

# APH 302

## Rabbit Production



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Ramage/Oxford Scientific Films

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# Introduction

- About 66 varieties of the domesticated rabbit are derived from a wild rabbit native to Europe and Africa.
- **Examples** of the varieties include: *Angora, Belgian, Dutch, Himalayan, lop, Siberian, Patagonian, silver-tip, Polish, and Flemish.*

## Characteristics include:

1. Varying colours through every grade, shade, and mixture, from pure white to all black; in coat from very short to long.
  2. Silky hair capable of being woven.
  3. Style of ears from the prick ear—erect, small and almost as stiff as metal—to the floppy, broad, soft-skinned lopped ear, which hangs to the ground.
- Domestic rabbits warn one another of danger by thumping on the ground with their hind feet.
  - They are bred as pets, for genetic studies, for laboratory experimentation, and for their meat and furs.
  - Rabbits' furs are sold under the trade names of arctic seal, clipped seal, and lapin.

**Rabbits belong to the family Leporidae of the order Lagomorpha. The wild rabbit of Europe and Africa as *Oryctolagus cuniculus*.**

# Reasons for keeping Rabbits

- ❖ The meat is tasty, good quality and similar to chicken meat.
- ❖ There are few religious or other taboos on rabbit meat. ***Islam does not prohibit eating rabbit meat.***
- ❖ Initial capital outlay is minimal. With some scrap wood or bamboo, a hutch can be constructed.
- ❖ They are like other animals all over the world used as a saving account.
- ❖ The quantity of meat provided by a rabbit is big enough for a small party or a family dish.
- ❖ Because the does produce offspring regularly they form a regular source of income instead of a large amount at once.
- ❖ Feeding rabbits can be very cheap. Kitchen wastes can provide the main feed at almost no cost.
- ❖ Rabbits require no force to be restrained which is unlike bigger animals.
- ❖ The manure (which does not smell too much) can be used for vegetable growing.
- ❖ The skin 'pelt' is valuable if there is market for it.

## **Disadvantages of Keeping Rabbits**

- ✓ Keeping rabbits will certainly take up some of ones time. For example, keeping 5 to 10 rabbits will take 1 to 2 hours a day for cleaning and feeding.
- ✓ Diseases are common and unlike chickens, specific rabbit medicines are not easily available.

### **Breeds of Rabbits:**

- Chinchilla, Flemish giant, Angora, New Zealand Red, Florida White, Dutch, California White, etc.

### **Subdivisions of the Breeds:**

1. Fancy and Fur Breed
2. Meat Breed

# Characteristics of the Breeds

## 1. **Fancy and Fur Breed:**

- ✓ Not a good meat producer
- ✓ Do not have large litter size
- ✓ Not resistant to diseases
- ✓ Have nice skins (pelts), nice colours and funny ears. An Example is Angora.

## 2. **Meat Breed**

- ✓ Called utility breed: have fast growth rate, large and frequent litter.
- ✓ Differentiated on weight basis as
  1. Light breed ( 2-3kg adult weight)
  2. Medium breed (3-5kg adult weight)
  3. Heavy breed (>5kg adult weight)

