

Manual for community-based animal health workers



Dr. Mai LAN - LEBRUN (author)

N. Denormandie & P. Bastiaensen (editors)



ISBN : 99952-801-0-8

DISCLAIMER : This publication has been produced with the assistance of the European Union, the Food and Agriculture Organization of the United Nations (FAO) and the French Cooperation (MAE). The contents of this publication is the sole responsibility of the PACE Regional Coordination Unit and can in no way be taken to reflect the views of the African Union, the European Union, FAO or the French Cooperation.

**IBAR © 2006. Reproduction and translation prohibited, except when mentioning the bibliographic reference.
First edition - May 2006**

**Pan-African programme for the Control of Epizootics (PACE)
Regional Coordination AU/IBAR
P.o.box 30786 Nairobi, Kenya**

coordination@au-ibar.org

**Regional Coordination for West and Central Africa
P.o.box 2954 Bamako, Mali**

coord@pacereg.org

www.au-ibar.org

In collaboration with :



European Union



FAO



French Co-operation



Vétérinaires Sans Frontières



Pharmaciens sans Frontières

PREFACE

3

First part:

POSITION OF THE CAHW

7

Rome and duties of the CAHW	08
The CAHW's position in the community	17
The CAHW's position within the veterinary services	17
Relations between the CAHW and private vets/NGO	18
Presentation of the CAHW when arriving	23

Second part:

INTRODUCTION TO DISEASES

27

Pathogenic agents	28
Clinical examination	34
Healthy or sick animal	42
Temperature	44
How is a disease transmitted?	46



COMMON DISEASES	47		
1. Diseases subject to compulsory declaration	47		
Anthrax	48	Spread of diseases	138
Black quarter	52	What is curing ? What is preventing ?	142
Foot and Mouth Disease	55	Avoiding the introduction of diseases	148
Hemorrhagic septicaemia	59	How to react in the face of an outbreak ?	151
Rinderpest	64	Vaccines and diseases	158
Contagious Bovine Pleuro-Pneumonia	69		
Newcastle Disease	73	DRUGS	159
Avian influenza (bird flu)	76	Drugs and diseases	160
African Swine Fever	95	Concentration and fraud	167
Peste des Petits Ruminants	97	Albendazol	170
		Amitraz	172
2. Diseases not subject to compulsory declaration	99	Synthetic pyrethroids	174
Trypanosomosis	100	Eye ointment	176
Gut worms	103	Insecticide powder	177
Liver fluke	106	Antibiotic spray	178
Mange	109	Oblets	179
Dermatophilosis	113	Other products and drugs	180
Photo-sensitisation	116		
3. Zoonoses	119		
Brucellosis	120		
Tuberculosis	126		
Rift Valley Fever	127		
Rabies	128		
Hydatidosis	129		
DIFFERENTIAL APPROACH	131		
Limping	132		
Skin diseases	133		
Sudden death	134		
Rinderpest and PPR	135		
Loss of condition	136		

Third part

BASICS OF PREVENTION AND TREATMENT	137
---	------------

Fourth part :

BASIC SKILLS	181
Common disinfection	182
Weight assessment	183
Administering drugs	184
Precautions	188
Cleaning of wounds	189



HANDBOOK FOR COMMUNITY ANIMAL HEALTH WORKERS IN WESTERN AND CENTRAL AFRICA

Lan MAI-LEBRUN for PACE/AU-IBAR

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.



Many thanks to Bouna A. DIOP, Barbara DUFOUR, Jérôme THONNAT and Astrid TRIPODI, who contributed a great deal to the pertinence of this manual. **Art work** by Simon NDONYE, Samuel BULEN ALIER, Bill FORSE, ACIAR, LAPROVET, Ministry of Agriculture and Animal Ressources of Côte d'Ivoire. **Photos** by Nicolas DENORMANDIE, Lan MAI, Nicolas GRANIER, LAPROVET, FAO, CEVA, CTVM, KEPDA, INTERVET, USDA-APHIS, Martin BARAZA, Bernard MBWIKA, Cécile SQUARZONI, Patrick BASTIAENSEN, Antoine MAILLARD, Dave HENZLER, Olivier DEBAERE, Bertrand CHARDONNET, Tony JOANNIS.



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.

