

AT MICROFICHE REFERENCE LIBRARY

A project of Volunteers in Asia

Better Farming Series No. 9, Animal Husbandry:
Animal Diseases, How Animals Reproduce

Published by:

Food and Agriculture Organization of the
United Nations

Via delle Terme di Caracalla

00100 Rome

Italy

Paper copies are \$ 1.50.

Available from:

UNIPUB

P.O. Box 433

Murray Hill Station

New York, NY 10157 USA

Reproduced by permission of the Food and
Agriculture Organization of the United Nations.

Reproduction of this microfiche document in any
form is subject to the same restrictions as those
of the original document.

animal husbandry

animal diseases

how animals reproduce



BETTER FARMING SERIES

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.

FIRST YEAR

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

Animal husbandry

Animal diseases

How animals reproduce

Published by arrangement with the
Institut africain pour le développement économique et social
B.P. 8008, Abidjan, Côte d'Ivoire

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Rome 1976

First printing 1970
Second printing 1972
Revised edition 1976

ISBN 92-5-100148-0

© French edition, Institut africain pour
le développement économique et social (INADES) 1970

© English edition, FAO 1976

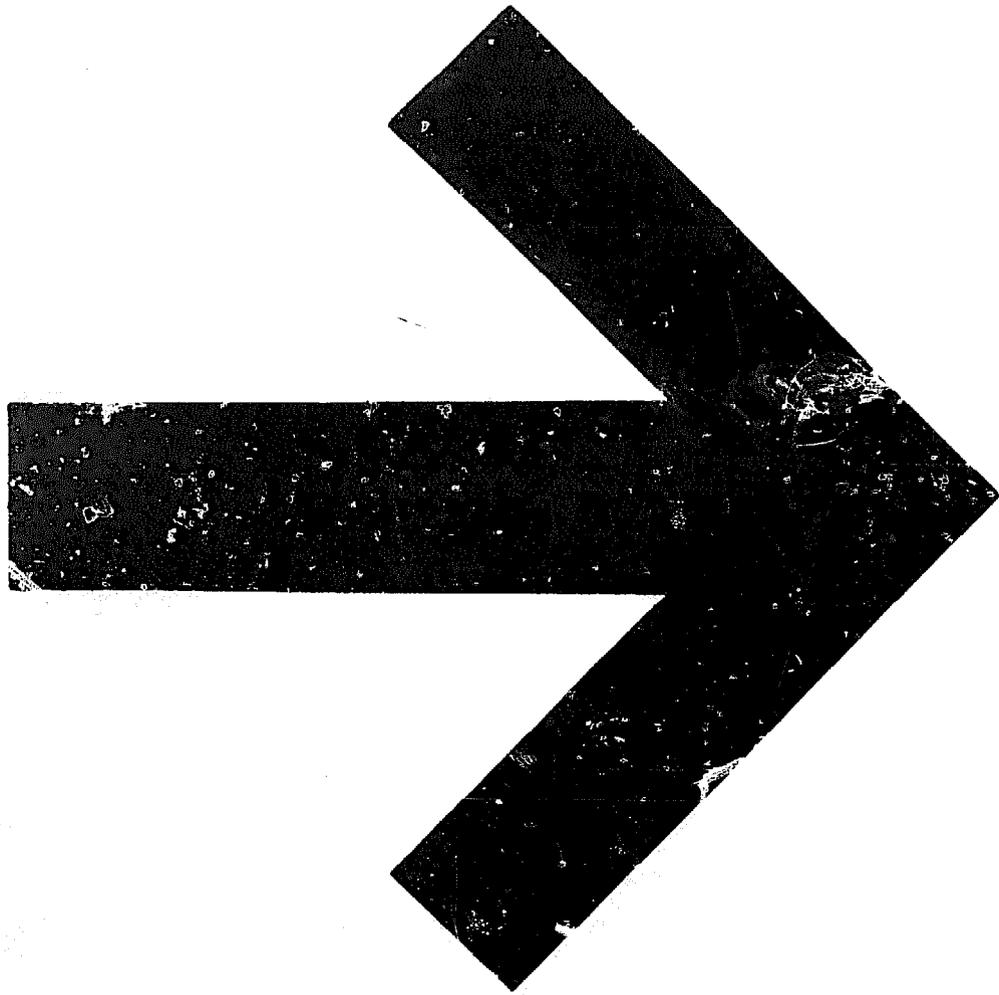
PREFACE

This manual is a translation and adaptation of "L'élevage - les maladies et la reproduction des animaux," 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.

Applications for permission to issue this manual in other languages are welcomed. Such applications should be addressed to: Director, Publications Division, Food and Agriculture Organization of the United Nations, Via delle Terme di Caracalla, 00100 Rome, Italy.

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



OUTLINE OF COURSE

● Animal health	4
Injuries	5
Parasites	6
Diseases	9
Vaccination	10
Looking after ill animals	11
● Reproduction	13
How animals reproduce	13
The reproductive systems	14
Female	14
Male	15
Pregnancy and birth	16
Choosing breeding animals	18
Why choose?	18
How to choose	20
● Castration	21
● How to know your herd	22
● Selling animals	25
For meat	25
For breeding	26
For fattening	26
The meat yield of an animal	27
The yield of a herd	29
Farmers' groups	31
● Suggested question paper	33

PLAN OF WORK

FIRST WEEK

How to look after animals.

Read pages 4 to 12.

Parasites, injuries and diseases
are very bad for a herd.

