Manual for community-based animal health workers
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## PREFACE

### First part:

**POSITION OF THE CAHW**
- Rome and duties of the CAHW
- The CAHW's position in the community
- The CAHW's position within the veterinary services
- Relations between the CAHW and private vets/NGO
- Presentation of the CAHW when arriving

### Second part:

**INTRODUCTION TO DISEASES**
- Pathogenic agents
- Clinical examination
- Healthy or sick animal
- Temperature
- How is a disease transmitted?
### COMMON DISEASES

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### Fourth part:

#### Basic Skills

- Common disinfection
- Weight assessment
- Administering drugs
- Precautions
- Cleaning of wounds

#### Drugs

- Drugs and diseases
- Concentration and fraud
- Albendazol
- Amitraz
- Synthetic pyrethroids
- Eye ointment
- Insecticide powder
- Antibiotic spray
- Obelets
- Other products and drugs

#### Basics of Prevention and Treatment

- Spread of diseases
- What is curing? What is preventing?
- Avoiding the introduction of diseases
- How to react in the face of an outbreak?
- Vaccines and diseases

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Pan-African programme for the Control of Epizootics
The manual refers to a number of illustrations and photographs from the "Handbook for community animal health workers in Southern Sudan", developed by VSF Switzerland and Pharmaciens Sans Frontières. The PACE Regional Coordination Unit in Bamako wishes to extend heartfelt thanks to both NGOs for their valuable contribution.

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INTRODUCTION TO THIS MANUAL

The auxiliaries or Community-based Animal Health Workers (CAHWs) are present in the majority of the sub Saharan African countries where they play a role in basic veterinary treatments, vaccination, drugs distribution and animal diseases declaration. Although their presence continues to raise some reserves - they are indeed often regarded as non professionals difficult to regulate, to control and sometimes inefficient concerning the use of drugs - they constitute a reality which the public and private veterinarians are brought more and more to take into account.

Following a training of a few days or a few weeks, ensured by veterinarians working for the public or private sector, or for NGOs (Non Governmental Organizations), they have to provide services to the communities of livestock owners of which they come from. But, the training programmes are still not harmonized even on a country scale and they usually have at disposal little material to maintain their acquired knowledge.

UA-IBAR considered important to propose a solution to this lack of harmonized material by adapting to the context of West and Central Africa a handbook, initially planned for East Africa and already published by the NGOs VSF Switzerland and PSF International Committee for southern Sudan. This handbook has been designed through the beneficial experiment of various training tools, in order to be place at the disposal of the other countries taking part in the PACE.

The handbook is written for the CAHWs to be used as support of continuous training and tool of practical and simple reference. It is conceived to be as accessible as possible to the CAHWs and is presented in the form of a memorandum on animal diseases most usually met, on basic techniques, on drugs likely to be used by the CAHWs, on prevention measures etc. The iconography puts in scene situations close to those of the stockbreeders communities.

The handbook is written in English and in French but the possibility is given to the countries to keep one of these two languages and to add a local language more accessible to the CAHWs.

As for any tool, the use of this one needs a previous training. The use of this handbook must be reserved for taught reading and writing CAHWs, being able to read and write in one of their language or even in French or English.
Pan-African programme for the Control of Epizootics
First Part

Position of the Community-based Animal Health Worker (CAHW) within the animal health care delivery system

10 role and duties of the CAHW
17 the CAHW’s position in the community
19 the CAHW’s position within the veterinary services
20 relations between the CAHW and private veterinarians or NGO veterinarians
25 presentation of the CAHW when arriving in a village or settlement
ROLE AND DUTIES OF THE COMMUNITY-BASED ANIMAL HEALTH WORKER (CAHW)

I will reach out to livestock owners to vaccinate and treat their animals (1,2,3,4,5,6,7,8) under the responsibility of the veterinary authority I take order from.
ROLE AND DUTIES OF THE COMMUNITY-BASED ANIMAL HEALTH WORKER (CAHW)

I depend on veterinary authority, meaning that I am under the responsibility of a vet technician, or a livestock engineer, or a veterinary doctor, public or private, or from an NGO (9,10,11,12).
I am the first agent of the epidemi-surveillance network:
I listen at farmers words about diseases around (13,14,15,16).
I carry on clinical examination as much as possible (17,18)
I will warn the population and vet authority (19) about any disease and outbreaks that I suspect: I alert (20).
ROLE AND DUTIES OF THE COMMUNITY-BASED ANIMAL HEALTH WORKER (CAHW)

I fill out the vaccination sheet (21) and once a month I hand them over to the veterinary authority I take order from (22).

I will manage my stock of drugs and my business (23, 24).
ROLE AND DUTIES OF THE COMMUNITY-BASED ANIMAL HEALTH WORKER (CAHW)

I buy and pay the drugs to the vet authority I take order from (25,26).

I will act as a link between livestock owners and the vet authority, facilitating a flow of information in both directions (27,28). I remind the livestock owners that they must warn me in case of an outbreak suspicion.
THE CAHW’S POSITION IN THE VILLAGE COMMUNITY

I am a member of the village and I have been selected by it (29,30).

I am entitled to recommend (31) basic treatments for livestock and to carry them out correctly.
While performing my fieldwork, I explain what I do to the livestock owners (32) and I participate in teaching kids how to read and write through the handbook (33).

Livestock owners, including myself or my relatives, must pay for any drugs used in the treatment of their animals, in kind (34) or in cash (35).
THE CAHW’S POSITION WITHIN THE VETERINARY SERVICES

By recommendation of the community, the Veterinary Services provided me with an initial training course of 15 days (36).

At the end course, I become a CAHW (37) I receive a certification or a CAHW identity card.

I am required to come, at least once a month, to the Veterinary Services to submit my report of outbreaks and activity (38, 39).
RELATIONS BETWEEN CAHW AND PRIVATE VETS OR NGO’S VET

The private or NGO’s vet supervises (40,41,42) the basic animal health care performed by CAHW.

The veterinary authority which supervises my work is:

Name :
Location :
The veterinary services in my area:
Office :
Location :
RELATIONS BETWEEN CAHW AND PRIVATE VETS OR NGO’S VET

The private vet or NGO’s vet, accredited by the veterinary services, organises vaccination campaigns where I intervene as a vaccinator only (43,44).

The private or NGO’s vet supervises a network of CAHWs by refresher training courses (45,46,47,48,49,50) and by selling them drugs from an authorized restricted list (51,52).
RELATIONS BETWEEN CAHW AND PRIVATE VETS OR NGO’S VET
RELATIONS BETWEEN CAHW AND PRIVATE VETS OR NGO’S VET
RELATIONS BETWEEN CAHW AND PRIVATE VETS OR NGO’S VET

Private, NGO’s or public vets receive outbreaks reports from ACSA and cattle owners. With the help of the Veterinary services, they may collect samples for disease identification (53,54,55,56).
WHEN CAHWS PRESENT THEMSELVES AT MEETINGS, THEY EMPHASIZE THE FOLLOWING POINTS:

- They know how to recognize the main diseases (57).
- They know the basic drugs and how to use them (route of administration, right dosage, toxicity, secondary effects) against specific diseases (58).
WHEN CAHWS PRESENT THEMSELVES AT MEETINGS, THEY EMPHASIZE THE FOLLOWING POINTS:

- They will perform treatments and/or vaccinations and will be paid for that (59,60).
- They inform about their obligation of alert and their role in vaccination campaign.
Necessity of examination of all sick animals (61). Zoonosis and their implications in human health, such as brucellosis, tuberculosis (62), hydatidosis, rabies, have to be known by all farmers and villagers.

They inform about the importance of parasitism, e.g. liver fluke (63) and its potential prevention, as well as about the danger of leaving a sick animal without treatment (64).
<table>
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Second Part

Introduction to Diseases

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42 Healthy and sick animals
44 Body temperature
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WHAT ARE PATHOGENIC AGENTS?

Pathogenic agents are small living organisms that survive and multiply in the organs of an animal (the host) or on its skin and cause disease in their host, either directly or because they transmit another pathogenic agent (vectors).

For the purpose of this manual one distinguishes parasites and microbes.

Parasites

- They live and grow at the expense of other living creatures.
- Parasites often induce a decrease of production (milk, meat) and of physical condition. This can eventually lead to disease and hence, death.
- They can also transmit a lot of other diseases to their host. Host resistance to other diseases is deteriorated rapidly by parasites.

Parasites visible on the livestock
Most of the mature parasites are visible without special equipment. Some live between the hairs (65), some live in sinuses (70) and some live under the skin as insect larvae (66), some on the skin, such as ticks (67, 68, 71, 72) or, when biting, biting insects (69)

Parasites visible by eye

In dung
WHAT ARE PATHOGENIC AGENTS?

When cutting stomach & liver

Worms are visible either directly in dung (73,74,75), or when opening stomach (78) or liver (76,77).

Parasites invisible by eye

Some are tiny but large enough to be collected (79,80) and seen (81) with light equipment as microscope, like scabies in mange (82).
WHAT ARE PATHOGENIC AGENTS?

An animal which is sick from gut worms (83) can be sampled (84) and faeces (85) examined to show eggs of worms, e.g. strongyles with a microscope (86).

An animal which is sick from trypanosomosis (87) can be sampled (88) and smears (89) examined to show parasites (90).
WHAT ARE PATHOGENIC AGENTS?

Microbes

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WHAT ARE PATHOGENIC AGENTS?

The microbes are invisible without special equipment in a proper laboratory (91,98). They are responsible of many contagious diseases: rinderpest (100), anthrax (93), hemorrhagic septicaemia (99), FMD (92), black quarter (101), CBPP (102,104), CCPP, PPR (96), ASF (95), Newcastle disease (97) and avian influenza (103). They grow and multiply exclusively inside a host body.
CLINICAL EXAMINATION

Examination of the sick animal

Why?

- To identify the disease (105),
- To determine the best treatment for the sick animal and to suggest preventive measures for the entire herd (106).
- To be able to report to the vet authority I take order from,
- To assess if treatment will cure the animal.
- To show the owner that I am interested in his animal and really want to find out what is the matter with it.
**CLINICAL EXAMINATION**

**How? 3 steps!**

1st step: history of the herd:

Ask the owners or herdsmen (107):

- where has the herd come from?
- how long has it been there?
- size and composition of herd.
- any previous diseases.
- how many deaths in the herd with this disease, since when and what rate?
- how many sick animals, since when and what rate?
- how many apparently healthy?