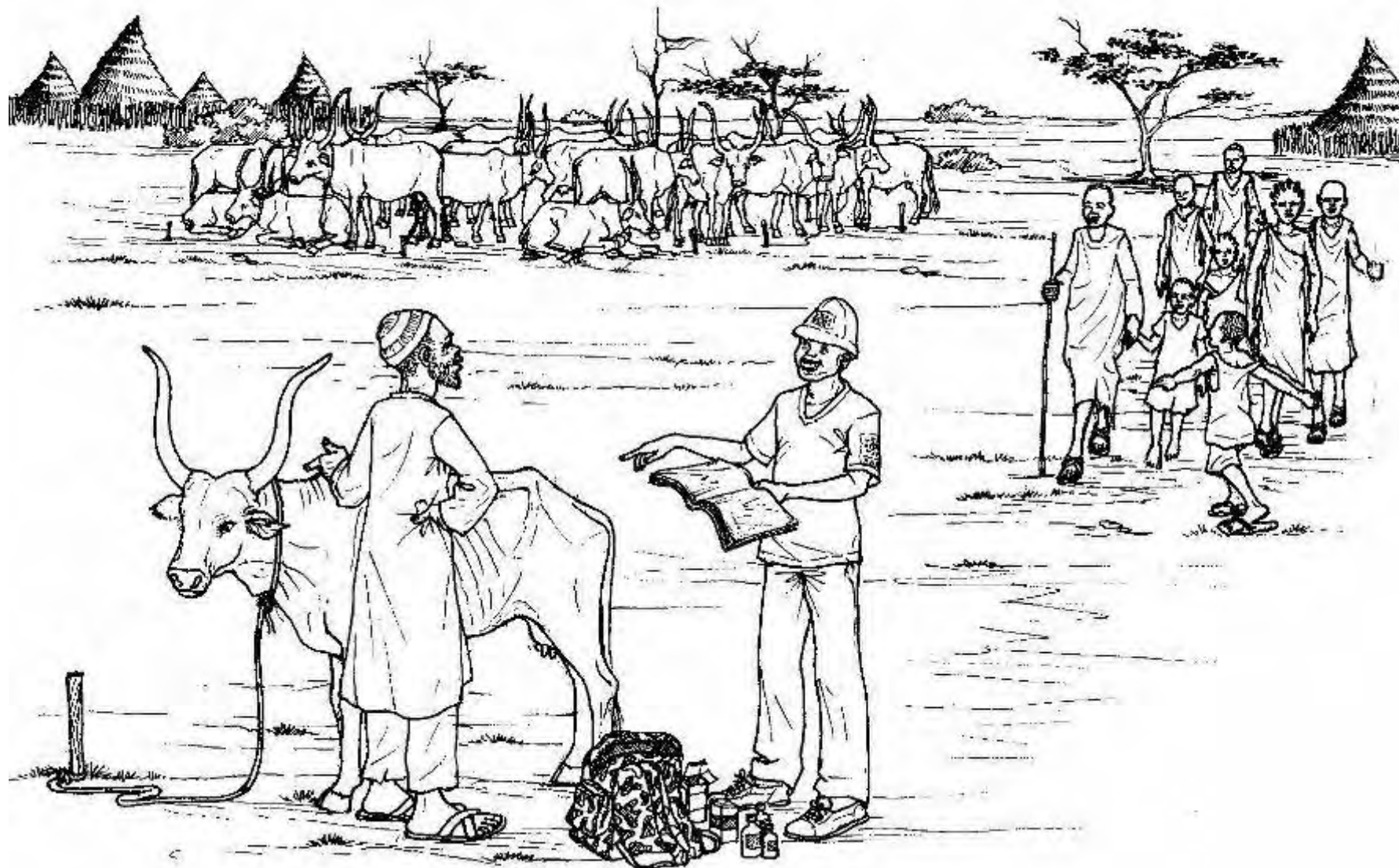
The handbook is written for the CAHWs to be used as support of continuous training and tool of practical and simple reference. It is conceived to be as accessible as possible to the CAHWs and is presented in the form of a memorandum on animal diseases most usually met, on basic techniques, on drugs likely 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.







1

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.



1



2



3



4



5



6



7



8

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).



9



10



11



12



I am the first agent of the epidemio-surveillance network:
I listen at farmers words about diseases around (13,14,15,16).



13



14



15



16

ROLE AND DUTIES OF THE COMMUNITY-BASED ANIMAL HEALTH WORKER (CAHW)

I carry on clinical examination as much as possible (17,18)



17



18

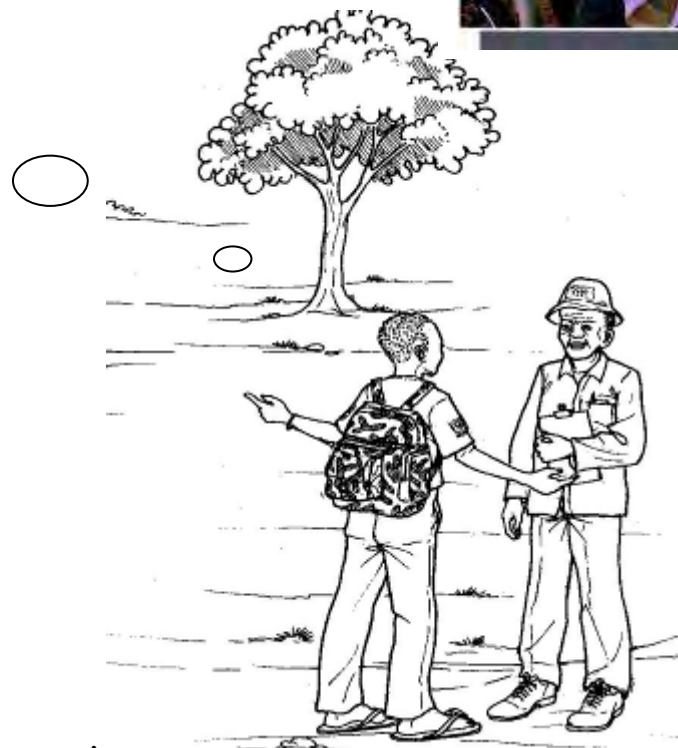


ROLE AND DUTIES OF THE COMMUNITY-BASED ANIMAL HEALTH WORKER (CAHW)

I will warn the population and vet authority (19) about any disease and outbreaks that I suspect: I alert (20).