You must learn how to look after animals well,
and know about parasites
so as to kill them,
how to wash wounds,
and get animals vaccinated
so that they will not fall ill.

When animals are ill
you must see the veterinary assistant
or the animal husbandry service.

SECOND WEEK

Reproduction.

Read pages 13 to 24.

In order to improve a herd,
you must know how animals reproduce.

What can you do
to make a better choice of animals for breeding?
How to choose males.
How to choose females.

How to look after an animal when it is pregnant
and when it gives birth.

THIRD WEEK

Production of meat.

Read pages 25 to 30.

How to prevent the females
being covered by the male
when they are still too young.

All animals finish at the butchers.
So you must try to improve
the meat production
of all animals.

FOURTH WEEK

Selling animals.

Read pages 31 and 32.

Reread pages 25 to 30.

It is not enough to produce.
You have to sell.

How is the sale of animals organized
where you live?

Reread all the course.

Answer the question paper.

ANIMAL HEALTH

A man is sometimes ill.

Animals too can fall ill.

When an animal is ill,
it becomes thin,
and may even die.

Then the farmer loses a lot of money.

HOW TO KNOW WHEN AN ANIMAL IS ILL

Signs of good health

Good appetite

Bright eyes

Shiny coat

Growing well

Signs of illness

No appetite

Very restless or too quiet

Sensitive back,
cold ears,
fever

Dull eyes

Dry, brittle coat

Losing weight

An animal may be injured,
may have parasites,
may have a disease.

INJURIES

- **Pay great attention to animal injuries.**

If you see an animal
walking with difficulty (limping),
or bleeding after a fight with another animal,
or which has hurt itself,
do not wait to treat it.

If you wait, the wound will become worse,
it will become infected.

An infected wound is slow to heal;
it may prevent the animal from walking,
from going to the pasture,
from working,
from giving milk.

An animal in pain produces less.

- **Find out why the animal is injured.**

Has it a thorn in its foot?

Has a piece of wood or iron
torn its skin?

Has a rope, collar or yoke rubbed,
or been too tight?

Is there a vicious animal in the herd?

When you have found out why the animal is injured,
you must get rid of the cause of the injury.

If it is a working animal,
do not make it work;

it is better to lose a few days' work
than to lose the animal.

- **Treat the wound.**

Wash the wound with warm water
in which you have put
something to prevent the wound from getting infected.

You can use soap or a chemical product
such as permanganate of potash or cresol.

Wash the wound often.

A wound that is always kept clean heals quickly.

PARASITES

Parasites are little animals
that live on the skin or in the body
of other animals.

PARASITES ON THE SKIN

- **Ticks**

Ticks stick to the animal's skin
and suck its blood.
If an animal has many ticks,
it can lose a lot of blood.
After a time, it will become very weak.

Kill ticks with chemicals
such as DDT or BCH.

- **Mange or scab**

The parasite makes little holes under the skin
and lays its eggs there.
If an animal has many parasites;
it scratches a great deal.
Treat mange with products
containing sulphur.

Skin parasites injure animals.
The animals become restless,
they walk with difficulty,
they eat little.

Skin parasites can carry
many serious diseases.

PARASITES THAT LIVE IN THE BODY

- Usually they live in the **digestive tract**.¹
For example, worms
such as tapeworm and ascarid.
They damage the digestive tract
and prevent animals from digesting their food.
Animals with worms get thin and sometimes die.

To kill these parasites,
give the animals a medicine to drink,
such as phenothiazine.
You can also use some traditional medicines.

- Parasites also get into the **liver**.
The animal does not digest well.
Give it a medicine to kill the parasites.
- Parasites also live in the **muscles**.
The animal has difficulty in walking.
It has fever.
An example is the trichinella of pigs.
- Parasites can live in the **lungs**.
The animal has difficulty in breathing.
It has broncho-pneumonia.
- Parasites even attack the **brain**.
The animal turns round and round.
This is the gid or sturdy of sheep.
The animal dies.

The treatment for parasites
often has to be repeated.
The agricultural service will tell you
what medicines to use.

¹With the digestive tract animals and people digest and absorb food and reject the waste matter.

- **A good way of controlling parasites is to let pastures rest.**

Why is this?

The eggs of parasites
fall on to the pasture in the animals' droppings.
The eggs develop in the grass.
Then they may stick to the animals' skin
or be eaten with the grass,
for instance, ticks and worms.

If you let the pasture rest long enough,
the parasites cannot feed on the animals' skin,
or live inside the animals, and they die.

So in order to control parasites,
let the pastures rest.
Do not put the animals
always in the same pasture.

- **Pay attention to the animals' water.**

Dirty water contains many parasites.
Give the animals clean water to drink.

- **Clean the animals' housing.**

On the floor and walls put a disinfectant
that will kill parasites (see Booklet No. 8, page 36).

DISEASES

Besides parasites that live on animals' skin
or in their bodies,
there are many diseases
which prevent animals from growing
and which may even kill them.

In the animal husbandry courses
on chickens, cattle, sheep and goats,
we shall deal with the diseases
which each kind of animal may have:

- Diseases due to germs,
such as anthrax, rinderpest, pox, pneumonia.
- Diseases due to bad feeding
through lack of mineral salts
(see Booklet No. 8, page 17).

An animal that is badly fed,
badly housed,
badly looked after,
resists disease badly.

It is often ill.

