

POULTRY PRODUCTION

FOREWORD.

Poultry farming makes a substantial contribution to household food security throughout the developing world.

Helps diversify incomes and provides quality food, energy, fertilizers and renewable asset in over 80% of the rural households.

However small scale producers are constrained by such challenges:

- Poor access to markets, goods and services
- Lack of knowledge and skills, weak institutions, inappropriate technology.
- Poor breeds, feeds and vaccines

Poultry farming is an income generating project as the main goal in poultry keeping.

Eggs can provide a regular albeit small income while the sale of live birds while slaughtered birds provides a bit more flexible source of cash as required.

A study on income generation in transmigrate farming system in an African country showed that farming poultry accounted about 53% of the total income and was used for food, school fees and unexpected expenses like medicines.

Flock composition is heavily biased towards chickens in Africa and S.Africa with more ducks in E. Africa and S. America.

OBJECTIVES of poultry farming

1. Home consumption
2. Cultural reasons
3. Income generation

PRODUCTION SYSTEMS

Poultry farming are kept under a wide range of conditions which can be classified into one of four broad production systems.

- 1. Free range extensive system**
- 2. Backyard extensive system**
- 3. Semi intensive**
- 4. Intensive**

1.free range

In free range condition, the birds are not confined and can scavenge for food over a wide area. Rudimentary shelters may be provided and these may or may not be used. The birds may roost outside usually in trees and nests in the bush.

The flock contains birds of different species and varying ages.

2.Backyard extensive

Poultry are housed only at night but allowed free range during the day.

They are usually fed a handful of grain in the morning and evening to supplement scavenging.

3.semi intensive system

These are combination of the extensive and intensive systems where birds are confined to a certain area with access to shelter.

Commonly found in urban and peri-urban and in rural situations.

In the run system, the birds are confined in an enclosed area outside during the day and housed at night.

Feed and water are available in the house to avoid wastage by rain , wind and by wild animals.

Categories of semi-intensive system

- I. Ark system
- II. Fold system

Ark-Where the poultry are confined (for security against predators) in a building mounted on two rails or skids (usually wooden) which enables it to be moved from one place to another with a draught power.

A typical size is 2*2.5M to hold about 40birds.

Fold-unit with a space allowance (stock density) for adult birds of typically 3-4 birds per square meter (birds/M²) both inside and (at least this) outside.

This fold unit is usually small enough to be moved by one person.

Neither of the two systems is commonly found in developing countries.

4.intensive systems

These systems are used by medium and large scale commercial enterprises and are also used at the household level.

Birds are fully confined either in houses or in cages

Capital outlay is higher and the birds are totally dependent on their owners for all their requirements.

Production however is higher.

TYPES OF INTENSIVE SYSTEMS

- I. Deep litter system
- II. Slatted floor system
- III. Battery cage system

Deep litter system

Birds are fully confined (with floor space allowance of 3-4 birds/m² within a house, but can move around freely).

The floor is covered with deep litter (5-10 cm deep layer of e.g. grain husks of either maize, rice, straw, wood shavings or similarly absorbent but non toxic material).

The fully enclosed system protects the birds from thieves and predators, and is suitable for specially selected commercial breeds of eggs or meat producing poultry (layers, breeder flocks and broilers.)

Slatted floor system

Wire or wooden slatted floors are used instead of deep litter, which allow stocking rates to be increased to five birds/m² of floor space.

Birds have reduced contact with faeces and are allowed some freedom of movement.

Battery cage systems

This is usually used for laying birds, which are kept throughout their productive life in cages.

There is initial high capital investment and the system is mostly confined to large scale commercial egg layer operations.

Intensive system of rearing indigenous chickens commercially is uncommon.

Conclusions

Over the last decade, the consumption of poultry products in developing countries has grown by 5.8% per annum, faster than that of human population growth and has created a great increase in demand.

Poultry farming has the potential to satisfy at least this demand through increased productivity and reduced wastage and losses.

And for this to remain sustainable adapted breeds and better management of stock health and local affordable feed resources must be within reach.

Not excluding technology which needs not to be so sophisticated however technology in inputs must be inexpensive for economic considerations.

Further more emphasis on genetic improvement usually through the introduction of Exotic genes, improved feeds with no effect of birds of low genetic potential.