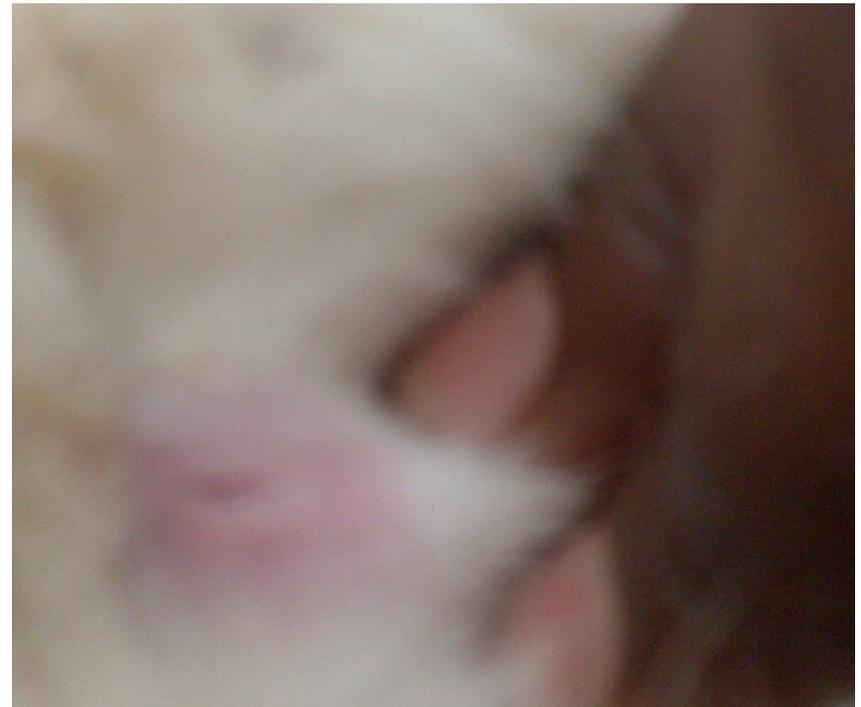
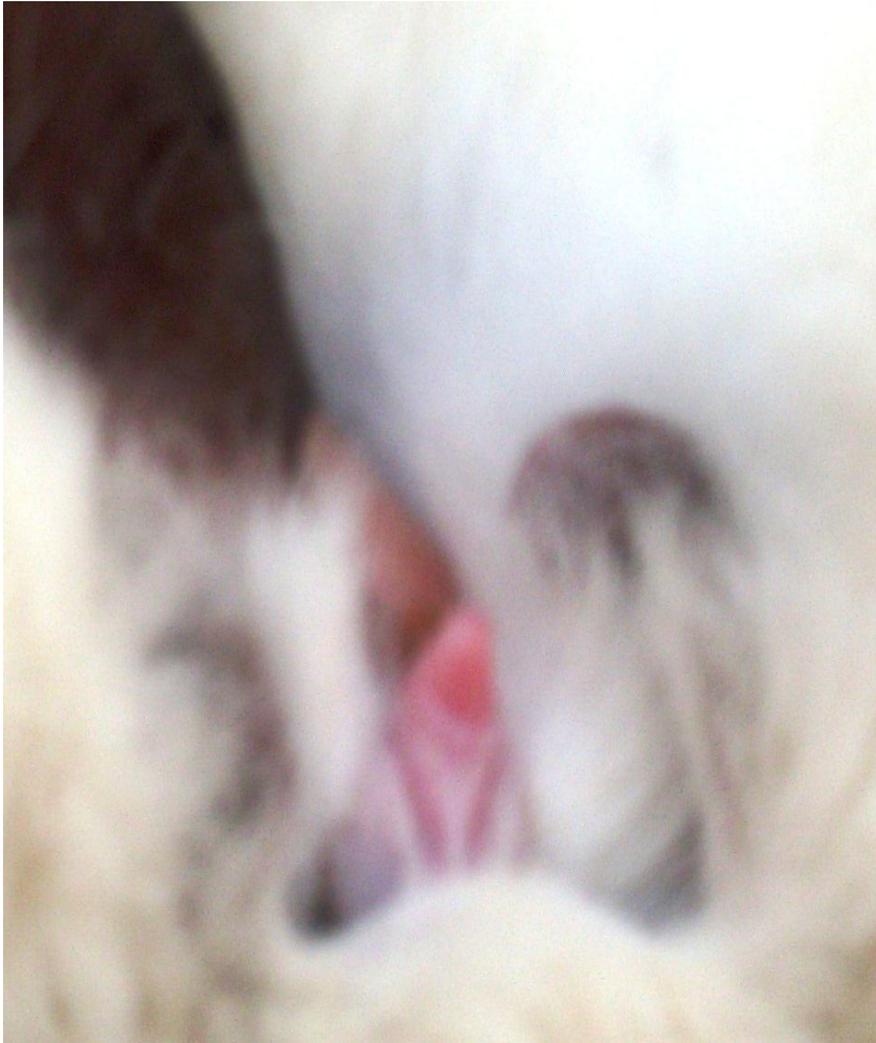
# Sexing of Rabbits

- Sexing of very young rabbit is not easy.