For animals to resist disease,
a good farmer must:
feed them well (see Booklet No. 8, page 10);
give them clean water to drink
(see Booklet No. 8, page 18);
house them well (see Booklet No. 8, page 34);
treat their wounds (see page 5).

A good way of controlling diseases
is to protect the animals by vaccination.

VACCINATION

A child is vaccinated
before it is ill
in order to prevent it becoming ill.

An animal should be vaccinated
before it is ill,
to prevent it becoming ill.

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

For example:

Chickens are vaccinated
for fowl diphtheria, fowl cholera, fowl pest.

Cows are vaccinated
for pneumonia and anthrax.

Pigs are vaccinated
for anthrax and swine erysipelas.

Sheep are vaccinated
for anthrax and foot-and-mouth disease.

You must take all the animals to be vaccinated.

Usually vaccination is compulsory
and free of charge.

If all farmers
do not take their animals to be vaccinated,
the animals which have not been vaccinated
may catch the disease.
Then the disease remains in the district.

LOOKING AFTER ILL ANIMALS

To look after ill animals, you must:

- **Go and see the veterinary surgeon.**

When a man is ill,
he goes to the doctor.

When an animal is ill,
ask advice from the veterinary assistant
or the veterinary surgeon.

The assistant will tell you
what medicine to give the animal.

- **Keep the animal alone, by itself.**

Why?

Because of the danger of infecting other animals.

There are two kinds of disease:

- **contagious diseases**

These are diseases which can pass
from one animal to another.

If one animal in a herd is ill,
it can give this disease to all the other animals.
For example, rinderpest and anthrax
are contagious diseases.

- **non-contagious diseases**

These are diseases which do not pass
from one animal to another.

If one animal is ill with such a disease,
this disease is no danger to the other animals.

**When an animal has a contagious disease
it must be kept alone by itself.**

Do not leave it with the rest of the herd.
In this way you keep the disease away
from the whole herd.

**You must not eat the meat
of animals which have died
from certain contagious diseases
such as tuberculosis.**
This disease can pass
from animals to people.

**You must not let your herd mix
with strange herds travelling through,
especially if they come from far away.**
Passing herds can bring diseases with them.

Do not put in your herd
an animal you have bought,
or which comes from elsewhere,
unless you are sure it has been vaccinated.
The animal may bring disease
to all the herd.

To make a country's animal husbandry modern,
veterinary services are necessary.
All farmers should follow the advice of these services.

- **Remember that a good way of controlling diseases
is to give pastures a period of rest.**

REPRODUCTION

HOW ANIMALS REPRODUCE

We have studied
how plants reproduce themselves
(see Booklet No. 3, page 14).

We shall now study
how animals reproduce.

It is very important to study this,
in order to improve animal husbandry.

When you have a good knowledge
of how animals give birth to their young,
of how they reproduce,
you can make a better choice
of the **animals for breeding**.

To get a good harvest,
a farmer chooses good seed
(see Booklet No. 3, page 24).

To get good animals,
a farmer chooses good breeding stock.

To get a good harvest,
a farmer chooses good varieties of seed
(see Booklet No. 3, page 22).

To get good animals,
a farmer chooses good breeds.

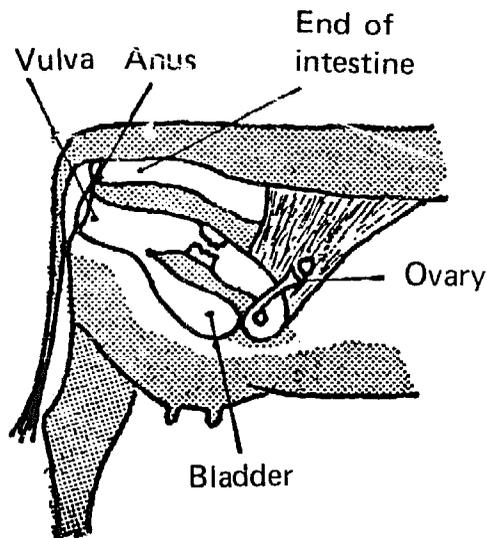
To understand how animals reproduce,
we must study the reproductive organs
of the females and males.

THE REPRODUCTIVE SYSTEMS

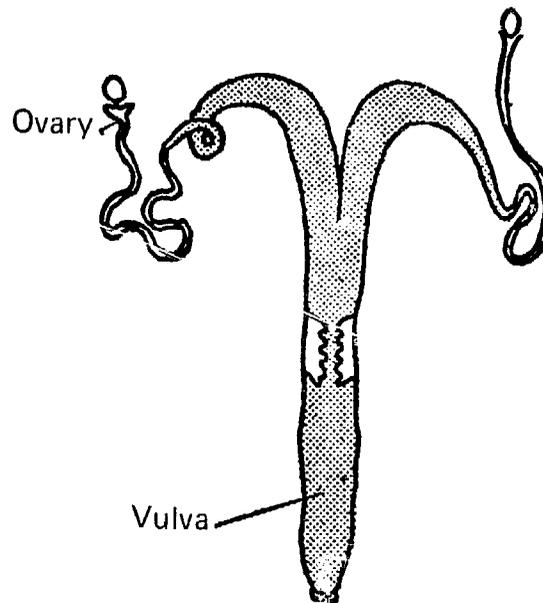
● The female

The reproductive organs of the female are all inside the animal.

You can see only the entry to the system which is called the **vulva**.