20



19



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).



21



22

I will manage my stock of drugs and my business (23,24).



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).



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.



27



28

THE CAHW'S POSITION IN THE VILLAGE COMMUNITY

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



29



30



31

I am entitled to recommend (31) basic treatments for livestock and to carry them out correctly.



THE CAHW'S POSITION IN THE VILLAGE COMMUNITY

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) .

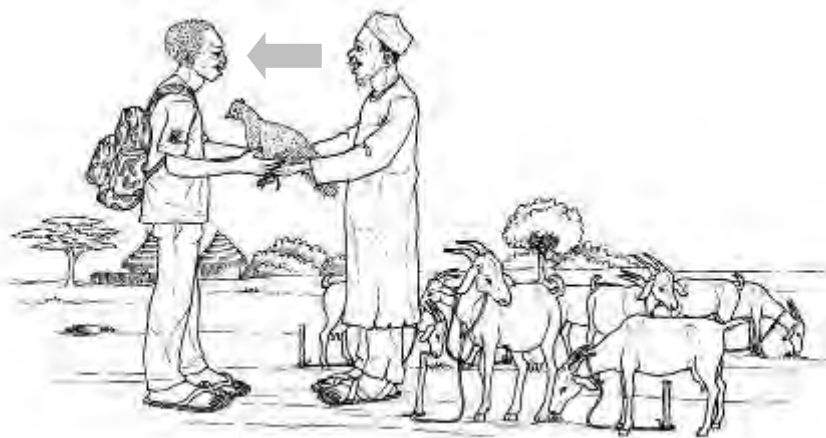


32

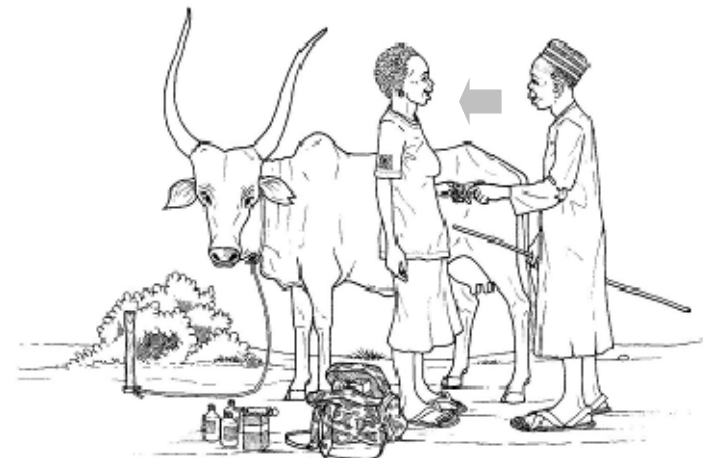


33

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).



34



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.



36



37

I am required to come, at least once a month, to the Veterinary Services to submit my report of outbreaks and activity (38, 39).



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.



40



41

The veterinary authority which supervises my work is :

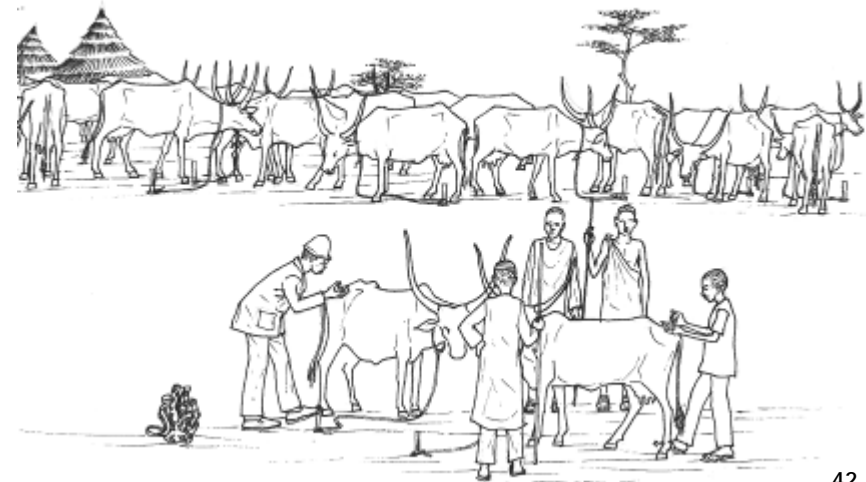
Name :

Location :

The veterinary services in my area:

Office :

Location :



42

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).



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).



