Try the Rabbit
A Practical Guide

Stephen Opoku Adjare

CTA
Technical Centre for Agricultural and Rural Cooperation (CTA)
Technical Centre for Agricultural and Rural Cooperation (CTA) (ACP-EEC Lomé Convention)

The Technical Centre for Agricultural and Rural Cooperation (CTA) was established in 1983 under the Lomé Convention and is based in Ede-Wageningen in The Netherlands. Its mandate is to help the African, Caribbean and Pacific countries which comprise the ACP group achieve greater food security by providing them with better access to scientific and technical information on all issues related to agricultural and rural development. Working in close cooperation with ACP and EEC countries and with international, regional and national institutions, CTA fulfills its mandate through a range of activities, including seminars, studies, publications and support to ACP documentation centres.

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Acknowledgements

The phrase 'one man no chop' is apt here, in that I have nothing to give the many people who helped with this book except my gratitude. Particular mention must be made of John Haig, a worker with the Voluntary Service Overseas (VSO) at the publications section of the Technology Consultancy Centre (TCC), Kumasi, Ghana who spent much time on the text, drawings and photographs for this book and provided many valuable suggestions for improvement. Julie Baruch, also with the VSO, helped finalise the contents and Angela Panford, at TCC, handled all the typing and inputting. I also wish to thank Foster Osae-Akonnor who provided the technical drawings. To these people, as well as to the many others who helped in various ways, thank you.
Preface

This book is based on the practical experience of a layman who has kept rabbits since 1957. I am sure that over three decades of practical experience are worth documenting for the benefit of those who wish to begin rearing rabbits as an income-generating activity.

In Ghana we are living through difficult times. In 1983 this country experienced one of the worst droughts this century, accompanied by the inevitable hunger and migration. Since then, there has been little improvement in the economy; the value of the currency continues to fall, young people are faced with unemployment or the prospect of leaving the country to find work elsewhere, traders are losing their livelihood and the urban poor are being forced back onto the land. The man who once lived in a well-watered, forested land is now searching for a job in a desert. The same picture could be applied to much of the West African region.

I once visited some desert dwellers in one of the North African countries. I was fed four times or more daily. At lunch and at dinner I was given more meat than I could eat. As I sat eating, a young man would stand behind me, holding a bowl of delicious meat. He would shout at me, “Please finish your meat so that I can give you some more.” I was never able to eat all the meat I was given. This was happening in a land which receives less than one twentieth of the rainfall experienced in most of West Africa. Before these desert dwellers can grow grass, they have to carry water from the oasis spring and travel far to water the land; yet they can produce more than enough meat to fulfill their requirements.

Many West African countries are blessed with well-watered, fertile pastures. There is grass or forage everywhere. The goats, cattle and fowl all eat grass. What more do we need to produce meat? We need proper planning. We need to overhaul a bureaucratic system which inhibits progress and promotes frustration. We need to get our priorities right, help each other and create a better society.
This book is a revised edition of the 40-page booklet published in 1984, under the same title. The revision was necessary because of the new and improved equipment now available. It is hoped that this edition will be widely distributed and that it will encourage readers to 'try the rabbit', and thus contribute to an increase in the supply of meat in West Africa.

Stephen Opoku Adjare
Chapter 1
Rabbit farming

One of the main advantages of small-scale rabbit farming (rabbitry) is that it requires minimal capital investment. Young people can easily afford to start keeping rabbits with virtually no financial risk. The venture could begin as a backyard or garden enterprise, requiring very little space.

Rabbits are prolific breeders, producing large quantities of tasty meat for home consumption. Their rate of production is faster than that of pigs, goats or sheep. If properly raised and cared for, a female rabbit (doe) can produce more than 15 times her own weight in offspring in a year. Under natural conditions, she delivers a litter every 31 days. In controlled conditions, however, she should produce only four or five litters a year. The number in each litter is usually between 4 and 12.

Rabbits grow rapidly because they are efficient at converting food into meat. A baby rabbit weighs about 57 g when born. In 6 days it doubles its weight, and after 30 days its weight will have increased eightfold or more. By the end of the second month, the breed known as Californian or New Zealand White will, if well looked after, weigh over 2 kg. A young rabbit reaches maturity at 5 months but can be slaughtered at the end of the third month; at this stage, a Californian White would probably weigh about 3 kg. In Europe and elsewhere, it is common practice to slaughter rabbits at the age of 2 months but this is rarely done in West Africa, where the slaughter houses generally prefer mature animals.
Breeds

In Europe, rabbits are raised for both meat and pelt production. Because white pelts are preferred, the standard commercial breeds are the white-furred varieties. In West Africa, the farmer is concerned with producing a meaty type, not with the colour of the pelt. Care is usually taken to select strains which are both prolific breeders and efficient converters of food. They should have a high ratio of meat to bone.

The local African rabbits are usually the easiest to manage. Although they are smaller than the imported breeds, they suffer less from disease. Also, the does have more teats than the breeds from other regions (exotic breeds), enabling them to nurse more offspring. If a good local doe is mated with a good exotic male (buck), the female offspring will not only be stronger, healthier and meatier but will possess 10 teats.

There are several varieties of cross-bred rabbits available. Some are hybrid offspring (the offspring of two different breeds), generally of the New Zealand White, the American Albino and the Checkered Giant. Figure 1 shows a cross-bred Californian doe, a common breed in the Kumasi area of Ghana; an adult weighs between 4.5 and 5.3 kg.

Figure 1:  A Californian cross-bred doe, showing the typical black nose and dark hairs around the ears
**Behaviour**

Rabbits are relatively quiet animals and do not like to be disturbed by noise. They rest during the day, while at night they wander about, eating both green and dry leaves. Their main feeding time is generally between 4 and 5 am, when they eat green leaves in large quantities.

In the wild, the rabbit’s main enemies are wild cats and jackals. It does not, as is generally believed, live in holes as rats do. However, it does keep its young in such burrows and should danger threaten it will dash into a hole it has prepared. When the doe is about to give birth, she burrows a hole to create a safe place for her young. She lines it with dry grass and soft materials, such as kapok; to this she adds some of her own fur which she pulls from her mane and from the area around her teats. After the birth, the doe leaves the litter and sets off to the entrance of the burrow, where she gathers earth and other materials to seal it off.

While she is busily working, the buck waits nearby. He invites the new mother to become impregnated again. At this stage, the doe is on heat and therefore submits to the buck; she usually falls pregnant from this mating. Then she continues her work of sealing off the entrance to the burrow. The male waits nearby and further mating takes place when the doe has completed sealing the burrow entrance.

The young rabbits are fed on milk once a day, usually early in the morning or late in the evening. They are born blind and deaf. After 11 days their eyes open and their fur begins to grow. After 14 days they venture out of the burrow, and between 16 and 21 days they start to eat green leaves. If the doe is pregnant again, she begins to wean them after 23 days. On the 31st day she produces another litter.

