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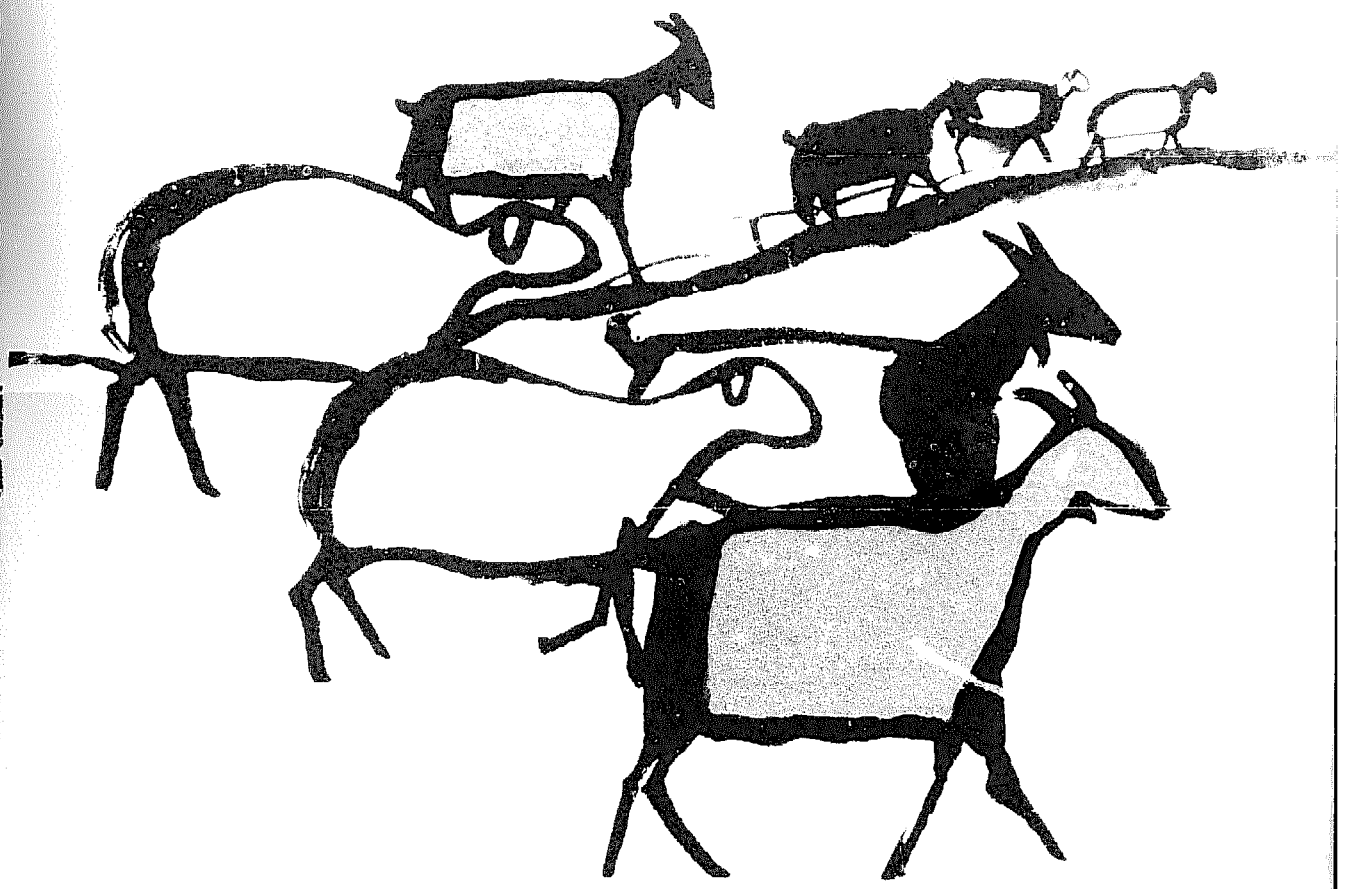
sheep and goat breeding



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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Twenty-six titles have been published in this series, designed as handbooks for a two-year intermediate level agricultural education and training course. They may be purchased as a set or as individual documents.

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1. The plant: the living plant; the root
2. The plant: the stem; the buds; the leaves
3. The plant: the flower
4. The soil: how the soil is made up
5. The soil: how to conserve the soil
6. The soil: how to improve the soil
7. Crop farming
8. Animal husbandry: feeding and care of animals
9. Animal husbandry: animal diseases; how animals reproduce

SECOND YEAR

10. The farm business survey
11. Cattle breeding
12. Sheep and goat breeding
13. Keeping chickens
14. Farming with animal power
15. Cereals
16. Roots and tubers
17. Groundnuts
18. Bananas
19. Market gardening
20. Upland rice
21. Wet paddy or swamp rice
22. Cocoa
23. Coffee
24. The oil palm
25. The rubber tree
26. The modern farm business

better farming series 12

Sheep and goat breeding

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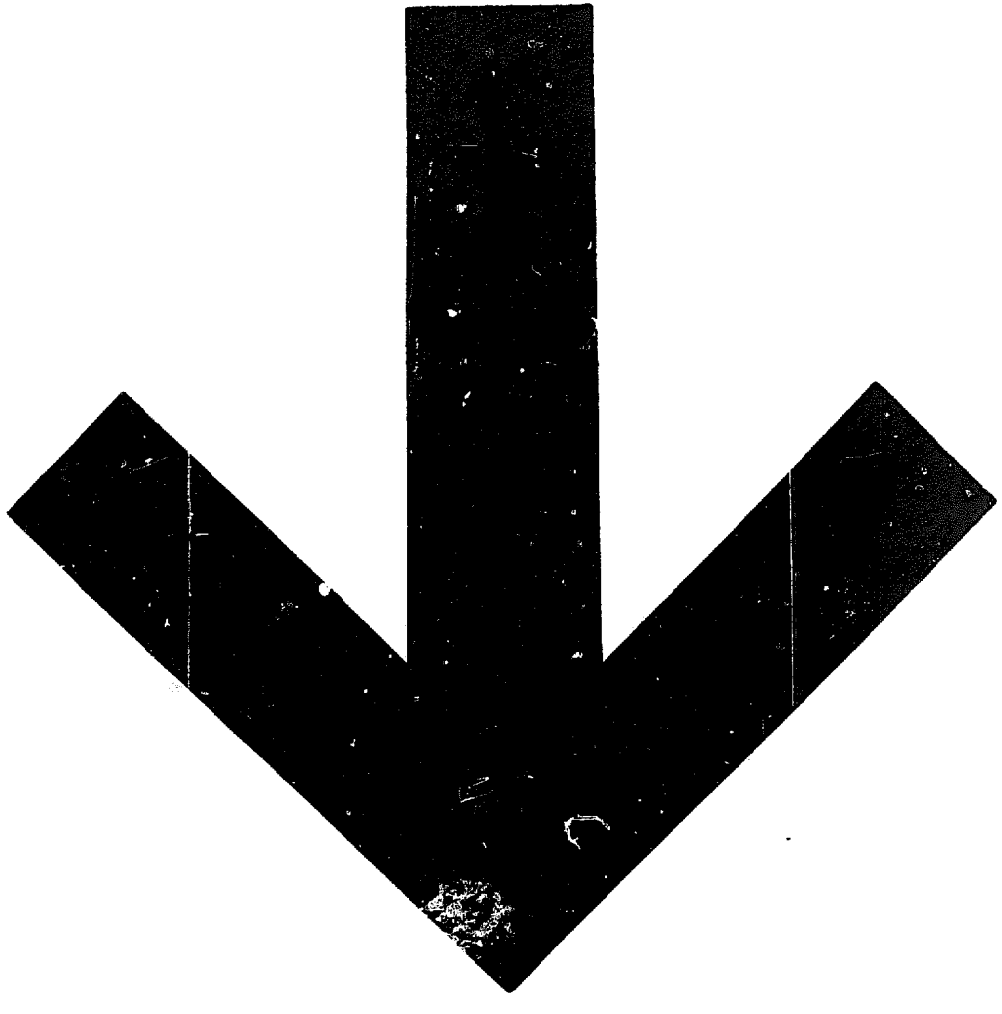
PREFACE

This manual is a translation and adaptation of "L'élévage des moutons et des chèvres", published by the Agri-Service-Afrique of the Institut africain pour le développement économique et social (INADES), and forms part of a series of 26 booklets. Grateful acknowledgement is made to the publishers for making available this text, which it is hoped will find widespread use at the intermediate level of agricultural education and training in English-speaking countries.