## Procedures:

1. For Buck: Older bucks have two visible \*testes. For young buck, hold the rabbit on his back down, put one finger on the tail side of the genital apparatus and one on the abdominal side. Press down gently and stretch the organ, if a small curved penis shows, it is a buck.  
*\*Do not confuse two small glands about the size of a pinhead on either side of the sexual organ with the testes.*
2. For Doe: Hold the rabbit on his back down, put one finger on the tail side of the genital apparatus and one on the abdominal side. Press down gently and stretch the organ, if a long slit appears, it is a doe.

# Pictures on the sexes of rabbits



# Selection of Stock

- The selection criteria hinge on the health of the rabbit. These are:
  - ✓ Smooth skin
  - ✓ Standing ears
  - ✓ Clear eyes
  - ✓ Quiet breathing
  - ✓ No mange: forming scabs around the nose, eyes, at the edges of the ears or inside the ears

***NB. Put the rabbit on the ground and let them jump to watch for irregular legs, inspect the anus to see if its dirty from diarrhoea. Dirty front legs and/or dirty nose may indicate a coughing disease (pasteurellose).***

# Reproduction: Mating & Kindling

- **The Buck**

- ✓ Age of first mating is dependent on the breed and individual development e.g. 4-5months for light breeds and 9-12months for heavy breeds.
- ✓ One buck can easily handle up to 10 or more does. This depends on mating intensity, heat, stress, age of the buck, nutrition, etc.
- ✓ The buck's hutch is at a distance from the doe so they will not get accustomed to each other's smell.

- **The Doe**

- ✓ This requires more care and attention.
- ✓ Age of first mating is also dependent on the breed and individual development e.g. 4-5 months for light breed and 7-9 months for heavy breed.
- ✓ Note that does mature earlier than the bucks.
- ✓ Does do not have clear reproductive cycle though exhibits periods of greater willingness to accept the buck. However, the buck is refused sometimes.
- ✓ Signs of heat are: restlessness, noisiness, rubbing of her chin on the feeding tray and reddish vulva.

***NB. Do not wait for these signs, put the doe with the buck at any time (early morning or late afternoon) since the doe experiences spontaneous ovulation after mating***

# Mating

- ✓ Mating should be carried out during the cooler times of the day, early morning or late afternoon
- ✓ Take the doe to the buck and not the other way. If you put the buck in the hutch of the doe, she tends to defend her territory and fighting ensues.
- ✓ Once the doe accepts the buck, she will sit down in his hutch and raise her rear end.
- ✓ Mating has taken place when the male falls aside or backwards after mounting the doe. Often the buck makes a characteristic cry of pain or pleasure. If the doe is willing to be mated, effective mating takes place within the first 5-15minutes.
- ✓ If mating was successful, carefully take the doe back to her hutch.
- ✓ If a buck shows no interest within the first few minutes, it is virtually no use leaving them together.
- ✓ If the doe begins to run or fight, it is better to try it again after a few hours, the next morning or evening.

***NB. If the doe refuses the buck, it could be that she is pregnant. She will almost certainly refuse the buck then and each time she is bothered it will reduce the chances of a good litter. Also, there might be antipathy between the buck and the doe.***

## Pregnancy & Signs of Pregnancy

- Two weeks after mating, it will be noticed that the doe will become quieter, seems to eat less and sits with her abdomen resting nicely on the floor.
- She will start pulling out her fur to make a nest few days to '**kindling**' (act of giving birth in rabbit)
- Sometimes she fails to produce a litter after making a nest. If this happens about 2 weeks after mating, it is called '**pseudo pregnancy**'. This is a perfect time to breed her, she is willing and fertile right at the time of pseudo pregnancy.