**Handling rabbits**

Rabbits should not be disturbed too often. They should be handled only when there is a valid reason for doing so. When catching a rabbit, use
both hands, one to hold the folds of the skin on the shoulders and the other to support the rump, as shown in Figure 2. If the rabbit starts to show signs of aggression or if it struggles to get down, lower it slowly into the cage and attempt another hold. Do not pick it up only by the legs or by the ears. Another technique is to hold both ears and the folds of the skin on the shoulders together. This is necessary when the animal is so meaty that there is not enough loose skin on the shoulders to get a good grip.

**Figure 2:** Picking up a rabbit by the folds of the skin on the shoulders
Figure 3: Catching a rabbit that has escaped from its hutch

Catching a strayed rabbit requires some skill. The native variety is a fast runner, its speed exceeding that of a dog. The exotic breeds are less of a problem. To catch an escaped rabbit, try to manoeuvre yourself so that you stand in front of it. When in this position, crouch down and spread the fingers of both hands widely near the rabbit’s face. The rabbit will stop and lower its ears in readiness for arrest, as shown in Figure 3. Do not attempt to chase the rabbit from behind as this will prove unsuccessful.
Chapter 2
Constructing rabbit hutches

There are a number of important factors which rabbit breeders must take into account if they are to be successful. They have to consider the rabbits' accommodation, feeding and safety requirements. They must also establish ways of controlling the rabbits' prolific rate of reproduction.

The rabbit is almost defenceless and thus has many predators. It should therefore be provided with safe and sturdy shelter. For the same reason, it cannot be allowed to forage for itself, so it must be well supplied with a balanced ration of greens and grains. Careful management of such factors as these will ensure a steady production of healthy and vigorous young rabbits.

Hutches

Unlike other domestic animals such as goats, sheep and fowls, rabbits cannot be kept under free-range conditions. Apart from the fact that they can easily be stolen, they are always in danger of being attacked by enemies such as dogs and cats. They need, therefore, to be provided with good shelter, such as outdoor hutches divided into cages (see Figure 4 overleaf). If large-scale commercial production is being
considered, breeders will have to build large wooden or concrete buildings which can house a series of wired cages.

**Figure 4:** Rabbit hutches on the author’s farm

A single hutch can be divided into two, three or four cages and should be easily transportable should the need arise. The hutch must be well ventilated and constructed from cheap, locally available material such as bamboo strips and wire netting. The design must aim at excluding predators, such as dogs, cats and snakes, as well as mice and other vermin.

The hutch should be about 30 cm from the ground. If it is an outdoor hutch, the roof should slope to allow rainwater to trickle downwards. The floor should consist of wire mesh in which the holes are large to allow the droppings to fall through to the ground.

Large-scale commercial rabbitries in urban centres benefit from such amenities as electricity and a piped water supply. In these circumstances, a durable building with good drainage should be erected, electric light should be installed and water piped in. The building
should include a shelter for attendants and one or two rooms for storage and other purposes.

**Cages for bucks and does**

If mating is not strictly controlled, does will produce 12 litters a year. As a result, they will become lean and unhealthy. To prevent this, each breeding doe should have her own cage so that the buck cannot have constant access to her. The cage should have the following minimum dimensions: 107 cm long x 60 cm wide x 56-76 cm deep (*see Figure 5*).

**Figure 5:** A hutch for breeding does
Figure 5 (cont.)

Plan

All measurements are given in cm

Front elevation

Back elevation

Timber planks (240 x 30)

Side elevation
The cage for a buck must be slightly larger than that for a doe. It should preferably occupy an area of about 90 x 90 cm. This should be large enough to contain a buck and a doe when the doe is placed in the cage for mating.

**Kindling box**

A kindling box must be placed on the floor of a doe’s cage at least a week before delivery is expected. This will allow her plenty of time to line it before the birth. The box should be easily removable because the young rabbits will use it for only the first 12-14 days. They will then need more space in the cage in which to roam about. Figure 6 provides an indication of the ideal size of a kindling box.

**Figure 6:** A kindling box

![Kindling box diagram](image)
Dry rags and leaves must be provided for the doe to use in lining the kindling box. Stringy material such as weaving yarns or spongy synthetics should on no account be put into these boxes. Such materials will probably entangle the young rabbits and can cause great harm.

**Cage for weaners**

Several weaners intended for the market or for other purposes can be sexed and reared together in one large cage. The construction of a cage suitable for weaners is shown in Figure 7.

**Figure 7:** A hutch for weaners
Figure 7 (cont.)

Plan

All measurements are given in cm

Front elevation

Back elevation

Side elevation

Timber planks (240 x 30)
To prevent weaners from fighting each other, it is important that those placed in the same cage are the same age. When they are 3 or 3.5 months old, they must be separated and each one placed in its own cage. If this is not done, does will begin to ride one another, causing 'false pregnancies', a phenomenon which is described in Chapter 3. The bucks will begin to castrate one another, which will lead to fighting and the possible death of some of the rabbits.
Chapter 3

Breeding management

For efficient production, the rabbit breeder should plan the mating programme of the rabbits so that three or more does give birth within a day or so of each other. This arrangement is known as ‘synchronisation’. One of the advantages of synchronisation is that it enables the owner to provide adequate care for his or her rabbits. For example, if a doe with only eight teats produces an unusually large litter of, say, ten rabbits she will have more than she can nurse. To reduce the numbers she has to nurse, two or three young rabbits can be transferred to a doe who has just produced a smaller than usual litter.

If a doe produces an exceptionally small litter, the whole litter can be given to other does to nurse so that she is then ready for immediate impregnation or breeding. In such instances, it is advisable to allow this doe to be mated without delay. Extra young rabbits are readily accepted by foster mothers if they are of the same age, within 2 or 3 days, as their own litter. Rabbit breeders should manage such situations to their advantage.

Controlled mating

A good buck has the stamina to cover a female 10-12 times a day. Indeed, if a doe is left with a buck overnight it is likely that the buck will tire himself out in repeated and useless attempts to mate her. A buck should not be allowed to strain himself in this way.
The ideal course is to allow the buck only one mating chance per doe. After a doe is serviced for the first time, she should be removed from the buck’s cage and, shortly afterwards, another doe should be placed in the cage. In this way, a buck can service three to five does in one day, with no harm to himself. If he is then allowed to rest for a few days, he can service another three or four does.

In theory, controlled mating would allow a buck to mate with any number of does. However, the conscientious rabbit breeder would never repeatedly cross all his does with the same buck for fear of inbreeding (breeding between animals which are closely related). Inbred rabbits are usually smaller and weaker than normal rabbits; any such inferior rabbits should be culled.

Does are ready for impregnation when they are more than 5 months old. If they are more than 3 years old they usually give birth to smaller litters. Any doe consistently producing less than eight in a litter should be eliminated.

