

POULTRY

- ✦ The study live birds, or their meat product is known as poultry.
- ✦ The poultry meant for two types uses.
 - (i) For meat
 - (ii) For eggs
- ✦ There were the evidences of poultry in china for the first time (1400 B.C). In India the poultry has been developing for the past two and half decades.

Types of fowls based on their usage:-

Based on their products the fowl are classified in to two types.

1. Layers
2. Broilers

1. Layers:-

- ✦ Layers are grown mainly for the production of eggs.
- ✦ They will grow usually up to 1-2 kgs. They are comparatively small in size.
- ✦ They start laying eggs, after they attain 6-8 months of age.
- ✦ The healthy layers produce 180-365 eggs per year.
- ✦ In India the highly precious breed is Bobcock breed layer. fowls produce 300 eggs per annum. This breed is in first position in egg production.
- ✦ India stood in 3rd position in egg production in the world.
- ✦ National Egg co-ordination committee (NECC) inspects the sales and exporting of eggs in India.



Layer

2. Broilers:-

- ✦ Broilers are grown for the production of the meat.
- ✦ They will attain market size with is 2 or 3 months due to their drastic growth.
- ✦ The broilers that are grown to market size may weighed upto 2kgs to 5 or 7 kgs.
- ✦ In India, Indian veterinary Research Institue scientists producing fine quality of broilers and vaccines of fowl.

- ◆ Not only these two types of fowl, but some of them grown for both meat and egg production. They were grown in villages. But the yeild is comparitively low to Broilers and layers.



Broilers

The process Incubation of eggs & Management methods:-

Incubating of eggs refers to the period during which embroy develop inside the egg and comes out as chick.

- ◆ The incubation period of fowl is 21-22 day. This is a specific process.
- ◆ In India generally two methods are followed for the incubation of eggs.

1. Natural method
2. Artificial method

1. Natural method:-

In this natural method of incubation, the eggs are being incubated by Incubating fowl. This is an ancient method.

- ◆ In our country, villagers follow this method.
- ◆ In this method the incubation nest is prepared by leaves, dried grass and soft bran. It should be kept near to the floor, the fowl easily reach the eggs.
- ◆ the nest is kept clean by using sulphur power or pesticides.
- ◆ See that the nest is spacious, dark, moistured and ventilated.
- ◆ Egg's get an appropriate temperature when we keep the fowl sit on eggs during day and night.
- ◆ For brooding fowl provide food and water twice in a day. Send out the fowl for 30 minutes, twice in a day, there by the legs of the fowl get strengthen.
- ◆ Chicks hatch out from the eggs after 21-22 days.

Advantages:-

- ◆ This is a favourable method for incubating few eggs.
- ◆ We need not to use any special instruments to incubate in this method. So no financial burden.
- ◆ The brood mother protects its own new chicks.

Dis advantages:-

- ◆ This method is not at all beneficiary to incubate large number of eggs.
- ◆ Based on the weight of the fowl, one country fowl may incubate 10-15 eggs only.
- ◆ It is difficult to get brooding fowl through out the year.
- ◆ The chances are very less to get 100% fo natality in this method, although all the eggs are incubated.
- ◆ If the eggs are not properly incubated, the eggs may get damaged.

2. Artificial method:-

Large number of fowl grown at a time in the poultry. Keeping it in mind, the production of more chicks is necessary.

In natural method country fowl incubate 10-15 eggs only and gives the chicks. This method is not at beneficiary for the modern poultry. Therefore to produce to the chicks in large scales, incubators, are used.

There are 3 types of incubators to incubate the eggs incared number.

They are,

- i) Hot water incubator
- ii) Hot air incubator
- iii) Hot air mammoths

i) Hot water incubator:-

- ◆ Hot water incubator is made up of wood.
- ◆ The inner walls made up of wood or asbestos sheet. In the gap between the walls of incubator is filled with glasswood or glass fibre. It acts like heat resistant and keeps the heat inside.
- ◆ Copper or alluminium trough is kept at the roof of the incubator. Embryo development starts in eggs by absorbing heat from trough.
- ◆ Flue is arranged beside the incubator, below that a kerosene lamp is fixed. Hot air enters in to water through a pipe arise from flue.

These incubators have thermo stat.