2nd step: history of the sick animal(s):

Ask the owner or the herdsman (108):

- age, sex, category (calf, heifer, adult,...)
- date of arrival, from where,
- previous diseases,
- previous births (of the sick animal) and number of viable calves,
- previous contacts with suspicious animals,
- how long has it been sick?
- aggravation or not
3rd step: examination for clinical signs:

EXAMINATION FROM A DISTANCE

- Appetite,
- Signs of abnormal behaviour,
- Current grazing, rumination,
- General condition:
  - head bearing,
  - hair status,
  - thinness,
  - numbers of flies and ticks,
  - light sensitivity,
  - difficult breathing,
  - lameness,
  - signs of diarrhoea.
3rd step: examination for clinical signs:

CLOSE EXAMINATION

Mucous membranes:
- Colour (110)
- Moisture
- Type of discharge (111)

Hydratation status
(skin fold):
- Pull (112)
- Release (113)

The skin fold should disappear immediately; if it remains visible for a short while, it means that the animal is de-hydrated.
Lymph nodes:
- Places where lymph nodes are just under the skin (115)
- Hold and assess the size (114): if the lymph node is enlarged and easy to grab, disease must be suspected.

Digestive system:
- Mouth (116)
- Rumen movement (117) and sounds
- Faeces

Respiratory system:
- Nostril movement
- Chest movement and sounds (118)
- Coughing (119)
**CLINICAL EXAMINATION**

**Legs:**
- Joints (120)
- Foot (121)
- Existence of swelling, lameness or wounds

**Nervous system:**
- Coordination of movements
- Sight (122)
- Aggressive or dull behaviour

**Skin:**
- Loss of hair
- Colour of the skin
- Check for lesions (123)
- Irritations (124) or swellings
**Udder examination:**
- Size and proportion of the 4 udder-parts (125)
- Existence of any hardness.
- Teats (126)

**Vulva:**
- Humidity (127)
- Color (128)
- Existence of discharges or wounds

**Temperature:**
- Thermometer (129)
- Control horn basis (130)
## Summary of assessment of clinical signs

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<th>Appraisal</th>
<th>Normal</th>
<th>Worrisome</th>
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<tr>
<td><strong>Mucous membranes</strong></td>
<td>Moisture, colour</td>
<td>Pink, shiny.</td>
<td>Pale or white or yellow or dark red. Dry, wounded.</td>
</tr>
<tr>
<td><strong>Hydratation state</strong></td>
<td>Draw and slacken the skin: fold of skin</td>
<td>The fold disappears quickly.</td>
<td>The fold remains a few seconds.</td>
</tr>
<tr>
<td><strong>Lymph nodes</strong></td>
<td>Palpate under the skin: size</td>
<td>Non visible under the skin and small.</td>
<td>Visible under the skin and large</td>
</tr>
<tr>
<td><strong>Digestive system</strong></td>
<td>Look at the mouth, palpate the neck, listen to the belly</td>
<td>Mouth clear. Palpation of the neck without deformation. Regular noises of digestion.</td>
<td>Food remains in the mouth. Mass in the oesophagus. Noises of digestion absent.</td>
</tr>
<tr>
<td><strong>Respiratory system</strong></td>
<td>Look at nostrils. Palpate the neck. Listen to the chest</td>
<td>Nostrils clean. Palpation of the neck without cough. Noises of wind.</td>
<td>Yellow / white or dark red discharges from nostrils. Cough with or without palpation of the neck. Absence of noise or water noises.</td>
</tr>
<tr>
<td><strong>Members</strong></td>
<td>To look at the step and the shape of the 4 members</td>
<td>Right without deformation.</td>
<td>Lameness. Swelling on all levels: articulations, muscular masses, osseous parts.</td>
</tr>
<tr>
<td><strong>Nervous system</strong></td>
<td>Check the sight, the animal behaviour</td>
<td>The animal reacts to the movement of the hand. Calm.</td>
<td>No reaction to the movement of object or hand in front of the eyes. Aggressiveness or prostration (depression).</td>
</tr>
<tr>
<td><strong>Skin</strong></td>
<td>State of the hair. Colour and aspect of the skin</td>
<td>Smooth Hair, shiny. Dry and clear skin.</td>
<td>Risen hair, breaking, tern. Oozing skin or skin covered of crusts. Red spots on the skin.</td>
</tr>
<tr>
<td><strong>Udder</strong></td>
<td>State of teats. Palpation of the quarters.</td>
<td>Clear and painless teats. Flexible and painless udder. Proportional udder-parts.</td>
<td>Teats with crusts or papules, painful. Udder hard in some parts or entirely and painful.</td>
</tr>
<tr>
<td><strong>Vulva</strong></td>
<td>Moisture, colour.</td>
<td>Pink, shiny, clear.</td>
<td>Pale, white, yellow, dark red. Dry, wounded. Yellow, red dark and malodorous (smelly) discharges.</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>Use of a thermometer. Reaction to the light</td>
<td>Normal Values for the species. The animal does not fear the light.</td>
<td>Below and above the normal values for the species. The animal fears the light.</td>
</tr>
</tbody>
</table>
Healthy animal

- Bright, calm, pay attention to environment.
- Robust constitution.
- Soft and smooth skin.
- Shiny hair.
- Appetite, regular rumination.
- Half-liquid, half-solid faeces.
- Clean natural orifices.
- Regular gait, without lameness.
- Pink and moist mucous membranes.
- Shiny and moist nostrils.
- Regular and silent breath.
- Liquid urine, yellow color, more or less.

In poultry: sleek feathers, stand-up, firm bearing, bicoloured and semi-liquid faeces.
Sick animal

- Sad, nervous and restless.
- Thin.
- Rough skin, bare in some places.
- Standing up, brittle and dull hair.
- Lack of appetite, or pica (eats soil or faeces).
- Liquid or solid faeces.
- Dirty and soiled natural orifices.
- Staggering gait, lameness.
- Red, dark or pale, purplish-blue or dehydrated mucous membranes
- Dry, cracked nostrils
- Irregular and noisy breath.
- Dark urine, streaked with blood.

In poultry: ruffled feathers, drooping wings, mucous exudates on the beak, conjunctivitis (dirty eyes), twisted neck on the backbone, collapse on legs.
BODY TEMPERATURE ASSESSMENT

- Get someone to hold the animal (133)
- Shake the thermometer
- Push the thermometer into the rectum as far as you can
- Wait at least one minute
- Take it out and read it (134)
- Clean and store it far from heat or hot sun.

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>NORMAL BODY TEMPERATURES (°C)</th>
<th>In young animals, temperature is usually 1 degree (1°C) higher than in adults</th>
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</thead>
<tbody>
<tr>
<td>Normal: healthy</td>
<td>Worrying: sick</td>
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</table>

In young animals, temperature is usually 1 degree (1°C) higher than in adults.
How is a disease transmitted?

- Animal to animal
- By inanimate or biological vectors

SICK ANIMAL

Secretions, liquid, breath:

ANIMAL APPEARS HEALTHY

CONTACT

ABSORPTION

HEALTHY ANIMAL WITH OPEN WOUND

Animal to animal

How is a disease transmitted?

- Animal to animal
- By inanimate or biological vectors

SICK ANIMAL

Secretions, liquid, breath:

ANIMAL APPEARS HEALTHY

CONTACT

ABSORPTION

HEALTHY ANIMAL WITH OPEN WOUND

Pan-African programme for the Control of Epizootics
Second Part
Common Diseases

1. Diseases Subject to Compulsory Declaration

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55 Foot and Mouth Disease
59 Hemorrhagic Septicaemia
64 Rinderpest
70 Contagious Bovine Pleuro-Pneumonia
74 Newcastle Disease
77 Avian Influenza (Bird Flu)
96 African Swine Fever
98 Peste des Petits Ruminants (Small Ruminant Pest)
Clinical signs

- Fever
- Dark membranes
- Dribbling of blood (136, 137)
- The blackish blood flows for a long time
- Reluctant to move or circling round tether
- Milk reduced in quantity and becomes watery with poor taste
- Diarrhoea with blood (136)
- Collapses and dies in a few hours or just found dead
- Sudden death / legs not stiff (135, 137)
ANTHRAX

Animal-to-animal transmission

Cow died from anthrax and was not destroyed or buried

Cattle grazing in same contaminated area with cow’s carcass

Sudden death of cattle
Transmission from animal to man (zoonosis)

This man gets infected through small skin lesions when touching blood and animal tissues.

Typical lesions develop on the skin.

Inhalation of germs (close to the carcass).

Cow that died from anthrax.

Man eating infected meat.

Pain and problems in the stomach area.

Infection may lead to death.
Measures to be taken

- Alert the vet authority (143)
- Destroy carcases by burning (144, 145) or burying them with lime 6 feet under (146) because this disease contaminates the pastures for a very long time.

Never eat the meat from an animal found dead

Preventing

- Vaccinate cattle up to 3 years old every year (147, 148).
- Avoid areas known to be contaminated (so-called ‘doomed pastures’)
- Keep newly arrived animals separated for 2 weeks.
- Do not eat the meat
- Do not open the carcass
- Keep the dogs away from scattering contaminated wastes (149)
BLACK QUARTER

Clinical signs

- Fever
- Dullness
- Sudden lameness of one leg
- Swollen shoulder or hip
- Feel gas beneath the skin when touched (150)
- Sudden death / stiff legs (151, 152)

Does not pass on to human

Post-mortem signs

- Swollen muscle (153). Dark blood clots.
- Rancid smell when opened.
- Dark muscle with bubbles of gas,
- Skin is dry and shrunken (154)
Animal-to-animal transmission

Cow died from black quarter and was not destroyed or buried
Cattle grazing in contaminated area with the cow’s carcass
Cattle become sick with swollen shoulder, neck and hip.
Cattle die from black quarter
### Measures to be taken

- **Preventing**
  - Alert the vet authority (156)
  - Destroy carcases by burning (157,158) or burying them with lime (159) to avoid contamination of another animal.
  - Vaccinate cattle as from 3 years old every year (160, 161).
  - Avoid areas known to be contaminated.
  - Keep newly arrived animals separate for 2 weeks.
  - Do not eat the meat
  - Do not open the carcase
  - Keep the dogs away from scattering contaminated wastes (162)
**FOOT AND MOUTH DISEASE (FMD)**

- Fever and loss of appetite
- Animals seek shade and fresh areas (like standing in water).
- Salivation: dribbling and bad-smelling breath (163)
- Large wounds in the mouth (164), especially on top of the tongue and the roof of the mouth.
- Lameness.
- Wounds between the hooves and around the top of the hooves (165).
- Vesicles on teats (166) and sudden fall in milk production.
- Abortion.
- Calves show rapid respiration and possibly die.
Foot and mouth disease is very contagious and may be transmitted by the CAHW himself, his clothes or his equipment.
FOOT AND MOUTH DISEASE (FMD)

No cure, just help calves

Preventing

- Isolate affected animals (172).
- Avoid mixing herds (173).
- Wash wounds on mouth and feet with urine or water of boiled tamarind leaves or honey.