Depending on the number of does which are present in a rabbit farm, two or more bucks are usually required for breeding purposes. If, however, the rabbit farmer does not want to maintain his own bucks, he can arrange to have his does serviced by the bucks from another farm. When raising rabbits, it is important to select only the best animals for breeding stock and to keep accurate records of their servicing and kindling. An example of a servicing and kindling record is given in Figure 8.

**The heat period**

Does are impregnated during their heat period. This lasts for 15-16 days. When a doe is on heat, she becomes restless and aggressive. Her genital area becomes swollen, pinkish red and moist and she begins to jump about, always trying to get into the cage of the rabbit next to her. As soon as a doe is seen to be on heat, she must be serviced.
**Figure 8:** A servicing and kindling record sheet

<table>
<thead>
<tr>
<th>First year</th>
<th>Date crossed</th>
<th>Name of buck</th>
<th>Date of birth</th>
<th>Number at birth</th>
<th>Mortality record</th>
<th>Survival at weaning</th>
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<tbody>
<tr>
<td>1990</td>
<td>1 3/1/90</td>
<td>Olivac</td>
<td>3/2/90</td>
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General remarks

<table>
<thead>
<tr>
<th>1990</th>
<th>1991</th>
<th>1992</th>
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<tbody>
<tr>
<td>Normal, size at birth good, but rate of growth poor</td>
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If two does are in the same cage, the doe on heat will attempt to ride the other doe. If the rabbit farmer ignores this behaviour, it can lead to a 'false pregnancy'. This term is used when a doe thinks she is about to give birth and prepares a kindling box by collecting rubbish and pulling out her fur to line the box. Does exhibiting this behaviour should be serviced immediately, just as does which are seen to be on heat must be serviced immediately to avoid developing a false pregnancy.

The main heat period occurs 15-17 weeks after birth. However, this is too soon for a young doe to be serviced. She should not be allowed to mate until she is 5-6 months old. A doe will also come on heat if she loses her whole litter at birth, and may be serviced immediately. Sometimes, nursing mothers may show signs of being on heat on the 28th day after delivery; these does can be serviced 1-2 weeks later.

In the conditions which prevail in West Africa, does should have only four or five litters a year if they and their offspring are to be healthy. In the USA and Europe, where the infrastructure supporting commercial meat production is good, rabbit farmers can allow does to have up to seven litters a year. This means that the young rabbits are weaned when they are less than 28 days old but, with the availability of prepared pellets which contain all the rabbit's nutritional requirements, infant mortality is very low.

For rabbit farming in West Africa, the following timetable is suggested.

<table>
<thead>
<tr>
<th>Four times per annum:</th>
<th>Five times per annum:</th>
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<tr>
<td>— Wean the young rabbits 45-49 days after birth</td>
<td>— Wean the young rabbits 40 days after birth</td>
</tr>
<tr>
<td>— Service the doe 50-60 days after the birth</td>
<td>— Service the doe 42 days after birth</td>
</tr>
<tr>
<td>— The doe will produce the next litter 80-91 days after the last birth</td>
<td>— The doe will produce the next litter 73 days after the last birth</td>
</tr>
</tbody>
</table>
It must be stressed that these timetables will work only if the rabbit farmer adopts the feeding and management practices suggested later in this book; poor management can result in miscarriages.

**Servicing the doe**

As suggested above, it is useful for several does to be impregnated on the same day or within 3 days of one another. This requires careful planning. Recently matured does should be fed on special rations such as fish meal and grain, in addition to the usual greens. They should be given more than they can eat to ensure that they are well fed. If this regime is followed they should come on heat within 3-5 days.

When the doe shows signs of being on heat, she should be removed from her cage and placed in a buck’s cage. The buck will ride the doe while she raises her tail to expose her genital area. After the buck has penetrated her, they will move away from each other. At this point the female should be caught and inspected to discover whether successful mating has occurred. If a white jelly-like liquid is found on the outside skin of the swollen vagina and on the fur immediately around it, no further mating is required and the doe can be put back into her cubicle.

**The pregnant doe**

Six hours after a doe has been impregnated, she will reject any buck if she is put back into the buck’s cage. The symptoms of being on heat will have gone completely by the next morning; the swollen vagina will have shrunk and the red, moist appearance will have changed to pale pink. The doe will begin to grow more fur and gain weight rapidly. At 14 days after servicing, her teats will become pinkish-red, her vagina will begin to swell and she will start growing more fur in her mane.

The rabbit farmer will also notice that a pregnant doe will try to tip over any container put into her cage; for example, she will tip over her
drinking bowl after taking some water. She will also make strange noises should a buck approach her.

A reliable technique for determining pregnancy is the palpitation method. This involves feeling the growing embryos in the horns of the uterus. An experienced person can determine pregnancy between the 9th and 10th day; the inexperienced person should try on the 15th day or a bit later. The developing embryos can be felt, between the thumb and fingers, under the doe’s stomach between the hind legs and in front of the pelvis. This technique must be practised with care. If not done properly, it could cause the death of the embryo or the doe, or both.

**Figure 9:** A doe with fur pulled from her body to line the kindling box

At about 5 days before the doe is due to give birth, she begins to prepare the kindling box, collecting dry grass and soft materials with which to line it (see Chapter 2). On the day she is due to deliver, she will pull fur from her mane and from around her teats to complete the lining. Given the slightest opportunity, she will also pull fur from other rabbits (see Figure 9). At this time she must be provided with fresh
water because she will drink large quantities of water during and after delivery.

**After delivery**

After the doe has given birth to the litter, it is necessary to check that:

- all the newly born rabbits are in the kindling box; if they are scattered about in the cage, collect them for safekeeping in the box

- the size of each of the young is normal (*see* Figure 10); if any are abnormally small, remove and destroy them (if they are allowed to remain, they will die later; this could happen at any time between the 2nd and 60th day, during which time the rabbit will have wasted precious milk and food supplies)

**Figure 10:** A litter just after birth
• the newly born have taken some milk by looking at the size of their bellies; if none has taken any milk, this shows there is something wrong with the mother and her young will die of starvation; remove them from the hutch and place them with healthy does

• she does not have too many young to care for; if she has, the extra ones should be given to a doe able to care for more rabbits

• they are all still alive; this must be done every morning

Note that if the newly born rabbits need to be given to another doe, this doe must have given birth at almost the same time as the original doe.

The mother feeds her young once a day. Exceptionally good mothers feed their young twice a day, but such rabbits are rare. On the 11th day the eyes open (see Figure 11). The young may begin to eat green leaves as early as the 15th day, but at this stage give them only fairly dry grass.

**Figure 11:** Rabbits at 11 days old, when the eyes have just opened
Death in the litter

Chilling because of lack of care by the mother or the rabbit farmer may lead to the death of young rabbits. If textile materials are placed in the kindling box, the threads can entangle and deform or kill a young rabbit. Rabbits should be kept out of the rain completely. Strong young rabbits will generate heat for themselves when the weather is cold by forming a cluster. A sick young rabbit is usually isolated. When it dies the mother will bury it in the kindling bed. It is important to inspect the bed every day to ensure that any dead rabbits are removed immediately so that the decomposition does not affect the others.