- ✦ To get good results in incubator, same level of moisture should be maintained at a maximum level.
- ✦ First 18 days 6%, Last 3 days 70% of moisture is maintained in the incubator.
- ✦ At the bottom a water plate, keep a sponge or jute linen cloth in water plate. The air that comes through bottom aperture of incubator, becomes moisture while it reaches water plate. This regulates the percentage of moisture in the incubator and facilitates the incubation.
- ✦ Arrange the eggs in a plate, the floor of the plate made up of iron wire. It should be kept below 6-8 inches to hot chamber.

2) Hot air incubator:-

- ✦ The structure and functioning of hot air incubator is similar to hot water incubator.
- ✦ In this hot air incubator is used instead of hot water.
- ✦ Hot air is formed by the lamp or electric heater.

3) Hot air mammoth:-

- ✦ In these incubators eggs are arranged vertically above the air chamber.
- ✦ Eggs can be rotated by moving the trays in $40 - 45^{\circ}$ angle.
- ✦ Ventilation and circulation of air is done through inner fans.
- ✦ Thermostat is also present. It regulates the temperature.

When it is raised or fall down.

Management methods:-

- Some management techniques are necessary, while incubating eggs in artificial incubator. They are.
- ✦ Incubator is kept in a flat area. Other wise damper rod may not work properly and the temperature become irregular.
 - ✦ The trays of incubator should be kept clean. In order to keep them clean, form a smoke by using the formaldehyde 50 C.C 40% concentration and 30 grams of potassium permanganate.
 - ✦ The temperature in side the incubator should be a maintained in an appropriate manner. In the first week $101^{\circ}f$, second week $102^{\circ}f$ and in third week $103^{\circ}f$ is maintained.
 - ✦ All the ventilation holes should be opened at get more air.
 - ✦ To get good results in the incubation, the eggs are rotated 3-5 times daily in the first phase. Afterwards rotate further more. By doing this the developing embryo may not attach to the shell.
 - ✦ Examine the eggs on 7th day and 14th day and isolate damaged eggs.
 - ✦ Arrange the nursery trays on 19th day because the chicks may hatch out from shells prior to 21st day.

- ◆ Chicks are shifted to brooder from the nursery trays.
- ◆ To follow all the above said management methods, skilled experts are required, other wise there is a possibility of damage.

Broiler management methods:-

- ◆ Broiler birds are grown only for meat.
- ◆ By the time they get 8-10 weeks of age, they weighs of about 1.5-2 kgs. They have tender meat.
- ◆ Usually growing broiler breeds in our country are IBL 80, B-77, IBB-83, CA-42 and vencob.

Broiler chicks:-

- ◆ The broiler chicks that are purchased from hatcheries should contain the following characters.
- ◆ All the chicks should be healthy and active.
- ◆ All of them are in similar size.
- ◆ The eyes of chicks should be bright.
- ◆ Chicks should be without injuries.
- ◆ The weight of the chicks should be 38-40 grams.

Broiler shed:-

- ◆ The shed for broilers should be in east - west direction.
- ◆ A separate shed should be constructed for each 200 fowls.
- ◆ Shed measurements are length 20 ft, width 10ft. See that each fowl should get 1 square feet area.
- ◆ All the chicks should not brought to shed at a time. Bring them with a minimum gap of weeks, there by we can supply the meat to market regularly.

Brooding:-

- ◆ In first week the temperature should be 35°C . As the chicks grow, the temperature is to be reduced $5^{\circ}\text{F}(3^{\circ}\text{C})$, by the time of 6 weeks, see that the temperature should be $70^{\circ}\text{F}(21^{\circ}\text{C})$.
- ◆ For the first day mix mineral mixture and vitamins with corn sorghum and give as food material.
- ◆ The temperature of both the shed and water should be equal.
- ◆ due to the less floor space for broilers the population density enhanced there by they prick on another with their beak. so at the age of 10 days, debeaking has to be done.

Feeding:-

In broiler farms feed is given in 2 ways.

- (i) Starter mash is given upto the age of 5 weeks.

(ii) Finisher mash is given from the 6th week to marketing time.

Feed contain methionine, cysteine amino acids more, leads to gain more weight.

At early age, gain more weight with little feed. For 4 weeks bird gain 600 grams weight per 1 kg feed.

As the age advances bird take more food but gains less weight.

Poultry diseases:-

- ✦ Viruses, Bacteria, fungi and protozoan parasites cause diseases to fowl.