45



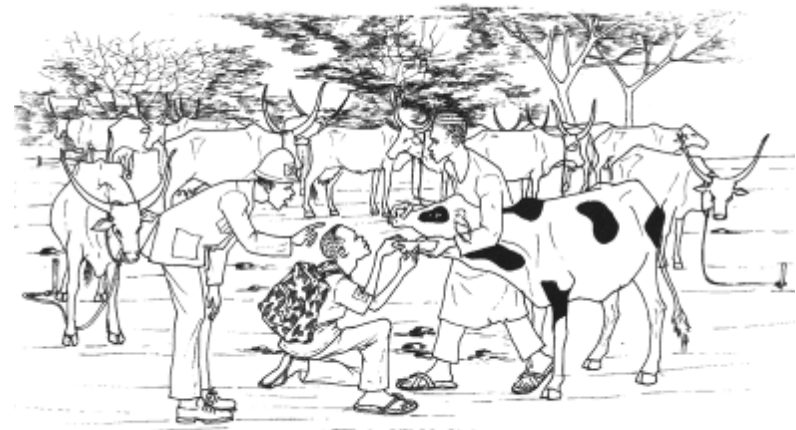
46



RELATIONS BETWEEN CAHW AND PRIVATE VETS OR NGO'S VET



47



48



49



50

RELATIONS BETWEEN CAHW AND PRIVATE VETS OR NGO'S VET



51



52



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).



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.



59



60

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.

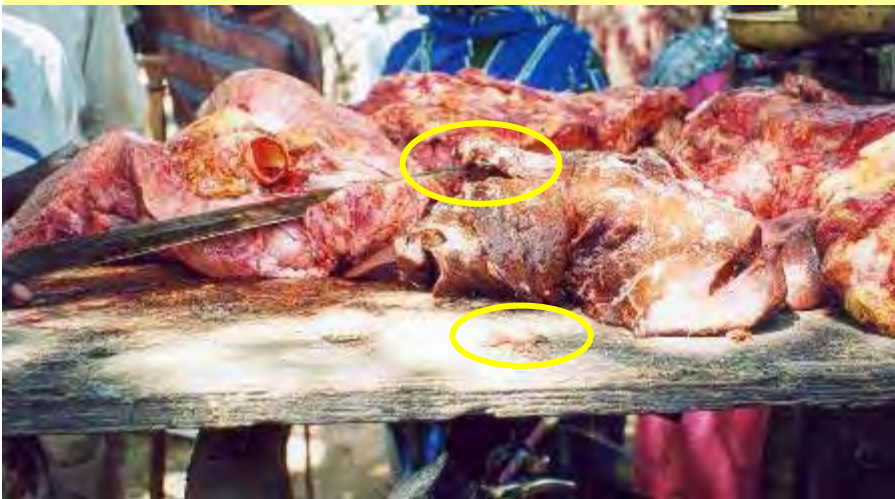


61



62

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) .



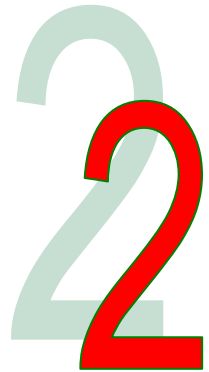
63



64







Second Part

Introduction to Diseases

- 28 Pathogenic agents
- 34 Examen clinique
- 42 Healthy and sick animals
- 44 Body temperature
- 46 How is a disease transmitted?



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



65



66



67



68



69



70



71

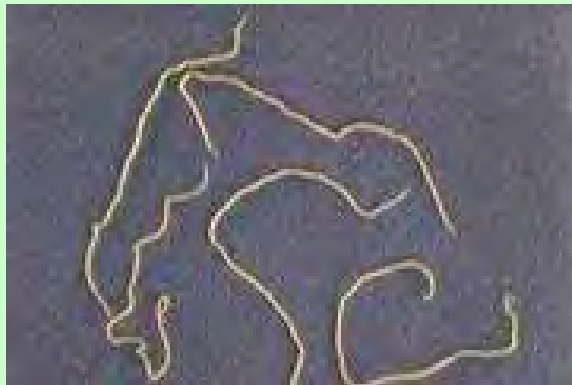


72

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



73



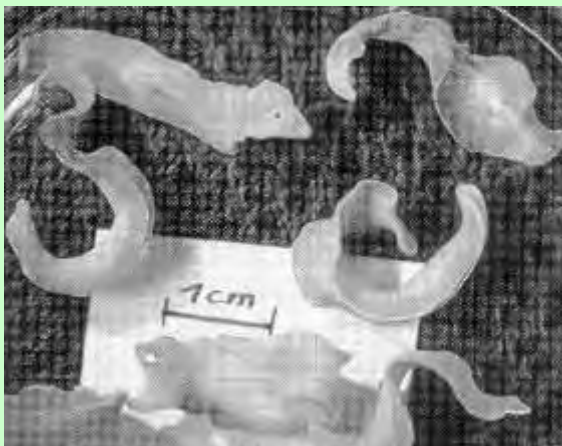
74



75

WHAT ARE PATHOGENIC AGENTS?