A high infant mortality rate can usually be traced to one or more of the following factors:

- negligence (by the mother or the farmer)
- unhealthy or weak parents
- inbreeding
- the mother being allowed to breed too early and too often
- feeding mothers and young rabbits on succulents or on too many immature greens
- insufficient food supply
- exposure to rain
- cold, if the mother has not provided enough fur or bedding material

Sexing and selling the weaners

Wean young rabbits at 6-8 weeks. This means separating them from the mother. The mother is then fed on extra rations to make her come on
heat within a short space of time, ready for breeding again. The weaners can be sold between 2 and 4 weeks after they have been weaned. The waiting period is to ensure that they will survive in their new home. Experience shows that the mortality rate among rabbits which have just been weaned can be high. Deaths at this stage usually stem from inbreeding.

A customer approaching a rabbit farmer for breeding stock will ask for a specific number of does and/or bucks, and thus the farmer must be able to sex the weaned rabbits (see Figure 12). It is essential to keep the sexes in separate hutches.

**Figure 12:** Reproductive organs of young and adult rabbits
It is easier to determine the sex of adults than of weaners (see Figure 12):

— **Sexing the adults.** The study of the sex organs of the adult must be undertaken as a first step before learning how to identify the weaner’s sex organs. The male organ is easy to identify. The testicles and penis of a good buck can easily be seen. The female’s vagina is also easy to find, a ‘V’-shaped opening a few centimetres above the anus.

— **Sexing the weaners.** The rabbit should be held on its back, with its hind legs pointing outwards. Press gently on each side of the sexual organ, exposing it. The female organ is slit-like and is situated near the anus, while the male organ appears as a rounded protusion and is further away from the anus. Experienced farmers are able to sex the young as early as the day of birth.

**Effect of climatic factors on breeding**

As for all animals, rabbit breeding has its own best season — that is, a season when rabbits flourish with minimum care. This is during the dry season, when greens are scarce and does produce litters with large numbers of young. Rabbit farmers should always take advantage of this by breeding more does between October and February in order to make maximum sales in March. In the forest regions of West Africa, the worst months are March and April; in the savanna regions the worst ones are May and June. In these months, does are not always very fertile and may produce fewer babies than they do in the better months, or they may produce none at all.

Rabbits do not breed well when the temperature is high. Temperatures above 38°C are bad for any rabbit. Most West African regions, particularly in the south, do not experience such high temperatures and are therefore favourable for commercial breeding. In California in the USA, rabbits die in large numbers in the summer because of the high temperatures, usually between 38°C and 55°C. It is important to keep
the rabbits away from the direct rays of the sun. They should never be housed under aluminium sheets or under any material which conducts heat easily. A rabbit suffering from heat stress or exhaustion becomes weak and breathes rapidly, moving its head and nose up and down. It will try to find shelter in a heap of grass or it will lie in the water of a container which has been provided for it. High humidity areas must also be avoided. The forest region has the highest death toll among rabbits because of the high humidity, coupled with the rapid spread of fungal diseases.

The onset of the rains in March/April in southern parts of West Africa promote the growth of new leaves. Contrary to expectation, these immature, succulent leaves can cause diarrhoea, resulting in a high rate of infant mortality. By August most leaves have matured, and are edible.
Chapter 4

Feeding rabbits

Rabbits feed on fresh and dry leaves and grasses, and occasionally on roots. They are one of the few animals that do not compete with humans for food. Unlike the poultry farmer, the small-scale rabbit farmer should not face problems with food supplies at any time of the year. Even when the grasses have withered, the leaves from tall trees and shrubs are available for food. However, care must be taken as to what is given to young rabbits and pregnant and nursing does, as they are particularly sensitive to some plants.

In general, rabbits will eat about 80% of available plants. However, they have their favourites, including the leaves below the crown of cabbages (Brassica aleracea), groundnut leaves, juice plant (Euphorbia heterophylla), Centrosema pubescens and wild marigold (Melanthera scandens). They eat all types of grass. Although freshly cut and dried greens, together with food wastes from the house, are suitable for small-scale enterprises, this would not be practical for commercial-scale projects, where quick growth of the animals is required.

Unfortunately, the unavailability of pellets in West Africa restricts the development of rabbit farming on a commercial scale. It is possible, however, for rabbit farmers to mix their own feeds which will meet the requirements of a balanced diet and ensure fast growth, good milk production and good health. Although the rabbit is regarded as a herbivorous animal, many rabbit farmers feed their animals with
poultry feed, which often contains dried fish. Rabbits will consume
dried but not fresh fish.

For rabbit farmers who wish to prepare their own rabbit feed pellets, the
following formula is suggested:

- greens and grasses 70%
- carbohydrate 15%
- protein or fish meal 10%
- other ingredients, including minerals 5%

It is important that rabbit farmers avoid overfeeding rabbits. If the
quantities of greens supplied are too large, this will encourage young
rabbits and weaners to eat more than they really need. As a result, they
will develop rotund bellies and their growth will be considerably
retarded.

A hungry rabbit will rise and come to meet the farmer when he is
approaching the hutch. A well-fed rabbit will take no notice of the
farmer when he is passing the cage.

**Greens**

These constitute the largest percentage of the required food. Marigolds
and many creeping leguminous plants and greens provide essential
nutrients for all rabbits, both young and old.

Table 1 on pages 30 and 31 lists some useful greens; where known,
local names are given. The list of plants in the table is in the order of
the rabbits' preference, as observed by the author.

Rabbit farmers will no doubt find suitable plants in their locality which
are not listed in Table 1. They should observe what the local domestic
and other herbivorous animals in the area eat and then try feeding the
same plant material to their rabbits.
Cabbage

The cabbage is the rabbit’s most favourite food but when the leaves contain too much water they can be dangerous. Feed the rabbit with matured (ripe) cabbage only. Cabbage reaches maturity after it develops a crown. If the crown has not developed, the leaf can be dangerous for all age groups. Note that rabbits do not like eating the crown. The parts they do like are the unwanted, overgrown leaves found below the crown.

Once the crown has been cut, the cabbage plant develops several shoots through the buds on the stem. Again, these shoots must not be fed to the rabbits until they have reached maturity. Rabbits also enjoy other plants in the same family as the cabbage, such as cauliflower.

Groundnuts and maize plants

Although these plants provide some of the best greens for rabbits they should not be used if there are other, cheaper greens available. The reason for this is that the rabbit farmer should avoid a situation where man and animal compete for the same resources. Groundnuts, for example, provide good edible nuts for man and should therefore not be used for rabbits until the crop is harvested. The waste leaves left over after the harvest can then be used as feed. This also applies to the by-products of other edible crops, such as plaintain leaves and bean leaves.