Viral diseases:-

1. Marek's disease:- This disease identified in 1907 for the first time.

- ✦ It infects visceral organs, tissues and peripheral nervous system.
- ✦ This disease is due to the infection of virus of herpes group.
- ✦ It affects the birds of all ages, but it is predominant in 2-4 months of age.

Spread of disease:- Disease spreads through excreta of diseased birds, Nasal and oral secretions.

Symptoms:-

- ✦ Symptoms are seen in nerves. Enlargement of Nerves.
- ✦ White tumors on visceral organs.
- ✦ Tumors on liver, gonads, spleen and heart.

Treatment and prevention:- No proper treatment for this disease.

- ✦ Providing nutritious food and antibiotics inhibit other diseases.
- ✦ Remove the diseased fowl from the sheds.
- ✦ Vaccination to be done as the precaution.
- ✦ Proper sanitation should be maintained.

2. Ranikhet disease:-

- ✦ This also called as New Castle disease.
- ✦ It is caused by virus - Paramyxovirus.
- ✦ It shows its effect on the systems of the body.

Spread of disease:- Spreads through the excreta of diseased fowl, air, water and Litter instruments.

Symptoms:-

- ✦ Symptoms are severe.
- ✦ Sometimes the symptoms may not be visible but the fowl die.
- ✦ The severity of the disease is seen on nervous system.

Body temperature is reduced.

- ◆ Diarrhoea, Respiratory disturbances.

Treatment and Prevention:-

- ◆ No proper treatment
- ◆ Vaccination to be done for healthy fowl, there by we can protect them.
- ◆ Prevented by vaccination at the age of 5 or 6 days by RDF or Lasota vaccine drops administered through nose.
- ◆ Select the healthy chicks.
- ◆ Vaccination to be done in different times.

3. Avian flu:-

- ◆ This is main disease of poultry birds.
- ◆ This is a harmful disease that transmits from birds to humans.
- ◆ It is caused by H_5N_1 – Avian flu virus.
- ◆ It is a pandemic disease.

Spread of disease:-

- ◆ It is a communicable disease.
- ◆ The infected birds release the virus up to 10 days through saliva and faecal matter. The birds and human get infected if they contact with saliva and faecal matter.

Symptoms:-

- ◆ Birds do not take food, looks lazy.
- ◆ Respiration become difficult.

Prevention:-

- ◆ Diseased birds are separated from other birds.
- ◆ Diseased birds are completely burried or burnt.

4. Gumboro disease:-

- ◆ This is a contagious disease, caused by virus.
- ◆ It affects 2-6 week old chicks.
- ◆ The mortality rate of this disease is more.

Spread of disease:-

- ◆ This is contagious, so spread through excreta and saliva of infected fowl.

Symptoms:-

- ◆ Diarrhoea

- ✦ Reddening of cloaca.
- ✦ Disease spread for one week and gradually reduced.

Treatment and Prevention:-

- ✦ It causes Immuno deficiency in the birds. So that drugs to be used for the prevention of other diseases.
- ✦ In order to inhibit the disease the sheds should be cleaned with formalin solution.
- ✦ Vaccination to be done for 18 -21 days old chicks.

5. Fowl bronchitis:-

- ✦ It is caused by coronn virus.
- ✦ It affects mainly respiratory system and Urinogenital system.

Spread:- It spreads through water, feed and other poultry instruments.

Symptoms:- It affects respiratory system. Diseased fowl suffer from sneezing, cough and snoring.

- ✦ Face difficulty in respiration.

Treatment of Prevention

- ✦ No proper treatment for the disease.
- ✦ Antibiotics are used to reduce the severity.
- ✦ Vaccine drop should be administered during 4th and 14th week.
- ✦ The diseased fowl should be burnt.

6. Avian pox:-

- ✦ This is also called as chicken pox (or) avian diphtheria.
- ✦ It is caused by virus.
- ✦ This is not only seen in the fowl, but also seen in many birds.

Spread:-

- ✦ Virus enter in to the body through injuries.
- ✦ Mosquitoes also acts as vectors.

Symptoms:- Disease is seen on head where the feathers are absent

- ✦ Especially at combs, wattles, eye lids and at the base of beak, blisters are seen
- ✦ White blisters become yellow and finally turn in to black blisters.

Treatment and prevention:-

- ✦ Usually it is cured in 3-4 weeks.
- ✦ In 2nd week pigeon pox vaccine should be administered.
- ✦ In 9th week fowl pox vaccine should be administered.