The original texts were prepared for an African environment and this is naturally reflected in the English version. However, it is expected that many of the manuals of the series — a list of which will be found on the inside front cover — will also be of value for training in many other parts of the world. Adaptations can be made to the text where necessary owing to different climatic and ecological conditions.

The author of this English version is Mr. A.J. Henderson, former Chief of the FAO Editorial Branch.



OUTLINE OF COURSE

TRADITIONAL SHEEP AND GOAT BREEDING

The traditional way of breeding sheep and goats
does not take much work,
but it also does not produce much.

It takes little work
because the animals are not looked after;
they are not fed,
they are not given water to drink,
they are not given any shelter.

But this way of breeding produces little;
the animals are small,
they are often ill,
and their young ones often die.

The flock produces little meat
for the family,
the village
and the country.

The flock produces little money.

The farmer spends little on them,
but he also earns little.

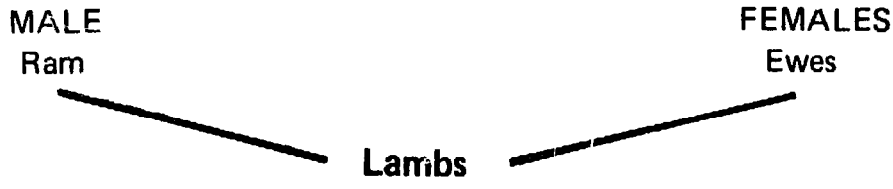
If a farmer breeds sheep and goats
in the modern way
he can earn more money than before.

A FEW WORDS TO UNDERSTAND THE COURSE

A flock of sheep consists of:

- 1 male: the male is called the **ram;**
- 20 females which have had young ones: the mothers are called **ewes;**
- young ones which are with their mothers: the young ones are called **lambs.**

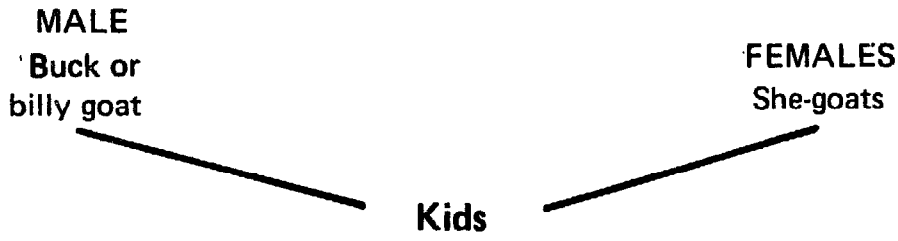
SHEEP



A flock or herd of goats consists of:

- 1 male: the male is called the **buck** or **billy goat;**
- 30 females which have had young ones: the mothers are called **she-goats;**
- young ones which are with their mothers: the young ones are called **kids.**

GOATS



BREEDS OF SHEEP AND GOATS

SHEEP

In Africa there are
many well-adapted breeds of sheep.

Among them are:

- **A BREED OF WOOL SHEEP**
  the Macina (Mali)

  These are rather big sheep
  weighing 30 to 40 kilogrammes.
  It is a breed
  that produces little meat and milk.
  These sheep are raised
  for their coarse wool.
  The wool is made into blankets.

- **THREE BREEDS OF COARSE-HAIR SHEEP**

  - **Moorish sheep**

    Nar variety
    These are big sheep that produce little meat.
    They are used
    for crossing with Astrakhan sheep
    to produce fur.

    Touabir variety
    These are very big black and white sheep
    that produce a lot of meat.

• Peulh sheep

This is the commonest breed in west Africa.

Djallonquée variety

These are small black and white sheep
that weigh 20 to 25 kilogrammes.
They have short legs
and are good meat producers.

Toronquée variety

These are bigger sheep,
weighing 40 to 50 kilogrammes,
white and brown in colour.
They produce a lot of meat
and the ewes give a lot of milk.

• Targui sheep

These have long legs,
and can walk a long time in search of grass.

The **big Targui sheep** have mottled white hair.

The **small Targui sheep** have longer hair,
brownish grey in colour.

The Targui are good mutton sheep
because they produce a great deal of meat.

Attempts are now being made
to cross them with European breeds,
but foreign sheep adapt very badly.

GOATS

There are many breeds
very well adapted to the climate of their regions.

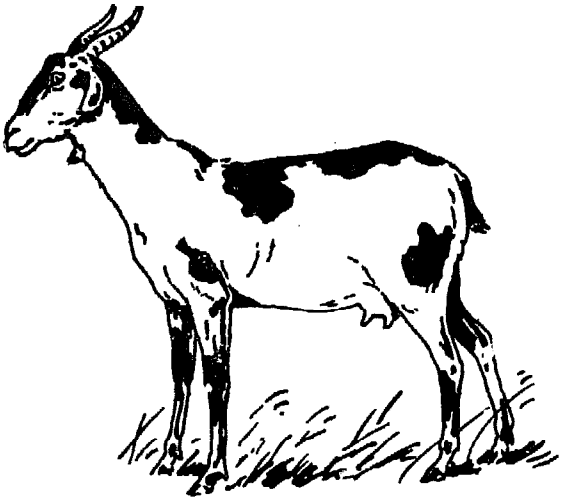
The chief breeds are:
Northern goats of the savanna country
and Southern goats
of the wetter, forested regions in the south.

- **Northern or Savanna goats**

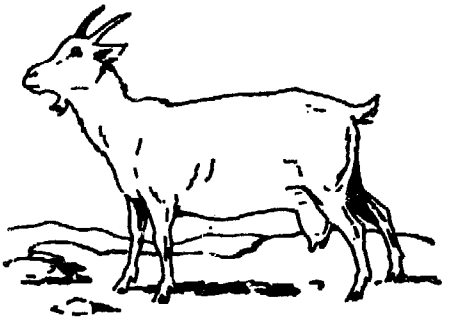
These are very big goats
weighing between 25 and 30 kilogrammes.
The buck has very big horns.
The she-goats are white with black spots.
They can produce two kids in a litter,
and produce a lot of meat and milk.

- **Southern or Forest goats**

These are small animals
weighing 18 to 20 kilogrammes.
The body is short and fat.
They are brown in colour,
with the tip of the tail and of the legs
black or white.
They are bred for their meat.
They are resistant to sleeping sickness
in the very wet regions.



Northern goat

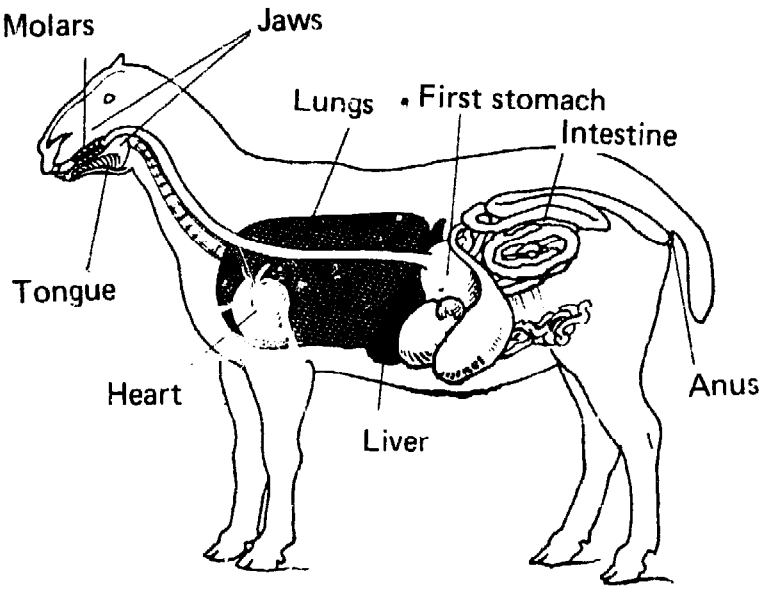


Forest goat

HOW TO FEED SHEEP AND GOATS

THE DIGESTIVE SYSTEM

In order to understand
how sheep and goats use grass
we shall study their **digestive system.**



