Chapter Two

Non-Ruminant Animal Production

Non-ruminant animals are those animals that have simple stomach. Examples include Poultry, Rabbits and pigs. They also feed on grasses and other materials but do not chew the cud. Cellulose digestion in a large number of non-ruminant mammals e.g. horses depends on fermentation by microorganisms in the distal part of the gastro-intestinal tract.

Poultry Production

Poultry generally refers to domesticated birds that are used mainly as food to man. These include domestic fowl, ducks, turkeys, guinea fowl, quails, ostrich, pigeons, doves etc.

Benefits of poultry production

i. They have comparatively small body size which makes it reasonably possible to be raised in a confinement.

ii. There is a low cost of production and quick return from poultry compared to other farm animals.

iii. Poultry meat and egg are high quality animal protein sources.

iv. Poultry are efficient feed converters to meat and egg (they have high feed efficiency)

v. There is little or no religious restriction against the consumption of poultry product.

vi. Curative and preventive drugs are available for most poultry diseases.

vii. Poultry also gives useful by-product like feathers and droppings (feaces) which can be used for other agricultural activities.

Despite the numerous benefits of poultry production, due to the simple nature of their digestive system, they require high quality concentrate feeds which are equally used as food for humans thereby making them to be in direct competition with man. This has made poultry feed very expensive compared to other livestock feeds. Poultry are also highly susceptible to extreme weather conditions and diseases.

Breeds of chicken

i. **Egg type:** These are breeds raised for egg production. They have small body size and slow growth rate. Examples are Harco, Ancona, Rhode Island Red, Black Leghorn, White Leghorn.

ii. **Meat type:** They are breeds raised for meat production. They have large body size, they are also heavy breed, and they have faster growth rate. Examples are Light Sussex, White Sussex, White Wyandotte, Plymouth Rock and Anak.

iii. **Dual purpose:** These are birds that are raised for both meat and egg production. Examples are Light Sussex, Rhode Island Red, Plymouth Rock, New Hampshire etc.

Principles of housing in Poultry

Housing of poultry is essential for a successful and profitable poultry production venture. The reasons for providing suitable and adequate housing for poultry include:

i. To protect the birds from bad weather.

ii. To protect the birds from theft and predators.

iii. To be able to control breeding.

iv. To ensure proper health management.

The design and construction of poultry houses must take into consideration the climatic and weather conditions of the environment. The guiding principle is to keep poultry productive throughout their producing life. This involves the provision of optimum conditions of temperature, humidity, ventilation and light. Poultry house should be structurally strong, durable, and cheap.

Management of day old chicks

Effective management of day old chicks determines the success of any poultry production venture. Good management reduces the mortality rate, disease outbreak and poor productivity. Two weeks to the arrival of the birds, the brooding pen should be clean

and disinfected. Litter materials should be spread to about 6-8 cm of height.

Feeding and watering equipments of small sizes should also be provided. Twenty four hours before the arrival of the birds, brooder should be set to required temperature (35°C). Feed and water should be put in place before the arrival of the birds. On arrival, the chicks should be provided with anti-stress in clean drinking water. Chicks meant to be layers should be fed chick starter mash while broilers should be fed broiler starter mash. Chicks should be in the brooder from day old to about 3-4 weeks of age. The brooder temperature should be regulated and reduced as the birds grow.

Broiler Management

The broiler is a young chicken of either sexes, being intensively fed for meat production. With good strain, diet and management, they reach market weight of 1.5- 2kg live weight in 8-12 weeks. The broiler pen should be prepared prior to arrival of the chicks. When the broilers attend the age of 5-6 weeks, they should be transferred to the broiler finisher pen with free air movement. They should also be changed from broiler starter ration to broiler finisher ration. The broiler starter is a high protein moderate energy ration, while the broiler finisher is a high energy moderate protein ration. They should be allowed adequate floor space to prevent cannibalism. Vaccination should be ensured at the right time. Good

sanitary condition should be maintained. Broilers should have free access to water and feed at all times (*ad libitum*).