Bacterial diseases:-

1. Coryza:-

◆ It is caused by a bacteria called - *Haemophilus gallinarum*.

Spread:- Spread through water, feed and air. Fowl also act like vectors to spread the disease to other fowl.

Symptoms:- Affecting all stages of birds.

- ◆ Swollen face.
- ◆ Nasal and eye secretions give foul smell.
- ◆ Yield of eggs reduced to 10-40%.
- ◆ Acute respiratory problem.

Treatment and prevention:-

- ◆ Anti biotics are used
- ◆ Provide the feed with vitamins.
- ◆ Separate the diseased birds from other birds.
- ◆ Sheds should be kept clean. Reduce the density of fowl.

2. Chronic respiratory disease:-

◆ It is caused by the bacterium *Mycoplasma gallisepticum*.

Spread:- Usually seen in the improperly maintained sheds.

- ◆ Transmitted from infected fowl to other.
- ◆ Transmits through feed, water and air.

Symptoms:-

- ◆ Snoring in respiratory tract.
- ◆ Sneez, cough are seen. Eye discharge is seen.
- ◆ Reduction in egg yield.

Treatment and prevention:-

- ◆ Based on severity of disease, antibiotics are administered along with feed and water.
- ◆ Brooders are used to provide sufficient heat for the chicks.
- ◆ Precautions to be taken while bringing chicks from hatcheries.
- ◆ Sheds should be kept clean.

3. Fowl cholera:-

It is caused by the bacteria *Pasteurella avicida*.

Spread:-

- ✦ Transmits from infected fowl to healthy fowl.
- ✦ Transmits through feed, water, instruments and insects too.

Symptoms:-

- ✦ The disease is so severe.
- ✦ Mortality is high
- ✦ Do not eat food, oral and nasal secretions give foul smell.
- ✦ Respiratory tract filled up with mucus, difficulty in respiration.
- ✦ Initially whitish diarrhoea, followed by greenish diarrhoea.

Treatment and prevention:-

- ✦ Antibiotics are used on onset of disease.
- ✦ Irrespective of severity of disease, mix Aurofac-20 or furazolidon -200 with the feed in the ratio of 100 grams per Quinta feed used for 20 days.
- ✦ Cholera vaccination should be given at the age of 6-18 weeks.
- ✦ Died fowl should be burnt.

4. Fowl Typhoid:-

- ✦ It is caused by the bacteria *Salmonella gallinarum*.
- ✦ This disease is also called as - salmonellosis.
- ✦ This was identified in 1885.

Spread:-

- ✦ Spread through water and feed contaminated with faecal matter of diseased and vector birds.
- ✦ Spread through cloths and hands of workers, instruments and died fowl.

Symptoms:-

- ✦ Sudden death of fowl, when the disease is severe.
- ✦ They stop feeding. They are more thirsty.
- ✦ Yellowish diarrhoea. Severe fever, Difficulty in respiration.

Treatment and prevention:-

- ✦ After identification of the disease give antibiotics along with water and feed.
- ✦ 100 grams of Nitrofuron or furazolidon per 1 tonn of feed is used.
- ✦ Vaccination should be done at the age of 9-10 weeks.
- ✦ Dead bodies of fowl and diseased or infected fowl are buried in the pits by mixing lime powder.

- ◆ The best prevention is keeping the sheds clean.

5. Pullorum disease:-

- ◆ This is called as Bacillus white diarrhoea.
- ◆ It is caused by the bacteria - Salmonella pullorum.

Symptoms:-

- ◆ This is an acute disease in chicks, whereas a chronic disease in the adults.
- ◆ The mortality is sometimes low, sometimes high in the infected fowl.
- ◆ Symptoms are seen within 1 or 2 days after infection.
- ◆ Infected chicks cluster together at a place, do not have their feed, rattle wings.
- ◆ White diarrhoea, mortality is up to 50%.
- ◆ In adult fowl the symptoms are hidden.
- ◆ This disease is predominant in broilers. Fowl do not take food, diarrhoea is seen.

Treatment and prevention:-

- ◆ Isolate the infected fowl by blood tests.
- ◆ Antibiotics are used along with water and feed.
- ◆ Hatcheries should examine the chicks and supply the healthy chicks.
- ◆ Keep the sheds always clean.

Fungal diseases:-

1. Aspergillosis:-

- ◆ This is also called - Brooder pneumonia.
- ◆ This disease is caused by Aspergillus fumigatus.