Digestive system of a sheep

The mouth

Open the mouth of a sheep or goat.
You see **two jaws** and **a tongue.**

Toward the back of the mouth you can see
large teeth with which the animal chews grass.
These are called **molars.**

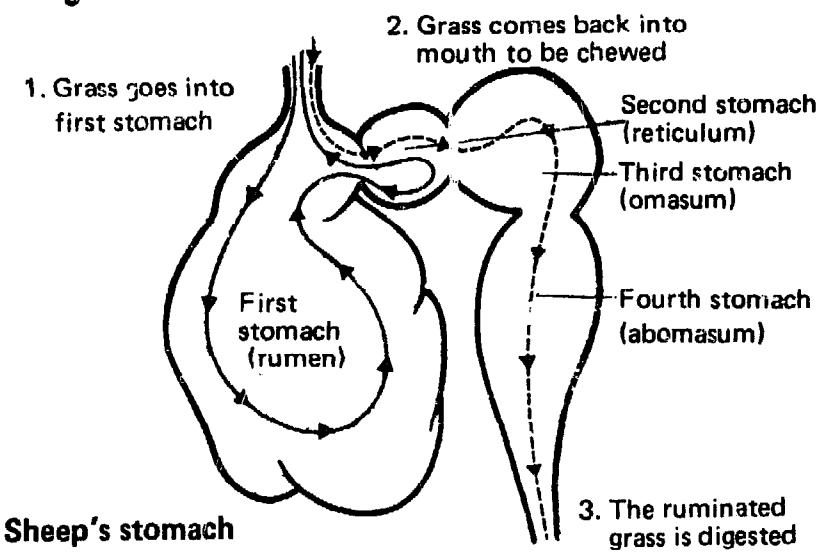
The **upper jaw** has no front teeth.
The **lower jaw** has 8 front teeth.
The older the animal is,
the more these teeth are worn.

You can tell the age of a sheep or goat
by looking at its front teeth.

The first stomach

Let us watch a sheep or a goat feeding.

To feed, a sheep or a goat grips the grass
between the upper jaw and the teeth of the lower jaw.
It jerks its head to pull off the grass.
It does not chew the grass, but swallows it at once.
The grass goes into the first stomach (or rumen)



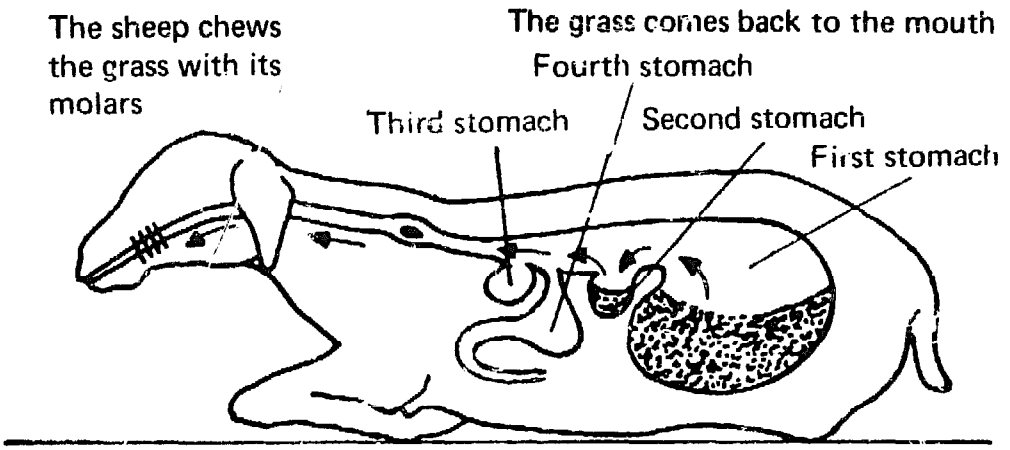
Sheep's stomach

Sheep and goats ruminate.

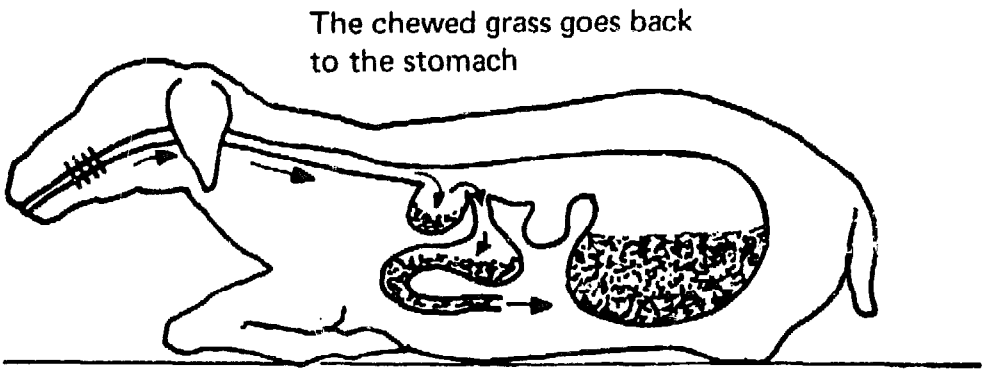
When sheep and goats have filled the first stomach,
they often lie down.
But they go on moving their jaws.
They are ruminating.

The sheep and the goat bring up a little grass
from the first stomach into the mouth.
They chew the grass for a long time
with their molars.

When the grass is well chewed,
they swallow it again;
but this time
the grass does not go into the first stomach,
but into the other parts of the stomach.



A ruminating sheep: the grass comes back to the mouth



A ruminating sheep: the grass goes back to the stomach to be digested

Sheep and goats can ruminate well
when they are quiet and lying down.

Animals that ruminate
are called ruminants.

Goats, sheep, cows,
deer and camels
are ruminants.

FEEDING SHEEP AND GOATS

They must be given enough food.

If an animal does not get enough food,
it does not put on weight.

In the dry season there is often not enough food
and animals lose weight.

They must be given rich food.

Ruminants eat grass.
In grass they get what is needed
to build their bodies.

But they can be given as well
certain very rich foods
which are called **feed supplements.**

A sheep or a goat raised for meat
should grow quickly.
Then it can be sold faster
and you earn money faster.

A ewe or a she-goat
that is having young ones needs good food
(see pregnancy requirements in Booklet No. 8, page 21).
Then she can feed well the young in her womb
which will later drink her milk.

If the mothers have plenty of milk,
the young ones grow better and faster.

In order to give animals enough food
all the year round,
the flock is moved
from place to place.
When there is no more water and grass
in one region,
the flock is taken
to another region
where there is still water and grass.

In the dry season
sheep and goats can feed more easily
than cattle. They make better use of the grass,
because the sheep cut the grass closer to the ground,
and the goats pull up the grass.

You can feed sheep on pasture
where cattle have already fed,
because sheep eat short grass.
But they leave nothing behind them.

You must not let these animals feed
in very wet places,
because they catch diseases
of the feet and body.

A good shepherd knows how to move the animals;
he has a good dog to help him.

Then the flock is well fed, it does not catch diseases;
the little ones grow up
and do not often die.

During the rainy season
it is easy to feed animals well.
Grass grows quickly,
there is a lot of it,
it is young and nourishing.

During the dry season,
animals are badly fed.
The grass is hard and scarce,
the stems are tall,
the leaves are dry.
The animals won't eat this grass.
They are short of food,
they get thin
and sometimes die.

During the dry season
it is necessary to give the animals
a feed supplement.

Balanced rations for animals

Rations for lambs of 5 months and over,
and for breeding males.

In the rainy season
an animal eats about 2.5 kilogrammes of grass a day.