Note 1.

Flock composition depends on the objectives and the purpose of the poultry enterprise.

Note 2.

For breeding, the ratio of cock to hen of about 5:1 is common but sexes are retained for 150-300 days for the purpose of culling or selling.

SPECIES AND BREEDS

- I. Chickens
- II. Guinea fowl (Numididae) originated in west Africa
- III. Ducks (inc' Muscovy ducks) (Carina moschata) S.Africa
- IV. Pigeons (Columba livea) in Europe
- V. Turkey (Meleagrididae) in Latin America
- VI. Pheasants (Phasianidae) in Asia
- VII. Common ducks (Anas) in Europe
- VIII. Geese (Anser) in Asia

CHICKENS

Chickens originated in S.East Asia and were introduced to the rest of the world by sailors and traders.

Categorized into; 1. **Hybrid**

2. Indigenous

Hybrid

The new hybrids are widely distributed and are present in every county in tropics, even in the most remote villages.

The hybrids have been carefully selected and specialized solely for the production of either meat or eggs.

This end product specialized hybrid strains are unsuitable for breeding purposes, especially for mixing with local village scavenger stock as they have very low mothering ability and broodiness.

For the small holder keeping hybrids means considerable changes are required in management there may be expensive for the following reasons:

1. All replacement day-old chicks must be purchased
2. Hatchery chicks require artificial brooding and special starting feeds
3. Hybrids require higher quality balanced feed for optimum meat and egg production
4. Requires more careful veterinary hygiene and diseases management

5. Egg laying hybrid hens require supplementary artificial light (a steadily increasing day length up to 17hrs of total light per day) for optimum profitable production.
 - The meat and egg from intensively raised hybrid stock are considered by many traditional consumers thus offer to pay a higher price for village produced poultry meat and eggs.

INDIGENOUS (kienyeji chicken).

Nowadays indigenous village chickens are the results of centuries of cross breeding with exotic breeds and random breeding within the flock.

As a result it's impossible to standardize the characteristics and productivity performance of indigenous chickens.

Characteristics like adult body weight and egg weight vary considerably among indigenous chicken population through reproductive traits like the no. of laying seasons per year no. of eggs per clutch and hatchability are more consistent.

Indigenous village birds in Ethiopia attain sexual maturity at an average age of 7 months (214 days) and lay about 36 eggs.

GENERAL MANAGEMENT

Basic requirements for poultry housing are;

- **Space**
- **Ventilation**
- **Light**
- **Protection(from weather and predators)**

I. Space

This density of birds per unit area, it's the most important basic principle in housing as the space available determines the number and the type of poultry that can be kept.

For instance in deep litter system house measures 6m by 11m can hold about 200 laying birds at a stock density of 3birds/m²

Older system measures stock density in ft²/bird which is the inverse of birds/m² used in metric system.

The recommended floor and perching space for the 3 main types of chicken is shown below.

Chicken type	Floor space birds/m ²	Floor space ft ² /bird	Perch space per bird
layer	3	3.6	25cm (10 inch)
Dual purpose	4	2.7	20cm (8inch)
meat	4-5	2.1 -2.7	15-20cm (6- 8inch)

Note;

Hen groups are comfortable at a stock density of 3-4 birds per m² .

If more space is allowed a greater variety of behavior can be expressed

Less space creates stressed social behavior, allowing diseases vulnerability and cannibalism and leaving weaker birds deprived of feeds or perch space.

Individual birds need more room for normal behavior and adequate exercise than the 22birds/m² (0.5ft²/bird) density currently used in commercial laying.

III. Ventilation

This is the airflow in and outside the housing. Building with open sides is ideal, otherwise cross-ventilation at bird level should be allowed in for the through the floor level inlets and in a direction to allow the prevailing wind to blow across the width of the building.

An air mass between the sidewalls of a poultry house resists being moved even across an open-ended side building.

The wider the building, the more the resistant it is to air movement

Building over 8m (26ft) wide have a significant greater problem because of this inherent property of air to resist movement, so should not exceed 8m.