The qualities of a good broiler chicken include

i. Constricted pelvic bone
ii. Dry and constricted vent
iii. Not very bright comb

Management of growers

Grower refers to growing pullets of 9-20 weeks of age. The birds may be kept in the same pen that was used for the initial rearing of the chicken but there should be enough floor and feeding space. At this stage the birds are changed from chick mash to growers mash. This diet is lower in protein (15-16%) and energy compared to the chick and broiler mash. This is to prevent excessive fat deposition by the pullets. Feed wastage during the growing phase can be a very serious problem. This can be reduced by using feeders that reduce spillage.

Management of layers

Layer is a matured female chicken meant for egg production. Layers are normally moved to the laying quarters at 18 weeks of age. They are either reared in battery cages or deep litter. The diet of the birds should be changed to layer mash. This diet is higher in calcium, energy and protein compared to the grower mash. Two weeks to commencement of laying, the level of calcium in the diet should be increased to 3

4%. This is to enable adequate deposition of calcium in their bones for use in shell formation when the birds start to lay. The laying birds should undergo *ad libitum* feeding because any form of rationing would result in reduced rate of egg production. There should be adequate water supply. This is because lack of water will result in decreased egg production and possibly death. Perches and nests should be provided on deep litter. To stimulate egg production, the length of artificial day should be increased to 16-18 hours. Eggs should be collected at least twice daily and properly recorded. The most common management problems in laying flocks are broodiness and moulting.

Characteristics of good layer

i. Comb is bright red
ii. Bright eyes.
iii. Pelvic bone- four fingers width
iv. Vent – large, soft, moist and oval vent
v. Very active and alert.
vi. They have prominent, soft, smooth wattles.
vii. They have worm soiled and close plumage.
viii. They have bright red face

Pig Production

Terminologies in pig production

Matured uncastrated male	-	Boar
Mature Female after 1 or 2 pregnancies	-	Sow
Castrated male	-	Hog
Young female before farrowing	-	Gilt
Young ones (piglets)	-	Litters
Act of parturition	-	Farrowing
Mating ratio	-	1 boar to 20 sows

Pigs are non-ruminant which require protein ched feed to supply the required amino acid balance. They are omnivorous and eat both plant and animal tissues. Non-cereal feed resources for pigs include sugar-cane juice, cassava roots and by-products and organic waste from urban households.

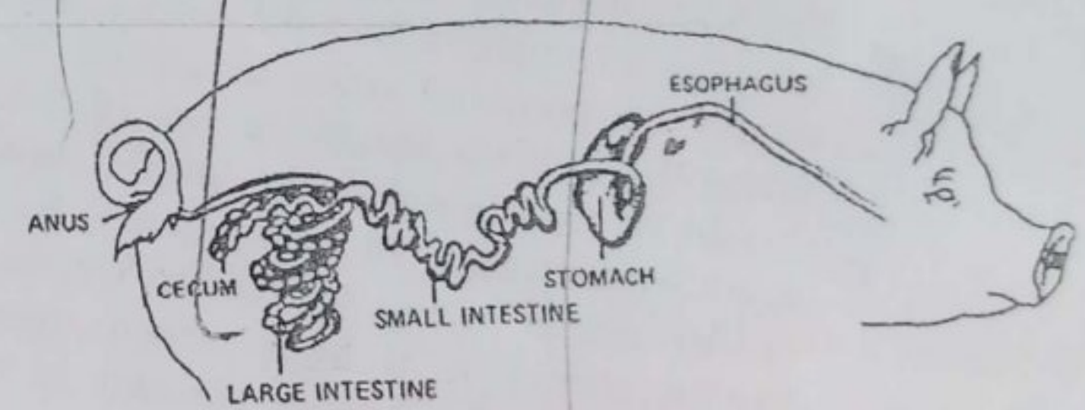

Fig.2: Digestive Tract of Pig