Genital organs of the cow



Genital organs removed from cow

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

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

Female animals have **two ovaries** which normally produce **one or more ova**. (In animals the female reproductive cell is called **ovum**, plural **ova**.)

If the female is covered (served) by the male at this time, the ovum is fertilized.

It develops and becomes a young one in its mother's womb.

- **The male**

This system consists of

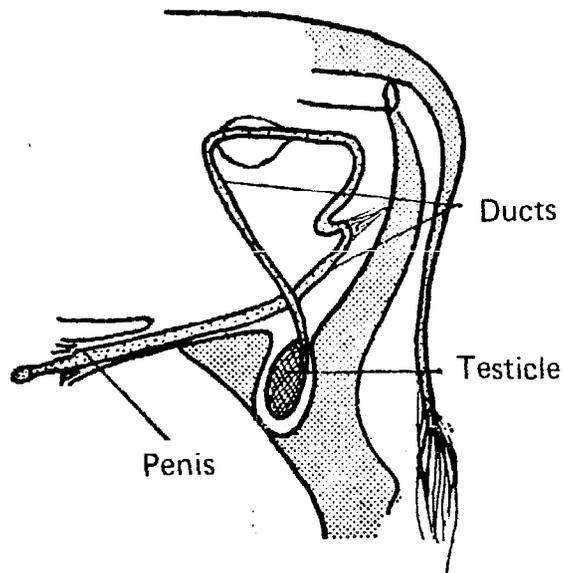
two testicles,

which hang between the hind legs,

the penis,

and two ducts

which connect the testicles with the penis.



Reproductive organs of the bull

Stamens give the pollen

that fertilizes the ovule in a flower

(see Booklet No. 3, page 14).

Testicles give the semen

that fertilizes the ovum.

The fertilized ovum

becomes a young one in its mother's womb.

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 lasts a shorter or longer time
depending on the kind of animal.

If the mother already has a young one,
she must not feed it during the last stage of pregnancy,
because the baby the female is carrying
needs more food (see Booklet No. 8, page 21).
The female cannot feed both the young animal already
born and the one that is growing in her womb.

Some days before the birth,
the udder of the mother swells.

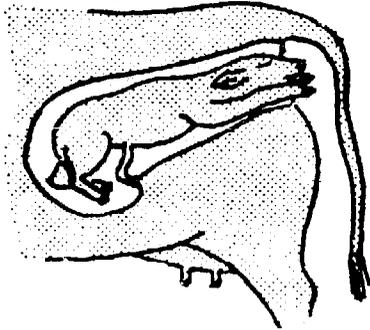
At the time of birth,
some of the membranes
which cover the baby in the womb come out.
These membranes contain water.
Next, you see the legs come out,
either the two forelegs
or the two hind legs.

Sometimes you have to pull downward a little
on the legs of the young animal
so as to help the birth.

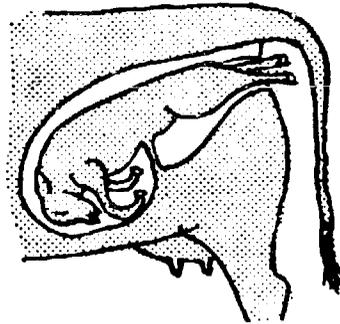
When the young animal has come out,
if it is still joined to the mother by the umbilical cord:
cut this and clean it carefully.

After the birth,
the rest of the membranes come out.
They must all come out.
Otherwise they may rot inside the mother
and cause her to die.

The calf comes out
forelegs first



The calf comes out
hind legs first



At birth the calf may come out in two ways

When the young animal is born
the mother licks it with her tongue.

Let her do this.

At this time the mother is often thirsty.
Give her water to drink.

During the first few days after the birth,
the mother's milk is thick and yellow.

**The young animal must drink this milk,
which will clean its digestive tract.**

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

To protect them, have them vaccinated (see page 10).

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

CHOOSING BREEDING ANIMALS

WHY CHOOSE?

Animals that are to produce offspring must be well chosen.

**Breeding animals must be well chosen
because the offspring are like the parents.**

Cows that give a lot of milk
usually produce females
that will also give a lot of milk.

**This quality is passed on from the mother (dam)
to the daughter.**
(In animal breeding the mother is called the dam).

Pigs that grow and gain weight quickly
usually produce males and females
that grow and gain weight quickly.

**This good quality is passed on from the dam
to her young ones.**

Sheep that have well-developed bones and muscles
usually produce offspring
that have well-developed bones and muscles.

**This good quality is passed on from the dam
to her young ones.**

Pigs that grow and gain weight quickly,
that have well-developed bones and muscles,
usually produce offspring
that grow and gain weight quickly,
that have well-developed bones and muscles.

**The young ones often have the good qualities
of their father (sire).**
(In animal breeding the father is called the sire.)

Bulls born from a cow that gave a lot of milk
often sire females
that will also give a lot of milk.

**The good qualities of the bull's dam
are often passed on to the bull's daughter.**

Cattle that have little resistance
to sleeping sickness (trypanosomiasis)
produce calves that have little resistance to this disease.
The parents' bad quality is passed on
to their young.

A badly formed pig with poorly developed bones
and muscles often produces badly formed offspring.
The parents' bad qualities are passed on
to their young.

**The good qualities of the male and the female
are often passed on to their young.**

**The bad qualities of the male and the female
are also passed on to their young.**

**So it is very important
to make a good choice of males and females.**

It is easier to improve a herd
by a good choice of male.

A female passes on her good qualities
to a few offspring each year.