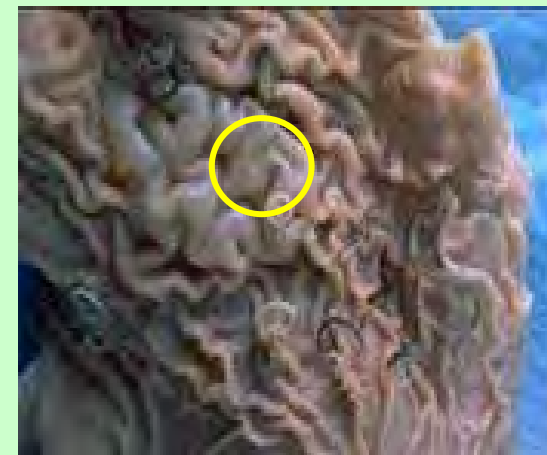
When cutting stomach & liver



76



77



78

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

Parasites invisible by eye



79



80



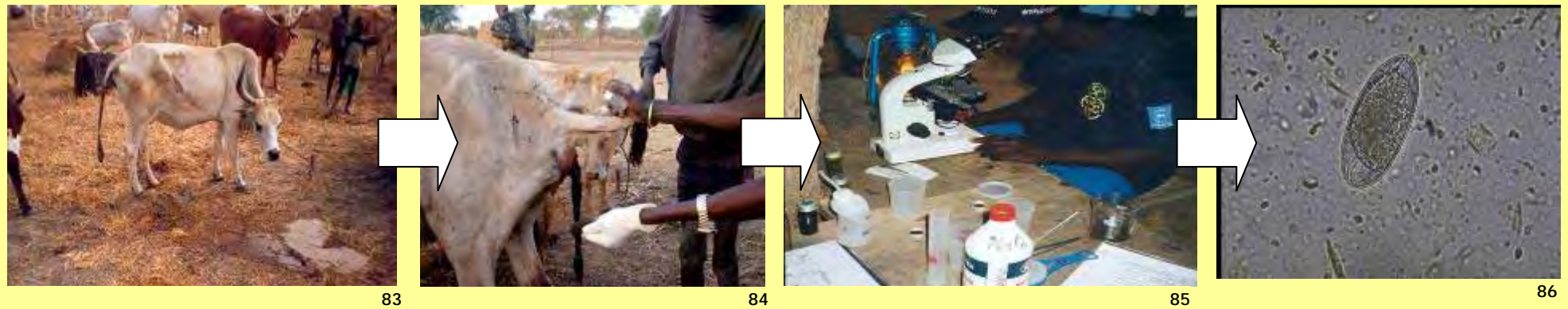
81



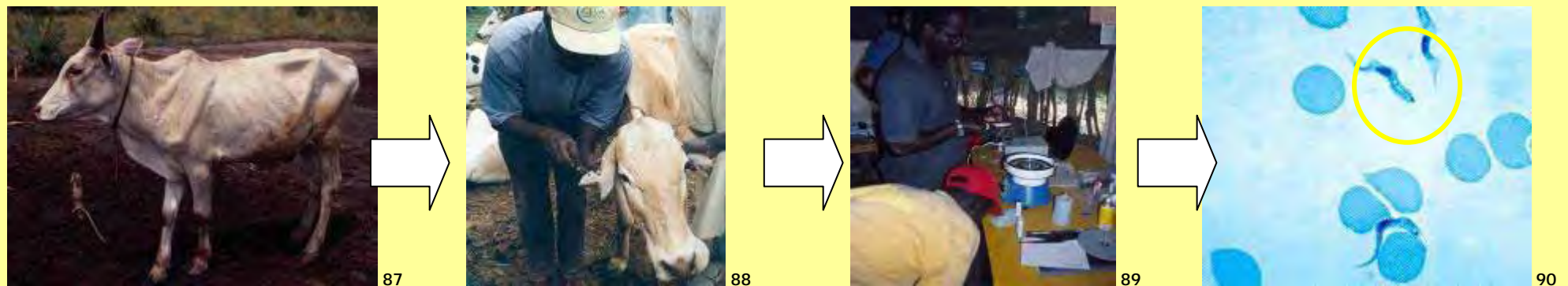
82

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 trypanosomiasis (87) can be sampled (88) and smears (89) examined to show parasites (90)

WHAT ARE PATHOGENIC AGENTS?

Microbes



91



92



93



94



95



96



97

WHAT ARE PATHOGENIC AGENTS?



.99



100



101



102



103



104



98

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



105



106

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



107



108

How? 3 steps!

1st step: history of the herd:

Ask the owners or herdsman (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



CLINICAL EXAMINATION

3rd step: examination for clinical signs:

EXAMINATION FROM A DISTANCE



109

- 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.