**Signs of Pregnancy:** Requires some practice but there are some fairly clear signs:

- i. Her fur can easily be pulled out if she is pregnant.
- ii. During the last days of pregnancy, the **teats** become harder and somewhat red.
- iii. The udder will begin to swell

## Methods of detecting Pregnancy

- The best method is '**palpation**' but it requires a great deal of practice.
  - ❑ Once the doe is pregnant, after two weeks one will feel hard things like marbles in the upper side of the abdomen. These become progressively larger until one might be able to feel the form of an embryo.
- Another method is '**test mating**'.
  - ❑ This is done by putting the doe with the buck again 12 days after mating. If she refuses, the first mating has almost certainly worked out well. If she is willing again, the buck can repeat the servicing. ***This method has the very small risk that an already pregnant doe gets mated again with the possibility of starting another pregnancy halfway through the first.*** This '**super pregnancy**' occurs occasionally.

## Kindling & Mother Care

- About 4 weeks after mating (ascertained that the doe is pregnant), a nest box is put in the maternity hutch in which kindling can take place.
- The doe should be fed appropriately and allowed time to rest.

### • **Reasons for Cannibalism (flesh eating) in Rabbits**

- ✓ A scared doe may eat her young
- ✓ No drinking water, lack of mineral salts, etc.

**NB.** If a doe continues to eat her young after the second litter, it is better to kill her and eliminate this bad behaviour.

## Handling of Kits

- ✓ To handle the newborn, wash your hands first since the smell of dogs, cats or rodents may upset the mother. You will need to rub your palm with onions or spread sweet smelling powder on the kits and on the nose of the mother.
- ✓ After about 3 weeks, the nest box can easily be removed. Weaning takes 4 weeks but should not be later than 6 weeks. Milk production by the mother stops at this time.

# Mating after Kindling, Raising the Kits & Fostering

- **Mating after Kindling**
- The doe can be re-mated the very day of kindling and she is likely to be pregnant. Though, results might be disappointing e.g. the litter will be smaller, lighter and with a higher rate of mortality.
- **It is better to re-mate 3-4 weeks after kindling.**

**NB. It is advisable to mate two does at the same time because of fostering.**

- **Raising the Kits**
  - I. Clean the hutches every day with water.
  - II. Handle the kits in the proper way.
  - III. Separate the bucks from the does as soon as possible after weaning.
  - IV. After mating the first time, each doe should be given separate hutch.
- **Fostering:** No more than 3 young rabbits should be given to a foster mother, the maximum age difference between the foster doe's litter and the fostered litter should be 48hours; and fostering should be within 5days of kindling.

# Housing

- There are two main types of housing in rabbitry, viz;
  1. A main building known as 'Stable'
  2. Individual Hutches

**The Stable:** the main building under which the hutches are placed. It is constructed with the following in mind:

- A. Rain:** Designs depend on the wind direction. A large overhang is made to prevent rain and sunshine. The walls may be closed or open.
- B. Temperature:** Extremes of temperature can be tempered mainly by planting trees around the stable in order to decrease the amount of heat that enters, provide shade and lessen the impact of rain and wind.
- C. Humidity and Fresh air:** Warm air ventilation holes might be necessary if there is not much wind blowing. Avoiding piling up manure and urine around the stable.

## The Individual Hutches

- These are needed whether there is a stable or not.
- Many designs are possible but the following should be taken into account:
  - A favourable microclimate
  - Protection from predators
  - Easy handling
  - Easy to keep clean

*NB. Each rabbit needs 0.7sqm cage space. The standard size is 75cm depth x 75cm front width. The cages are arranged in double rows (3m space) down the centre of the stable*

## The Maternity Hutch & Nest Box

The **maternity hutch** houses the nest box. It is larger than the individual hutch.

The nest box could be; open-type, half-open or close-type nest boxes.

Sizes of the nest box vary with the size of the breed.