A male passes on his good qualities
to all the offspring of the herd.

- A male should not produce young
from one of his daughters.
The offspring would not be of good quality.

HOW TO CHOOSE

If you want to have animals

that are strong for work;
that give a lot of milk;
that gain weight quickly and make plenty of meat,

you must choose breeding animals that are:

- **well formed.**

You must eat or sell all poorly developed animals.
Keep animals that have plenty of muscle.

The muscles of the back and rump are the most important, because they give the best meat.

- **resistant to disease.**

For example, do not raise zebu cattle
in forest country
where there is tsetse fly.

- **good producers.**

It is important to choose animals that produce a lot.

For example:

pigs that gain weight quickly;
cows that give a lot of milk;
chickens that lay plenty of eggs;
ewes that produce two lambs.

- **not too young or too old.**

A breeding animal that is too young,
not yet fully grown,

gets tired, does not gain weight.

It becomes a bad breeder.

Its offspring will be poorly nourished,
for a female cannot both feed the young she is carrying,
and go on growing herself.

CASTRATION

In a herd

very few males are used.

One bull is enough for a herd of cattle.

One billy goat is enough for a flock of goats.

Keep only the best.

The other males of the herd must be castrated.

HOW TO CASTRATE A MALE

Either remove the testicles (see page 15)

or crush the ducts

which connect the testicles to the penis.

The animal husbandry service and the veterinary assistants have instruments for castrating bulls.

WHY CASTRATE MALES?

After castration

they are quieter,

they are not vicious,

they put on weight more quickly,

the meat is better.

They cannot fertilize the females;

in this way you prevent poor breeding animals

from reproducing, and can leave them in the herd.

AT WHAT AGE SHOULD MALES BE CASTRATED?

Animals must be castrated when they are young,

before they can breed.

They grow faster.

Their meat is better.

HOW TO KNOW YOUR HERD

We saw that
the good and bad qualities of the sire and dam
are passed to their offspring.

In modern animal husbandry
we look for breeding animals of good quality.
But we also look for animals
whose parents and grandparents were of good quality.
The family qualities are passed on to the young.
This is what we mean by **selection**.

RECORD OF A FEMALE

No. of animal	Year of birth
No. of sire	No. of dam
SERVICE	
1st No. of sire .....	.....
Date of service .....	.....
No. of offspring .....	.....
No. of deaths before weaning .....	.....
2nd No. of sire .....	.....
Date of service .....	.....
3rd	
4th	
5th	

Two pages of a herd book recording a female.

Modern farmers keep a **herd book**.

Give a number to each animal in the herd.

This number is the animal's name.

Mark the number on the animal's rump or ears.

Use a double page of the book for each animal.

Write in the book

everything you need to know about your animals.

A modern stock farmer has a good knowledge of his herd.

He makes a good choice of breeding animals.

He makes his capital productive (see Booklet No. 8, page 8).

He earns more money.

Feed	Production (milk, weight)
Vaccinations and disease	Remarks

RECORD OF A MALE

No. of animal	Year of birth.....
No. of sire	No. of dam
SERVICE	
No. of female	Date
1st.....	.....
2nd.....	.....
3rd.....	.....
4th .....	.....
5th.....	.....
6th.....	.....
7th.....	.....

First of two pages of herd book in which each male is recorded.
 The second page is the same as for females (see preceding page).

PRACTICAL ADVICE

- Selection is very important, especially of the male.
 In one year the sire
 will produce a lot of offspring.

- The best way to improve your stock raising
 is selection of male breeding animals.

SELLING ANIMALS

**Production of stock is not enough.
You have to sell.**

It is not enough to have a fine herd.
You must be able to sell your animals at the right time,
at a good price.

- **Animals are sold for their meat.**

Often live animals are sold by their size.
They are not weighed.
The price is not fixed according to the animal's weight.

Sometimes animals are slaughtered
and the meat is sold in the village or at the market.
No attention is paid to the weight
or the quality of the meat.

Nowadays meat should be sold by weight.
Several farmers can get together
to buy a weighing machine.

It is easy to sell your animals
at the time of traditional festivals.
A stock farmer should arrange for the sale of animals
for these festivals.

But apart from these festivals
you may have difficulty in finding buyers.
You may have to keep for a long time animals
which are ready to be sold.
You have to go on feeding them uselessly,
the animals do not benefit from the food,
and you lose money.

- **Animals are sold for breeding.**

We saw that it is very important
to have good breeding animals (see pages 18 and 19).

Animals of a good breed that have good parents
can be sold at a high price.

Modern farmers are ready to spend money
to buy a good sire to improve their herd.

- **Young animals are sold for fattening.**

They can be sold at a higher price
because they will earn money for whoever raises them.

SUPPLEMENTARY NOTE

A good breeder does not keep his animals too long.

He sells his lambs at about 6 months.

He sells his pigs at between 8 and 12 months.

He sells his bullocks at 4 years.

It is useless to keep animals too long;
they do not get any bigger.

All the feed that you give them
is not changed into meat.

Sell your animals

as soon as they are big enough.

A breeding animal that is too old
has less good offspring.

Then you will have enough food
to raise younger ones.

The yield of your herd will be better (see page 29).

THE MEAT YIELD OF AN ANIMAL

All the animals of the same kind
do not yield the same amount of meat.

For example:

Two cows each weigh 250 kilogrammes.

They are slaughtered.

The blood, skin,
hoofs, head
and everything in the belly
are removed.