Tridax procumbens

This plant grows wild and is a good source of cheap rabbit food. The problem is that it is difficult to gather because, when it is picked, it collects a considerable amount of dirt from the ground. Rabbits will never eat anything dirty. Care must therefore be taken when gathering this plant. During the wet season, it is advisable that rabbit farmers dry the plant for several hours before they feed it to rabbits. In
### Table 1: Some suitable greens for rabbits

<table>
<thead>
<tr>
<th>Scientific name</th>
<th>Common name</th>
<th>Country</th>
<th>Local name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Euphorbia heterophylla</em></td>
<td>Juice plant</td>
<td>Ghana</td>
<td>Twi: ahinkogye, adanko milk</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Liberia</td>
<td>Eve: notsigne</td>
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<td></td>
<td></td>
<td>Senegal</td>
<td>Nzema: akubaa</td>
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<td></td>
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<td>Sierra</td>
<td>Mano: to a gbono</td>
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<td></td>
<td></td>
<td>Leone</td>
<td>Wolof: homguelem</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Ti: ebit, yonkara-ebit</td>
</tr>
<tr>
<td><em>Melanthera scandens</em></td>
<td>Wild marigold</td>
<td>Ghana</td>
<td>Twi: mfofo</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nigeria</td>
<td>Yoruba: iyawa</td>
</tr>
<tr>
<td><em>Synechidium nodiflora</em></td>
<td></td>
<td>Ghana</td>
<td>Twi: ntwedupono, tutu mirika, kohwe epo, aguakro</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nigeria</td>
<td>Yoruba: zanaposya, aluganbi</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sierra</td>
<td>Balkeyan: karuni</td>
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<tr>
<td></td>
<td></td>
<td>Leone</td>
<td></td>
</tr>
<tr>
<td><em>Desmodium scoparius</em></td>
<td></td>
<td>Ghana</td>
<td>Twi: adowobo</td>
</tr>
<tr>
<td><em>Vernonia cinerea</em></td>
<td></td>
<td>Ghana</td>
<td>Eve: hosikonu</td>
</tr>
<tr>
<td><em>Setaria spp.</em></td>
<td></td>
<td>Ghana</td>
<td>Twi: awaha, Eve: ebe</td>
</tr>
<tr>
<td><em>Centrosema pubescens</em></td>
<td>Centrosema</td>
<td>Ghana</td>
<td>Twi: ananse nturumunhoma</td>
</tr>
<tr>
<td><em>Aspilia africana</em></td>
<td>Wild marigold</td>
<td>Ghana</td>
<td>Twi: mfofo-nini</td>
</tr>
</tbody>
</table>
Table 1 (cont.)

<table>
<thead>
<tr>
<th>Scientific name</th>
<th>Common name</th>
<th>Country</th>
<th>Local name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Bidens spinosa</em></td>
<td>Bur marigold</td>
<td>Ghana</td>
<td>Twi: gyimantwi</td>
</tr>
<tr>
<td></td>
<td>or black jack</td>
<td></td>
<td>Akwapim: anase mpaane</td>
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<td></td>
<td></td>
<td></td>
<td>Eve: dzanai pipi</td>
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<td>Krepi: adzrokpii</td>
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<td></td>
<td>Krobo: dsethi</td>
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<tr>
<td></td>
<td>Nigeria</td>
<td>Yoruba: abrekloko</td>
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<tr>
<td></td>
<td>Sierra Leone</td>
<td>Mende: tombolo,</td>
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<tr>
<td></td>
<td>Liberia</td>
<td>tombo makei</td>
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<td></td>
<td></td>
<td>Mano: zikilli wissi</td>
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<tr>
<td><em>Sida acuta</em></td>
<td></td>
<td>Ghana</td>
<td>Twi: abrane atu ata</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Ga: shwuoblo</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Krepi: didinglome</td>
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<td></td>
<td></td>
<td></td>
<td>Eve: afidemii, ademeademe</td>
</tr>
<tr>
<td></td>
<td>Nigeria</td>
<td>Yoruba: oshe potu</td>
<td></td>
</tr>
<tr>
<td><em>Amaranthus spinosus</em></td>
<td></td>
<td>Ghana</td>
<td>Twi: nantwi nkese, asantewa nkasee</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ga: sraganmei</td>
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<td></td>
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<td>Krepi: amma</td>
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<td></td>
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<td></td>
<td>Eve: matonui</td>
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<tr>
<td></td>
<td>Nigeria</td>
<td>Ibo: inene ogu, nnuno aku</td>
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<tr>
<td></td>
<td>Sierra Leone</td>
<td>Yoruba: tete elegun</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Liberia</td>
<td>Mende: tahondi</td>
<td></td>
</tr>
<tr>
<td><em>Lonchocarpus cyanescens</em></td>
<td>Indigo plant</td>
<td>Ghana</td>
<td>Twi: dwira</td>
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<td></td>
<td></td>
<td></td>
<td>Ga: akese</td>
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<td></td>
<td></td>
<td></td>
<td>Eve: adzudzu</td>
</tr>
<tr>
<td></td>
<td>Nigeria</td>
<td>Yoruba: elu</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sierra Leone</td>
<td>Hausa: talaki</td>
<td></td>
</tr>
<tr>
<td><em>Ficus spp.</em></td>
<td>Sandpaper leaf</td>
<td>Ghana</td>
<td>Twi: nyankyerene</td>
</tr>
<tr>
<td><em>Mangifera indica</em></td>
<td>Mango</td>
<td>Ghana</td>
<td>Mango</td>
</tr>
</tbody>
</table>
the dry season, however, there is no need to do this and it can be fed to them straight away.

**Succulents**

Leaves or greens which contain large quantities of water are termed succulents. Young rabbits and pregnant and nursing does should not be fed such plants unless a careful study of the effects of the plants has been made. After eating certain succulents, rabbits are liable to develop diarrhoea and young rabbits, especially weaners, will soon die. Pregnant does are liable to have miscarriages. These rabbits should therefore be fed on dry leaves.

**Sweet potato**

Many rabbit farmers in West Africa supply their rabbits with the leaves of sweet potato (*Ipomoea batatas*), but this can be disastrous. Rabbits fed on immature sweet potato leaves usually do not produce well. Often, the females cannot have offspring and the few young that are born are subject to a high mortality rate. As with cabbage, sweet potato leaves can safely be fed to rabbits when the plant is mature but it is difficult to determine when it has reached maturity. Because of the adverse effects which result from eating immature leaves, this plant should not be included on the list of recommended foods.

**Talinum triangulare**

This is a good succulent plant for chickens. Although it is not popular with rabbits, it is believed that when rabbits are fed on it for an extended period, they sometimes develop a taste for it. Before feeding it to rabbits, the abundant juice in the plant should be reduced by spreading it to dry in the sun for a few hours. It should be fed to adult rabbits only.
**Commelina**

There are several varieties of this succulent plant. Generally, they are not good for rabbits. Whenever greens are gathered, the rabbit farmer should ensure that no *Commelina* species are included in the harvest.