Antibiotics injected by the vet may help respiratory cases on calf (171).
FOOT AND MOUTH DISEASE (FMD)

- Quarantine new arrivals (174)
HAEMORRHAGIC SEPTICAEMIA (HS)

Clinical Signs

- High fever
- Diarrhoea
- Tongue may be swollen and protrude from mouth, swollen throat (176,177)
- Yellow, nasal discharge (175)
- Milk suddenly reduced
- Heavy, noisy breathing
- Signs start suddenly and death occurs quickly
- Appears in animals in good condition and usually between 1-3 years old
- Mainly during wet season and following shipping or moving stress
HAEMORRHAGIC SEPTICAEMIA (HS)

Post-mortem signs

1. Reddish, congested stomach wall (178)
2. Reddish, congested lungs (179)
3. Dark lung with thickened divisions (180)
4. Thickened throat, yellow fluid in throat (181)
5. Chest haemorrhages (182)
6. Carcase haemorrhages (183)
HAEMORRHAGIC SEPTICAEMIA (HS)

Transmission

A cow infected by HS

Animals get infected by inhaling and/or ingesting the droplets of nasal discharge

Now other cows are infected with HS

Cows finally die from HS

Pan-African programme for the Control of Epizootics
## HAEMORRHAGIC SEPTICAEMIA (HS)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Preventing</th>
</tr>
</thead>
<tbody>
<tr>
<td>I alert the vet authority (185).</td>
<td>Vaccinate all cattle once a year, especially those between 1-3 years (186, 187)</td>
</tr>
<tr>
<td>Antibiotics are effective only if administered early before shipping or long moving (transhumance)</td>
<td></td>
</tr>
</tbody>
</table>
Keep newly arrived animals separate for 2 weeks (188).
**Clinical signs**

- Many deaths in the herd (189)
- Fever and depression.
- Reduced milk production
- Purulent discharge from eyes and nose (192).
- Extensive dribbling
- Dry, cracked muzzle and nostrils
- Severe diarrhoea on domestic (190) and wild (191) bovids
- Sores in the vulva (183)
- Many animals affected (usually young ones)
RINDERPEST (RP)

Post-mortem and close examination signs

Red striping in colon (194)

Sores in the mouth: gums (195)

Sores in the mouth: lips, cheeks (196).

Transmission in cattle

Cattle inhale and lick infective germs from nasal discharge and faeces (diarrhoea)

Cows with signs of nasal discharge and diarrhoea

Pan-African programme for the Control of Epizootics
RINDERPEST (RP)

Transmission: other animals associated with RP

From left to right and top to bottom: buffalo, warthog, gazelle, antelope, bush pig, domestic pigs, sheep, goat.

No cure, only surveillance
Pan-African programme for the Control of Epizootics
Samples from a live animal

Whole blood (purple tube)
Serum (red tube) 204

Tears (eye) swab (205)

Nasal swab (206)

Lymph node fluid (aspirate) 207

Mouth swab (208)

Blood on filter paper (209)
CONTAGIOUS BOVINE PLEURO-PNEUMONIA (CBPP)

Clinical signs

- Slow development, throughout the year
- Loss of weight
- Loss of milk production
- Coughing (210, 217)
- Difficult breathing with nostrils moving and whole body may move, breath smells bad.
- Nasal discharge
- Jugular veins engorged
- Chest dull when tapped
- Grunting
- Head held out (210)
- Elbows held outwards
- Rigid back when squeezed
- Not moving well: walks hunched up
- Avoids standing in smoke
CONTAGIOUS BOVINE PLEURO-PNEUMONIA (CBPP)

Post mortem examination:

- Chest adhesions (211)
- Omelet-like membrane around the lungs (212)
- Adhesions of heart to lungs (213)
- Chest adhesions (214)
- Mosaic shaped thickened divisions in lung (215)
CONTAGIOUS BOVINE PLEURO-PNEUMONIA (CBPP)

Transmission

Cattle are infected by inhaling the droplets when a sick cow is coughing (216).

The newly infected animal will start coughing and lose weight (217).
<table>
<thead>
<tr>
<th>Traitement</th>
<th>Preventing</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>I alert the vet</strong></td>
<td><strong>Vaccinate all cattle every year (219, 220).</strong></td>
</tr>
<tr>
<td><strong>he will inject drugs if necessary</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Alert vet authority who will treat as per the current policy (218).</strong></td>
<td></td>
</tr>
<tr>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Isolate any coughing cattle (221)</strong></td>
<td><strong>Keep newly-arrived animals separate. Slaughter any persistently coughing animals.</strong></td>
</tr>
<tr>
<td><img src="image5.png" alt="Image" /></td>
<td></td>
</tr>
<tr>
<td><img src="image6.png" alt="Image" /></td>
<td></td>
</tr>
</tbody>
</table>

Pan-African programme for the Control of Epizootics
NEWCASTLE DISEASE

Clinical signs
Prostration and then:
- Digestive signs: greenish diarrhoea
- Respiratory signs: ocular and nasal discharges, sneezing, difficult breath (223)
- Nervous signs: quivering, loss of balance (224), paralysis, collapse on legs
- Skin signs: swollen crest and barbell, red spots on the skin
- Drop in egg laying
- High mortality.

These signs may vary and may not be present together

Post-mortem signs

Haemorrhages on ovary (225)  Haemorrhages on stomach (226)  Haemorrhages on caeca (227)
I alert the vet
he will inject drugs if necessary
NEwCASTL e DISEASE

Measures to take in case of high death-rate

Always remember that this could be bird flu too!
Because of the possibility that these mortalities could be due to bird flu, the following measures should be enforced:

The affected farmer must immediately:
- Alert the CAHW or the veterinarian of the area.
- Separate sick animals from healthy animals and lock them up in closed buildings.
- Place buckets with water and disinfectant for shoes or boots at the entrance of the farm or of the hen house.
- Stop buying or accepting new animals for the farm.
- Stop eating his own poultry and eggs and never attempt to eat birds that died from the disease.
- Stop selling or giving animals, even when they appear to be in good health.
- Stop selling or giving poultry meat, eggs or manure.
- Stop lending or borrowing equipment (bicycles, egg trays, wheelbarrows).
- Stop visiting other farms (especially poultry farms) and reduce and control the entries and exits of people on his own farm.

The CAHW must immediately:
- Alert the veterinary authority (228).
- Visit the affected farm and advice the farmer on how to prevent further spread of the disease (229).
- Prohibit any movement of poultry, products (meat, eggs) and equipment from the farm.
- Burn (232) or bury the dead animals at least 2 meters deep and cover with quicklime (231).

The other poultry farmers in the same village:
- Must consider their farm at risk and therefore take the necessary precautions to ensure the health of their animals and their families (refer to previous pages).
- Must stop buying or accepting new animals for the farm.
- Must stop selling or offering birds, meat, eggs or manure.
- Must stop visiting markets (especially poultry markets) in the area.

As soon as lab analyses confirm that it is indeed a Newcastle disease outbreak (or that it is not a bird flu case) these measures may be entirely or partially lifted.

Isolation of new arrivals
Vaccine twice a year all animals (233, 235)
Farming in flocks: sanitary void between 2 flocks (1 month).
**AVIAN INFLUENZA**

Species affected

All domesticated fowl species: chicken (241), turkeys (239), ducks (236), guinea fowl (240), quails (237) and even ostriches.

All wild birds (some bird species, such as ducks, may be infected but not show any sign of disease): 242, 243, 244, 245

Pigs and cats, but also man can become infected.
AVIAN INFLUENZA

Clinical signs

'bird flu'

As a rule, the disease appears very suddenly and kills lots of birds, either very quickly without any disease signs (251), either more slowly, in which case some discrete disease signs may be observed: weakness (248), loss of appetite, ruffled feathers (246), diarrhea.

Other birds will appear weakened (249), show loss of appetite, loss of balance (247) or outright paralysis and act as if they're falling asleep, with their heads hanging (250).
In fowl
(one or several of the following symptoms may appear in one or several birds of the same flock):

- Incubation of 3 to 7 days = period during which infected animals can spread the disease, while appearing healthy.
- Signs of severe depression (falling asleep, head turned downwards)
- Weakness
- Stumbling, paralysis
- Combs, wattles and shanks are discolored (dark red or purple) and swollen (254, 255, 256)
- Feathers are ruffled
- Fever
- Diarrhea (animals drink more than usual)
- Rapid respiration (252)
- Discharge from the eyes
- Loss of appetite
- Drop in egg production and altered eggs (253)
- Sudden death (with or without symptoms) 257, 258
- Mortality rate: 50% to 100% in a few days

One must always suspect bird flu, every time one comes across a case of rapid and high mortality, especially if signs are very similar to Newcastle disease. Only the lab can establish the difference between the two.

In humans:

- Incubation of 1 to 2 weeks before the first signs appear:
  - High fever
  - Head aches
  - Muscle pains
  - Diarrhea
  - Fatigue (being tired)
  - Coughing and difficult breathing
- Thereafter the disease rapidly degenerates towards serious breathing difficulties.
- Sometimes deadly

Needs to be distinguished from ordinary (common) seasonal flu in man.
In birds that died rapidly:
- Very few lesions: swollen organs and muscles.

In birds that died less rapidly:
- Red dots are seen on several organs (throat, trachea, lungs, in and around the heart, in abdominal fat and on the intestines) 262
- Red-colored trachea with occasional yellow or white clots (261)
- Dark red swollen muscles and organs filled with blood (hemorrhagic): ovaries (259), intestines (260), cloaca
- Swollen head and feet
- Dry (dehydrated) carcass
- Yellow or grey spots (spleen, liver, pancreas, kidneys, lungs)
- Air sacs may contain liquid (often hemorrhagic)
- Enlarged and dark-colored (hemorrhagic) spleen.
Avian influenza or bird flu is difficult to distinguish from:

- Other diseases with high death toll, such as: Newcastle disease, infectious bronchitis, fowl cholera or even poisoning;
- Other diseases leading to swollen combs and wattles.

One needs to keep avian influenza in mind whenever high mortality occurs in a flock, which continues to spread despite several treatments against other diseases, and especially when poultry has been vaccinated against Newcastle disease.

Only veterinary surgeons are authorized to conduct sampling (on healthy and sick birds, 263) and forward samples to the lab for confirmation of suspicion.

Laboratory testing (264) is the only way to confirm the presence of the disease, but this does not mean that the CAHW should wait for laboratory results to be announced, to take precautionary measures.
Collecting birds found dead or from hunting.

Handling dirty eggs and trays

Slaughtering, plucking and gutting poultry without taking precautions (gloves and mask).

Preparing poultry for cooking without taking precautions.

Eating raw eggs.