What remains is called the **carcass**,
that is, the meat with the bones.

Now let us weigh the carcass of each cow.

One weighs 115 kg;

the other weighs 134 kg.

So the carcass of one cow weighs 19 kg more
than that of the other:

the yield in meat of the two cows is different.

All cows do not give the same amount of meat.

**The meat yield of an animal
is the relation of the carcass weight
to the weight of the live animal.**

If a cow weighs 250 kg

and if the carcass weighs 115 kg,

the yield is: $\frac{115 \times 100}{250} = 46\%$

If a cow weighs 250 kg

and if the carcass weighs 134 kg,

the yield is: $\frac{134 \times 100}{250} = 54\%$

If a sheep weighs 25 kg

and if the carcass weighs 11 kg,

the yield is: $\frac{11 \times 100}{25} = 44\%$

If a pig weighs 40 kg

and if the carcass weighs 26 kg,

the yield is: $\frac{26 \times 100}{40} = 65\%$

**All animals do not give
the same quality of meat.**

The meat of an old, thin animal
does not fetch such a high price
as the meat of a young animal,
because it is not of good quality.

The meat of a fine, young animal
is of very good quality.

So all animals are not worth the same price.

**The price changes with the amount of meat
and with the quality of meat.**

For example, in some places,
*a thin, sterile cow is worth about 7 500 francs,
but a fat, sterile cow of the same age
is worth about 15 000 francs.*

*It is better to make 30 000 francs
with two animals of 15 000 francs each,
than 22 500 francs
with three animals at 7 500 francs each.*

**You can earn more by selling fewer animals,
if each animal is sold at a very high price.**

THE YIELD OF A HERD

If you can sell each year many fat animals,
the herd is said to have a good yield.

A herd has a good yield:

- **if you raise animals of a good breed.**

The animal husbandry service
is finding out which breeds produce most
and thrive best in each region.

- **if the animals grow quickly.**

On the same pasture,
all the animals do not gain weight
as quickly as each other.

You should keep only the offspring of males and
females that have grown quickly.

- **if there are many dams which give birth each year.**

You must sell the old dams
because they do not produce young any more,
they do not put on weight any more,
and they eat a lot.

You must also sell the surplus males;
they eat but are no use.

**You must keep the most fertile dams
and make them breed.**

A fertile dam gives birth every year.

- **if the animals are well cared for.**

If you take good care of the herd,
all the young grow up
and become strong animals.

Then you can sell them and earn a lot.

If many of the young animals die,
the farmer does not earn as much as he could.

In Africa many young animals die
because of lack of care.

**Even if diseases do not kill the animals,
they do them a lot of harm.**

The animals become very weak
and do not fatten much.

It takes a long time for animals that have been ill
to fatten up for sale.

If animals are well fed,
and have enough to drink all the year,
they quickly become big and heavy.

If they are badly fed,
and if they do not drink enough during
the dry season, they lose a lot of weight.

**Animals lose in the dry season
the kilogrammes they have put on
in the rainy season.**

FARMERS' GROUPS

- **Farmers do well to form groups**
(see Booklet No. 7, page 28);
this gives them greater strength
in regard to dealers.

A dealer will readily go out into the bush
to buy animals

if he is sure of finding some.

He knows that he will not make his journey
for nothing, and that he will not waste his time
looking for animals.

A group of farmers
can make an arrangement with the dealer.

Every month or every week
the group will sell him
a certain number of animals.

The group agrees to sell regularly.

The dealer agrees to buy regularly.

To succeed, a group must:

- **not be too big.**
Everyone knows each other,
and everyone trusts the others.
- **have simple and clear rules.**
- **have one man in charge**
who makes sure that the rules are kept.

It is in the interest of farmers to get together
not only for sales,
but also in raising their stock.
Fences will be made more quickly.
Feeding will be more regular.
Sales will be easier.

**By organizing the sale of their animals,
farmers can organize their stock raising.**

- They can plan the birth dates
with a view to the sales dates.
- They can plan what feeding the herd will need,
the use of pastures,
so that no food is wasted.
- They know at what time they will get money,
and can better think about
what they will do with it.

Here is a practical example of what the course means:

*A local pig, raised in the traditional way,
eats what it can find in the bush.
At one year it weighs 30 kg.
Its sale price is 30×100 francs = 3 000 francs*

*A local pig is well housed,
and gets fed once a day.
At one year it weighs 60 kg.
Its sales price is 60×100 francs = 6 000 francs.*

*A pig of improved breed is well housed,
and is fed twice a day.
At one year, it weighs 100 kg.
Its sale price is 100×100 francs = 10 000 francs*

SUGGESTED QUESTION PAPER

FILL IN THE MISSING WORDS

Animals in good health are well,
well and well

To prevent animals falling ill, a good farmer them
.....

If an animal has a contagious disease, the farmer keeps it
and asks advice from the

A good farmer chooses his to have fine offspring.
He keeps a book for information about each animal.
He chooses a good which will pass good
..... to all the young of the herd.
The male animals which are not kept for breeding are

A good farmer also organizes the sale of his
He sells animals that are too
..... which do not fatten any more.
With other farmers of the village he forms a

ANSWER THE FOLLOWING QUESTIONS

Can the qualities of the male pass on to its young?

What is a parasite?

What is pregnancy?

When an animal has an injury, what do you do?

Why must your herd be vaccinated?

What do you do when you have an ill animal?

Explain to a friend why you only keep one good male to a herd.