CLINICAL EXAMINATION

3rd step: examination for clinical signs:

CLOSE EXAMINATION



110



111

Mucous membranes:

- Colour (110)
- Moisture
- Type of discharge (111)



112



113

Hydratation status
(skin fold) :

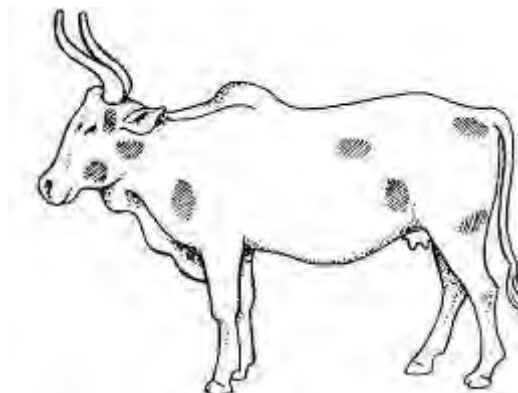
- Pull (112)
- Release (113)

The skin fold should disappear immediately; if it remains visible for a short while, it means that the animal is de-hydrated.





114



115

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.



116



117

Digestive system:

- Mouth (116)
- Rumen movement (117) and sounds
- Faeces



118



119

Respiratory system:

- Nostril movement
- Chest movement and sounds (118)
- Coughing (119)

CLINICAL EXAMINATION



120



121

Legs:

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



122

Nervous system :

- Coordination of movements
- Sight (122)
- Aggressive or dull behaviour



123



124

Skin :

- Loss of hair
- Colour of the skin
- Check for lesions (123)
- Irritations (124) or swellings

CLINICAL EXAMINATION



125



126

Udder examination:

- Size and proportion of the 4 udder-parts (125)
- Existence of any hardness.
- Teats (126)



127



128

Vulva :

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



129



130

Temperature:

- Thermometer (129)
- Control horn basis (130)
-

CLINICAL EXAMINATION

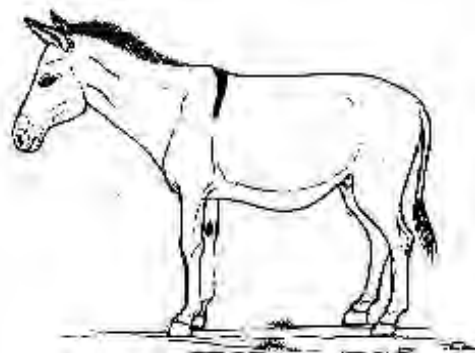
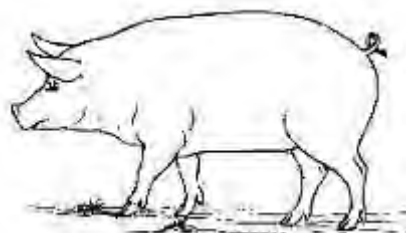
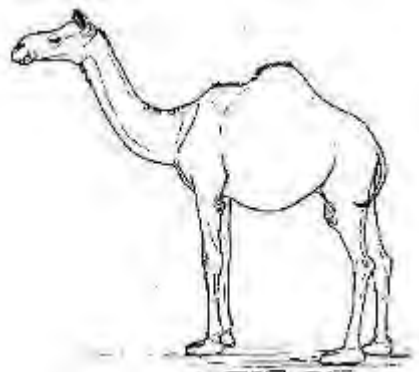
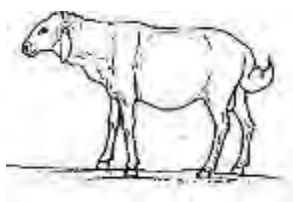
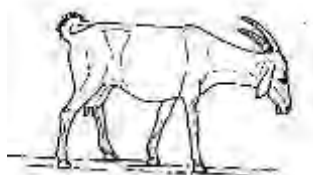
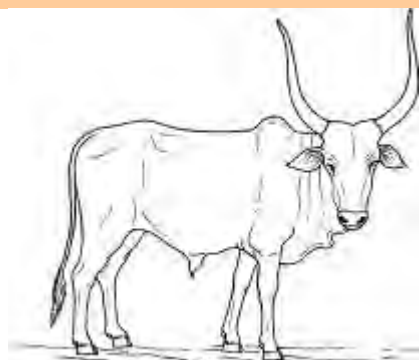
Summary of assessment of clinical signs