In the dry season, give:

First ration: 1 kg of hay
and 500 grammes of silage.
(See Booklet No. 8, page 28).

Second ration: 1 kg of hay
and 100 grammes of cooked cassava.

Third ration: 1 kg of silage
and 200 grammes of rice bran.

Fourth ration: 1 kg of hay
and 100 grammes of rice bran.

Fifth ration: 1.5 kg of silage
and 150 grammes of cooked cassava.

If you want to fatten an animal
for sale or for eating,
add 350 grammes of oil cake
– cottonseed, copra or oil palm kernel.

Oil cake is costly,
but it makes animals put on weight
and fatten quickly.

Do not give the same rations
to females and their young ones:
their needs are different.
Instead, give the following rations.

In the rainy season:

Pregnant ewe or she-goat weighing 30 kg:

2 kg of grass
100 g of rice bran
300 g of oil cake

Ewe or she-goat suckling young of 0 to 4 weeks:

2 kg of grass
400 g of cooked cassava
400 g of rice bran
600 g of oil cake

Ewe or she-goat suckling young of 5 to 10 weeks:

2 kg of grass
200 g of cooked cassava
400 g of rice bran
600 g of oil cake

Ewe or she-goat suckling two young ones of 0 to 4 weeks:

2 kg of grass
900 g of cooked cassava
500 g of rice bran
600 g of oil cake

Ewe or she-goat suckling two young ones of 5 to 10 weeks:

2 kg of grass
700 g of cooked cassava
500 g of rice bran
600 g of oil cake

Supplementary note

To understand this page,
reread pages 13 to 16 and pages 20 and 21
of Booklet No. 8

Feed Requirements of Sheep and Goats

Animal	Feed units	Digestible protein
Maintenance requirement		Grammes
Sheep, goats		
adults of 20 kg	0.3	10 g
adults of 30 kg	0.3	15 g
Maintenance and production requirements		
Pregnant ewes and she-goats		
of 20 kg	0.6	80 g
of 30 kg	0.6	90 g
Ewes of 30 kg suckling		
1 lamb of 4 weeks	1.6	160 g
1 lamb of 10 weeks	1.4	160 g
2 lambs of 4 weeks	2.3	160 g
2 lambs of 10 weeks	2.1	160 g
She-goat having 1 litre of milk	0.7	75 g
She-goat having 2 litres of milk	0.9	140 g
Maintenance, growth and fattening requirements		
Lamb of 2 months	0.5	60 g
Lamb of 3 months	0.9	80 g
After weaning, beginning of fattening	1.0	40 g
After weaning, end of fattening	1.2	50 g

Giving a feed supplement and mineral salts

When food is short,
when the grass is hard,
animals must be given a **feed supplement.**

When animals are reproducing,
when the females are pregnant,
when they are giving milk,
they must be given a **feed supplement.**

You can, for instance,
buy meal for sheep and goats.
It is sold commercially,
but it is dear.

You must also give mineral salts,
such as a licking stone.
One kilogramme contains:
400 g of salt
150 g of calcium
80 g of phosphorus
as well as other mineral salts.
Or you can give native soda.
Put the salt in the water,
in hay and silage.

Mineral salts are needed
to form the animals' bones.

Sheep and goats need water

Sheep and goats get thin
during the dry season
because they are not well fed,
but also because they do not drink enough.
A sheep can drink 5 to 6 litres of water a day.

If ruminants do not drink enough,
they cannot digest grass.

Animals can drink:

- **in their shelter:**
  from a hollowed-out tree trunk,
  from a barrel cut in half,
  from a concrete trough.
  Their drinking places must be always very clean.

- **at streams or rivers:**
  Make sure that the water is clean and clear;
  there must be no mud in it.

  Sheep and goats easily catch diseases from water.

It is important:

- **to give the flock every day enough water;**
- **to give water that is as clean as possible;**
- **to give this water in a clean place;**
- **not to let the sheep and goats go into the water.**
  They can catch diseases from it.

WATCHING OVER SHEEP AND GOATS

To be well fed
animals must be watched over.

A farmer who leaves his animals to roam freely,
who does not watch over them,
has not much work to do.
But his animals do not grow quickly.
Animals do well, and have good health,
if they are watched over.

If animals are left at large,
they do not make good use of the grass.

They eat the good grasses
and leave the less good ones.
The good grasses are always eaten
before they make seeds,
and so they cannot multiply.

On the other hand, the weeds are not eaten,
they grow and make plenty of seed,
and they all multiply.
After the animals have finished grazing,
the uneaten grass is cut down.

They damage crops.

Animals at large go into plantations
and destroy the harvest.
Farmers have to make their fields
a long way from the village.
So farmers lose a lot of time going to work.

The animals may hurt themselves
or get diseases.

They go to the streams
and catch parasites or diseases.

Why animals need a paddock

It protects the animals
from wild beasts and thieves,
from wind, sun and rain,
from diseases.

In the village animals are kept
in a traditional enclosure.

There are often too many animals.
The ground is dirty and wet.
The animals catch diseases.
The cannot lie down to ruminate.
They make poor use of their food.

Their wounds heal badly,
especially those of the feet.
Diseases increase.
The little ones are often ill.

You cannot make good manure,
though the dung of sheep and goats
is good for manure.
In a traditional enclosure
there is only a mixture of earth and droppings.
This mixture is less good
for the fields
than real manure.

How to watch over animals at pasture

- **With a herdsman and dog**

It is best for the farmer himself
to watch his animals.
He can also ask some member of his family to do it.

Several farmers who know one another well
may put their flocks together
and jointly pay a herdsman.
The herdsman of a flock of sheep
is called a shepherd.

A herdsman who does his work well
must know his animals.
He can see at once if they are ill.
He leads them to good pasture.
He does not cheat the farmer.

To help the shepherd,
a dog can be trained
to lead the animals
and prevent them from scattering.

A well-trained dog
is very useful to the shepherd.

• In a paddock

Pastures should be fenced,
otherwise the animals get into plantations
and destroy them.

A field 100 metres on each side
is needed to feed about 8 adult animals.

Do not leave the animals too long in the field,
or the grass will not grow again.

Divide the field into seven parts.

Every five days,
or when you see that the grass has been well eaten,
move the flock to another part.

When the last part (the seventh) is finished,
go back to the first part
where the grass has grown up again.

The animals manure the soil of the field
with their droppings.

You can make fences
by planting little trees very close together;
by planting two rows of sisal
or by planting thorns.

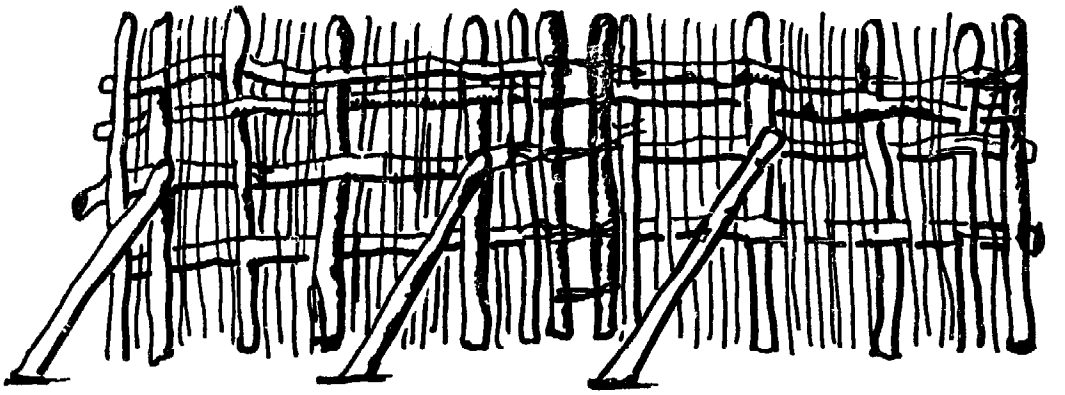
Leave a gate 2 metres wide.

In a paddock
it is easier to watch over the animals.
They cannot spoil the crops;
they use all the grass of the pasture.

Before dividing the field into seven parts,
look where the trees are in the field,
so as to shelter the animals from rain and sun.

