POULTRY FARMING MANUAL

Breeds

- Hybrid birds are usually considered when talking of commercial poultry. However, some work is being done on local birds. They are very important for eggs and meat production in the rural areas.
- The breeds available from hatcheries are mainly hybrids such as brown eggers, Isa Brown shavers. These breeds are classified into two main categories namely:

- **Layers: - for production of eggs.**
- **Broilers: - for production of meat.**

Feeds and Feeding

Layers Feeds

- Chick and Duck mash should be used for chicks of 0 to 8 weeks of age.
- Growers' mash should be used for pullets up to 18 weeks of age.
- Layers' mash should be used for birds of 18 weeks to 76 weeks of age.

Feeding Layers.

Use recommended feed trough e.g. Naivasha feeders.

- Fill the trough 1/3 to ½ full for dry feed.
- Feed once or twice a day.
- Always buy feeds from reputable feed stockists or manufacturers.

Layers' Feed Requirements.

- For chicks 0 to 8 weeks of age, give 40gm per chick, per day, of chick/duck mash. This amounts to about 2kg chick/duck mash per chick for 8 weeks.

- For pullets or growers 8 to 20 weeks of age, give 80gm per bird per day, of growers mash. This amounts to 8 to 9kg of feed per bird for 12 weeks.
- For birds 20 to 76 weeks of age allow 120 to 130gm per bird, per day of layers mash. This amounts to about 45 kg of layers mash per bird from 20 to 76 weeks of age.
- Note: For practical purposes, it is good to allow free lib for chicks and free feeding for the older birds if the feed troughs are appropriate and feeders are filled to appropriate levels. Birds will consume just enough and may not over eat, so long as feed is continuously available in the troughs.

Wastage Control.

- In a poultry enterprise, cost of feed constitutes 80% to 90% of total costs. It is important that feed wastages should be avoided wherever possible.
- Wastages in a poultry unit will arise from poorly designed feed troughs; too full feeders allowing feed spillage. For instance; when feeders are fully filled to two-thirds-full, 10% of the feed is wasted; when feeders are half-filled, only 3% of the feed is wasted. Wastage also arises from theft by rats and wild birds if they have access to the poultry unit. Naivasha feeder is identified as a good anti-waste feeder.
- It is necessary for every poultry farmer to buy proper feeders, fill them as recommended and keep off rats and wild birds.

Feeding Broilers

a. Feed Types.

- Use broilers start mash up to 4 weeks of age. Use broilers follow up mash from 4 to 7 weeks of age.

b. Frequency.

- Feed the birds ad lib.

c. Quantity.

- Normally birds will consume 4 to 5kg per bird to reach slaughter weight in 7 weeks. Slaughter weight is normally 2kg Life Weight. Farmers should check feed loss into the litter by using proper feeders and filling feeders properly.
- Note: Farmers should not keep broilers if they do not have a ready market. After broilers reach their market weight they should be sold out otherwise the farmer will incur losses.

Brooding

Brooding Types.

Types of Brooders depend on the heat source e.g.

- Charcoal burner
- Kerosene lamps
- Electricity

Brooding Capacity

- One paraffin lamp is enough for about 50 chicks
- One charcoal jiko is enough for up to 500 chicks

Brooding Density

- Floor space should be 25 chicks per square meter.
- Note: A hover or cover should be provided about the brooder, to reduce heat wastage. A polythene paper can do the same job, but care should be taken to allow free airflow in and out of the brooder.

Brooding Temperatures.

- Temperature above the floor should be kept at 95° F for the first 2 weeks, then lowered by 5° F for each week up to the 8th week.
- Where thermometers are not available, especially in the rural areas, it is good to observe the reaction of chicks to the heat as follows:

1. If the chicks are running away from heat source, then temperature in the brooder is very high.
2. If there is crowding at the heat source, then the brooder is too cold.
3. When chicks are evenly distributed in a brooder, the temperature is proper.

Brooding Other Conditions.

- Fresh air and light should be allowed in the brooder but no drift should sweep the floor.
- The litter in the brooder should not at any time be wet or damp.
- Brooders should be thoroughly cleaned and disinfected 1 to 2 weeks before bringing in new chicks.
- Farmers should be aware of the danger of the brooder catching fire. Necessary precautions must be taken particularly when using charcoal or wood.

Egg Production

Egg production

Production per bird

- Production per bird is very variable. It depends on the quality of birds and the level of management. However, production of 240 to 280 eggs per lay period is good performance. Under poor management, birds can produce as low as 180 eggs per bird, per lay period. A lay period is normally 1-year.

Handling Eggs

- Collect eggs 2 to 3 times a day.
- Store eggs in a cool dry place.
- Place eggs with the broad end up in the egg tray.
- Separate broken eggs, tinted and those with blood spots from whole eggs.

Flock disposal or Culling.

- ❖ Flock disposal for all birds is done at the end of the lay period. All birds are also disposed after they have proved uneconomical to keep. In most cases laying birds are kept for 1 year before they are disposed.
- ❖ Therefore, it is important to assess the economics of continued production. In any case, individual birds are culled or disposed off if; they are not laying, have a problem, or are sick.