**Butterfly larvae**

The cocoons or larvae of many species of butterflies and moths can be dangerous to rabbits. When greens are gathered, any leaves which bear these should be discarded. Normally, when rabbits are eating, they smell the foreign body and avoid eating that particular part of the leaf. Occasionally, however, they fail to detect the presence of foreign matter. Cocoons or larvae can be eliminated from leaves in the hutch by sprinkling water containing salt on the leaves.

**Planting fodder**

For farmers operating large-scale enterprises, collecting green grass and creeping plants from the wild for large-scale rabbit farming is tedious work. It often involves covering considerable distances before enough suitable edible material is found. In addition, greens collected in this manner are easily soiled in the process. One way of overcoming the problem is for the farmer to grow suitable plants which are easy to harvest. Some leguminous shrubs and trees, such as *Desmodium tortuosum*, *Gliricidia sepium* and several varieties of *Prosopsis* are excellent for rabbit feed.

Although planting fodder on a large scale to feed domestic animals is not a traditional practice in much of West Africa, there is no reason why it should not be adopted. In America, Australia, Europe and Asia it is a common practice to grow alfalfa, clover and many other plants specifically as animal fodder.
**Desmodium tortuosum**

This plant is now becoming fairly abundant but it still is not found in sufficient quantity for raising animals. It is highly recommended for planting on a large scale. The leaf contains some juice. When it was tested with a refractometer to determine its sugar content, this was found to be 13-14%. The twigs, as well as the leaves, are eaten by many animals. As far as the rabbit is concerned, it is second only to the cabbage in the order of preference. All the *Desmodium* species are palatable and can be grown from seed.

**Caloponium mucunoides**

This plant is regarded as one of the best rabbit foods. It is a creeper and looks like *Centrosema pubescens*. The main feature which distinguishes the two plants is that *C. mucunoides* has a hairy stalk whereas the stalk of *C. pubescens* lacks hair. *C. mucunoides* is propagated from seed and will grow prolifically if it is properly managed.

**Melanthera scandens**

Many people confuse this plant with *Aspilia africana*. In Ghana, the Akan people call *Melanthera scandens* ‘mfofo bere’ and *A. africana* ‘mfofonini’. *M. scandens* resembles the wild plant *Chromolaena odorata* and until recently it provided large quantities of greens for rabbits. The introduction of *C. odorata*, however, has threatened the growth of many other plants. Much of the area that was previously occupied by *M. scandens* is now given over to *C. odorata* which is of no use as animal food. *M. scandens* is easily cultivated in moist areas around towns and villages, especially near garbage disposal areas. It can be grown from seed or from cuttings. If a fodder farm is being developed, it is important that it should be located near the rabbit rearing area; otherwise, the farmer will need a vehicle to transport the feed.
Solids and grains

In addition to greens, rabbits should be given grains and foods containing carbohydrates and oil to ensure a balanced diet. Rabbit farmers should also remember that salt is an essential part of the rabbit’s diet; if a rabbit is seen gnawing at the wood in a cage, this is a sign that the animal is lacking salt. Salt should be put into the water, to taste; some grains should be given with about 0.05% salt added.

Carbohydrates

Carbohydrates are energy-giving foods and are an essential component of a balanced diet. The dried pulp of sugar cane, if ground and mixed with grains and dried leaves and then formed into pellets, is a useful feed. The cassava plant also provides a good meal; the cassava should be cooked and salt added to taste. Surplus food from the house, such as peels, should be collected and salt added to taste; the mixture can then be dried and formed into biscuits. Other items which can form a good meal are bread (especially the crust), banku, kenkey, rice, plaintain and cocoyam (boiled or raw).

Oil

Never waste palm fruit and the chaff. Collect the chaff from places where palm soup has been prepared for the day and soak it in salt (to taste). It should then be ready to feed to rabbits. Not only is this a good meal for rabbits but they enjoy the palm soup as well.

Grains

Rabbits enjoy all grain foods. The part of the grain which should be given to them is the husk (the outer covering of rice, maize, millet, etc). The spent grain from brewers’ malt is also good food. It is worth visiting a local brewery, collecting the spent grain and drying it; it is
high in nutrients for rabbits. Some breweries sell excellent dry spent grain to farmers rearing poultry, pigs and other livestock. Maize and rice husks can be collected, sometimes free of charge, from corn mills.

Always keep grain products in feeding troughs which are designed in such a way as to prevent rabbits from scattering their droppings into them. Young rabbits have the habit of soiling their dry food in this manner; they will then reject it, even when they are very hungry. Figure 13 illustrates a suitable feeder for rabbits.

**Figure 13:** Single and double feeding troughs

It is important that feed troughs are properly designed to allow food to be kept for a few days at a stretch, depending on the number of rabbits that are in the hutch. If troughs intended for storing only dry grain are well designed, there is no need to clean or wash them frequently.
**Water**

A reliable supply of clean water is essential. A restricted supply of water will inhibit food intake, restrict growth and reduce the supply of milk. Fresh leaves contain some water but not enough to meet the rabbit’s needs. If rabbits consume large quantities of dried foods, an abundant supply of water will be required.

A doe about to give birth must have large quantities of good drinking water. After delivery, she will drink large quantities to fill her stomach.

In the absence of automatic watering devices, the rabbit farmer must provide a suitable heavy bowl inside the cage. Light drinking containers will be tipped over. Special earthenware bowls, about 15 cm in diameter with a wide base, are suitable and are not easily tipped over; they are also easy to clean.

For medium- to large-scale rabbit farms, the automatic watering device depicted in Figure 14 is very useful. It was previously imported from Europe and America but it is now made locally.

**Figure 14:** Automatic watering device, now made in West Africa
Feeding methods

Fresh leaves and any other type of food scattered in the rabbit cages will be turned into bedding material and also into a place for fouling. The farmer will think there is enough food in the cage for the animal but rabbits will not eat soiled food. Green leaves should always be suspended off the ground (in a hanging position). Rabbits will also reject greens which have been collected from the roadside, especially those which smell smoky or oily from motor vehicle engines. Always ensure that greens are collected from clean places. Farmers should make sure there is always enough food in the cage, remembering that rabbits need food during the night. Grains must be placed in a trough or a heavy bowl which the rabbits cannot tip over.

Figure 15: Young rabbits at a feeding trough
Transporting rabbit feed

The smaller a rabbit farming operation, the easier it is to provide food for it. But once the enterprise starts growing, the problem of acquiring adequate supplies of greens and other food arises. Most areas of West Africa are fortunate in that there is no lack of greens and other appropriate foods for rabbits, but what they do lack is an appropriate vehicle for transporting food supplies.