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



HEALTHY / SICK ANIMAL

Healthy animal

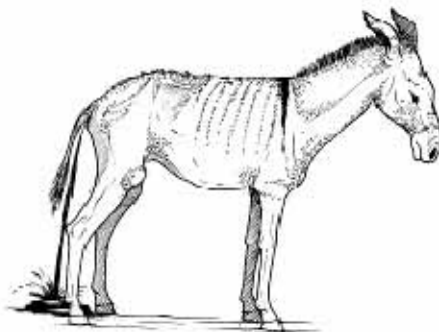
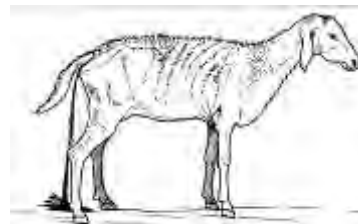
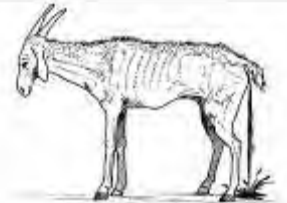
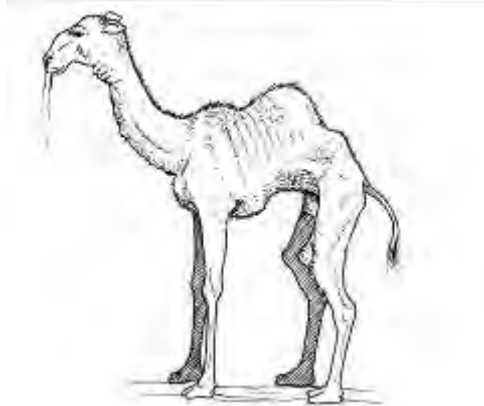
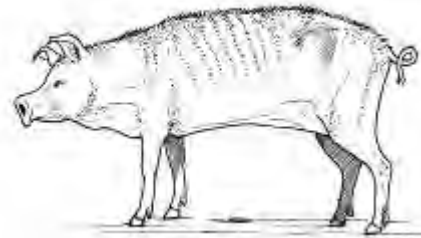
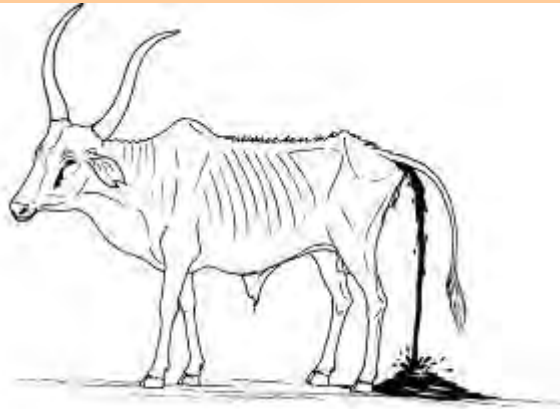


- Bright, calm, pay attention to environment.
- Robust constitution.
- Soft and smooth skin.
- Shiny hair.
- Appetite, regular rumination.
- Half-liquid, half-solid faeces.
- Clean natural orifices.
- Regular gait, without lameness.
- Pink and moist mucous membranes.
- Shiny and moist nostrils.
- Regular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

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

131

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 back bone, collapse on legs.

132

BODY TEMPERATURE ASSESSMENT



133



134

- 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.

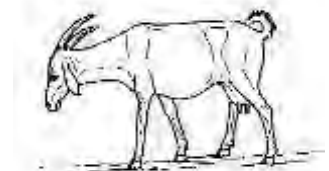
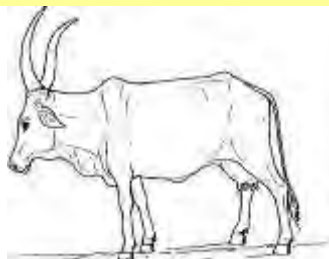
SPECIES

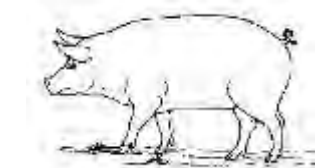
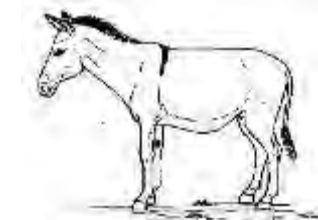
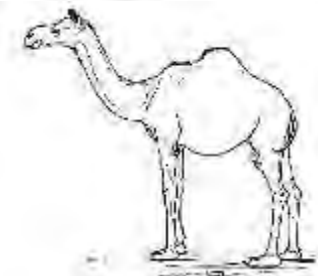
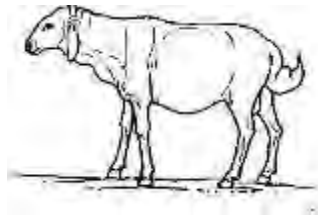
NORMAL BODY TEMPERATURES (°C)

Normal: healthy

Worrying: sick

In young animals, temperature is usually 1 degree (1°C) higher than in adults

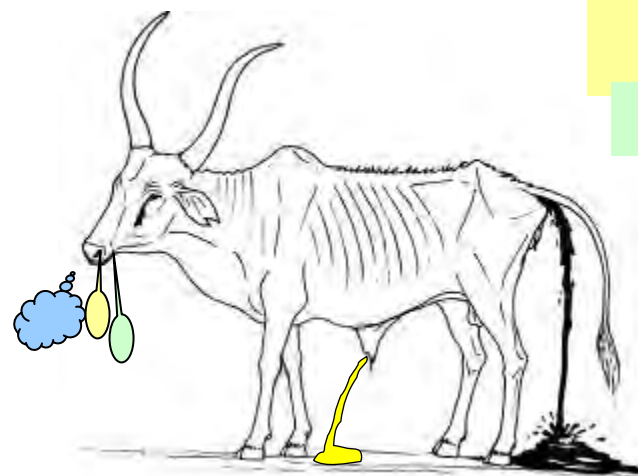




How is a disease transmitted ?