Flock Planning

- ❖ For proper utilization of facilities and market, the birds should be stocked in such a way that there are flocks at 8 weeks; 22 weeks; 44 weeks; and 66 weeks. This plan allows for continuous supply of eggs to the market by the farmer.

Records

Every poultry farmer should keep management records such as: -

- Source (The hatchery chicks were bought from),
- Feed types, source and prices.
- Feed consumption rate.
- Growth performance.
- Egg production per day, per month, per laying period.
- Diseases occurrences.
- Egg Sales.

Production Factors Calculations.

There are many production factors, which each poultry farmer has to know and review from time to time to assess production efficiencies, e.g.

1. **Average Number of Eggs per hen.**

   - Total Number of Eggs divided by Average Number of hens.

2. **% Production.**

   - Total Number of Eggs times 100 divided by Total Number of days times Number of birds houses.

3. **% Mortality.**

   - Total loss to date times 100 divided by Total Number of hens at the time of housing

4. **Kg of Feed per Dozen eggs.**

- Total kg feed used divided by Total dozen eggs produced.

5. Average Feed Cost/hen.

- Total Feed Cost divided by Average Number of hens.

6. Return above feed cost/ dozen eggs.

- Price/dozen eggs MINUS divided by Feed cost per dozen eggs.

7. % Breakage.

- Total Number of Eggs Broken times 100 divided by Total Number of Eggs produced

Poultry Diseases:

Diseases, Parasites and other Vices:

Common poultry diseases include:

- Gumboro
- Coccidiosis
- New Castle disease
- Fowl Typhoid
- Fowl pox.
- Poultry also may suffer from ectoparasites and edoparasites in addition to other vices.

Gumboro Disease.

Transmission:
- Direct: by faeces.
- Indirect: by fomites, farm staff and insects such as Alphitobius diaperinus.

symptoms
- Diarrhoea
- bristled feathers
- septic shock
- depression
- prostration
- comb paleness.

Secondary processes appear due to immunosuppression: less response to vaccines, more incidence of coccidiosis and other pathological processes. It is possible to make a presumptive diagnosis based on the appearance of symptoms such as weakness, white diarrhoeas, bristled

feathers, and lesions such as muscular haemorrhages, oedema and haemorrhages or bursal atrophy.

LESIONS:

- Increased bursal size
- oedema with gelatinous and haemorrhagic content, which over the course of the time becomes atrophic.
- Haemorrhages in thighs and breast muscles.
- Renal alterations: inflammation and accumulation of urate.
- It is possible to estimate the degree of virulence of the virus and its lymphocytary depletion capacity by doing a histological analysis of the bursal tissue.

TREATMENT, PREVENTION AND CONTROL:

- There is no effective treatment against the disease, although birds may be helped with drugs to treat symptoms so as to control secondary agents and the effects of immune suppression.
- One of the basics of prevention is the use of vaccination with inactivated vaccines in breeders so as to supply good passive immunity to the progeny.
- Chicks should be vaccinated with live vaccines when the level of maternal immunity is adequate so that the vaccine is not neutralised.
- Moreover, and no less important, it is fundamental to ensure good levels of biosecurity, disinfections, and pest control as well as avoiding multi-age systems for reducing the incidence of the disease.

Coccidiosis.

a. Causes

- The disease is caused by coccidian, which multiply very rapidly in the intestines.
- It usually occurs at 8 to 10 weeks of age and normally expresses itself in acute and chronic forms.

A figure showing a chick affected with coccidiosis

- In the acute type, death occurs in 5 to 7 days.

- The chronic type does not kill immediately but persists for long.

b. Symptoms

- Infected birds or chicks become droopy, look unthrifty, and usually have ruffled feathers, pale beaks and shanks.
- Caecal coccidiosis has bloody droppings.
- Mortality may be high and sudden.

c. Control

- ❖ Sulphur drugs are normally used for treatment, use of coccidiostat in feed and always ensuring dry litter are other controls.

Fowl Cholera

a. Causes

- ❖ The disease is caused by pasteurel laavicida, a microorganism that multiplies very rapidly in the blood causing poisoning. Sick birds, wild birds, human, animals or utensils transmit the disease.

b. Symptoms

- ❖ The disease spreads very rapidly in a flock. There is yellowish colouration on birds' droppings, which is followed by yellowish or greenish diarrhoea.
- ❖ Infected birds become droopy, feverish and sleepy. The birds also sit with the head down or turned backwards or rested in feathers about the wing.

c. Control

- ❖ Birds with acute type should be destroyed and burned. House should be thoroughly cleaned and disinfected.
- ❖ Treatment with recommended sulphur drugs is effective. Ensuring there is no wet litter is important, which provides ideal conditions for coccidian.

New Castle Disease

a. Causes

- ❖ This disease is caused by a virus that infects respiratory and nervous system. In both chicks and old birds mortality varies from 0 to 100% depending on virulence of the organism.

b. Symptoms

- ❖ Egg production declines up to zero in 4 days. When laying resumes, misshapen eggs are produced with rough shells and sometimes bleached shells.