Breed type	L <sub>1</sub> (cm)	L <sub>2</sub> (cm)	W (cm)	H <sub>1</sub> (cm)	H <sub>2</sub> (cm)
Medium breed	40	25	30	25	10
Large breed	45	30	35	25	15

## Water Requirement & Feeding

- With proper care and equipment, clean water should be and can become a routine.
- One watering point is sufficient for 10 to 15 rabbits.

**Term paper: Describe the various feeding and drinking equipment used in rabbit production (Photographs needed)**

## Feeding

Proper feeding will influence the rabbit's growth, fertility and health.

It depends on the state of production.

One feeding rack is enough for 10 rabbits, at most two are needed in case the pellet flow in one gets blocked.

The suggested daily portion is as shown below:

Class of rabbit	Quantity (g)
Buck	85-112
Doe	85-112
*Pregnant doe	168-224
Lactating doe	≤454
Fryer	<i>Ad libitum</i>

\*Increase gradually throughout pregnancy

## Practical Remarks on Feeding

- ✓ Do not change feed suddenly.
- ✓ Do not get desperate if animals don't like seemingly good feed at first glance.
- ✓ Greens should not be too wet to avoid diarrhoea.
- ✓ Do not feed more than they will eat. Remove old mouldy/dusty feed.
- ✓ Cooking the feed will probably not justify the effort.
- ✓ A good feeding method is to give concentrate during the day and feed greens overnight. This is done to avoid attracting rats during the night time.