When you have had a good look,
divide up the field.
Each part should have a tree,
and should not be far from the path.

To keep the animals in one part,
you need movable fences made of wood.
Make them 2 to 3 metres long and 80 centimetres high.
Move the fences
when you put the animals in another place.



Making these fences requires money and especially work.

It is useless to do a lot of work,
and spend money,
if you do not at the same time improve
the animals' food,
the animals' housing,
the care of the flock.

GIVING THE ANIMALS GOOD HOUSING

Make a building
next to the paddock.

A modern building
of concrete and sheet iron
is too dear.

You can improve
the housing of sheep and goats,
which is called a **sheep shed or goat shed,**
without spending too much money.
Use local materials.

Before spending money,
you must reckon
what the money will produce.

If the money spent produces little,
it is not worth while.
Do not do it.
You will become poorer,
and will be discouraged.

Where to put the shed

Sheep and goats
must not be put in a dirty, wet place.

Choose a dry place,
on a little rise.
If you build the shed
in a low-lying place,
rain water and urine cannot flow away.

Put a layer of concrete (cement and gravel)
on the ground.

Build the shed
where the wind will take the smell
away from the house.

How to build the shed

To protect the animals from the wind,
build a wall of earth up to the roof
on the side where the wind usually blows.

To protect the animals from sun and rain,
make a roof of straw or palm leaves.

Put a gutter
on the lower side of the roof.
Make the gutter
of a bamboo cut in half lengthwise,
or of hollow wood.
Slope the gutter
so that the rainwater runs into an old drum.

When the shed is finished,
make three stalls inside:

- A small stall for the male or males.

  The males must not be with the herd,
  otherwise they will fertilize the ewes
  when this is not wanted.
  Leave them with the ewes
  when you want the males to fertilize them.

- Two large stalls:
  one for the females which have young ones,
  the other for females which have no young ones,
  and for castrated males.

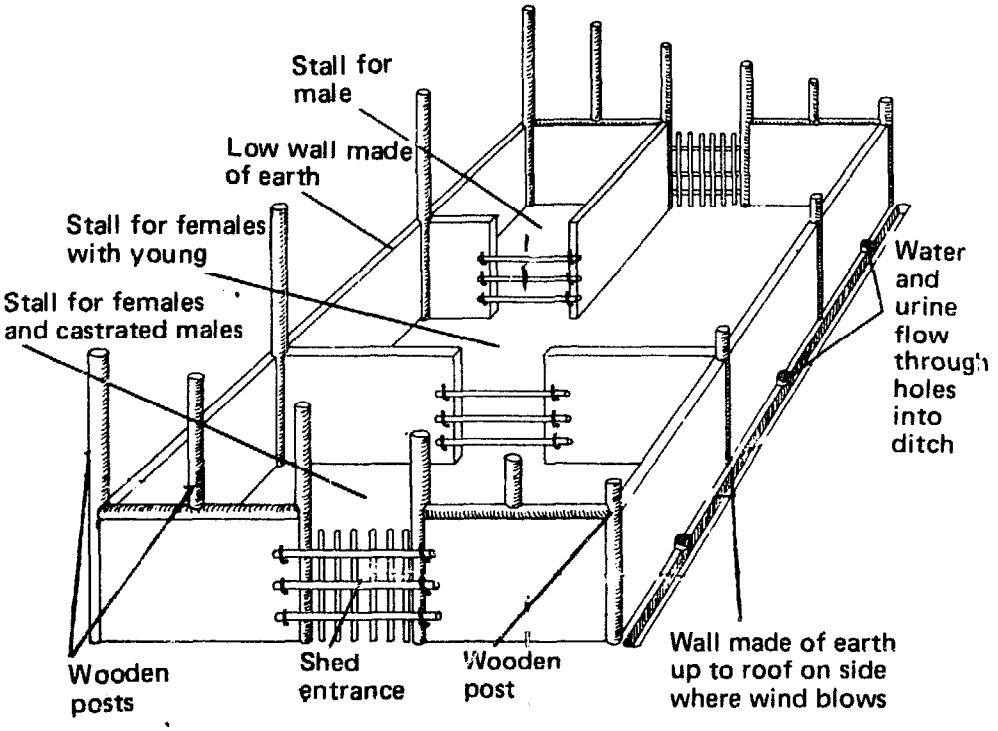
Put straw on the ground.
This straw,
mixed with droppings and urine,
rots and makes manure.
When the straw is partly rotted,
put clean, dry straw on top of it.
See that the animals are always on clean straw.

When there is a lot of manure in the shed, take it out.
You can take it out to the field
and plough it into the ground at once.
Or you can make a heap by the side of the shed,
and take the manure to the fields
when you are ploughing.

Sheep and goat dung
makes good manure.
It adds a lot of organic matter
and mineral salts to the fields.

Use a cart
to carry straw and manure.

To show the inside of the shed better, the roof has been left out of the drawing. It is made of straw or palm leaves. The roof goes beyond the walls so that they will not be damaged by rain.



A sheep shed

The animals must not be crowded in the shed.
If they are crowded,
they do not have enough room to lie down,
they ruminate badly,
they hurt themselves,
they get ill.

Two adult animals
need a space of 1.5 square metres.
For example,
put 6 adult animals
in a shed 3 metres by 3 metres.

The doors of the shed must be wide.
Make them 2 metres wide,
then the animals will not be crowded in going through,
and will not get hurt.

Disinfect the shed every two weeks
with water and potassium chloride
or water and cresol.

- **Alongside the shed make paddocks were the animals can walk about.**

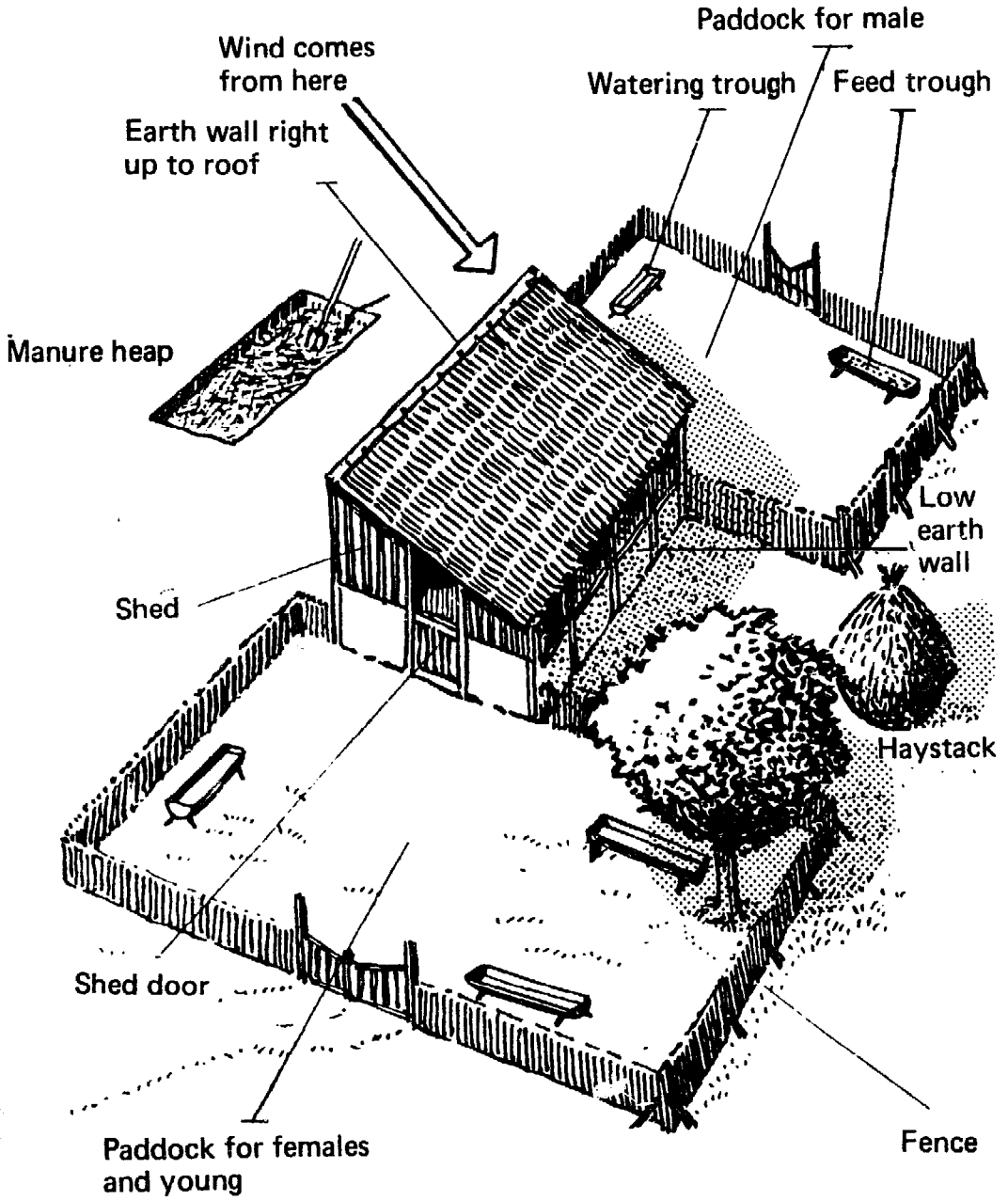
Make:

- A small paddock for the males
  next to their door;
  the males must not be with the flock.
- A big paddock for the females and their young;
  the young ones are left with the rest of the flock
  when they are between 1 and 2 weeks old.

In the paddocks put:

- Feed troughs
  to give the animals their feed supplement.
- Watering troughs
  from which they can drink.

Feed troughs and watering troughs
are made of hollowed tree trunks
or drums cut in half.



Shed and paddocks

DISEASES OF SHEEP AND GOATS

How to look after sheep and goats

Vaccinate animals before they are ill.
Vaccination protects a child from disease;
you do not wait for the child to be ill.
In the same way, vaccination protects an animal from disease;
do not wait for the animal to be ill.

Vaccination tires animals a little,
but it is not dangerous
if they are well fed and well housed.

There will be fewer diseases
if the animals are well fed
and [illegible] really clean.

Parasites are the worst problem
in sheep and goat breeding.

Protect animals from parasites.
Give them clean water to drink.
Do not leave the flock near streams.
Do not keep more than 20 animals together.
Parasites and contagious diseases
multiply in big flocks.

A diseased animal
gives the disease to all the flock.
Take special care
with the young ones and mothers;
they are the most delicate.

PARASITES

Skin parasites

- **Mange or scab**

The animal scratches,
its hair comes out, scabs form.

Wash the animals
with warm water and soap.
Soak a piece of cloth in mineral oil
and rub the animal.

Repeat every day.

- **Ticks**

They stick to the animal's skin
and suck the blood.

Wash the animal with water
and a pesticide such as toxophene.

Rub the animals regularly every week.

Parasites in the body

Usually they live in the digestive system,
in the lungs or in the nerves.

The parasite eggs are left by flies
in the pasture.
These eggs develop in the grass
and are eaten with the grass by the animals.
Then they develop in the animal's body.

Parasites living in the lungs,
such as lung worms,
are controlled by the use of aerosols
or with phenothiazine.

Parasites living in the digestive system,
such as strongyles,
are controlled with phenothiazine
before the animal is ill.
Ask the animal husbandry service for advice
on treating liver rot (liver fluke infestation),
coccidiosis and tapeworm.

Parasites living in the brain
cause gid (or sturdy).
Animals walk like drunk persons.
They must be slaughtered before they die.

When parasites have got into a pasture,
do not take animals there
for a long time.
The parasite eggs hatch out,
but as there are no animals,
the parasites cannot attack them
and have nothing to eat.
So they die.

The animals should not feed
in wet pastures
because that is where parasites live.

INFECTIOUS DISEASES

Enterotoxaemia

This is a serious disease of lambs.
They should be vaccinated to protect them against it.

Anthrax

This disease infects all animals and man.
Vaccination beforehand is needed,
otherwise all the animals die.

Animals that die of this disease must be burned.
The blood of the dead animal is black.

People must not eat the meat of animals with anthrax
because they can catch the disease and die.

The animal husbandry service must be informed.

Foot-rot

The horny parts of the foot are destroyed
and the animals limp.
The animals can be cured in the following way:
dig a little ditch
at the door of the shed,
and fill the ditch with water
and an antiseptic
such as formalin in the correct proportion.
Then make the animals walk through the water.
Their feet will heal up.

Foot-and-mouth disease and sheep-pox

The animals will not catch these two diseases
if they are vaccinated beforehand.

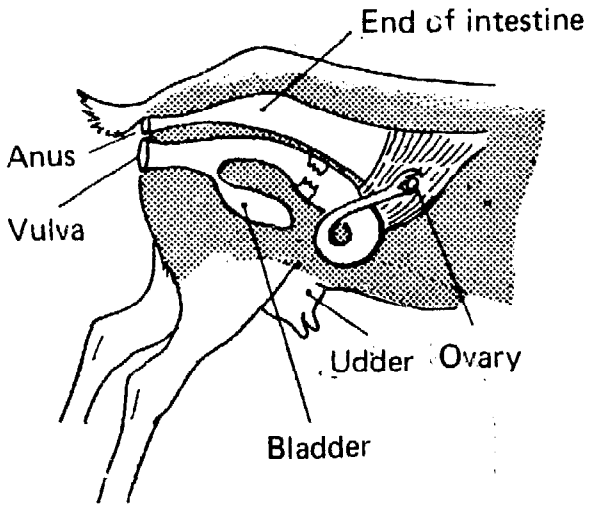
Do not put the animals
in marshy pastures
or in dirty sheds.
The sheds must be cleaned out.
This is where diseases and parasites live.

HOW SHEEP AND GOATS REPRODUCE

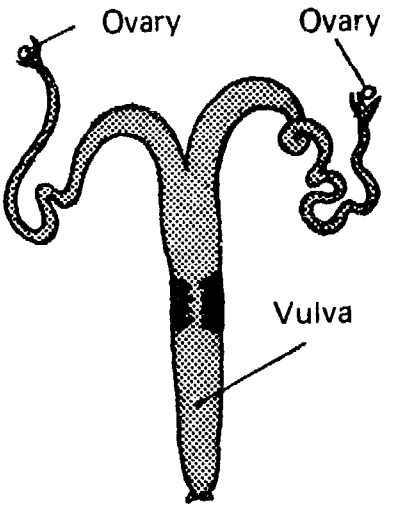
THE REPRODUCTIVE SYSTEMS

REPRODUCTIVE SYSTEM OF THE SHE-GOAT AND EWE

The reproductive organs
are all inside the she-goat or ewe.
All you can see from the outside
is the entry to the system
which is called the **vulva.**



Genital organs of she-goat



Genital organs removed from she-goat

Flowers have ovaries
which contain ovules
(see Booklet No. 3, page 11).

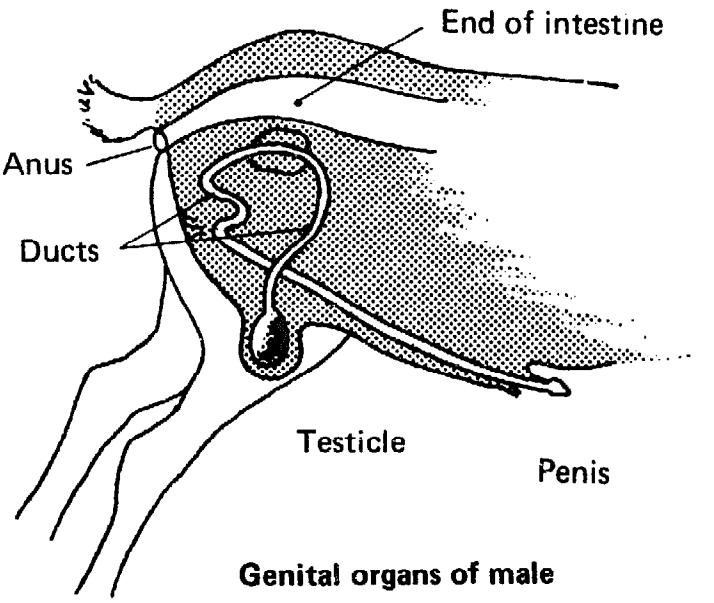
When the ovules are fertilized by pollen,
the ovules become seeds.

