

Lecture 1

ESTABLISHMENT OF HATCHERY

The hatchery is the building or manufacturing unit where equipment such as machines (e.g. setters, hatchers, fumigators, candlers, (etc) and appliances are installed for the production of day-old chicks. Its raw products are the fertile hatching eggs; the manufacturing process is the incubation of eggs while the finished products are the day-old chicks. Whether or not the hatchery is successful depends largely on the number of eggs that produce saleable stock.

The plan for the hatchery is dictated by the following considerations:

- (a) Room temperature – Temperature should be 21^oC in the incubator room for best results. This may involve the use of air conditioners or ceiling fans. However, if this is un-economical, the building should be constructed to allow straight through ventilation
- (b) Space – Incubator room should be spacious and provide opportunity for expansion.
- (c) Work flow – Arrangement of rooms should make for efficient work flow. Auxiliary rooms (e.g. tray, box or dressing rooms) should be located conveniently to support the “main flow”.

MACHINES AND APPLIANCES IN THE HATCHERY:

1. FUMIGATORS – Equipment used for the fumigation of eggs to prevent transmission of diseases (e.g. Chronic Respiratory Disease, Salmonellosis, etc.) to the developing embryos. Potassium permanganate and formalin can be used at ration of 1:2 (20g/40ml) for 30 minutes.
2. SETTERS – Fumigated eggs are stored here for 18 days at temperature of 37^oC with RH of 50 – 60% depending on the type of incubator. Here eggs are kept inside egg trays with broad end up and turned on hourly basis.
3. EGG CANDLER – Used for fertility test at 10th and 18th day of incubation.
4. HATCHER – Hatchable eggs are stored here as from the 18th day of incubation for a period of 3 days using temperature of 35^oC and RH of 70 – 75%

MANAGEMENT OF BREEDERS

Primary breeding, parent breeder production and multiplication for the production of egg or meat-strain day old commercial chicks, poults, ducklings etc depend on the hatching process. However, the fertility of egg will depend on the following factors in the management of breeders;

1. Nutrition: Deficiencies of vitamins A and E can affect spermatogenesis. Deficiencies of some vitamin B complex will result in deformity of embryos at different stages of development.
2. Mating ratio: To prevent precocious mating, males and females can be managed separately till maturity during which time a mating ratio of 1:8 (large strain) or 1:10 (light strain) can be used.
3. Age of breeders: Over 1 year, libido declines in male while ability to retain calcium declines in female.
4. Environmental temperature: Heat stress causes depression in feed intake, reduction in frequency of mating, deformed spermatozoa and low sperm count.
5. Health of breeders: Necessary vaccinations and medications should be provided from day old to maturity to avoid trans-ovarian diseases.

EGG ABNORMALITIES

The following are the type of abnormalities that could be observed in the egg:

1. Pullet size: Can be due to disease (New castle disease, CRD etc) or nutritional deficiencies (deficiency of essential fatty acids).
2. Internal defects: Can be associated with double yolk, blood and meat spot.
3. Oblong eggs: Can be associated with amount of albumen secreted, size of magnum and isthmus, diseases etc.
4. Shellless eggs: Can occur when egg spends less than required time in the uterus, can be due to diseases or nutritional deficiencies.
5. Cracks: Can be associated with the age of the layers.