Spread:-

- ◆ Transmission is through fungal spores, contaminates feed, litter and grass grains while the heat and moisture are more.
- ◆ They do not eat drinks more water.
- ◆ Fowl are very weak. Diarrhoea is seen.
- ◆ White semi-circular spots are seen on eyelids.
- ◆ Egg production is low in adult fowl.

Treatment and prevention:-

- ◆ Nystatin, Amphotericin drugs are injected into the abdomen.
- ◆ Copper sulphate is mixed with water and used for treatment.

- ✦ Musty and mildew feed should not given to fowl. The wet litter should be changed.
- ✦ Sheds should be cleaned weekly once, waterers and feeders should be cleaned with 0.5% of copper sulphate solution.

2. Aflatoxicosis:-

- ✦ It is caused by the toxin released by *Aspergillus flavus*.
- ✦ The toxins released by these fungi are different. They are B₁, B₂, G₁ and G₂. Out of all these B₁ is very harmful.

Symptoms:-

- ✦ Toxins reach liver and obstruct the functions of liver.
- ✦ Deficiency of vitamins occurs.
- ✦ Egg yield is reduced. Fowl become weak.
- ✦ Due to the effect of toxin kidneys may get infected.

Treatment and prevention:-

- ✦ No special treatment for this disease.
- ✦ Remove musty food and fresh food is to be given.
- ✦ Based on need litter also to be changed.

3. Thrush:-

- ✦ This is also called as - Moniliasis.
- ✦ It is caused by *Candida albicans* fungi.

Symptoms:-

- ✦ Lesions formed in the proventriculum. Foul smell. Oesophagus becomes rigid and thick.

Prevention:-

- ✦ Use hygienic feed, free from fungus.
- ✦ Air, Ventilation and sanitation of shed are more important.

Protozoan diseases:- Protozoan parasites cause many disease to poultry, a part from them the important diseases are

Coccidiosis:-

- ✦ It is caused by the protozoans, belong to the class- sporozoa.
- ✦ These are intra cellular parasites in the intestinal epithelium.
- ✦ These parasites belong to the *Eimeria* species, The types of organisms are,

1. Eimeria tennella 2. E. necatrix 3. E. acervulina

- ◆ They spread with out the intermediate host.

Spread:- Transmission through the faecal matter of infected fowl, that contains sporocysts, they infect the healthy fowl.

Symptoms:- This is the intracellular parasite and affects in three regions. They are caecum, intestine and duodenum.

- ◆ Caecum get inflammation becomes red, blood clots and mucus are present Ex: Eimeria tenella.
- ◆ Intestine get infected in 4-24 week old fowl, mainly the middle region of the intestine get infected.
- ◆ Due to the infection in this region, the wings of fowl fall down.
- ◆ The middle region of intestine swollen and have blood clots. Ex: Eimeria necatrix.
- ◆ The fowl that infected at duodenum region lose their weight, reduction in egg production.
- ◆ White streaks and red spots on duodenum are seen. Ex: Eimeria acervulina.

Treatment:-

- ◆ After the determination of the disease, the infected fowl should be removed.
- ◆ In this disease the intestine of the fowl get damaged, so they unable to take feed and water.
- ◆ More vitamins are to be provided.
- ◆ Ambrosol, cardanol, salmet and Bifuran are mixed with water and used.

Prevention:-

- ◆ Sheds should be kept clean.
- ◆ See that the shed should get more air and ventilation.
- ◆ If the fowl feel stress, medicines are mixed with feed and used to prevent the disease.

Modern poultry and management methods:-

- ◆ Now a days in India the poultry became a beneficiary industry.
- ◆ There is a need to enhance the food products in accordance to the growth of the population. There are many trials in our country to meet the needs of population. A part from them the modern poultry occupied an important position.
- ◆ So every poultry farmer should follow scientific methods; beneficiary management techniques to get more benefits.

Management methods to be followed in modern poultries:-

1. Chicks purchasing method:-

- ◆ Purchase the chicks that have been developed for high yield of eggs.

- ◆ The chicks developed by proper breeding methods and under the supervision of Geneticists should be brought from famous companies.
- ◆ Purchase the chicks that are being vaccinated for some diseases.
- ◆ Select favourable breeds that are free from diseases.
- ◆ The selected breeds should be adapted for different environmental conditions.
- ◆ the hybrid layers grown in India are BV-300, Hylan, poon pearls etc....
- ◆ Hubbard, vencob are India's commercial broilers.