The female sheep or goat has **two ovaries.**
Every 21 days they produce an **ovum.**
(In speaking of animals we say ovum, plural ova.)
If, at this moment,
the ewe is served by the ram,
and the she-goat by the buck,
the ovum is fertilized.
It develops and becomes a young one.

• REPRODUCTIVE SYSTEM OF THE BUCK AND RAM

This system consists of:

- **two testicles**
  which hang between the hind legs;
- the **penis;**
- **two ducts**
  which connect the testicles with the penis.



Genital organs of male

Stamens give the pollen
that fertilizes the ovule in a flower
(see Booklet No. 3, page 10).

Testicles give **the semen**
that fertilizes the ovum.

The fertilized ovum
becomes a young one.

PREGNANCY AND BIRTH

When the female carries a young one in her womb,
we say she is **pregnant.**
Pregnancy begins with fertilization
and ends with the birth of the young animal.
It takes about 5 months.

The young animals that are born
are called the **litter.**

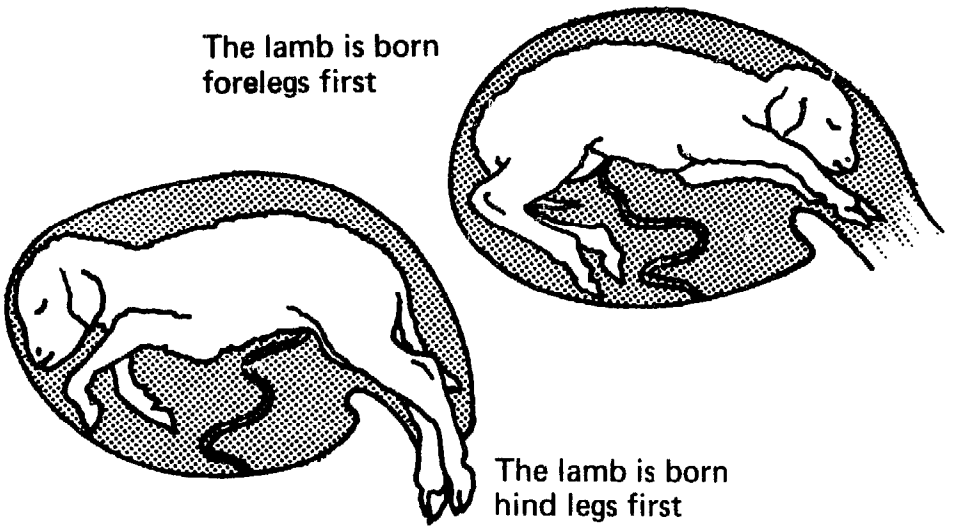
If the she-goat or ewe has had
one litter in the year,
she should not have another litter
before the following year.
The she-goat or ewe cannot both
feed the young one(s) in her womb
and suckle those already born.

The female which is going to give birth
stays in one corner;
the udder swells and hardens.

At the birth,
part of the membranes which cover the young one(s)
comes out;
the water in these membranes should flow out.

Next you see the legs of the young animal coming out,
either the two forelegs
or the two hind legs.

After the young animal has come out,
if it is still joined to the mother
by the umbilical cord,
cut the cord
and tie knots at both ends.
Then make sure you clean it well.



Position of lamb

After the birth
the rest of the membranes come out.

They must all come out.
Otherwise they may rot inside the womb
and cause the mother to die.

Usually the birth takes place without difficulty;
there is nothing for the farmer to do,
except in the case of a female which is giving birth
for the first time.
In this case he can help her
by pulling downward on the legs of the young one.

When the young animals are born
the mother rubs them with her tongue;
she licks them.
You must let her do this.

At this time the mother is often thirsty,
so give her water to drink.

LOOKING AFTER THE YOUNG ONES

Take great care of the new-born animals.
They are very delicate.
They easily catch diseases and parasites.

To protect them, have them vaccinated.

Take good care of the young animals
and house them well.
Otherwise they may die,
and you may lose a lot of money.

A female should have a litter every year.

After birth
the mother suckles her offspring
for about 4 months.
But from the third week
the lamb or kid can take other food
besides the mother's milk.

At 6 months
the lambs or kids no longer suck
and they are said to be **weaned.**
If the mother still has milk,
she is milked.
After 1 or 2 months
have her served by a male.

The mother may refuse her young.
This often happens
when the mother gives birth for the first time,
or when she has two young ones.
In that case put the mother and young ones
together in a stall
to get them used to each other.

If the mother is dead,
suckle the young one
with the milk of another female,
or give pure cow's milk in a feeding-bottle.
Give 5 to 7 feeds a day in small amounts.

If there are 20 females in a flock
there should be 20 litters a year.
If there are only 10 litters a year,
the flock is not producing enough.
A farmer will not earn enough money
with such a flock.

A female which produces no offspring during the year
should be sold or eaten.

If a female has no young
5 months after being served by the male,
she is said to be **sterile.**

But a female can be sterile
because she is badly fed;
because she is ill;
because she is too old.

Give her plenty to eat
for 4 or 5 months to fatten;
then you can sell her for a good price.

The females must be served
5 months before the beginning of the rainy season.
Then there will be plenty of grass at the time of birth.
The mothers will have plenty of milk
and their young ones will be well fed.

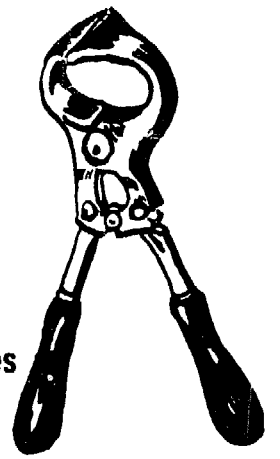
A male should not serve his daughter;
the offspring will be malformed.

CASTRATING MALES

A flock of 30 to 40 ewes or she-goats
needs 2 rams or bucks.
The flock needs good breeding animals.

The other males of the flock are castrated.

Where goats are concerned, the bucks are sold
or eaten while they are young
and before they can reproduce themselves
so there is no need to castrate them.



Castrating instrument

How to castrate the males

Either the testicles are removed,
or better,
the ducts joining the testicles to the penis
are crushed.

The animal husbandry service
has special instruments for this,
and the livestock assistants are used to them.
If the males are not properly castrated,
their wounds will not heal up well
and they may die.

At what age should the males be castrated?

The males which are not wanted for breeding
should be castrated
at the age of 2 months, at least.

Castrate old rams and old bucks, because then
they fatten more quickly,
the meat has less taste,
and you can sell them better and faster.

CHOOSING BREEDING ANIMALS

Why choose?

If you make a good choice of males,
the females they serve
will produce fine, big lambs.

If the sire is well built,
he will produce well-built offspring.
If the sire is badly developed,
he will produce badly developed offspring.

By making a good choice of males
you quickly improve the flock.

When you make a good choice of females,
they produce fine offspring,
and they have plenty of milk to feed them.

Ewes which have 2 lambs in the first litter
almost always have 2 in other litters.

The good qualities of the breeding animals
are often passed on to their offspring.

So it is very important
to make a good choice of breeding animals.

A farmer who makes a good choice of seeds
gets better harvests.
A farmer who makes a good choice of breeding animals
gets a better flock.

How to choose

The male

Choose the son of a good female
and a good, well-built male,
with a mother that gives a lot of milk.

The young male should be well built
and in good health.

You can buy a young male
at a breeding station;
he will improve the flock.
This costs less money
than buying several females
from the breeding station.

The male should be lively and strong,
and should be well fed,
especially for two months before service.

The male should have a flat back with broad loins.

Females

Choose daughters of good, well-built milk types
and of fine males. They should be well developed
and in good health.