Heat stress is a significant constraint to successful production and can lead to death. Though birds can withstand several degrees below freezing, they do not tolerate temperatures over 40⁰c, this depends on relative humidity prevailing at that time, poultry do not have sweat glands and must cool themselves by panting out water in their breath, which is evaporative cooling, when the humidity is too high this cooling mechanism doesn't work very well. In high temperatures build house facing prevailing winds.

Ground cover can also reduce reflected heat, shade should be provided especially if there is little air movement or if humidity is high.

When confined in higher temperatures poultry becomes heat stressed and irritable and may begin peck at one another which can lead to cannibalism.

EFFECTS OF HEAT STRESS

- Progressive reduction in feed intake as ambient temperature arises
- Increase in water consumption
- Progressive reduction in growth weight
- Disturbance in reproduction (lower egg weight, smaller chicks)

IV. Light

A light intensity and duration is essential.

A dark house leads to lethargic, in active, and unproductive birds.

Light is important for feeding and also important for sexual maturity.ie it accelerates the sexual maturity growing pullets bringing them to lay sooner and it also increase egg production.

- Protection

Shelter sheds and buildings influence the type and choice of housing to protect poultry from the effects of weather and predators.

This includes the local climate, space available, size of the flock and the management system.

Leg traps can be set to catch large predators

Predators attack modes and control methods

Predator	Attack mode	Control method
1.Hawk	Picks up stray birds and weaklings, attacks birds so that head and toe marks are visible on back, plucks birds	Hunt the hawk and keep chicks away from clear swoop areas.
2.Rat	Usually takes more than their eat	If allowed use rat poison
3.Mongoose	Stuff chicks in holes for later consumption	If allowed use rat poison
4.snake	Will swallow eggs and chicks	Use fish hooks
5.Dog,cat	General destruction	Try to catch them, cats can control rats but wild cats and dogs are problem
6.fox , jackal	Will bite off the feathers over the back and between the wings, eat the entrails and breasts and carry bird to den. Pulls off head and eats crop will carry birds off	Roam in the early morning, kill for the young, trapping is the best control May be protected in some countries. A permit to destroy may be required
7.Racoon	Pulls off head and eats crop will carry birds off	May be protected in some countries. A permit to destroy may be required.

Housing

1. In free range system

Overnight shelter which is roomy, clean and airy should be provided in this system. House may be either fixed or mobile.

The stock density on pasture should be calculated according to the soil type and pasture management system.

In cases where there is heavy rainfall a raised floor can be a solid platform which has an advantage of providing ventilation under the poultry which helps cool them in hot weather and keeps them out of flood water in the monsoons.

Walls can be made of mud, bamboo and the windows and door of the bamboo slats.

2. Semi intensive and intensive

Complete confinement is only advisable where;

- There is good management
- Reproduction is spread equally over the year
- Land is scarce and inaccessible all year round
- Balanced rations are available
- Supply of hybrid day-old chicks is available
- Labor is expensive
- Parasite and disease control are readily available
- Objectives are commercial production.

Reasons for confinements are, in order of priority to;

1. Reduce mortality due to predation in chicks under 2 months of age
2. Achieve higher daily gain and better feed conversion in growers
3. Allow better supervision of production in laying hens

A good confinement should meet the following criteria's;

- a. Should be easily accessible
- b. There should be a reliable water supply
- c. The ground should be well drained
- d. Should be at sufficient distance from residential areas and woodlands.

Perches and roosts

Chickens prefer to roost at night on perches

Perching space of 15-20 cm should be allowed for each bird

The cross-sectional area of each perch bar should be 2-3 cm and the length depends on the number of birds to be housed.

The perches should be placed within a frame and aligned parallel to the wall and horizontally with a sliding removable platform called the

droppings bar about 20 cm below the perches to catch the manure droppings.

The first perch bar should be placed 20-25 cm from the wall and subsequent ones at 30-40 cm intervals.

The droppings board should touch the back wall and extend 30 cm in front of the front perch bar. Droppings board should be a maximum of 75 cm from the floor of the house and the perch bars should be about 20 cm above the droppings board.

FEEDING

In intensive and semi intensive systems, laying hens need constant access to food and water, feeders should be distributed evenly throughout the chicken house.

In the semi intensive system birds scavenge during the day mostly for protein from things like insects, worms, larva etc

Minerals from stones, grit and shells, and vitamins from leafy greens, oil palm and nuts but energy supplements like maize, sorghum and millet are important for higher productivity.