## Types of feed

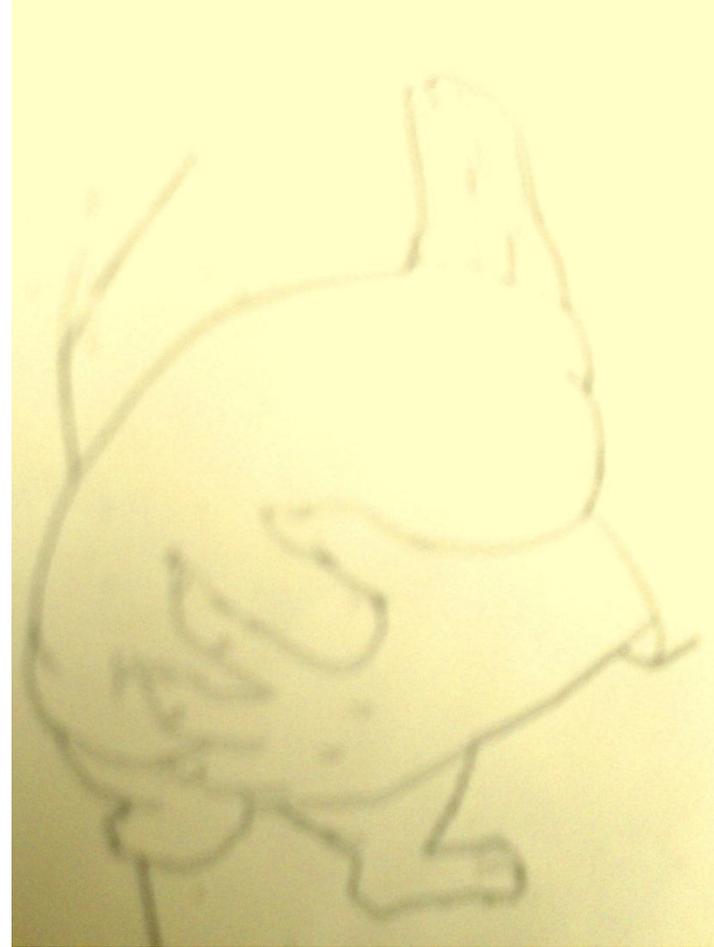
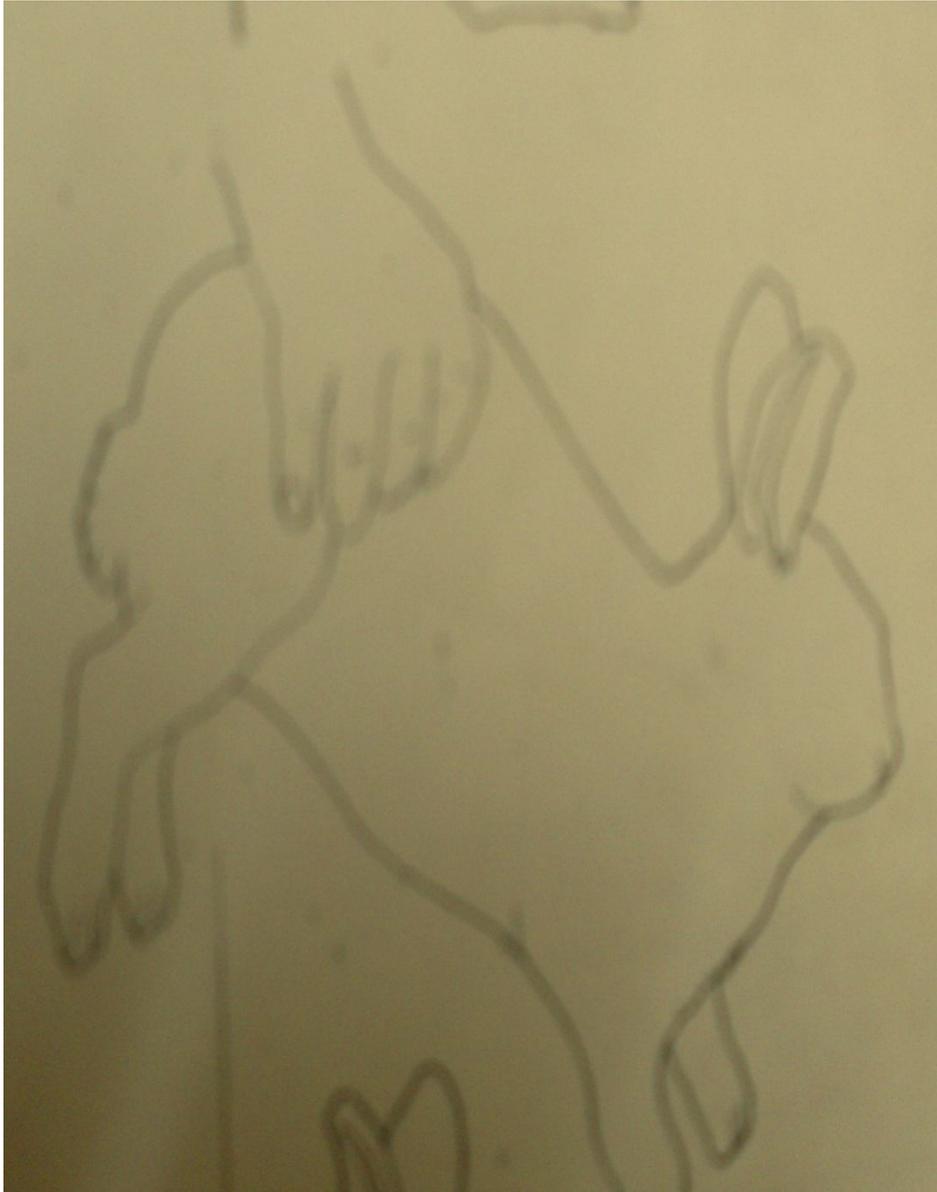
- Aside balanced pelleted feed which contains 3-35g DM per kg of live weight per day given to the rabbit, the following wild and cultivated plants are suitable for rabbit feed:

- ✓ *Amaranthus spp.*
  - ✓ *Arachis hypogea*
  - ✓ *Cocos nucifera*
  - ✓ *Daucus carota*
  - ✓ *Ipomea batatas*
  - ✓ *Leucaena leucocephala*
  - ✓ *Tridax procumbens*
  - ✓ *Sorghum vulgare*
  - ✓ *Vigna sinensis*
  - ✓ *Zea mays*
  - ✓ *Solanum tuberosum*
- Mimosa pigra*  
*Panicum maximum*, etc.