- In chicks, gasping coughing and sneezing is observed and ater nervous systems. Birds may be seen sitting on their back hock joints; others may walk backwards; or in circles; or hind their head between their legs.
- In adult birds, external symptoms are more of respiratory nature, plus sudden decrease in egg production. Birds lose appetite and are droopy. If infection is severe, most birds sit on the floor and the roosts.

c. Control

- Vaccinate chicks at 3 to 4 weeks of age. Repeat at 16 weeks of age and at the 24th week. Thereafter vaccinate when there is an outbreak in the area.

Fowl Typhoid

a. Causes

- The disease is caused by a microorganism called salomonellagallinarum or shigellagallinarum.

b. Symptoms

- Symptoms include dullness, ruffled feathers, paleness of the head drooping comb, loss of appetite and pale orange coloured diarrhoea.
- Symptoms appear in 3 to 4 day after infection and death occurs in 2 weeks. The disease can be introduced into the flock by infected birds, materials, shoes, litter, etc.

c. Control

- Vaccinate the birds at 7 weeks of age.
- Destroy all dead birds by burning.
- Do not allow visitors to enter into the poultry unit without being disinfected.

Pullurum Disease

a. Causes

- Pullurum disease is caused by a microorganism called Salomonella Pullurum, which infects the ovary of the hen.
- The microorganism can also be found in the intestine of chicks. The disease is usually spread by eggs laid by birds carrying the microorganism and chicks hatched from those eggs.

b. Symptoms

- Chicks utter squeaky chirps and appear drowsy and ruffle. Vent is sometimes smeared with faecal discharges.
- In adult birds no external symptoms are seen. In baby chicks, symptoms are seen in 4 to 10 days with death occurring in 3 weeks.

c. Control

- Destroy all confirmed carriers of the disease.
- Clean and disinfect all the premises and incubators
- Get chicks from hatcheries with good disease control programme.

Fowl Pox

a. Causes

- ❖ Fowl Pox is a highly infectious skin disease. It is characterized by typical pox lesions in the form of wart-like scabs on the face, comb and wattles.

Control

- Provide footbath with disinfectant
- Limit visitors to the unit
- Workers should move from young to old flock in the units.
- Clean and disinfect the house and equipment at the end of each crop and rest it for 1 to 2 weeks

Ectoparasites

- ❖ These are mainly lice, fleas, mites and bedbugs.

Control

- Spray or dust the poultry and poultry house with recommended chemicals.
- Replace litter at the end of each crop.

Edoparasites

These are roundworms, tapeworms, gapeworms, etc.

Control

- Provide proper sanitary conditions in the rearing units.
- Treat the flock by using recommended drugs from veterinary.

Vices

- ❖ Birds will develop abnormal behaviours such as cannibalism, breaking and eating eggs, etc.

Control

- Occupy the birds by supplying grass in the unit for them to pick on.
- De-beak the birds if the problem continues.

Poultry Equipments

Roost or Perches

- Perches in laying house can be provided or left out. When present, place them at the rear of the building so that birds use them for resting.
- Roost or Perches can be made using timber of 20mm by 25mm spaced 30cm apart. Where timber is used, all corners must be rounded. A space of 8 to 10 inches should be allowed per bird.
- Caution! No roosts should be provided in the in the case of broilers. Birds tend to develop problems on their legs spoiling the quality of meat.

Laying nests

- Layers should be provided with laying nests when they reach the age of 18 weeks. Tunnel or commercial nests are now common.
- In case of tunnels birds share the nests. The front is about 30cm high and the back 45cm high. If individual nests are needed the tunnel is partitioned at 60cm apart.
- Birds' entrance should be made 20 by 20cm Square and 9cm above the nest floor for both types. To prevent egg eating, laying nests should be made as dark as possible so that birds do not see eggs.

Birds' density in the nests should be: -

- 5 birds for commercial or tunnel nests of 60 by 180cm.
- 5 birds for box nests of 30 by 30cm.

Feed Troughs

- Feed troughs should be provided in the building. Troughs known as improved Naivasha feeders' have proved suitable and economical. Round plastic or metal trough feeders are available and good, but costly.

Trough Space Requirement Per Bird.

a) Long feeders.
- Chicks = 4cm; Growers = 8.8cm; Layers = 10cm; Broilers = 4cm.

b) Round Feeders.
- Chicks = 1.6cm; Growers =2cm; Layers = 3cm; Broilers = 2.4cm.

Feeder Management

- Feeders should be about 14cm deep and should always be filled about ½ to 2/3 full. Drinkers should be 20% of the provided feeders.
- Farmers can make their own drinkers at home using plastic jerry cans. Jerry cans are cut on the sides to allow birds to get water. Round cans are recommended.

- Drinkers should be washed daily and filled with fresh water.
- Allow 20 litres of water for every 25 birds.

Characteristics of good feeders and drinkers.

Good feeders and drinkers are: -

- Easy to clean.
- Allow no feed or water wastage. Easy for birds to get feeds or water from the bottom.
- Should keep both feed and water clean.