Eating under-cooked poultry meat.
AVIAN INFLUENZA

**Bird to human transmission (265)**

**Directly**: Frequent and intensive, narrow contact with:
- Domestic infected poultry (chicken, ducks, ...), alive
- Wild birds infected or carriers, or dead

Through:
- Respiratory secretions (droplets),
- Discharges from beak, tearing of the eyes,
- Droppings from infected birds (dead or alive),
- **Eating of raw/uncooked meat or eggs**
- Accidental ingestion of droppings (dirty hands)

**Indirectly**: Frequent and intensive contact with contaminated surfaces, breeding equipments or materials such as: soiled feed, water, droppings, eggs and egg trays, hands, clothing, shoes, boots and vehicles.

*How do humans get infected?* Through the eyes, nose and mouth and indirectly through soiled hands wiping the face.

**Bird to bird transmission (266)**

**Directly**: Frequent and narrow contact with:
- Domestic infected poultry (chicken, ducks, ...), alive
- Wild birds infected or carriers, or dead

Through:
- Respiratory secretions (droplets),
- Discharges from beak, tearing of the eyes
- Droppings
- **Eating of droppings**

**Indirectly**: Frequent and narrow contact with contaminated surfaces, breeding equipments or materials such as: soiled feed, water (from ponds and water dispensers, droppings, eggs and egg trays, hands, clothing, shoes, boots and vehicles (tires of cars, motorcycles and bicycles).

*How does a bird get infected?* Through the eyes and the beak.
Dead or sick birds

Dirty poultry feed and bags

Dirty tires

Dirty feet and shoes

Dirty hands

Farming equipment

Pigs

Dung and manure

Stray dogs

Sharing bird cages at markets

Sharing feeding troughs

Sharing drinking troughs

Sharing ponds with wild birds.
AVIAN INFLUENZA

In general:
- Apply a good hygiene (especially of the hands), in particular when you visit poultry markets or farms (270) and avoid wiping your face with dirty hands.
- Never touch or collect with your bare hands any poultry or bird found dead (except the CAHW, if wearing mask and gloves).
- Never touch droppings or feathers of dead or sick poultry of wild birds.
- Be especially cautious in regions where bird flu has already been reported.

For hunters (271):
Take necessary precaution (gloves) in order not to collect hunted or captivated birds (ducks,...) bare handed.

In the kitchen:
Be careful, the preparation of poultry is one of the ways in which people can become infected:
- Put on gloves (and a mask or scarf) for plucking, gutting, cutting and cleaning of the fowl (268). Burn the waste if possible (269).
- Wash hands thoroughly with soap (267) before and after having worked with poultry meat.
- Disinfect with bleach the slaughter material and the kitchen tools.
Eating poultry meat is not dangerous, provided the meat is well-cooked (272). The same goes for eggs: do not eat raw egg or soggy eggs (with liquid yolk).

Avoid buying poultry from vendors you don’t know or without knowing where the birds come from. Be careful of poultry sold at low price.

Remember, pregnant women and children are especially sensitive to the disease. Therefore, once the disease has been reported, they should not be taking care of the poultry anymore, nor of the plucking or cleaning of slaughtered fowl (273).

These measures should be fully respected and applied once a farm in the neighborhood or in the village has been affected or suspected!

If a person develops fever and difficulties in breathing, it is necessary that he or she is taken as soon as possible to a hospital, dispensary or health center where the attending health officer will have to be informed that the patient has been in close contact with poultry.
How to avoid bird flu in poultry?

Through avoiding contact with man or other animals

Prohibit or control the access of family, neighbors and friends to the poultry house, because they can contaminate the birds through soiled hands, clothes or shoes. Prohibit especially people who go from village to village or those who attend the markets in the region (vendors of animals [274] or feed).

The CAHW must wash his hands and his shoes thoroughly with disinfecting soap before entering a farm and when leaving. If he travels by bicycle, the bicycle has to remain outside the premises (277). Foot-baths (disinfecting of shoes) must be available at the entry of the farm or of every poultry house and must be regularly refreshed (clean and add disinfectant every two days) 275, 277.

Personnel working on the farm must be reduced to one or two and must wear specific work-clothing which remains on the farm (overalls and shoes) and is regularly cleaned.

Every bird, or even pig(let), received as a gift, bought from a vendor, neighbor, on a market or reintroduced (for example: unsold animals coming back from the market) must go through quarantine. The birds must be kept separate (in a separate hen house or in separate cages) for at least three weeks, before allowing them into the flock (276).

One should avoid that dogs or cats come into contact with the poultry or bring back dead birds found elsewhere. Keep wild birds at large (use scarecrows, install protection nets).

These measures should be fully respected and applied once a farm in the neighborhood or in the village has been affected or suspected!
Avoiding contact with contaminated equipments and products

- Poultry feed (bags)
- Livestock equipment: egg trays, cages, wheelbarrows, brooms ... (to be cleaned regularly)
- Vehicles, motorcycles, bicycles (leave them outside the premises) 279
- Clothing, boots and sandals (to be cleaned before entering and when leaving the poultry house) 278
- Dried manure, bought in bags (keep isolated for at least three weeks and spray with disinfectant like Virkon and mix)
- Droppings, faeces (broom the yard and the poultry house daily; burn or bury droppings [dung], feathers and other collected waste).

Through simple and affordable improved management measures for poultry

- Keep poultry under good hygienic conditions (clean water, quality feed, clean stables and floors) and in good health (regular vaccination and de-worming)
- Wash hands with soap before entering and when leaving the poultry house (280).
- Wash hands with soap before treating or examining poultry.
- Keep a bucket of water and soap at the entrance of the premises or the poultry house (foot bath for disinfecting the shoes).
- Avoid free-ranging fowl, even in small flocks (feed the birds, rather than have them look for their food).
- Raise poultry in closed-off and covered poultry houses or at least in a closed yard.
- Prevent contact between domesticated birds and wild birds (protect drinking and feeding troughs with wire nets, nets or tarpaulins). The CAHW must learn to know where migratory birds rest and where waterfowl are to be found (281).
- Separate the different species raised in the farm (for example: chicken, pigs) 283.
- Prevent contact with other animal species (cats, dogs, rats).
- Prevent contact between the farmers’ birds and those of vendors, neighbors or other farmers (282).
- Control the entry of animals, people or goods that could carry the virus.
- Immediately separate any bird showing disease signs from the flock (keep in cages).
- When examining or treating animals, always start with the healthy ones.

The best prevention is not to mix birds of different ages and origin, but to apply the ‘all-in, all-out’ principle to enable better control of disease whenever they appear.

For ducks: keep ducks in a fenced yard with a pond (during the day) and a shelter (at night).
AVIAN INFLUENZA

I alert the veterinary authority
AVIAN INFLUENZA

**Measures to take in case of high mortality**

The affected farmer must immediately:
- Alert the CAHW or the veterinarian of the area.
- Take all necessary precautions to ensure the health of the other animals and of his family.
- Separate sick animals from health animals and lock them up in closed buildings.
- Place buckets with water and disinfectant for shoes or boots at the entrance of the farm or of the hen house.
- Stop buying or accepting new animals for the farm.
- Stop eating his own poultry and eggs and never attempt to eat birds that died from the disease.
- Stop selling of giving animals, even when they appear to be in good health.
- Stop selling or giving poultry meat, eggs or manure.
- Stop lending and borrowing equipment (bicycles, egg trays, cages, wheelbarrows).
- Stop visiting other poultry farms and reduce and control the entries and exits of people on his own farm.

The CAHW must immediately:
- Alert the veterinary authority (286).
- Visit the affected farm and advice the farmer on how to prevent further spread of the disease.
- Prohibit any movement of poultry, products (meat, eggs) and equipment from the farm.
- Burn (287) or bury the dead animals at least 2 meters deep and cover with quicklime (285).

The CAHW will organize meetings with village people to explain why these measures are taken and to advice them how to protect themselves.

The other poultry farmers in the same village:
- Must consider their farm at risk and therefore take the necessary precautions to ensure the health of their animals and their families (refers to previous pages).
- Must stop buying or accepting new animals for the farm:
  - even when applying quarantine
  - even for a few days only
- Must stop selling or giving birds, meat, eggs or manure.
- Must stop visiting poultry markets in the area.
AVIAN INFLUENZA

The farmer comes to tell me that her chicken have died (288).

I go to her farm to investigate. If I don’t have gloves and a mask, I avoid touching the dead birds with my bare hands (289).

I quickly go to my supervising veterinarian (290).

I explain to him what I have seen (291). He will take the appropriate decisions.
Controlling an outbreak

The veterinary services will take several measures in an attempt to control an outbreak in a poultry-farm and may call upon the CAHW to assist.

These measures are:

1. Slaughter of all sick birds and of all birds in contact with the sick birds (stamping-out).

The CAHW may be requested to kill animals with his (or her) hands (by extending and twisting the neck), provided he is in good health and wears protection gear (mask, goggles, gloves and boots). Thereafter he may assist in the disposal of dead birds, the cleaning, the disinfecting, applying the following guidelines:

- If possible, collect dead animals in water-proof bags before disposal (292)
- Burn the dead/slaughtered birds with petroleum or fuel (294) and/or bury the birds in a deep hole covered and re-covered with quick-lime (293). This hole will be dug far enough from wells, ponds or other animals.
• During the same day, also dispose of (or burn): egg-crates, feed-bags, droppings, blood, feathers, waste and disposable protective clothing.

• Ensure that all birds are indeed dead before burying or burning them.

• Never dispose of dead or slaughtered birds by throwing them in a river or pond (295).

• The floor, walls and equipments of the poultry houses must be thoroughly cleaned, brushed and disinfected. Quicklime is the cheapest disinfectant available, but other products may be used.

In most countries, the poultry farmer is expected to receive compensation for the loss of slaughtered animals.

2. Prohibition by law enforcement officers of poultry markets and control of movements and transports of people, animals and commodities (296).

3. Vaccination.

Ring - vaccination, around the outbreak areas, is one of the control tools used in some countries (298) as authorized by the veterinary services. Public or private veterinary surgeons may request the assistance of CAHWs to conduct these vaccinations (297,298).

4. Down time

After the slaughter and disinfecting, the farmer will have to clean and disinfect the premises two weeks later. Only three weeks after this has been done may he start introducing new poultry.
# African Swine Fever

## Clinical signs
- Fever during 3–4 days
- Lack of appetite
- Dullness, in coordination of movements
- Red spots on belly (300)
- Vomiting and bloody diarrhoea (301)
- Quick death with generalized signs of internal blood loss
- Cough, conjunctivitis (red eyes), difficult breath in sub acute form
- Very contagious

## Post-mortem examination

<table>
<thead>
<tr>
<th>Image</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>Red spots on belly</td>
</tr>
<tr>
<td>301</td>
<td>Vomiting and bloody diarrhoea</td>
</tr>
<tr>
<td>302</td>
<td>Hemorrhagic (red) carcass</td>
</tr>
<tr>
<td>303</td>
<td>Enlarged spleen</td>
</tr>
<tr>
<td>304</td>
<td>Red spots on kidney</td>
</tr>
</tbody>
</table>

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Pan-African programme for the Control of Epizootics
Measures to be taken

No cure
No vaccine

Alert the vet authority (305). Slaughter every pigs within an area decided by the vet authority (306) Moving (307) and straying of animals from infested zones is forbidden. Burning or burying of slaughtered or dead animals (308)
**Clinical signs**

- Sudden death, especially in goats.
- Discharges from eyes, nose and mouth (309, 310), first thin then purulent.
- Difficult breathing and coughing.
- Sores in mouth (311), the animal does not eat anymore.
- Dry, cracked muzzle and nostrils.
- Severe diarrhoea with sometimes blood (312).
- Death in 5-10 days
Post-mortem and close examination signs

- Haemorrhages in lungs (313)
- Red striping in colon (314)
- Sores in the mouth: lips, gums, cheeks (315).