HOW TO GROW A HOME MADE MAGGOTS

Mix blood, offal and cow dung in a large open pot filled with one third full water. Flies will lay their eggs in the mixture and the maggots will feed on it.

Leave the pot open during daytime and closed during the night.

After 5-10 days depending with the temperatures when the maggots are ready to pupae you collect the maggots by gently pouring water into the pot, maggots will float and you collect them and feed them directly.

HOW TO GROW TERMITES

Take a pot with a short neck and at least 10litres of water in it.

Fill it up with cow dung and straw and sprinkle it all with a little water.

Set pot upside down with the opening on sandy soil.

After one day and one night the pot will be full of termites and you may empty them leaving contents in front of the hens.

FEEDERS

A good feeder should be;

- a. Durable enough to withstand frequent cleaning
- b. Stable enough not to be knocked over
- c. Of correct height and depth
- d. Birds proof(birds can't get in it)
- e. Equipped with a lip to prevent birds from spooning feeds out on to the floor.

Feeder space is measured as the linear distance of lip available to the birds, this is either the circumference of a round tube feeder tray or twice the length of a trough if the birds feed from both sides.

If troughs are used at least 10 cm of feeding space should be accessible to each bird, when circular feeders are used there should be at least 4cm feeding space per bird.

<u>Age (weeks)</u>	<u>Daily feed consumption(kg)</u>	<u>Suggested feeder depth(cm)</u>	<u>Feeder space(m)</u>
1-4 weeks	1.4-5.0	5	2.5
4-6 wks	3.2-7.3	8	3.8
6-9 wks	5.0-9.5	9	6.1
10-14 wks	7.3-15.9	12.5	9.6
15 and above	9.1-11.4	15	12.7

Creep Feeding.

Creep feeders are used to enable baby chicks to have access (*by creeping through a small doorway*) to a high quality (*high in energy and protein*) feed while blocking access to large sized birds

Better nutrition for young stock boosts their immune response to diseases challenge ant to vaccine response by developing full immunity.

Providing water.

Clean water is a priority that must never be neglected;

- the amount of water,
- the right type of equipment and
- where it is situated are important considerations.

Simplest equipment is a tin can inverted into a soup plate or the bottom of a large tin can.

Alternatively a nipple drinker may be provided for every ten birds.

BABY CHICK MANAGEMENT

Baby chicks should be kept warm and dry, the house must be clean and in colder climates (*below 20^oc*) the house should be kept warm with a fire place or electric heat bulbs.

There is a close relationship between chick weight, growth and mortality so very close vaccination programme should be followed

Sufficient feeds, feed supplements and proteins should be given.

HYGIENE

Proper attention must be paid to manure management which can be very dangerous if mismanaged and very useful as an organic fertilizer, as animal feeds, fish feeds and as raw material for methane gas generation in biogas plant for cooking fuel.

Good ventilation discourages both spread of diseases and pests so floor should be kept warm and dry, swept daily to break the breeding cycle of a common house fly

Practice of keeping chicken and ducks together should be discouraged for this result in wet floors giving raise to diseases like *fowl cholera* and *Newcastle* to chickens.

INCUBATION AND HATCHING

Eggs usually becomes fertile about 4 days after the rooster has been introduced to the hens.

In natural incubation the broody hen must be large healthy and preferably vaccinated and with a good brooding and mothering record.

Signs of broodiness are;

- ruffles her feathers
- spread wings
- loose appetite, brood sounds etc

Brooding may be induced with dummy eggs or even stones

The incubation period for chicken is 20-21 days and increases up to 30 days for other poultry.

Eggs incubator machines has an initial very controlled inputs to maintain optimum temperatures of 38⁰c and moisture levels of about 60-80% or relative humidity.

Factors to consider for incubation hatch

- a. Eggs must not be kept for more than 7 days
- b. Eggs must be fully fertilized
- c. Should be free from external parasites
- d. Should be kept at temperatures between 12⁰c and 14⁰c at a high humidity between 75 and 85%
- e. Should be tested for fertility after one week of incubation

TYPES OF INCUBATION.