2. Brooding management (0-6 weeks):-

- ◆ 24 hours prior to the arrival of chicks, the brooder should be heated and see that the temperature should be 90-95⁰F.
- ◆ Arrange the litter, arrange the paper above the litter and release the chicks.
- ◆ Arrange chickguards to keep the chicks in the hot region and not allow them to move away.
- ◆ Initially start with 90⁰F and reduce 5⁰F of temperature every week.
- ◆ Prior to the arrival of chicks all the instruments should be cleanly wiped and sterilized from micro organisms.
- ◆ Clean the shed and make white wash then spray malathione.
- ◆ Especially, appoint an expert, who knows brooding management methods, check the condition of chicks, temperature daily 5 times.

3. Brooder shed management:-

- ◆ Keep chicks in brooder upto the age of 8 weeks.
- ◆ Arrangements made, for the chicks, that they get pure, dry, good air and ventilation.
- ◆ As the fowl grows, pressure may be developed. So that the arrangements should be appropriate.
- ◆ Floor space, feed space, water space, feed, water etc should set in accordance to the age and number of fowl.

4. Feed management:-

- ◆ To maximize the products i.e to get high yield from poultry, it is essential to give balanced diet to fowl.
- ◆ Balanced diet should contain carbohydrates, proteins, minerals and vitamins in appropriate quantities.
- ◆ Feed should given many times in minute quantities.
- ◆ Different aged layers require different kinds of feed like, brooder or chick mash, Grower mash, pre layer mash and layer mash.
- ◆ Broilers require pre starter mash, starter mash and finish mash are to given as feed.

- ◆ Safe drinking water should be available always.
- ◆ If temperature, ventilation, dry litter and shed not maintained properly, that leads to the less yield of eggs in future.

5. Vaccination:-

- ◆ Vaccines are administered to different diseases of fowl. There by we can enhance immunity prior to the attack of diseases.
- ◆ Important vaccines for the fowl:-
- ◆ Marek's vaccine to be given at the age of one day. It is given in hatcheries.
- ◆ 'F' vaccine on 4th day, administered through nostrils.
- ◆ R₂B – vaccine in 6th week, against to 'New castle disease'.
- ◆ Fowl pox vaccine is 8th week, R₂B booster dose in 17th week to be given
- ◆ The best management practice after vaccination is Debeaking.
- ◆ Cutting of beaks is known as debeaking.
- ◆ Due to debeaking, food may not go waste, prevent cannibalism.
- ◆ The best time for debeaking is 6-10 days.

Poultry as self employment:-

- ◆ Rearing of fowl is a ancient practice in India, there are evidences too.
- ◆ Right from past two and half decades poultry has been developing in india.
- ◆ The main aim of the scientific poultry management is to yield more by investing less. In india poultry spread all over the country either as cottage industry or large -scale industry.
- ◆ World wide india stood at 3rd position in egg production and at 5th position in the production of meat.
- ◆ Currently poultry industry is in continuous development apart from agriculture associated fields with an average growth rate of 10-12% It reached to 70,000 crores status.
- ◆ Poultry industry providing employment for approximately 6.2 million people directly or indirectly.
- ◆ Most of the youth can get self employment by establishing poultry.
- ◆ Poultry can be established as cottage industry. Can be started with less investment. There are many universities providing training.
- ◆ Farmers may get employment by establishing poultry in association with agriculture.
- ◆ In India many colleges and Universities offering post graduate and doctorate courses in relation to poultry.
- ◆ the central poultry training institute - Hesara ghatta, offering short term training for the farmers of various states.

- ✦ It is essential to enhance food products to meet the needs of growing population of the country, so there was a high demand for eggs and meat. Utilize this need and get income by establishing poultry.

Production and preservation of eggs:-

- ✦ Generally, fowl that produce eggs are called as - layers.
- ✦ The hybrid layers used for egg production in our country are EV-300, HH-260, Saler etc..
- ✦ Layers start laying eggs usually at 18-20 weeks.
- ✦ During the time of laying eggs, light required for 14 -16 hours per day in the sheds. Temperature is necessary for the production of eggs.
- ✦ Layers start laying eggs after they cross 20 weeks of age.
- ✦ Hybrid layers lay 280-320 eggs per annum.
- ✦ Right from the collection of eggs from poultry farm to preserve these eggs there are many phases.
- ✦ Remove the broken eggs in first phase.
- ✦ Eggs are cleaned with water to remove bacteria and other wastage.
- ✦ Isolate or separate the eggs based on their size. This process is called as 'grading'. After grading eggs are kept in trays and are preserved.
- ✦ The egg preserving trays are prepared with plastic or paper
- ✦ The temperature required for the preservation of eggs is below 45°F (72°C). Based on demand, eggs sent to market.