No cure, only preventing

- Alert and report. Stop all concentration (316) and movements (317) when disease occurs.
- Follow PPR sampling procedure for your area (318).
- Vaccinate every year (319).
Second part
Common diseases

2. Diseases not subject to compulsory declaration

100 Trypanosomosis
103 Gut worms
106 Liver fluke
109 Mange
113 Dermatophilosis
116 Photo-sensitization
Clinical signs

- Fever and depression
- Emaciation
- Enlarged lymph nodes are clearly visible under the skin (320)
- Pale membranes (321)
- Tears (322)
- Milk reduced
- Tail hair loss (323, 324)
- Mainly during dry season
Cattle grazing in forest areas gets bitten by the tsetse fly (encircled, 326)

While sucking blood the tsetse fly (325) transmits the blood parasite (trypanosome) to the cow. The cow gets sick: weight loss, swollen lymph-nodes and rough hair, while she loses her tail hair (324)
**Treatment**

Alert the vet authority (328) for early treatment of any suspected animal (327) with diminazene aceturate or homidium bromide.

**Preventing**

Alert the vet authority (328) for preventive treatment with isomethamidium or homidium bromide.

Avoid known tsetse areas (332, 329)

Use pour-on (330, 331) with synthetic pyrethroids to avoid bites from flies.

Alert the vet authority (328) for preventive treatment with isomethamidium or homidium bromide.
**Clinical signs**

- Usually in wet season.
- Usually in young (333)
- Normal body temperature
- Swelling under the jaw (“bottle”-neck).
- Normal appetite.
- Pale membranes.
- Diarrhoea (334)
- Belly may appear swollen.
- Rough coat.
- Poor growth.

**Post-mortem signs**

- Pale and watery carcass (335)  
  Absence of fat.
- Worms found in abomasum (336)
- Worms found in colon (337)
Livestock infected with gut worms shed worm eggs. Other livestock grazing in the same area ingest the worm eggs while eating. The infected livestock starts showing signs of diarrhea and weight loss after 3 to 4 weeks.
### GUT WORMS

#### Treatment

<table>
<thead>
<tr>
<th>Image</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>339</td>
<td>Albendazol 10% (339, 340) : 1 ml/10 kg peroral or</td>
</tr>
<tr>
<td>340</td>
<td>Albendazol bolus 2500 mg (343, 344, 345) : 1 bolus/250 kg</td>
</tr>
<tr>
<td>341</td>
<td>Albendazol 300 mg (342,348) : 1 bolus/30 kg</td>
</tr>
<tr>
<td>342</td>
<td>Albendazol 152 mg (349) : 1 bolus/15 kg</td>
</tr>
<tr>
<td>343</td>
<td>Levamisol 1 g (346) : 1 bolus/150 kg</td>
</tr>
<tr>
<td>344</td>
<td>Levamisol 300 mg (350) : 1 bolus/50 kg</td>
</tr>
<tr>
<td>345</td>
<td>Tetramisol (347)</td>
</tr>
</tbody>
</table>

#### Preparing

<table>
<thead>
<tr>
<th>Image</th>
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<tbody>
<tr>
<td>351</td>
<td>Dose all the herd with albendazol, twice a year in the early wet and early dry seasons, even though they appear healthy (351,352,353). Alternate drugs every 2 years to avoid resistances.</td>
</tr>
<tr>
<td>352</td>
<td>When some animals show signs, treat the whole herd with levamisol or tetramisol. Avoid highly seasonal concentration of animals in pasture area (354)</td>
</tr>
<tr>
<td>353</td>
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<tr>
<td>354</td>
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</tbody>
</table>
**Liver Fluke**

**Clinical signs**
- Loss of condition (355) or slow growth in spite of good grazing and normal appetite.
- Pale or yellow membranes.
- Swelling under the jaw, swollen lower parts (belly and limbs).
- Diarrhoea (355), bad smell in the mouth, reduced milk yield.
- Weakness (animals seem lazy).
- Loss of coat colour.
- In adults only, when grazing in swampy zones.
- No loss of tail hair (as opposed to gut-worm infections)
- More in cattle than sheep and goats.

**Post-mortem signs**
- Liver hard and gritty when cut (356)
- Bile duct thickened (357)
- Adult flukes (358)
LIVER FLUKE

Transmission

Livestock get infected with liver fluke when grazing in swampy areas.

They develop diarrhoea and loss of weight.
**Liver Fluke**

### Treatment

- Albendazol 10% (361, 362): 1ml/10kg per os or
- Albendazol bolus 2500mg (363 - 367): 1 bolus/250 kg
- Albendazol 300mg (368, 369): 1 bolus/30 kg
- Albendazol 152 mg (370): 1 bolus/15 kg
- When some animals show signs, call the vet authority (282) who will treat the whole herd with nitroxinil or closantel.

### Preventing

- Dose the whole herd with albendazol twice a year in the early wet and early dry seasons, even though they appear healthy (371, 372, 373)
- Avoid highly seasonal concentration of animals in swampy zones along water ways or ponds (374).
Clinical signs

- Loss of hair (375, 376)
- Itching: animal rubs against trees and posts; skin becomes red (377, 380)
- Skin is thickened (379) and cracking (381)
- Loss of condition (377, 379)
- Often starts on head and neck (378, 381), then spreads to the hind legs (379)
- Spreads to other animals.
Transmission of the mange mites occurs through close contact (A), either directly or indirectly at scratching trees or poles (B).
# Treatment

**I alert the vet**

He will inject drugs if necessary.

Alert the vet authority (383) for early treatment with ivermectin.

Spray suspected animals with 20ml of amitraz (384,385) diluted in 1 litre of water.

# Preventing

**Avoid overcrowding.**

Treat all the affected animals at the same time (386).

Separate affected animals. (387)
**DERMATOPHILOSIS**

**Clinical Signs**

- Mainly during wet season
- Affects mostly young stock
- Skin lesions form on body (388,389)
- Uncomplicated lesions heal
- Lesions can become infected
- Lesions can join and lead to detachment of the skin (390,391)
- Loss of body condition
An unaware farmer brings a new animal into his herd, despite its visible lesions of dermatophilosis.

The affected animal rubs itself to another (and transmits the disease)

A new cow is now affected by dermatophilosis.
**Treatment**

- Apply iodine on affected areas (393,394)
- Alert the veterinarian, he might apply the appropriate drugs (395).

**Preventing**

- Isolate sick animals (396)
- Slaughter chronic cases and severely affected animals (397).
Clinical Signs

Liver related form

• Most common form, mainly in sheep
• When liver does not clean the blood properly, substances remain in the body and accumulate in the skin
• These substances absorb sunlight, which initiates damage to the skin
• Typical skin lesions develop (398-401)

Feed related form

• When livestock feed on plants/drugs with photosensitizing substances
• Substances accumulate in skin and react with sunlight
• Typical skin lesions develop (398-401)

Photosensitive from birth

• Livestock avoids light from birth
• Typical skin lesions develop because of a genetic defect
• Tongue exposure to sunlight when licking may cause ulceration and necrosis (398-401).
## PHOTOSENSITIZATION

### Preventing

- Keep affected livestock in the shade
- House livestock and allow grazing only after sunset and before sunrise
- Avoid secondary skin infection and fly strike
- If photosensitization present from birth, livestock should be excluded from breeding
<table>
<thead>
<tr>
<th>Personal notes:</th>
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</tbody>
</table>
Second part
Common diseases

3. Zoonoses
(diseases which affect man too)

120 Brucellosis
126 Tuberculosis
127 Rift valley fever
128 Rabies
129 Hydatid cysts (Echinococcosis)
Brucellosis

Clinical signs

Disease in animal:

- Abortion in late pregnancy or stillbirths (406,408)
- Enlarged testicles (410)
- Infertility
- Thickening of foetal membranes
- Swellings around joints (405,407,409) and lameness (occasional)
- Fever from time to time (exceptional)
Disease in human:
- Periodic fever,
- Aching back and joints,
- General sickness and weakness,
- Abortion, infertility in women,
- Painful/swollen testicles in men.

For the children who are often fed with raw milk from sheep and goats, the risk of transmission of brucellosis is higher than with raw cow milk or raw camel milk.

So, if the child has fever, it is important not to confuse malaria and brucellosis.
**BRUCELLOSIS**

**Transmission**

*Cows inhale and lick germs from aborted fetus and vaginal discharge.*

*Abortion occurs usually once after infection.*

*Occasionally brucellosis is also transmitted through mating.*

*Swollen joints in chronically infected cow*
Risky behaviour in man

- Drinking fresh, raw milk (412, 413).
- Touching discharges from aborted cow (secretions and mucous membranes) or helping cow to calve without glove (415).
- Using urine from aborted cow (414).
How to avoid brucellosis in man?

Measures in man:

- Always boil milk from goats, cows and camels (416).
- Prevent children from drinking the milk from aborted animals.
- Do not take urine from aborted cows.
- Use glove (417) and wash hands thoroughly after removing afterbirth and assisting cow at calving. Do the same when placing pessaries in the uterus.
How to avoid brucellosis in animals?

**Measures in animal:**
- Isolate cows at calving (418).
- Clean and bury all discharges.
- Bury or burn afterbirths, aborted foetuses or stillborn calves and their membranes (419).
- Eliminate positive males and females on blood test (420, 421).
- Slaughter cows that abort repeatedly (421).
- Limit microbes spread in the environment after abortion by dispensing pessaries in uterus, after every abortion or difficult calving (422, 423).

**Use gloves!**
Disease in human:
• Coughing for long time (sometimes with blood).
• Becoming weak and thin, not feeling well.
• Often children have abscesses in the neck and spine becomes bent.

Disease in animal:
Coughing, loss of weight over long period.
In most cases however, signs are absent.

Risky behaviours in man:
• Drinking fresh milk (424).
• Touching (purulent) discharges from infected animals.
• Close contacts with droplets or saliva from infected animals or humans.
• Sleeping near or being too close to coughing cows (425).