Their hind legs should be well spread, but straight
and their loins broad.
Their bellies should be well developed and muscular.

AGE OF BREEDING ANIMALS

Females

The ewe lambs should not be fertilized
before the age of 18 months.

Otherwise they will remain small
and will produce small lambs
and will have little milk to feed their young ones.

Ewes are fattened for sale or eating
when they are 5 or 6 years old.
After that age they cannot be fattened any more,
they produce meat of poor quality
and do not fetch a good price.

The female kids should not be fertilized
before the age of 1 year.

She-goats are fattened for sale or eating
after 5 or 6 births,
that is, at the age of 6 or 7 years.

Males

Rams do not serve
before the age of 15 months.

Otherwise they remain small
and do not give the ewes good litters.

Bucks should not serve
before the age of 18 months.

After the age of 4 years
the males are less strong
and produce poor offspring.
So you lose money.

The males should be castrated
at the age of 4 years
and fattened for sale or eating.

KNOWING THE FLOCK AND MAINTAINING IT

How to know your flock

We have seen how important it is
to choose good breeding animals.

The good qualities of the parents and grandparents
are passed on to the offspring.
In modern animal husbandry
you choose good breeding animals.
. By knowing the parents,
you **select.**

Modern farmers put a **mark**
on each animal in the flock.
Give each animal a **number**
— this is its name.
Mark the number on the back of the animal
by cutting the wool with a pair of shears.

For example,
mark A on the male.
On the females mark 1, 2, 3, etc.
On the young animals mark A1,
if, for example,
the sire is A and the dam is 1.
You can tell from which litter of dam 1
the offspring comes
by marking a second number.
For example,
if A1 is from the third litter,
it is marked A13, and so on.

Keep a herd book

Keep a **herd book**, as modern farmers do.
Take a double page for each animal.
Write on it all you need to know
about each animal in the flock.

Example of herd book page for a ram

Name of ram: A

Month and year of birth: mid-July 1964

Son of: ..... and of:.....

Date of service	Name of ewe	Number of offspring	Remarks
			Vaccination Oct. 1964.
5 Oct. 1965	3	2	Eats more before service.
10 Oct. 1965	2	1	Lambs well formed.
17 Oct. 1965	1	2	

Example of herd book page for a ewe

Name of ewe: A1

Month and year of birth: March 1966

Daughter of: A and of: 1

Date of service	Name of ram	Dates of birth	Number of offspring per litter	Remarks
5 Sep. 1967	Hira	3.2.68	2	Lambs vaccinated for enterotoxaemia. 2 lambs died before weaning.
28 Aug. 1968	Mou	20.1.69	2	Lambs vaccinated. Weaned beginning July 1969.

Example of herd book page for lambs

Name of animal: A1

Month and year of birth: March 1966

Date of service	Date of births	No. of lambs per litter	No. of lambs dead before weaning	Remarks
5 Sep. 1967	3.2.68	2	2	A1 vaccinated 15.5.66. Lambs vaccinated for enterotoxaemia.
20 Aug. 1968	20.1.69	2	0	Lambs vaccinated. Weaned beginning July 1969.

You know more or less the date of birth
of any animal you have bought.

The fourth column
shows the deaths among the stock;
you can see if each dam
has many deaths among her offspring.

If the dam has deaths in each litter,
she should be fattened and sold.

With the book a farmer knows at any time
the state of his flock.

The veterinary assistant writes in the herd book
what he has done,
and what the farmer is to do.

The farmer writes down
roughly how much food is given per day,
without counting grass.
He knows
what each animal has eaten
before it is sold.

So he knows
how much food is needed in a year
for his flock.

He also makes notes on the animals.

He has a record of each breeding animal
and can tell which are the best animals.

He fattens and eats or sells
those which are not earning.

This is what is meant by **selection.**
He knows his flock
and knows what it earns.

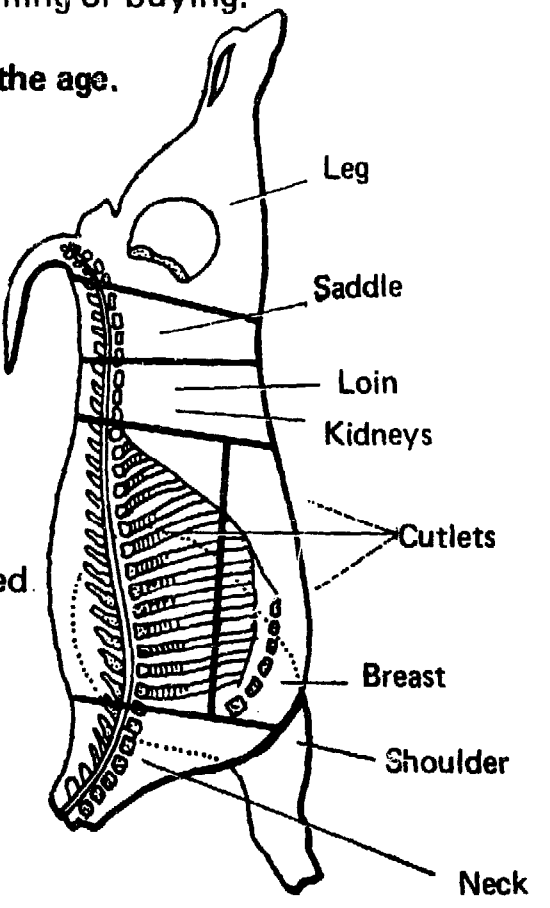
HOW TO SELL AND BUY

Choose the animals
to be sold or bought.

- **All you have to do is**
  pass your hand over the animal's loins
  and pinch its ribs.

If you can feel the bones,
the animal has not got much meat,
it is not fat.
If you do not feel the bones,
if you feel the meat,
the animal is good for selling or buying.

- **But you must also look at the age.**
  - Animals are often
    sold alive
    at the time of
    important festivals.
  - So you must always
    have fine animals
    for the chief festivals.
    At that time
    you can also sell
    old animals
    that have been fattened.
  - You must plan
    to fatten animals
    so that they will be
    ready for sale
    at a time when
    the price is high.



Sheep cut lengthwise
(butcher's cuts)

ORGANIZING SALES

To earn more,
it is not enough to work better.
You must also sell better.

A farmer must think about the date
when he will sell his animals.

You know that sheep and goats
are sold at a high price
at the time of certain traditional festivals.
So organize your stock raising
in order to have animals for sale
at the festivals.

You may perhaps sell some animals
at the beginning of the dry season,
if you have not stored enough fodder for the dry season.

You know what animals to sell at that time:
sterile ewes,
old she-goats
and old breeding animals.

SUGGESTED QUESTION PAPER

FILL IN THE MISSING WORDS

The . . . . . way of breeding does not take much . . . . . but does not . . . . . .

The female of the ram is called the . . . . . and their young ones are called . . . . . .

The female goat is called the . . . . . .

The young ones of goats are called . . . . . .

In Africa there is only one breed of wool sheep, the . . . . . .

When sheep and goats swallow grass it goes into . . . . . They bring back the grass to chew it. They are . . . . . .

They must be given food and . . . . . all the year round, especially in the . . . . . season.

Sheep and goats are kept by a . . . . . and a . . . . . , or in a . . . . . .

The animals are vaccinated before . . . . . .

For fertilization the ewe is . . . . . by the ram and the she-goat by the buck.

Young ones born at the same time are called a . . . . . .

The female suckles her young for about . . . . . months.

From the . . . . . week the lamb or kid can take other food.

Ewes can be fertilized from the age of . . . . . months. The ram should be at least . . . . . months before serving.

Give a . . . . . to each animal – it is the animal's name.

Making a good choice of breeding animals is called . . . . . .

ANSWER THE FOLLOWING QUESTIONS

Explain how ruminants use grass.

How can you tell if a sheep and a goat are fat?

Where are parasites found in an animal?

How can you see that a ewe is going to have young?

Explain what took place when a ewe gave birth.

How are males castrated?

Why must a paddock and a shelter be made for sheep and goats?

Why must breeding animals be chosen?

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