ANIMAL HUSBANDRY

- ✦ Rearing of cattle, that are economically useful for human beings is known as Animal husbandry.
- ✦ Animal husbandry is a agricultural method related to livestock, breeding and rearing.
- ✦ To meet the food needs of growing population through out the world, the techniques that raise the productivity of the food are going to play a major role in nearest future. The principles of biology have significance, in the trials made for high food yield in terms of animal husbandry.
- ✦ Animal husbandry, dairy are very important in rural areas that not only providing employment but also the financial benefit.
- ✦ In India animal husbandry has a long history, it is came to know domestication of pet animals was there from the time of vedas.
- ✦ In India cows, buffaloes are mainly domesticated through animal husbandry.
- ✦ In India, apart from country cattle, 26 species of cows and 7 species of buffaloes are suitable for milk production. Besides them some other exotic species are also grown.

◆ The buffalo breeds of India are divided into 5 groups.

They are:

1. South India group species: Toda, south canara
2. Murrah group species: Murrah, Nili Ravi, Kundi
3. Gujarat group species: Surti, Mehsana, Jaffarabadi
4. Central India group species: Nagpuri, Pandharpuri, Manda, Jaranghi, Kalahandi
5. Uthar pradesh species: Bhadawari, Tharai

◆ In the desi cows - Ongole, Gir, Haryana, Sahiwal etc... are important.

◆ Jersey, Holstein, Brown swiss, Red dane, Ayrshire etc are the exotic cow species grown for milk production in our country.

◆ Nagpuri buffalo is the famous one for milk production in our state.

◆ The important cows domesticated for milk production in our Telangana state are: Deoni, Red sindhi (Indigenous species)

◆ The average milk production of Indigenous cows is 170 litres.

◆ The average milk production of Netherland cows is 4,100 litres.

◆ Due to low milk production India satirically called as 'Tea cup cow'.

◆ So in order to raise quality of milk and productivity, we should utilize the technology.

Dairy farm management methods:-

◆ Rearing cows and buffalo for milk production is called as 'Dairy farm'.

◆ In foreign countries cows are grown more for milk, But in our country buffaloes grown more.

◆ We are very back ward in the milk production, when compared to foreign countries. Scientists are trying to enhance milk production by producing new hybrid species that are obtained through the hybridization of our country cows and buffaloes with foreign cows and buffaloes.

◆ Dr. Verghese Kurien, was the person who tried for more production of milk in India, he was the founder of 'National dairy development board (NDDB). He was the 'Father of white revolution of India'.

◆ NDDB conducted the 'Operation flood', there after the dairy farming in India obtained wonderful development.

◆ Breeding, nutrition management of milk giving animals, making milk and milk products suitable for sale with benefit is known as 'Dairying'.

◆ Commercial dairy centres have 5 to hundreds cows or hybrid buffaloes murrah species.

◆ From the milk of milk centres, we can prepare cream, Ghee, curd, butter milk, yogurt and cova etc..

- ✦ Dairying provide work and income to farmers in all seasons.
- ✦ For past few years dairy centres developed with new vision due to the invention of new technologies, management methods high yield of milk and milk products were given more priority.

Management:- In the milk centre field management, the methods and systems for enhancing milk production and quality of milk are to be taken in to consideration. The important points are:

- ✦ Select quality breeds that have disease resistance and high productive capacity because the milk productivity depend at field level purely on the quality of the breed.
- ✦ Appropriate habitat, water, air, ventilation and temperature are required to enhance the productivity.
- ✦ Cattle nutrition fodder, feed should have quality and quantity.
- ✦ Adapt scientific methods, special care should be taken.
- ✦ Hygienic methods to be followed for milking, storage and transport. If all these methods are mechanized, the hygiene may be enhanced due to the reduction of direct contact of humans with products.
- ✦ Appoint a person in dairy form with knowledge related to Animal husbandry.
- ✦ The supervision of veterinary doctor is must, because there is every possibility to get diseases.
- ✦ By recording data of cattle in the farm, we can identity the problems in an easy way and can be solved easily.
- ✦ Animal breeding is a cattle culture technique to be followed to get high productivity in the cattle. Many hybrid cows are produced by this method. With these dairy become profitable.