There are a number types of incubations but we shall look at two types only;

1. Natural incubation (discussed up there)
2. Artificial incubation- a. Use of parched paddy rice and rice

Husks techniques (old method which is not mostly used)

3. Eggs incubator machine-it's a computer controlled machine, Uses electricity, gas or kerosene for heat production. The most used and modern machine uses electricity which applies a thermostat switching device to maintain the temperatures constantly as required within a one Celsius degree.

It also uses a predetermined surface area tray of water appropriate for each incubator chamber for usually maintain the correct humidity levels needed.

It also has an automatically set turning system that turns the eggs several times a day as pre set and this is important to prevent the embryo from sticking to the shell membranes of the egg.

Egg cuddling may be done between days 5 and 7 to check on the fertility of an egg through observation of the embryo development.

Together with a cuddling touch a cuddling box may also be used.

There are three possible situations from cuddling;

1. Very clear situation-indication of infertility
2. Pattern forming-indication of fertile egg
3. Opaque substance-indication of a dead embryo.

HEALTH

GENERAL SIGNS AND SYMPTOMS

1. Chickens huddle together
2. Coughing ,sneezing and rapid breathing
3. Discharge from mouth and nostrils
4. Dullness, no appetite, closed eyes, eye worms
5. Paralysis of legs and wings, turned or twisted neck
6. Dark red color of head and comb
7. Greenish, yellowish and blondish droppings
8. Pale comb, swelling of head and comb
9. Worms in feaces

Many of the common diseases and disorders may be either infectious or non infectious, and may be caused by a wide range of organisms or deficiencies as we can see below here.

SOME OF THE COMMON DISEASES

<u>Causal agent</u>	<u>Example</u>
<u>1.infectious</u>	
a. Virus	Newcastle disease, Avian encephalomyelitis, fowl pox, mareks disease, infectious bronchitis, infectious laryngotracheitis, gumboro disease (infectious bursal disease), duck virus hepatitis
b. Mycoplasma bacteria	Chronic respiratory disease Fowl cholera, salmonellosis pullorum, fowl typhoid, infectious sinusitis, callibacillosis
c. parasites	I. Ectoparasites; lice, mites, ticks II. Endoparasites; nematodes, histomoniasis, haemoparasites, roundworms, hairworms avian malaria III. Protozoan; coccidiosis, blackhead.
d. Fungus	Aspergillosis; Aspergillosis flavins (toxins)

	A. Fumigatus (airsaculitis)
2.NON-INFECTIOUS	
Deficiencies	Rickets ,curled toe paralysis, encephalomalacia
Toxicities	salt poisoning, food poisoning ,9botulism clostridium botulinum and c. perfringens),poisonous plants

VIRAL DISEASES

Viral diseases are considered some of the most infectious diseases affecting poultry, there are characterized by not being treatable but most can be prevented with vaccines.

For example 1.**Newcastle disease (ND)**

Spreads rapidly via airborne droplets spread by the coughing or sneezing of an infected birds, can be carried through wild birds, contaminated eggs and on clothing.

Birds of any age can be affected though young ones are the most affected.

The incubation period of three to five days is followed by dullness, coughing, sneezing, and gasping.

Rapid breathing is accompanied by a gurgling noise in the throat. The respiratory signs usually develop first which are sometimes followed by a nervous signs characterized by twisting of the neck sometimes combined with dragging of wings and legs.

2. Fowl pox

Following are some of the reasons why fowl pox is still prevalent in many poultry;

- a. Many of the blood sucking insects like the mosquitoes can transmit this virus
- b. The fowl pox virus can remain alive in the pox scabs (which have fallen off the birds) for up to ten years and this contaminates the environment.

3. Marek's disease (MD)

Infections occur in early stages of bird, once a bird is infected it can shed the virus in skin flakes throughout its life if it survives.

Clinical signs occur in young growing birds in the acute marek's disease form. Characterized by high mortality from visceral tumors and another peak of mortality occurs in the classical MD form ,characterized by nerve paralysis in the legs and wings of birds aged from aged from 15 wks to early in the laying period.

MYCOPLASMA DISEASES.

Mycoplasmas are not classified as bacteria or viruses but there are referred to as *pleura-pneumonia -cocci* like organisms (PPLO).