**Figure 16:** A bicycle trailer, used for transporting food and other items for the rabbit farm

A useful and inexpensive piece of equipment produced by the Technology Consultancy Centre (TCC) at Kumasi, Ghana is the bicycle trailer, shown in Figure 16. Using this trailer, the farmer can cart a load of 50 kg with little effort.
Chapter 5
Selecting breeding stock

Breeding stock must be selected from among the best that is available to ensure that only desirable traits are passed on to the offspring. Qualities to look for in breeding stock are:

- the animals must be prolific breeders
- they should have a good growth rate
- they must be good converters of food
- they should have a high meat to bone ratio

Small, lean and unhealthy rabbits as well as old, sterile, castrated and deformed animals must be disposed of. They can be used as a source of meat and but should not be used for breeding purposes.

Selecting a good doe

A doe which is to be used for breeding purposes should have reached adulthood (5 months old or more). She should be strong and able to protect her young from attack. She should have at least eight teats, all visible and normal. A doe which scatters her young rabbits around the cage should be watched; if she does this more than once she is not a good mother and should be culled for meat. A doe can deliver any
number of young ones, up to a maximum of 16, but she should be allowed to care for a maximum of only eight or for as many as she has teats.

Selecting a good buck

It is the buck who largely determines the quality of the breeding operation. His size, his colouring and most of his other features will be inherited by his offspring; that is, his influence is usually much greater than that of the female. Care must therefore be taken to select only the best specimens.

The buck should be well built and have a round head, sound feet, a broad and meaty body and a good undercoat of fur. He should have short claws. The testicles must be visible and well developed. There should be no bite marks; if young bucks of about 14 weeks old are left together in one cage they usually fight and try to castrate one another. The buck must show no sign of discharge from its nose or other symptoms of disease. He must be well fed to ensure virility.

Inbreeding

The main reason why many animal breeders, including rabbit farmers, have remained small-scale operators is that the death toll of their animals is high. Often, no cause can be found. Farmers who have experienced this problem should check the degree of inbreeding that has taken place. It is a common practice to keep male offspring in the same barn. It is a common sight, for example, to see a young goat having sex with his mother or sisters. If this goat matures in the place where he was born, he will continue to cover his relatives. A farm where this is allowed to happen is doomed because the offspring will become weaker and weaker and the infant mortality rate greater and greater.
An experiment involving 10 female rabbits was conducted in 1984. Brothers were selected to mate with mothers and, in some cases, with sisters. The young rabbits produced by some of the sisters all died before they reached the weaning stage. When the females which had been used in this experiment were next on heat, they were sent away to be covered by another farmer’s bucks. The researcher established that the males used for mating were in no way related to the does. Seventytwo young were produced. None of them died and all were sold at the age of 4 months.

In another case, in 1989, a rabbit forced himself into a cage containing three of his sisters whom a researcher had kept for breeding purposes. In less than 30 minutes the rabbit managed to cover all three sisters. They were allowed to litter and they gave birth to 21 young. All the young died in less than a week.

These examples illustrate the results of inbreeding. How can the problem be solved? Rabbit farmers should make certain that they obtain their breeding stock from parents who are not related to one another in any way. To ensure that this is so, it is advisable to buy all the does from one farm and the bucks from another farm, situated as far away as possible from the farm where the does came from. Another suggestion is that it is possible for a breeder to maintain two or more streams of different bloodstock (that is, stock deriving from different parents), making it possible for a single farm to supply all the breeding stock required by someone who is establishing a rabbit farm.

Inbreeding will be prevented if farmers follow these guidelines:

- make sure that members of their breeding stock are not closely related
- sell, castrate or remove any males born to ensure that they do not mature and mate with their sisters, mothers or other close relatives
- if the animals are kept on a free range basis, make sure that the males are changed at least every year
• if some of the best males from the farm are to be kept for breeding purposes, make sure they do not cover any close relatives

• when purchasing breeding stock always ask the farmer whether it is possible to buy females and males which have no blood relationship

• never obtain breeding stock from a farmer who appears to be dishonest in any way

**Age of breeding stock at purchase**

Young rabbits are weaned between 6 and 8 weeks. These rabbits are only worth purchasing if they come from a well-organised farm where inbreeding cannot occur. However, if farmers are not certain whether there has been inbreeding, they should buy rabbits which are older than 8 weeks (some inbred rabbits die within a few weeks of weaning).

On some farms pregnant does are sold. It is important to obtain information on when the does were covered so that the expected delivery dates can be calculated.

**Record keeping**

Record keeping is an essential part of the breeding operation. A family history and breeding record must be kept for every breeding doe and buck. The seller must be ready to provide accurate information about every animal, young or old, whenever a buyer requests it. Figure 8 in Chapter 3 provides an example of a record sheet.
Chapter 6
Diseases and pests

Rabbits that are properly cared for (well fed and watered and kept clean and dry) will avoid most diseases. Diseases reduce the weight of the animals, resulting in the loss of meat and in deaths.

Curing rabbit diseases is very difficult if there is not a good veterinary officer in the locality; for example, it is difficult to force a rabbit to take any drugs. It is advisable, therefore, to wash the cages weekly with a strong disinfectant and, generally, to maintain strict standards of hygiene. Avoid insecticides because these preparations may be dangerous if ingested by the animals. There are some insecticides, such as Opigal 50 and Asuntol 50, which are known to be harmless to animals.

Nature has endowed most animals with the instinct to eat certain leaves which have curative properties. Some of the illnesses which afflict them can be cured if they eat the appropriate leaves. If the animals are allowed to move about freely they can cure themselves. Rabbits kept in hutches, however, are unable to do this. It is essential, therefore, that the breeder provides a variety of leaves for the rabbits so that a sick rabbit might, by chance, eat the particular leaf required to cure itself.

Rabbits that die from an unknown cause should be removed and burnt, and the cages they occupied should be thoroughly cleaned and disinfected.
**Signs of sickness**

A sick rabbit becomes dull and inactive. Its eyes turn pale, it loses weight and it sometimes produces a watery discharge from the anus, nose and eyes.

The faeces of a rabbit can sometimes give a clue that the animal is sick. The drawings in Figure 17 give an indication of what to look for.

**Figure 17:** Determining the health of a rabbit from the faeces

<table>
<thead>
<tr>
<th>a)</th>
<th>b)</th>
<th>c)</th>
<th>d)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image of faeces" /></td>
<td><img src="image2.png" alt="Image of faeces" /></td>
<td><img src="image3.png" alt="Image of faeces" /></td>
<td><img src="image4.png" alt="Image of faeces" /></td>
</tr>
</tbody>
</table>

- **a)** Normal faeces consist of solid, round and tablet-like droppings. The fibre content can easily be seen. There is little odour unless the farmer brings the faeces close to his nose. A sick rabbit’s droppings can sometimes be smelt as one approaches the hutch.

- **b)** A 4- to 5-month old rabbit discharges small, tablet-like faeces, bound together in a long cluster; the length of the cluster varies from 2 to 5 cm. The faeces are shiny and sticky and are believed to be a left-over of the edible discharge which the rabbit consumes at night. Bucks in their puberty stage and pregnant does sometimes also discharge such faeces.

- **c)** About 1 to 2 weeks before delivery, the doe discharges droppings similar in size to those in (a) but linked together. They may continue to discharge such droppings until 3-4 days after delivery.