Preservation of semen:-

- ✦ Semen collected from testes of bull. This collected semen is known as 'seminal fluid'.
- ✦ Seminal fluid contain proteolytic enzymes and fructose. Sperms are freely swimming in this fluid.
- ✦ The semen of bulls is in milky cream in colour.
- ✦ After the collection of semen, it is kept on water bath for some time at $30 - 34^{\circ}\text{C}$. The quality is checked with the help of microscope.
- ✦ To check the structure and quality of sperm, the eosin nigrosin stain is used.
- ✦ Dilute the semen by 50% at 30°C by using 3% glycerol. After wards cool the semen at for 30 minutes at 5°C .
- ✦ This semen is preserved in two methods.

Horizontal method:-

- ✦ In this method, filtered through horizontal straw and keep in the steam of liquid nitrogen at $-120^{\circ} - 130^{\circ}\text{C}$ more than 4 cm for 9 minutes.

- ◆ After wards the straws are shifted in to liquid nitrogen.

Vertical method:-

- ◆ In this method, fillter through vertical straw and keep in the steam of liquid nitrogen at -120° - 130° C morethan 0.5cm for 18 minutes.
- ◆ These straws are kept in liquid nitrogen at -196° C.
- ◆ This semen is packed in 3 ways.
 - 1) In 0.5 ml to 1 ml extendable glass ampule
 - 2) In 0.25 to 0.5 ml extendable Glyvenyl straws
 - 3) In 0.1 ml pellets can be packed.
- ◆ After packing, freezing to be done in mechanical freezing, or Dry ice (or) liquid solution or liquid oxygen.
- ◆ After freezing, semen preserved in liquid nitrogen and transported to desirable areas.

Artificial Insemination:-

- ◆ The semen collected from bulls is introduced artificially in to the uterus of the cows is called as 'Artificial in semination ' (AI).
- ◆ Artificial insemination is performed when the cows or buffaloes have finished their ovulation.
- ◆ By the time, the semen kept stored in liquid nitrogen at -196° C . The veterinary doctor introduce this semen into vterus of female artificially. The sperms that are present in the semen have the capacity of Fertilization.

Advantages:-

- ◆ By this method hybrid organisms are created.
- ◆ We can regulate the genetical disorders, that occur during normal fertilization.
- ◆ Fertilization capacity is more.
- ◆ We can save the cattle from the legions occur during mating.
- ◆ No need of nourishing bulls only for the copulation.
- ◆ This process gives good results, because it happens under the supervision of veterinary doctor.

Estral cycle in cattle, its detection:-

- ◆ Usually the cattle get identified by some characters, after they attain puberty. (breeding stage)
- ◆ Cattle become physically fit during breeding stage. In this period sexual hormones are released.
- ◆ Due to the effect of hormone that bring changes - there by we determine the breeding stage, well in advance.
- ◆ The time of ovulation in a sexually matured cattle is called - on set of puberty.

- ◆ During the onset of puberty, vaginal secretions come out as thread through vagina. We can observe behavioural change. we can seen the shouting of cattle. Vegina is seen red colour.
- ◆ Based on all these characters puberty is identified well in advance.
- ◆ Fertilization, reproduction in cattle is totally under the control of hormones.
- ◆ Some times hormones are injected artificially to the cattle and stimulate them to release ova for the fertilization.
- ◆ Ovulation, fertilization and Implantation like processes are all under the control of hormones of endocrine system.
- ◆ Mainly the hormones from the pituitary gland regulate all these processes.
- ◆ Pituitary gland hormones are injected to cattle, to stimulate the artificial ovulation or advance ovulation.

SHORT QUESTIONS

1. Broiler fowl
2. Layer fowl
3. Preservation of eggs
4. Incubation of eggs
5. Animal husbandry
6. Artificial in semination
7. Preservation of semen

ESSAY QUESTIONS

1. Write various management methods of poultry.
2. Write about the diseases, treatment and preventive measures of poultry.
3. Write about modern poultry farm.
4. Describe the animal husbandry.
5. Write the chances to opt poultry as self employment.