildings with small amounts of loose material on the floor) are used to keep laying hens (straw, sawdust, etc.) Outdoor runs are only available to a small percentage of traditional chickens. The techniques with outside runs will be considered in a distinct model for organic chickens

- All spent water and effluents from stables are collected either as manure/deep litter straw bedding to be stored/composted or in concrete slurry containers with a minimum capacity corresponding to 7-9 months slurry output (application to fields is only allowed from March to September). The equipment is usually up to date and most of the procedures are fully automated

- Typically, there is one owner and 1-4 full-time hired helpers, most of whom have a farm management diploma. They also look after poultry waste management. For the modification of protein levels and minerals, most farmers employ modern feed planning systems and regular feed tests, and they all adhere to government regulations regarding manure nitrogen usage and fertilisation

Types of Chicken Feed

Chick starter:

Exactly what it sounds like, chick starter is for the first (usually six) weeks of your baby chicks' lives. This is typically 22 to 24 percent protein for meat birds (called broiler starter) and 20 percent protein for laying breeds. You can buy medicated or unmedicated chick starter. Most people use a medicated feed, but organic and pastured small farms often use unmedicated feed.



Grower pullet:

After chick starter, young pullets that are destined for a laying flock are put on a lower-protein diet to slow growth to allow strong bones and adult body weight before laying begins. If the protein is too high, development happens quickly and the birds lay too early. Grower pullet rations typically have 18 percent protein and are fed until the chicks are 14 weeks of age.



Layer rations:

Laying hens at maturity (around 22 weeks of age) require a 16 to 18 percent protein level and extra calcium and minerals for strong eggshells. Don't feed layer rations to birds younger than this age as it damages their kidneys due to the high amounts of calcium and phosphorus. However, roosters can eat laying rations.



Broiler rations:

These high-protein feeds are for meat birds, particularly Cornish X Rock crosses that grow extremely fast. Broiler rations are typically 18 to 20 percent protein. This is sometimes called "grower-finisher" feed. For heritage and pastured meat birds, protein content can be lowered to 16 percent after 12 weeks of age until butchering. Some may choose to keep the heritage meat birds on the higher grower-finisher rations until slaughter.



Forms of Feed

Chicken and poultry feed comes in three forms: crumbles, pellets, and mash. Crumbles are excellent if you can get them, but pellets are sometimes the only form available. Mash is usually used for baby chicks, but it can be mixed with warm water to make a thick oatmeal-like treat for chickens. However, it must be fed right away or else it spoils and becomes moldy, so don't let the mixed mash sit around.