These are primarily associated with Chronic Respiratory Diseases (CRD)

a complex syndrome caused by mycoplasma galliseptium in partnership with bacteria (often E. Coli),fungi and viruses (often infectious

Bronchitis) *M. Galliseptium* can be transmitted through the egg, multi-age flocks, nutritional deficiency and water deprivation are important factors in the epidemiology of the disease in rural poultry flocks.

BACTERIAL DISEASES

FOWL CHOLERA (AVIAN PASTEURELLOSI)

This is a contagious septicemia (caused by *Pasteurella multocida*) that affects all types of fowls.

It is often transmitted by wild birds or other domestic birds, and spreads by contamination of the feed or water and by oral or nasal discharge from infected birds.

The incubation period is 4-9 days but acute outbreaks can occur within two days of infections.

In some cases birds die within few hours of showing the first signs which vary depending on the form of the disease.

The respiratory form is characterized by gasping, coughing and sneezing while in the Septicaemia form there is diarrhea with grey yellow or green droppings. In the localized form the signs are lameness and swelling of legs or wing joints

In acute cases the head and the comb change color to dark red or purple. If the infection is localized on the region of the ears, a twisted neck (Torticollis) can sometimes be observed.

In chronic cases the comb is usually pale with swelling around eyes and discharge from the back or nostrils.

PULLORUM (BACILLARY WHITE DIARRHEA)

This is an egg transmitted disease (caused by Salmonella Pullorum) that spreads during incubation or just after hatching.

Birds produce white diarrhea from 3 days to several weeks of age.

Chicks loose appetite, keeps their heads tucked in and their wings hanging down

Chicks will huddle together and make a peeping sound

Mortality in the acute form ranges from 20-80% and in the chronic form is around 5%

In the chronic form the signs are like swelling of the hock joints, lack of appetite, poor feather development and overall depression.

FOWL TYPHOID

It is caused by Salmonella Gallinarium and it commonly affects the adult fowls, when it occurs in young birds the signs are similar to those of S.Pullorum.

Incubation period is 4-5 days and later birds become so depressed and orexic. Color of comb and wattles become dark red, droppings are yellowish, loose eyes and keeps head down.

Affected chicks die within 3-6 days

AVIAN SALMONELLOSIS (PARATYPHOID)

Salmonellosis is usually used to describe infection with any organism of the Salmonella group other than *S. Pullorum* or *S. Gallinarium*.

In countries with intensive poultry system, poultry meat and eggs are a major source source of infection for humans or humans infecting the poultry.

PARASITIC DISEASES

EXTERNAL PARASITES (ECTO PARASITES)

1. **Lice**-lives on the skin especially around the cloacae and under the wings.

They cause irritations which can lead into a reduced production.

2. **Mites**-There are troublesome parasites which hide in cracks of housing and perches. Comes out at night and there are bloodsuckers that can cause anaemia and also causes lower production.

3. **Ticks**-Heavy infestation of ticks can cause a severe anaemia which can lead to death.

INTERNAL PARASITES

1. **Helminthes (worms)**-There are worms that cause lower production.
2. **Protozoa** –The most pathogenic are the coccidiosis - disease species of *Eimeria tenella* and *E. Necotri x*. Coccidiosis mostly

affects young birds and signs are Emaciation, thirst, listless ruffled plumage, blood stained faeces and birds huddling together.

FUNGAL DISEASES

The fungus *aspergillus flavus* commonly grows on stored ingredients where moisture content is over eleven percent (11%) especially in cereal grains like maize (corn), and oil cake meal (like groundnuts, peanuts meal).

The aflatoxin called mycotoxin is the specific toxin produced by *A. Flavus* this toxin may remain after all signs of the fungus mould are gone.

ASPERGILLOSIS/AIRSACULITIS

The fungus *aspergillus fumigatus* causes the disease by growing as a fungus in the lungs and interconnected air sacs.

The fungus grows on damp litter or feed and the bird breathes in the spores which grow into easily visible lesions as green and yellow nodules which completely fill the lungs.

GUMBORO (INFECTIOUS BURSAL DISEASE, IBD)

Only seen in chicks' younger than 6 weeks and normally occurs only in large flocks kept in confinement.

Not common in small scale village based system.