Ways of avoiding tuberculosis:
• Boiling milk from cow and goats systematically.
• Isolate or slaughter cows with persistent cough.
• Keep children out of the shed with the coughing animal(s).
Disease in Human

- Acute fever, muscular pain, headaches, nauseous, fear of light.
- Complications: haemorrhages, nervous disorders, ocular form may lead to blindness.
- Death may occur

Disease in animal:

- Frequent abortions,
- Mortality of new-born, sheep and goat, nearly 100%, in adults 30%.
- High fever, muscular spasm, locomotive disorders
- Bloody nasal discharge.
- Diarrhoea.
- Young animals die rapidly.

Risky behaviours:

- Sleeping without mosquito net (426, 427)
- Direct contact with nasal discharges (430), blood (429), post abortion vaginal discharges (428), infected carcases (431, 432).
- Absorption of possibly infected droplets and raw milk.

How to avoid Rift Valley Fever?

- Sleep with mosquito net (as some mosquitoes transmit the disease).
- Vaccine livestock,
- Do not touch meat or discharges from infected animal.
Rabies

What to do in case of bite, scratch or licking by a stray dog?

• Clean wound thoroughly with soap and warn the health care center to implement urgently anti-rabies treatment.
• Do not kill the biting dog immediately, but quarantine it for at least 15 days in order to follow-up on rabies symptoms.

Regarding stray dogs:

• Be careful with aggressive, nervous dogs (433).
• Limit straying of dogs (434).
• Slaughter stray dogs.

Contamination:

• Contact with (dog) saliva at the time of bite, scratch or licking of injured skin or mucous membranes (injured or intact).

Disease in human.

• 30 to 50% of bitten, scratched or licked people are young boys.
• Incubation may greatly vary: usually 45 days of incubation (minimum 7 days, maximum 6 years).
• Mad form with spasms or dumb form with paralysis.
• Fear of water, fever, agitation, loss of sensitiveness.
• Always lethal.

Every warm-blooded animals can be affected by rabies. In Africa, human beings catch rabies through stray dogs mainly.
Parasitical cycle (435) between dog, definitive host without symptom and sheep (mainly), intermediate host who get mortal hydrate cysts (liquid pocket containing larvae). Humans accidentally develop hydatidosis.

Contamination:
- Dog is parasites’ reservoir. He is contaminated by eating sheep’s offal (lungs, liver) with cysts.
- Sheep is contaminated by grazing grass infested by dog’s faeces.
- Human is contaminated by eating food infested by dog’s faeces or by licking his hands that have been in contact with dog’s saliva (dog licks his anus).

Disease in Human.
- Hydatic cysts grow slowly during several years:
  - In the liver (60 to 80% of occurrence): big painful liver, jaundice → “big belly”
  - In the lungs (20 to 30%): cough, blood in lungs.
  - In the bones: fractures, pain.
  - In the kidneys, spleen, nervous system.

How to prevent human hydatidosis?
- Limit straying of dogs. Do not let the dogs eating slaughter wastes (436).
- Burn wastes with parasites and deworm dogs.
- Do not touch any dogs and wash your hands before eating.
- Keep the dogs away from kitchen areas.
- Deworm humans with albendazol regularly.
Second Part

Differential approach
(by similar symptoms)

132 Limping
133 Skin disorders
134 Sudden death
135 Differentiating rinderpest from PPR
136 Loss of condition
Antibiotics may help

Limping of one leg,
Swollen muscle,
Air under the skin when touched,
Dry, cardboard-like skin

温, swollen and painful joint: 3

Wound between claws
No vesicles in the mouth or on the teats

Vesicles* in the mouth: 1

(*) vesicles are blisters or superficial wounds.

Deep wounds: 5

Hesitating walk: 2

Vesicles* on the teats: 1

Vesicles* between and on the top of claws: 1

Limping of one leg, Swollen muscle, Air under the skin when touched, Dry, cardboard-like skin
**MANGE**

- Thickened skin, rough and crackled skin
- Loss of hair, Intense itching

**DERMATOPHILOSIS**

- Hair stuck together, easily removed.
- Thick scabs: 2

**LUMPY SKIN DISEASE**

- Under the scabs, red, sticky skin.
- No itching: 2

**TEIGNE**

- Only on white parts.
- Red skin, Crackled, scaly.

**PHOTO-SENSITIZATION**

- Avoid exposure to sunlight

**Treatments**

- Amitraz
- Ivermectin
- Antibiotics
- Vaccination
- Iodine
SUDDEN DEATH (except rinderpest and PPR)

1. HEMORRHAGIC SEPTICAEMIA
   - Swollen head, neck, throat and thorax: 1
   - Purplish mucous membranes with blood spots: 3
   - Diarrhoea, more or less bloody: 1, 3
   - Less milk production, yellowish milk mixed with blood: 3

2. BLACK QUARTER
   - Swollen muscle, Air under the skin: 2
   - Limping of one leg: 2

3. ANTHRAX
   - Purulent discharge from nose, mouth: 1
   - Purulent discharge from all orifices: 3
   - Discharge of black blood from all the orifices: 3

4. POISONING
   - Less milk production, Yellowish milk mixed with blood: 3
   - Diarrhoea, more or less bloody: 1, 3
   - Soft legs: 3
   - Stiff (rigid) legs: 2

Common signs
- Sudden death
- High temperature: 1, 2, 3, 4
- Difficult breathing
- Post Mortem
  - Do not open the carcass: 2, 3
  - Do not eat the meat: 3
  - No blood oozing from anus or nostrils: 2
  - Discharge of black blood from all the orifices: 3

ALERT the veterinary authority. Antibiotics as from the first symptoms.
**SECRETIONS, DIARRHEA, SUDDEN DEATH**

1

**RINDERPEST**

No treatment. Surveillance

2

**PESTE DES PETITS RUMINANTS (PPR)**

No treatment. Vaccination

- Depression, illness and sudden death, especially in young animals
- High number of animals affected
- Wounds on all mucous membranes
- Nasal discharges and excessive salivation, reduced milk production

Severe diarrhoea becomes bloody: 1,2

Purulent ocular, nasal and oral discharges

Dry and crackled muzzle, nostrils: 1,2
Loss of Condition

1. Trypanosomosis
   - Diminazene Aceturate
   - Isomethamidium
   - Fever: (animal looks for shade), warm base of the horns
   - Yellowish eye: 3
   - Watering eyes: 1
   - No appetite: 1
   - Preserved appetite: 2, 3
   - Bad breath: 2, 3
   - 'Bottle-sign': 2, 3 (Especially in sheep)

2. Gut Worms
   - Albendazol drench/bolus
   - Lymph nodes visible under the skin: 1
   - Common signs:
     - Pale mucous membranes
     - Milk production
     - Calving rate
     - Growth

3. Liver Fluke
   - Albendazol drench/bolus
   - Fasciolicides (flukicides)
   - Dry hair, easily removable: 1
   - Swollen belly: 2, 3
   - Diarrhoea: 2, 3
   - Swelling on lower parts of the body: 1
Third Part
Basics of prevention

138 Spread of diseases
142 What is curing? What is prevention?
148 How to avoid the introduction of a disease?
151 How to react in the face of an outbreak?
158 Vaccines and diseases
**HOW ARE DISEASE AGENTS SPREAD?**

<table>
<thead>
<tr>
<th>By absorption of:</th>
<th>Portal of entry: Digestive and/or respiratory tracts</th>
<th>Diseases:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ocular, nasal and oral discharges, breath droplets, urine droplets, faeces, products of abortion, genital membranes and fluids, blood and slaughter wastes.</td>
<td>Anthrax</td>
<td>ASF</td>
</tr>
<tr>
<td></td>
<td>Blackquarter</td>
<td>Brucellosis</td>
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<tr>
<td></td>
<td>CBPP</td>
<td>FMD</td>
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<td></td>
<td>PPR</td>
<td>HS</td>
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<td></td>
<td>Newcastle</td>
<td>Rinderpest</td>
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<tr>
<td></td>
<td>PPR</td>
<td>Rinderpest</td>
</tr>
<tr>
<td></td>
<td>PPR</td>
<td>Rinderpest</td>
</tr>
</tbody>
</table>
By contact with:

Ocular, nasal and oral discharges, breath droplets, urine droplets, faeces, blood, semen, products of abortion, genital membranes and fluids, scratched skin pieces.
HOW ARE DISEASE AGENTS SPREAD?

From other vectors to livestock

By matter and objects:

Veterinary tools especially
gloves (451), harnesses, air
(450), water (453), soil, grass,
fodder (454), feed, clothes,
hats (449) caps and shoes
(452), ropes, containers, and
traditional knives

Portal of entry:

Digestive and/or
respiratory
tracts
Skin (intact or
wounded)
Genital parts
and mucous
membranes
during surgery.

Diseases:

Anthrax
ASF
Blackquarter
FMD
HS
Newcastle
PPR
Rinderpest

Gut worms
Liver fluke
Mange
## HOW ARE DISEASE AGENTS SPREAD?

**By living organisms:**

The CAHW's skin (457), mosquitoes, tse-tse flies (455) or biting flies, ticks (456, 458, 459, 460) and other vectors such as mammals (including man) and birds (461).

<table>
<thead>
<tr>
<th>Portal of entry:</th>
<th>Diseases:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intact skin or wounded skin</td>
<td>Anthrax, ASF, Blackquarter, Certain worms, FMD, HS, Newcastle, PPR, Rinderpest, Trypanosomosis</td>
</tr>
</tbody>
</table>
What is Preventing?

Prevention

Stopping the disease agents from entering the animal's body, for example by vaccination (462). Avoiding disease agents, for example by separating sick animals or new arrivals (463).
Killing the disease agents after they have entered the body but before they have caused any harm: regular deworming treatment (464)...

...or antibiotic treatment injected by vet authority before travelling (465).

REMEMBER:

1. Preventing is always better than curing, when possible.
2. Vaccines and drugs are effective only if they are:
   • Chosen with the right active component at the right concentration,
   • Used at the right dosage,
   • Not expired.

Vaccination and preventive use of drugs (example: worm drench) are regarded as MEDICAL prevention. Other measures, such as isolation, quarantine, movement control and disinfection are regarded as SANITARY prevention.
Field of CAHW’s competences regarding prevention

CAHW must alert (466) the vet authority he takes order from (technician or private vet, 467), as soon as he detects a disease or suspect group of signs. He takes part in vaccination campaign organised by vet authority (468). He sensitises livestock owners to disease dangers (469).
Curing

Destroying disease agents with drugs (470) after they have entered the animal body and started to cause harm.

REMEMBER:

Drugs are effective only if they are:
- Chosen with the right active component at the right dose.
- Used at the right dosage and for the recommended time.
- Not expired.
CAHWs operate under a vet's responsibility.