# Handling of Rabbits

- Rabbits should be handled gently. **They must never be lifted by their ears.**
- A rabbit can always be picked up by the skin of the shoulders.
- For rabbits weighing under 1kg, one method is to pick them up and carry them by the saddle just above the hindquarters, using thumb and index finger (see picture in the next slide).
- If the rabbit is heavier, it is best to take it by the skin fold around the shoulders, but if it has to be transported or shifted for more than 5 or 10minutes, it either be supported with the other hand or be carried on the forearm with the head in the bend of the elbow (see picture in the next slide).
- If it struggles and cannot be controlled, it is best to just drop it so it will fall on all fours and then pick it up again within 2-3seconds.

# Pictures on how to handle rabbits



## How to handle rabbits



# Identification of Rabbits

## ❑ Individual Identification:

Each rabbit is assigned a number which will appear on all documents concerning the rabbit and on the rabbit itself. Ways of identifying individual rabbit are:

- Rings: a numbered ring is attached to the hind leg just above the hock. The risk of losing the ring is high.
- Clips: numbered clips are attached to the rabbits' ears. These clips are made of metal or plastic. The risk of losing these clips is also high.
- Tattooing: Small holes are punched in the rabbits ear spelling out numbers or letters, and these are filled by rubbing in a special ink. A well made tattoo lasts throughout the rabbits' lifetime.

## ❑ Cage Identification:

All the cages in the nursery section of the management unit (mother cage) is numbered and this number appears on the records. It is much easier than the individual method and it is used on rabbit farms which keep records but do not breed selectively.

## Record Keeping

- A daily record book is essential in almost every kind of production.
- The record to be kept include:
  1. Breeding records: date bred and breed used, buck and does bred.
  2. Kindling records: Does that kindled, date and number kindled (numerical size of the litter), number alive and number dead.
  3. Weaning records: number of weaned rabbits, date and weight of weaned rabbits.
  4. Record of sales: Average weight at market time and age of kit at the weight, expenditure (including utilities) and income.

# Coprophyagy in Rabbits

- This is a phenomenon practiced by the rabbits. It is the consumption of soft faecal pellets and in which the rabbit recirculates a part of the feed through the body. This is made possible by its possession of large hind gut '*Caecum*'.
- Rabbits are thereby referred to as '*pseudoruminant*'
- This phenomenon depends on the integrity of the digestive flora and is governed by intake rate. It begins about 8-12hours after the feeding of rationed rabbit,s or after intake peak of rabbits fed *ad-libitum*.
- It begins to function in young rabbits (domesticated or wild) at the age of about 3weeks when the start eating solid feed in addition to mother's milk.
- Considering the fact that some parts of the intake may be recycled once, twice and even three or four times and depending on the type of feed, the rabbit's digestive process lasts from 18 to 30 hours averaging 20hours.

## Common Diseases of Rabbits

- ❑ **Foot Pad abscesses:** this starts as a barely visible swelling which can be felt by palpating. The skin becomes thick (parakeratosis) and scabby. Infection is latent and the sores may bleed.
- ❑ **Buck Teeth:** This prevents the upper and lower incisors from touching and so they do not wear down. The incisors keep growing and eventually prevent the rabbit from eating. Buck teeth may be hereditary (jaw malformation) or the results of injury (teeth broken against wire mesh). Treatment consists of cutting the teeth with sharp pliers right down to the gums every 15-21 days.
- ❑ **Ear and Skin Mange:** (Mange is a parasitic disease caused by mites (*Psoroptes* and *Chorioptes*) and frequently complicated by bacterial infection. The middle ear may then be affected, causing '*wryneck*').
- ✓ Ear canker or mange is very common. The symptoms are external **otitis** and yellow or brown scabs in the ear canal. The scabs become waxy and invade the whole ear. The inside of the ear becomes scaly. Treatment with glycerine, iodized oil, cresol oil are effective with frequent application.
- ✓ Skin mange is less common. It is only found in poorly- managed rabbit farm.

# Good luck to you

**'A CANDLE LOSES NOTHING BY LIGHTING  
ANOTHER CANDLE'**