Explain to your friends why you must get together to sell your animals.

Did this course on animal husbandry (Booklets Nos. 8 and 9) interest you? What is most useful to you?

FAO SALES AGENTS AND BOOKSELLERS
AGENTS ET DÉPOSITAIRES DE LA FAO
LIBRERIAS Y AGENTES DE VENTAS DE LA FAO

Argentina	Editorial Hemisferio Sur S.R.L., Librería Agropecuaria, Pasteur 743, Buenos Aires.
Australia	Hunter Publications, 58A Gipps Street, Collingwood, Vic. 3066; The Assistant Director, Sales and Distribution, Australian Government Publishing Service, P.O. Box 84, Canberra, A.C.T. 2600, and Australian Government Publications and Inquiry Centres in Canberra, Melbourne, Sydney, Perth, Adelaide and Hobart.
Austria	Gerold & Co., Buchhandlung und Verlag, Graben 31, 1011 Vienna.
Bangladesh	Association of Voluntary Agencies in Bangladesh, 549F Road 14, Dhammandi, P.O. Box 5045, Dacca 5.
Belgique	Service des publications de la FAO, M. J. De Lannoy, rue du Trône 112, 1050 Bruxelles. CCP 000-0808993-13.
Bolivia	Los Amigos del Libro, Perú 3712, Casilla 450, Cochabamba; Mercado 1315, La Paz; René Moreno 26, Santa Cruz; Junin esq. 6 de Octubre, Oruro.
Brazil	Livraria Mestre Jou, Rua Guaipá 518, São Paulo 10; Rua Senador Dantas 19-S205/206, Rio de Janeiro.
Brunei	MPH Distributors Sdn. Bhd., 71/77 Stamford Road, Singapore 6, Singapore.
Canada	Information Canada, Ottawa
Chile	Biblioteca, FAO Oficina Regional para América Latina, Av. Providencia 871, Casilla 10095, Santiago.
China	China National Publications Import Corporation, P.O. Box 88, Peking.
Colombia	Litexsa Colombiana Ltda., Carrera 15, N° 51-79, Apartado Aéreo 51340, Bogotá.
Costa Rica	Librería, Imprenta y Litografía Lehmann S.A., Apartado 10011, San José.
Cuba	Instituto del Libro, Calle 19 y 10, N° 1002, Vedado.
Cyprus	MAM, P.O. Box 1722, Nicosia.
Denmark	Ejnar Munksgaard, Norregade 6, Copenhagen S.
Ecuador	Su Librería Cia. Ltda., García Moreno 1172, Apartado 2556, Quito.
Egypt	Al Ahram, El Galaa St., Cairo.
El Salvador	Librería Cultural Salvadoreña S.A., Avenida Morazán 113, Apartado Postal 2296, San Salvador.
España	Librería Mundi Prensa, Castelló 37, Madrid; Librería Agrícola, Fernando VI, 2, Madrid - 4.
Finland	Akateeminen Kirjakauppa, 1 Keskuskatu, Helsinki.
France	Editions A. Pedone, 13 rue Soufflot, 75005 Paris.
Germany, F. R.	Alexander Horn Internationale Buchhandlung, Spiegelgasse 9, Postfach 3340, Wiesbaden.
Ghana	Ghana Publishing Corporation, P.O. Box 3632, Accra.
Grèce	"Eleftheroudakis", 4 Nikis Street, Athènes.
Guatemala	Distribuciones Culturales y Técnicas "Artemis", Quinta Avenida 12-11, Zona 1, Guatemala.
Haiti	Max Bouchereau, Librairie "A la Caravelle", B.P. 1118, Port-au-Prince.
Honduras	Editorial Nuevo Continente S. de R.L., Avenida Cervantes 1230-A, Apartado Postal 380, Tegucigalpa.
Hong Kong	Swindon Book Co., 13-15 Lock Road, Kowloon.
Iceland	Snaebjörn Jónsson and Co. h.f., Hafnarstraeti 9, P.O. Box 1131, Reykjavik.
India	Oxford Book and Stationery Co., Scindia House, New Delhi; 17 Park Street, Calcutta.
Indonesia	P.T. Gunung Agung, 6 Kwitang, Djakarta.
Iran	Iran Book Co. Ltd., 127 Nadershah Avenue, P.O. Box 14-1532, Tehran; Economist Tehran, 99 Sevom Esfand Avenue, Tehran (sub-agent).
Iraq	National House for Publishing, Distributing and Advertising, Rashid Street, Baghdad.
Ireland	The Controller, Stationery Office, Dublin.
Israel	Emanuel Brown, P.O. Box 4101, 35 Allenby Road and Nachlat Benyamin Street, Tel Aviv; 9 Shlomzion Hamalka Street, Jerusalem.
Italie	Distribution and Sales Section, Food and Agriculture Organization of the United Nations, Via delle Terme di Caracalla, 00100 Rome; Libreria Scientifica Dott. L. De Biasio "Aeiou", Via Meravigli 16, 20123 Milan; Libreria Commissionaria Sansoni "Licosa", Via Lamarmora 45, C.P. 552, 50121 Florence.
Jamaica	Teachers Book Centre Ltd., 96 Church Street, Kingston.
Japan	Maruzen Company Ltd., P.O. Box 5050, Tokyo Central 100-31.
Kenya	The E.S.A. Bookshop, P.O. Box 30167, Nairobi.