In particular circumstances, under vet’s decision and responsibility, CAHW may use medicines different from the authorized list: injectable antibiotics (471), fasciolicides and trypanocides (472).
Limits of CAHW's activity regarding medicines

Medicines used by CAHWs are sold by a vet; they generally include oral dewormers (473 to 485), external anti-parasite dips (486 to 489), external antibiotics (sprays) (490,491), ointments (492,493), pessaries (494,495), disinfectants (496,497).
HOW CAN ONE AVOID THE INTRODUCTION OF DISEASES AND KEEP THE HERD HEALTHY?

Practice a good personal hygiene (498).
Clear the camp or homestead from dung (499).
Prevent animals from different herds mixing during grazing and watering (500).
Always boil the milk before drinking (501).
Practice good hygiene of the animals and keep them clean (502).
Keep a safe distance between tethered animals (503).

Pan-African programme for the Control of Epizootics
When buying new stock at the market or in another village, keep the new animals separated (quarantine) for several weeks in order to check whether they develop a disease.
HOW CAN ONE AVOID THE INTRODUCTION OF DISEASES AND KEEP THE HERD HEALTHY?

- Make sure the animals in the village are regularly vaccinated against the known diseases (505).
- Make sure the animals in the village are regularly dosed with worm drench (506).
- When using syringes, ensure that they have been properly disinfected with boiling water (507).
- Build clean and solid slaughter slabs (508).
- Fence the slaughter slabs in order to prevent dogs intruding (509).
- Avoid scattering of slaughter wastes by stray dogs (510).
HOW TO REACT IN THE FACE OF A DISEASE OUTBREAK?

Alert the vet authority (511)

Burn and/or bury dead or slaughtered animals (513 to 519)
HOW TO REACT IN THE FACE OF A DISEASE OUTBREAK?
Prohibit animal concentrations and mixing of herds (524,525)

All moving in infected zone(s) prohibited (526,527)

HOW TO REACT IN THE FACE OF A DISEASE OUTBREAK?

Pan-African programme for the Control of Epizootics
Prohibit mixing herds at watering points (528,529)

Prohibit animals moving out of infected zones (530,531)

HOW TO REACT IN THE FACE OF A DISEASE OUTBREAK?
Inform livestock owners (532, 533)

Avoid scattering of slaughter wastes by stray dogs (534, 535)
HOW TO REACT IN THE FACE OF A DISEASE OUTBREAK?

Slaughter chronically infected animals e.g. those coughing for a long time or infertile (536,537)

Slaughter any cow repeatedly aborting, especially those positive to a test for brucellosis (538,539).
**HOW TO REACT IN THE FACE OF A DISEASE OUTBREAK?**

- **Participate in ring or emergency vaccination (540,541)**
- **Treat with medicines of authorized list, for example: eye ointment (542) or worm drench (543)**
- **Disinfect syringes properly (544)**

---

Pan-African programme for the Control of Epizootics
### WHICH VACCINE FOR WHICH DISEASE?

<table>
<thead>
<tr>
<th>Anthrax</th>
<th>Blackleg</th>
<th>CBPP</th>
<th>PPR</th>
<th>HS in cattle</th>
<th>HS in sheep</th>
<th>Newcastle dis.</th>
<th>Bird flu</th>
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<tbody>
<tr>
<td>ANTHRAC</td>
<td>CLOSTRIVAC</td>
<td>PERI-TI /SR</td>
<td>OVIPESTE</td>
<td>PASTOBOV</td>
<td>PASTOVIN</td>
<td>ITA-NEW</td>
<td>FLU-KEM</td>
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<tr>
<td>BLANTHAX</td>
<td>PERIBOV</td>
<td>PPR-VAC</td>
<td>PASTOVAX</td>
<td>ND VACCINE</td>
<td>ITA-FLU</td>
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</table>

These vaccines are delivered to CAHW by the veterinary authority and will be injected under its responsibility.
Third Part

Drugs

160  Drugs and diseases
167  Concentration and fraud
170  Albendazol
172  Amitraz
174  Synthetic pyrethroids
176  Eye ointment
177  Insecticide powder
178  Antibiotic spray
179  Oblets / pessaries
180  Other products or drugs
### WHICH DRUG FOR WHICH DISEASE OR GROUP OF SIGNS?

<table>
<thead>
<tr>
<th>Type</th>
<th>Active ingredient and dosage</th>
<th>Trade names (brands)</th>
<th>Administration</th>
<th>Diseases or conditions that can be treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albendazol 10% Liquid</td>
<td>1 ml/10 kg</td>
<td>Liquid: Vermitan, Worminex, Albenol, Dolzaben, Valbazen</td>
<td>Oral (through the mouth)</td>
<td>Infestation by intestinal worms &amp; liver flukes (adult stages) according to the different seasons</td>
</tr>
<tr>
<td>Albendazol Bolus</td>
<td>2500 mg → 1 bolus / 250 kg, 300 mg → 1 bolus / 30 kg, 152 mg → 1 bolus / 15 kg</td>
<td>Bolus: Vermitan, Valbazen, Benzal, Worminex</td>
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Intestinal worms and liver flukes (adult stages)
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<tr>
<th>Type</th>
<th>Active ingredient and dosage</th>
<th>Trade names (brands)</th>
<th>Administration</th>
<th>Diseases or conditions that can be treated</th>
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</thead>
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<tr>
<td><strong>Worm drench</strong></td>
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<tr>
<td>Fenbendazol</td>
<td>750 mg → 1 bolus / 150 kg</td>
<td>Panacur</td>
<td>Oral</td>
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<tr>
<td>Oxfendazol</td>
<td></td>
<td>Synanthic</td>
<td>Oral</td>
<td></td>
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<tr>
<td>Levamisol</td>
<td>1 g → 1 bolus / 150 kg</td>
<td>Bolumisole (562, 564), Triver (563)</td>
<td>Oral</td>
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<tr>
<td>Tetramisol</td>
<td></td>
<td>Vadephen</td>
<td>Oral</td>
<td></td>
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<tr>
<td>Bithionol sulfoxide</td>
<td></td>
<td>Disto 5</td>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Active ingredient and dosage</td>
<td>Trade names (brands)</td>
<td>Administration</td>
<td>Diseases or conditions that can be treated</td>
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<tr>
<td>EYE OINTMENT</td>
<td>Oxytetracyclin 2.5 % 1 - 3 puffers per eye</td>
<td></td>
<td>External Ocular (in the eyes)</td>
<td>Eye infections (571)</td>
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<tr>
<td>EYE OINTMENT</td>
<td>Cloxacillin Penicillin 5 g 3 cm per eye</td>
<td></td>
<td></td>
<td>Following any abortion or difficult calving (572)</td>
</tr>
<tr>
<td>PESSARIES OBLETS</td>
<td>Chloro-tetracyclin 500 mg Intra-uterine oblets/pessaries</td>
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</tbody>
</table>

**External anti-biotics**

**Trade names (brands):**
- EYE OINTMENT: Pink Eye Powder (567)
- EYE OINTMENT: Opticlox (568)
- PESSARIES OBLETS: Gynobiotic (569)
- PESSARIES OBLETS: Metricyclin (570)
**S P R A Y S**

<table>
<thead>
<tr>
<th>Oxytetracyclin spray</th>
<th>Oxyspray (573), Alamycin, Limoxin, Vetmycine (574), Spray Plus (575), Pederipra Spray (576), Vetospray (577).</th>
<th>External (not in the eyes)</th>
<th>Wounds or cuts, external treatments (578)</th>
</tr>
</thead>
</table>

**Manual for CAHW in West and Central Africa**

Pan-African programme for the Control of Epizootics

163
Amprolium (583)
Furaltadone (580)
Multi-vitamines (584)
Anti-biotic (pre)mix (581)
Worm drenches:
Niclosamide-tetramisole (585)
Niclosamide-levamisole (586)
Piperazine (582)

Furaxol (580), Tetracolivit (581),
Piperazine (582), Amprolium (583),
Neotreat, Procc, Powervit, EST (584),
VPV (585), Stromiten (586).

Oral
(mix with drinking water)

Diarrhoea in poultry

Un-hygienic housing
<table>
<thead>
<tr>
<th>Type</th>
<th>Active ingredient and dosage</th>
<th>Trade names (brands)</th>
<th>Administration</th>
<th>Diseases or conditions that can be treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acaricides</td>
<td>Synthetic pyrethrinoids</td>
<td>Spot-On (589), Bayticol (590, 591, 593), Ectopor (592), Butox, Renegade.</td>
<td>External (not in the eyes)</td>
<td>Against ticks and biting flies</td>
</tr>
<tr>
<td></td>
<td>Flumethrin 1% (486,487,489)</td>
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<td>598 ↓ 599 600 ↓ 601</td>
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<tr>
<td></td>
<td>Cypermethrin 1% (488)</td>
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<tr>
<td></td>
<td>1 ml / 10 kg - pour on</td>
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<td>Deltamethrin 1% :</td>
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<tr>
<td></td>
<td>7,5 ml in 15 l. of dipping water</td>
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<tr>
<td>Insecticides</td>
<td>Amitraz (594, 595, 596)</td>
<td>Taktic</td>
<td>External (not in horses)</td>
<td>Against ticks and for the treatment of mange</td>
</tr>
<tr>
<td></td>
<td>20 ml per 1 liter water (used as a spray)</td>
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<tr>
<td></td>
<td>Organo-phosphates (powder)</td>
<td></td>
<td>External</td>
<td>Against fleas, lice, flies, for disinfecting stables</td>
</tr>
<tr>
<td></td>
<td>Do not inhale</td>
<td></td>
<td></td>
<td>597</td>
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</tbody>
</table>

Pan-African programme for the Control of Epizootics
Disinfectants

**Iodine solution**

**Povidone iodine**

**External (not in the eyes)**

Disinfections of surgical sites. Cleaning of wounds and removal of dead tissue (608).

**Quaternary ammonium**

External (not in the eyes)

Disinfection of wounds (609). Cleaning of syringes and other material.
CONCENTRATION OF DRUGS AND FRAUDS

WHAT DOES CONCENTRATION OF ACTIVE COMPONENT MEAN?

<table>
<thead>
<tr>
<th>Concentration</th>
<th>Drug Name</th>
<th>Dosage</th>
<th>Injections</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>OXYTETRACYCLIN 5%</td>
<td>OXYTETRACYCLIN 5%</td>
<td>1 ml / 10 kg</td>
<td>6 injections</td>
<td>12 hours</td>
</tr>
<tr>
<td>OXYTETRACYCLIN 10%</td>
<td>OXYTETRACYCLIN 10%</td>
<td>2 ml / 10 kg</td>
<td>3 injections</td>
<td>24 hours</td>
</tr>
<tr>
<td>OXYTETRACYCLIN 20%</td>
<td>OXYTETRACYCLIN 20%</td>
<td>4 ml / 10 kg</td>
<td>1 injection</td>
<td>72 hours</td>
</tr>
</tbody>
</table>

**A = 610**

5 g. of active component (610) in a vial of 100 ml (611).
Dosage: 1 ml / 10 kg
One injection lasts 12 hours.
6 injections in 3 days are necessary for a proper treatment.