Common symptoms are diarrhea and the disease is a virus so no treatment but vaccines may be available.

CHRONIC RESPIRATORY DISEASE (MYCOPLASMOSIS)

SYMPTOMS; Runny or blocked nose, swollen face, closed eyes acute drop in production but rare deaths.

Treatment by adding antibiotics in water is recommended.

COCCIDIOSIS (INTERNAL PARASITES).

It may occur at all ages, but can be prevented by regular and careful cleaning of troughs and poultry houses.

Symptoms; sickly posture, tired, head down, ruffled feathers, bloody diarrhea

Death in young chicks and if survives they remain thin and emaciated and thus late laying.

Treatment; Anticoccidiostatics in drinking water or feeds.

Prevention; not too many birds together and avoid different ages together.

MYCOTOXICOSIS (FUNGAL POISONING)

Symptoms; General weakness, pale combs, etc

Treatment; Supplementary vitamins

Prevention; Proper storage of feeds to prevent growth of the fungi producing mycotoxins.

NON INFECTIOUS DISEASES

DEFICIENCIES

Poultry health is also affected by nutritional and environmental factors like insufficient feeds or feed deficiencies.

A high mortality rates among chicks during the first days or weeks after hatching may be due to nutritional problems like salt deficiency.

Energy and protein deficiencies and imbalances can arise when the feed contains insufficient quantities of these nutrients leading to poor growth drop in production rickets (deformities), calcium deficiency.

TOXICITIES

An excess of a certain nutrients, especially minerals can cause abnormalities, excess of common salt (NaCl)₄ for example results in deformed eggshells also increased water consumption, and if drinking water is unavailable signs of toxicity may develop.

Free access to feed of high carbohydrate and low fat, combined with lack of exercise high temperatures and stress can cause fatty liver syndrome which can lead to high mortality

Ingestion of toxic plant parts for example leaves and lead to sap is a common hazard some toxins are produced by micro organisms like those liberated by the bacteria clostridium batolinum and c. perfringens both found in the soil.

Clostridium perfringens causes necrotic enteritis caused when the bacteria multiplies in the favorable conditions of the digestive track and liberates a potent toxin that results in high mortality.

Affected birds show anorexia, depression and diarrhea but most die without showing any clinical signs.

VACCINATION

Vaccination is paramount in poultry farming, all poultry should be vaccinated against the most common viral disease or diseases in the locality, it should therefore cover Newcastle disease and Fowl pox

Unless recommended by a veterinary authority, vaccination against Avian Influenza should be avoided but other viral diseases like Gumboro and Marek's diseases may be covered by vaccination though there are not much important at village level.

Some bacterial diseases like Fowl cholera, may also be covered through vaccination

Vaccination is done to poultry when the birds are very young mostly preferably before laying

Unvaccinated birds are very prefferent to diseases for their don't resist and later dies

Vaccines should only be given to healthy birds for vaccinating a sick bird may be suicidal

Anthelmintics against internal parasites should be given two weeks before vaccinating just to improve the effects of the vaccine.

VACCINATION METHODS

1. Eye drop
2. Injections
3. Skin piercing
4. Orally (in feed or water)

GENERAL PRECAUTIONS DURING VACCINATION WITH LIVE VACCINES.

1. Some vaccines are so called heat stable vaccines, meaning that the vaccine can tolerate some high temperatures, however there should be kept in a cool place to keep them viable and always keep them out of direct sunlight.
2. All vaccines should be kept in a refrigerator
3. When using vaccines in the field you should transport them in cooler boxes with ice
4. The syringe, needle, and other equipment used and to be used for vaccination should not be cleaned by a chemical disinfectant as this may destroy the vaccine, instead be disinfected in boiling water and be used after cooling

5. Vaccine must be mixed or diluted in cold distilled water and care must be taken to ensure that the vaccines do not come into contact with direct sunlight.
6. Its best to vaccinate birds during the cool hours of the day, either in the morning or evening.
7. Some mixed vaccines should be used within 30min, otherwise their become unusable only to be disposed off.
8. Always consult a veterinary before conducting a vaccination campaign.

NOTE.

Always have a disease prevention calendar-for you to be able to treat diseases according to their occurrence just before their onset, for example Newcastle Disease and Fowl pox.