FAO SALES AGENTS AND BOOKSELLERS
AGENTS ET DÉPOSITAIRES DE LA FAO
LIBRERIAS Y AGENTES DE VENTAS DE LA FAO

Korea, Rep. of	The Eul-Yoo Publishing Co. Ltd., 5 2-Ka, Chong-ro, Seoul.
Liban	Dar Al-Maaref Liban S.A.L., place Riad El-Solh, B.P. 2320, Beyrouth.
Luxembourg	Service des publications de la FAO, M. J. De Lannoy, rue du Trône 112, 1050 Bruxelles (Belgique).
Malaysia	MPH Distributors Sdn. Bhd., 71/77 Stamford Road, Singapore 6, Singapore.
Maroc	Librairie "Aux Belles Images", 281 avenue Mohammed V, Rabat.
Mauritius	Nalanda Company Limited, 30 Bourbon Street, Port-Louis.
México	Dilitsa, Puebla 182-D, Apartado 24-448, México 7, D.F.
Netherlands	N.V. Martinus Nijhoff, Lange Voorhout 9, The Hague.
New Zealand	Government Printing Office: Government Bookshops at Rutland Street, P.O. Box 5344, Auckland; Mulgrave Street, Private Bag, Wellington; 130 Oxford Terrace, P.O. Box 1721, Christchurch; Princes Street, P.O. Box 1104, Dunedin; Alma Street, P.O. Box 857, Hamilton.
Nicaragua	Culturama, Camino de Oriente, Apartado 4741, Managua.
Nigeria	University Bookshop Nigeria Ltd., University of Ibadan.
Norway	Johan Grundt Tanum Bokhandel, Karl Johansgt. GT 41-43, Oslo 1.
Pakistan	Mirza Book Agency, 65 The Mall, Lahore 3.
Panamá	Distribuidora Lewis S.A., Edificio Dorasol, Calle 25 y Avenida Balboa, Apartado 1634, Panamá 1.
Perú	Librería Juan Mejía Baca, Azangaro 722, Lima.
Philippines	The Modern Book Company, 928 Rizal Avenue, Manila.
Poland	Ars Polona-Ruch, Krakowskie Przedmiescie 7, Warsaw.
Portugal	Livraria Bertrand, S.A.R.L., Apartado 37, Amadora; Livraria Portugal, Dias y Andrade Ltda., Apartado 2681, Rua do Carmo 70-74, Lisbon - 2.
Rep. Dominicana	Fundación Dominicana de Desarrollo, Casa de las Gárgolas, Mercedes 4, Santo Domingo.
Roumanie	Ilexim, Calea Grivitei No. 64-66, P.O. Box 2001, Bucharest.
Saudi Arabia	Khazindar Establishment, King Faysal Street, Riyadh.
Singapore	MPH Distributors Sdn. Bhd., 71/77 Stamford Road, Singapore 6.
Somalia	"Samater's", P.O. Box 936, Mogadishu.
Sri Lanka	M.D. Gunasena and Co. Ltd., 217 Norris Road, Colombo 11.
Suisse	Librairie Payot S.A., Lausanne et Genève; Hans Raunhardt, Kirchgasse 17, Zurich 1.
Sweden	C.E. Fritzes Kungl. Hovbokhandel, Fredsgatan 2, 103 27 Stockholm 16.
Tanzania	Dar es Salaam Bookshop, P.O. Box 9030, Dar es Salaam.
Thailand	Suksapan Panit, Mansion 9, Rajadamnern Avenue, Bangkok.
Togo	Librairie du Bon Pasteur, B.P. 1164, Lomé.
Turkey	Güven Kitabevi Müdafaa Cad., Güven Building 12/5, Ankara.
United Kingdom	Her Majesty's Stationery Office, 49 High Holborn, London, W.C.1; P.O. Box 569, London, S.E.1 (trade and London area mail orders); 13a Castle Street, Edinburgh EH2 3AR; 109 St. Mary Street, Cardiff CF1 1JW; 7 Linenhall Street, Belfast BT2 8AY; Brazenose Street, Manchester M60 8AS; 258 Broad Street, Birmingham 1; Southey House, Wine Street, Bristol BS1 2BQ.
United States of America	UNIPUB, 650 First Avenue, P.O. Box 433, Murray Hill Station, New York, N.Y. 10016.
Uruguay	Juan Angel Peri, Alzaiibar 1328, Casilla de Correos 1755, Montevideo.
Venezuela	Blume Distribuidora S.A., Calle 3. N° 508, Quinta Palmera Sola, Campo Alegre, Chacao, Caracas.
Yugoslavia	Jugoslovenska Knjiga, Terazije 27/11, Belgrade; Cankarjeva Založba, P.O. Box 201-IV, Ljubljana.
Other countries	Requests from countries where sales agents have not yet been appointed may be sent to: Distribution and Sales Section, Food and Agriculture Organization of the United Nations, Via delle Terme di Caracalla, 00100 Rome, Italy.
Autres pays	Les commandes ou les demandes de renseignements émanant de pays pour lesquels des agents ou des dépositaires n'ont pas encore été désignés peuvent être adressées à: Section distribution et ventes, Organisation des Nations Unies pour l'alimentation et l'agriculture, Via delle Terme di Caracalla, 00100 Rome, Italie.
Otros países	Los pedidos procedentes de países en donde aún no han sido designados agentes distribuidores, pueden hacerse directamente a la Sección de Distribución y Venta, FAO, Via delle Terme di Caracalla, 00100 Roma, Italia.