**B = 2 x A**

10 g. of active component (612) in a vial of 100 ml (613).
Dosage: 1 ml / 10 kg
One injection lasts 24 hours.
3 injections in 3 days are necessary for a proper treatment.

**C = 2 x B**

20 g. of active component (614) in a vial of 100 ml (615).
Dosage: 1 ml / 10 kg
One injection lasts 72 hours.
1 injection only in 3 days is necessary for a proper treatment.

Pan-African programme for the Control of Epizootics
### HOW CAN PEOPLE BE DECEIVED?

<table>
<thead>
<tr>
<th>First way</th>
<th>Second way</th>
<th>Third way</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Choosing the wrong concentration (616)</strong> because it is cheaper or the only one available.</td>
<td><strong>Choosing an under dosed or faked brand (617)</strong> coming from a non-registered company</td>
<td><strong>Combination (618) of under concentrated product from a non-registered company</strong></td>
</tr>
</tbody>
</table>

- **First way**
  - Left: 5% concentration. 2 injections per day, 3 days for a proper treatment.
  - Right: 20% concentration. One injection for 3 days.

- **Second way**
  - Left: Poorly visible concentration, non-registered brand.
  - Right: 5% concentration. 2 injections per day, 3 days for a proper treatment.

- **Third way**
  - Left: Poorly visible concentration, non-registered brand.
  - Right: Concentration well indicated reliable brand and well-concentrated product.
CONCENTRATION OF DRUGS AND FRAUDS

I alert the veterinary authority

WHEN THE CAHW IDENTIFIES SUCH WRONG DRUGS IN THE FIELD, HE ALERTS THE VETERINARY AUTHORITY
# Albendazol

<table>
<thead>
<tr>
<th>Product</th>
<th>Diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Product Images" /></td>
<td>Gut worms (632)</td>
</tr>
<tr>
<td><img src="image2.jpg" alt="Product Images" /></td>
<td>Liver-fluke</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Way to use</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Species Images" /></td>
<td>Syringe (633)</td>
</tr>
<tr>
<td><img src="image4.jpg" alt="Species Images" /></td>
<td>Drench gun (634)</td>
</tr>
<tr>
<td><img src="image5.jpg" alt="Species Images" /></td>
<td>By hand (635)</td>
</tr>
<tr>
<td><img src="image6.jpg" alt="Species Images" /></td>
<td>Bolus gun (636)</td>
</tr>
</tbody>
</table>

*Leave the milk to calves only, don't drink the milk for 2 days*
## Albendazol

**Dosage:** 1 ml/10 kg, 1 bolus 2500 mg/250 kg, 1 bolus 300 mg/30 kg, 1 bolus 152 mg/15 kg

<table>
<thead>
<tr>
<th>Weight</th>
<th>Dosage</th>
<th>Volume</th>
<th>Syringe Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 kg</td>
<td></td>
<td>5 ml</td>
<td>50 ml</td>
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<tr>
<td>100 kg</td>
<td></td>
<td>10 ml</td>
<td>50 ml</td>
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<tr>
<td>150 kg</td>
<td></td>
<td>15 ml</td>
<td>50 ml</td>
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<tr>
<td>200 kg</td>
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<td>20 ml</td>
<td>50 ml</td>
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<tr>
<td>250 kg</td>
<td></td>
<td>25 ml</td>
<td>50 ml</td>
</tr>
</tbody>
</table>

---

Pan-African programme for the Control of Epizootics
## AMITRAZ

<table>
<thead>
<tr>
<th>Product</th>
<th>Diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taktic (638,639), Milbitraz (640)</td>
<td>Ticks (641,642) and lice: spray once</td>
</tr>
<tr>
<td>12.5%</td>
<td>Mange (643): spray twice within 9 days</td>
</tr>
<tr>
<td>1 litre (a), 250 ml (b), 100 ml (c)</td>
<td>Milk: no waiting time</td>
</tr>
<tr>
<td>Meat: wait 24 hours before slaughter</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- **Milk:** no waiting time
- **Meat:** wait 24 hours before slaughter
### AMITRAZ

<table>
<thead>
<tr>
<th>Product</th>
<th>Way to use</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Product Image" /></td>
<td><strong>Dilute 20 ml in 1 litre of water</strong></td>
</tr>
<tr>
<td><img src="image2" alt="Do not Image" /></td>
<td><strong>Spray in this order (646, 647): hind part, belly, legs, body, udder, fore part, head</strong></td>
</tr>
<tr>
<td><img src="image3" alt="Dangerous Image" /></td>
<td><strong>Wash clothes, tools and hands (648) thoroughly after treatment</strong></td>
</tr>
</tbody>
</table>

**Do not!**

Dangerous for human beings and fish. Do not empty in water ponds or in rivers (644), destroy the empty bottles, do not use near people while eating or drinking (645).
### Synthetic Pyrethroids

<table>
<thead>
<tr>
<th>Product</th>
<th>Diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottle 1 litre pour-on: Bayticol (649, 650, 651) Spot-on (651) Ectopor (651)</td>
<td>Ticks (652) and flies (tabanids, tsetse flies)</td>
</tr>
</tbody>
</table>

**Species**

**Way to use**

Pour on the back bone (653), from the head to the tail.

Dangerous for fish and bees: do not empty in water ponds or rivers, destroy the empty bottles.
## SYNTHETIC PYRETHROIDS

**Dosage:** 1 ml / 10 kg  
*(only treat animals as from one year of age)*

<table>
<thead>
<tr>
<th>Weight</th>
<th>Description</th>
<th>Dosage</th>
<th>Additional Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 kg</td>
<td>heifer</td>
<td>10 ml</td>
<td>30 ml</td>
</tr>
<tr>
<td>150 kg</td>
<td>cow with one calf</td>
<td>15 ml</td>
<td>30 ml</td>
</tr>
<tr>
<td>200 kg</td>
<td>cow with two calves</td>
<td>20 ml</td>
<td>30 ml</td>
</tr>
<tr>
<td>250 kg</td>
<td>cow with three calves</td>
<td>25 ml</td>
<td>30 ml</td>
</tr>
<tr>
<td>300 kg</td>
<td>bull</td>
<td>30 ml</td>
<td>30 ml</td>
</tr>
<tr>
<td>350 kg</td>
<td>ox</td>
<td>(15 ml + 20 ml)</td>
<td>35 ml</td>
</tr>
</tbody>
</table>

*No waiting time for milk and meat consumption*
## EYE OINTMENT

<table>
<thead>
<tr>
<th>Product</th>
<th>Diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syringe of 5 grammes ointment (540): Cloxacillin Penicillin</td>
<td>Eye infection (656)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Way to use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separate eyelids. Press 3 cm of ointment in both eyes, even the healthy one (657).</td>
<td></td>
</tr>
<tr>
<td>Insecticide Powder</td>
<td>Protection against</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td><strong>Product</strong></td>
<td><strong>Species</strong></td>
</tr>
<tr>
<td>400 g of organophosphate powder (658) for poultry</td>
<td>Lice, fleas, flies, disinfections of cowsheds, stables, sheep pens and hen houses (659)</td>
</tr>
</tbody>
</table>

**Way to use**

- Apply powder as shown (660 - 662)
<table>
<thead>
<tr>
<th><strong>Product</strong></th>
<th><strong>Diseases</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="#">Image</a> 663</td>
<td>Wounds (666) or bruises after cleaning them with iodine or healing oil (605-607)</td>
</tr>
<tr>
<td><a href="#">Image</a> 664</td>
<td><a href="#">Image</a> 666</td>
</tr>
<tr>
<td><a href="#">Image</a> 665</td>
<td></td>
</tr>
</tbody>
</table>

**Species**

- [Image](#)

**Way to use**

- Spray the wound largely for, at least, 5 seconds (667). Don’t get closer than 10 cm from the wound.
## PESSARIES / INTRA-UTERINE OBLETS

<table>
<thead>
<tr>
<th>Product</th>
<th>Diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="668" alt="Pessary of 1 g. of chlortetracyclin" /></td>
<td><img src="670" alt="Difficult birth or calving" /></td>
</tr>
<tr>
<td><img src="669" alt="Pessary of 1 g. of chlortetracyclin" /></td>
<td><img src="671" alt="Abortion" /></td>
</tr>
</tbody>
</table>

**Species**

- Donkey
- Cow

**Way to use**

Use a glove (672) to carefully introduce the pessary inside the uterus.

---

Pan-African programme for the Control of Epizootics

179
# OTHER PRODUCTS / DRUGS

<table>
<thead>
<tr>
<th>Personal notes</th>
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Fourth Part
Basic skills

182 Common disinfection
183 Weight assessment
184 Administering drugs
188 Precautions
189 Cleaning of wounds
CLEANING THE INJECTION SITE (COMMON DISINFECTION)

Wash hands in water with soap (673)

Clean injection site with iodine (for example: povidone) or quaternary ammonium (for example: healing oil) (674)

Inject on the cleaned site (675)

Clean again injection site with iodine (676)

Wash equipment (677), disinfect (678) and wash hands again (678)

Pan-African programme for the Control of Epizootics
**WEIGHT ASSESSMENT**

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**Girth tape (679).**

*Use girth tape (679) for cattle (680,681)*

*Use goat-scale (682) for sheep and goat.*
ADMINISTRATION OF DRUGS

Oral route. Example: Albendazol drench

Oral route. Example: Albendazol bolus

Pan-African programme for the Control of Epizootics
ADMINISTRATION OF DRUGS

Sub-cutaneous injection for vaccination (under the skin)
<table>
<thead>
<tr>
<th>Antibiotic spray</th>
<th>Pour-on</th>
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<tr>
<td><img src="image1" alt="Antibiotic spray image" /></td>
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<tr>
<th>Insecticide powder</th>
<th>Eye ointment</th>
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<td><img src="image3" alt="Insecticide powder image" /></td>
<td><img src="image4" alt="Eye ointment image" /></td>
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</table>

**ADMINISTRATION OF DRUGS**

Pan-African programme for the Control of Epizootics
Always use gloves (698).
The CAHW sees that children are playing with his drugs and equipment (699)  

The CAHW therefore teaches the children not to play with the drugs, because they might be dangerous (700)  

He stows his drugs and equipment safely away, out of reach for the children (701)
DEEP WOUNDS (702) HAVE TO BE CLEARED AND TREATED.

REMOVE ALL DIRTY AND DEAD TISSUES WITH SOAPY WATER (703).

DRAIN WITH A SYRINGE FILLED WITH HYDROGEN PEROXIDE (704) OR IODINE.

LETTING HYDROGEN PEROXIDE, OR IODINE, FLOW OUT OF THE WOUND (705).

SPRAY ANTIBIOTIC (706)
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