- **d)** The faeces of a sick rabbit are watery and sticky. They may contain worms (white and coiled). Watery discharges usually indicate that the rabbit has diarrhoea.
Diseases

Diarrhoea

The commonest disease the rabbit farmer will come across is diarrhoea. This is usually caused by the rabbit consuming the wrong food, such as sweet potatoes or the larvae of certain species of butterfly. When rabbits have diarrhoea, they become dull and begin to discharge watery green droppings. Some forms of diarrhoea can kill a rabbit within 24 hours. Diarrhoea can be prevented by providing the rabbits with freshly cut and dried greens.

Coccidiosis

This is caused by the rabbit consuming tiny parasitic creatures which crawl around in feeding troughs and watering bowls or on the hutch walls. It can result in diarrhoea. The affected rabbits will sit hunched up and extend their hind legs forward. They will also lose weight. To prevent this disease, it is important to keep the cages very clean. If the disease persists for a long time, call in a veterinary doctor.

Ear canker

Small mites may burrow under the rabbit’s skin, especially in the ears. The scabs must be removed with warm water and palm oil or vaseline applied to the affected area. Also, pour some palm oil into the affected ear.

Warbles

If dirt is allowed to build up in and around rabbit hutches, the rabbits might develop warbles. Warbles is the result of eggs being laid in the fur of the rabbit, usually on its legs or feet, on the nose and around the
eyes or on the fringes of the ear. When the eggs hatch, tiny maggots burrow under the skin to form a small lump under the fur of the rabbit. The rabbit may scratch the spot and this in turn might cause infection. Warbles have developed on the nose of the rabbit in Figure 18. A knife may be used to open or remove the lump; then dilute a small quantity of Opigal 50 powder and apply it to the affected area, repeating this treatment after a week if necessary. Warbles may also be effectively treated with palm oil.

**Figure 18:** A rabbit suffering from warbles on the nose

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**Colds**

When a rabbit has a cold, it will sneeze and mucous will be discharged from its nostrils. Rabbits with colds should be isolated because the cold might develop into another illness which could spread to other rabbits and kill them.
Worms

Rabbits may have worms. These are white and sometimes coiled. To de-worm a rabbit, feed it paw paw if available; the paw paw plant is a natural de-wormer. The best remedy is to give the rabbit, every 4 weeks or so, dry paw paw leaves or a mixture of a few mashed dried paw paw seeds and grain. This will remove most of the worms.

Wry neck

Rabbits are sometimes afflicted by a disease known as wry neck. Their necks become twisted and they lose their sense of balance. Some farmers prescribe total destruction as the cure and to prevent the ailment being transferred to other rabbits. Our experience, however, is that wry neck can be completely cured in about 6 weeks without the use of any medication, and that the disease is not transferrable. One case reported to us is worth quoting here:

My rabbit had a terrible twist of the neck for more than 2 months. Friends advised me to destroy the animal but I decided to leave it alone to see what would happen without any treatment. At the end of the second month the neck started turning to its original position, and 2 weeks later the animal was completely healed. The disease was not transferred to another rabbit although the affected rabbit was paired with a young buck in the same cage.

Head banging

A strong rabbit which shows no symptom of any disease or illness may, without warning, run at tremendous speed into any obstacle in front of it, banging its head in the process. It will continue doing this until it dies. It is not known what causes this, or what the cure might be. Usually, by the time a veterinary officer gets to the farm the rabbit will have died.
Pests

Dogs

Dogs are the worst enemies of rabbits. If they get the slightest chance, they will, in a short space of time, kill all the rabbits found in any one place. Always safeguard rabbits from dogs by keeping the dogs indoors or away from the hutch area and making sure that the rabbit hutches are strong enough to give the animals the protection they need.

Cats

Wild cats and some domestic cats will molest rabbits. They will catch a young rabbit and eat only its nose, leaving the rest of the carcass in the coop. If properly made, hutches will keep cats out.

Mice and shrews

Some nursing does are unable to drive away mice and shrews which enter the hutches and kindling boxes and eat the young rabbits. If mice and shrews are not destroyed, they will eventually eat all the young rabbits. To prevent this from happening, traps can be placed outside the hutch. Alternatively, poison can be used (rat poison is effective). When poison is being used, the farmer must provide water; after consuming the poison and drinking water, the mice or shrews die before they reach the rabbits. Always keep poisons on the ground near the hutches.

Snakes

It is always possible that dangerous snakes such as cobras and puff adders may approach the hutches. If there are young rabbits, they are likely to be visited by a black cobra every 3-4 days. The snakes may swallow the rabbits whole. There are several effective ways of dealing
with snakes. The first is to kill them, using hard-boiled eggs as bait; the snake swallows the egg whole but its stomach cannot digest it, and the snake dies in the bush, away from the hutch. The second is to use 2 cm wire mesh when constructing the hutches. The third is to grow shallots or onions around or close to the hutches; the scent of shallots or onions will keep all types of snakes away.

**Fleas and lice**

Some of the fleas that infest rabbits are similar to those found on dogs. They jump quickly from one spot to another. They suck blood and cause rabbits to lose fur. Fleas should be destroyed with Opigal 50 or Asuntol 50, or similar drug powders. One tablespoonful of either of these solutions will destroy fleas and lice on rabbits within a few hours. The rabbit is dipped into the solution or lightly washed with the liquid. There is no need to remove food when applying Opigal or Asuntol; any quantity ingested by the animal will not be harmful. The new Chinese ‘miraculous’ insecticide chalk is good to apply. Eamatox is also good for fighting fleas and lice.
Conclusion

For the past 12 years, the author of this booklet has been involved in visiting towns and villages, popularising beekeeping. During these visits he sometimes gives advice on keeping small livestock, including rabbits. This often includes telling a story, at the end of which he asks a particular question and anybody who answers the question correctly receives a handsome prize.

The story is as follows:

There were large tracts of grass around a village. One of the clever inhabitants of the village took advantage of the rich pastures which belonged to the people and he bought three cows and a bull. After 5 years his cattle had increased to 60 in number. One Christmas day, a big fat animal was slaughtered and the meat sold cheaply to the villagers. The people rejoiced at this. They formed a long queue and purchased some of the meat.

The question is:

What were the villagers actually buying? The answer is not ‘meat’. What is it?

Grass makes a cow. The answer is grass. The villagers were buying their share of the grass. Grasses, waste food and greens scattered around our homes make delicious rabbit meat. The same things produce goats, sheep, turkeys and other livestock. Money can be saved by taking advantage of the rich pastures in the locality. Take advantage of
the grass, otherwise you will have to pay to buy it back from others who do.

* * *

This small book is a practical guide for those intending to start a rabbit farm. It attempts to provide most of the information required. The author hopes that all those who read this book will bring to his attention any faults or omissions they find, or provide him with any information not contained here but which may be of benefit to other farmers, so that the next edition can be an improvement on this one. Please write to the author at:

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