Animal to animal

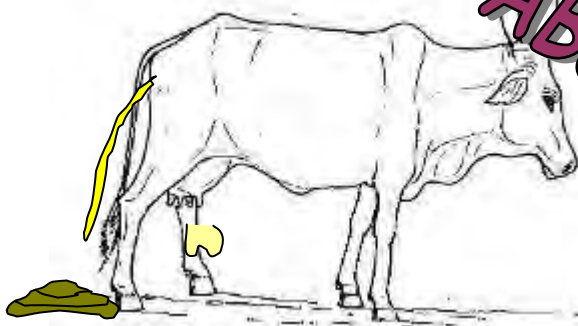
By inate or biological vectors



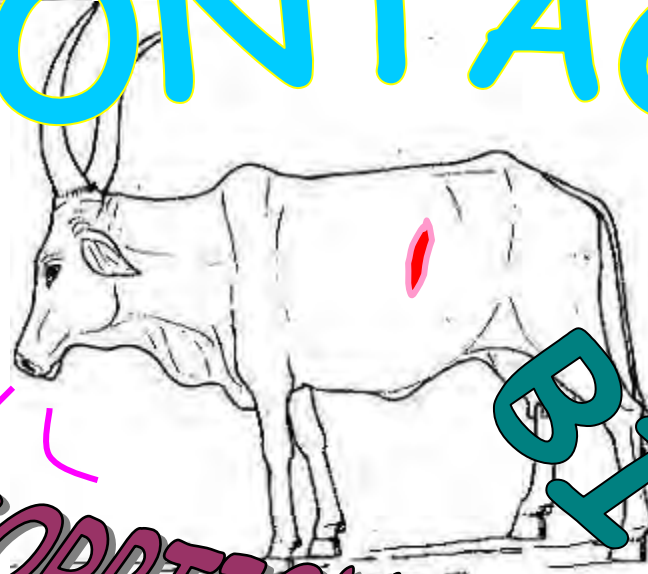
SICK ANIMAL

Secretions, liquid, breath:

ANIMAL APPEARS HEALTHY



CONTACT



HEALTHY ANIMAL WITH OPEN WOUND

ABSORPTION

BITES



Second Part

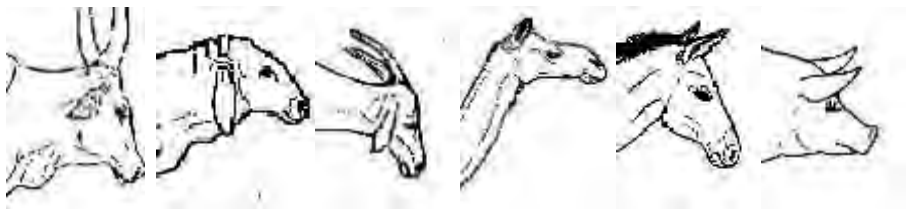
Common Diseases

1. Diseases Subject to Compulsory Declaration

- 48 Anthrax**
- 52 Black Quarter**
- 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)**

ANTHRAX





135

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)



139



140



137

mination
staffs who
38)



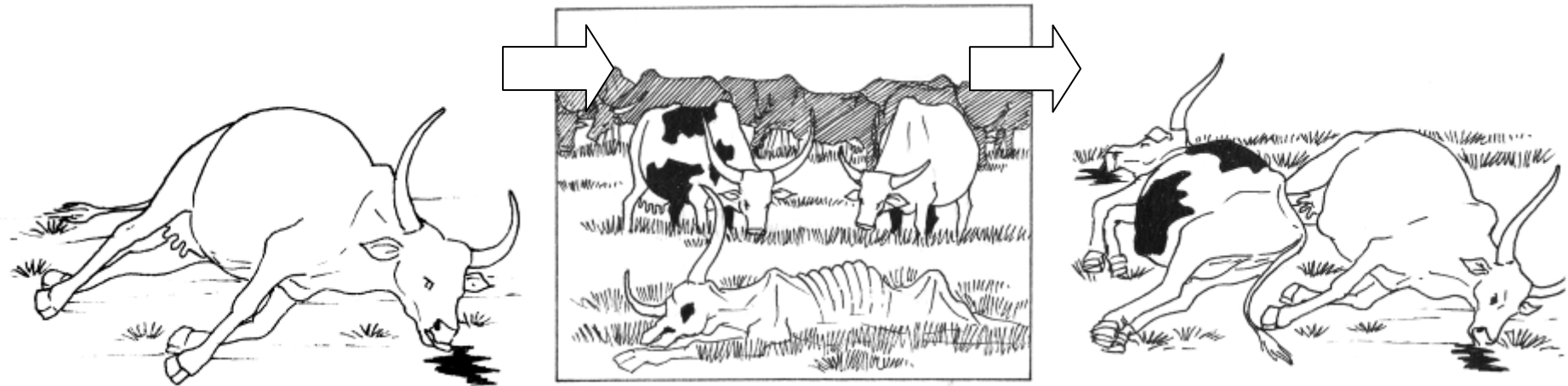
138



ANTHRAX



Animal-to-animal transmission



Cow died from anthrax and was not destroyed or buried

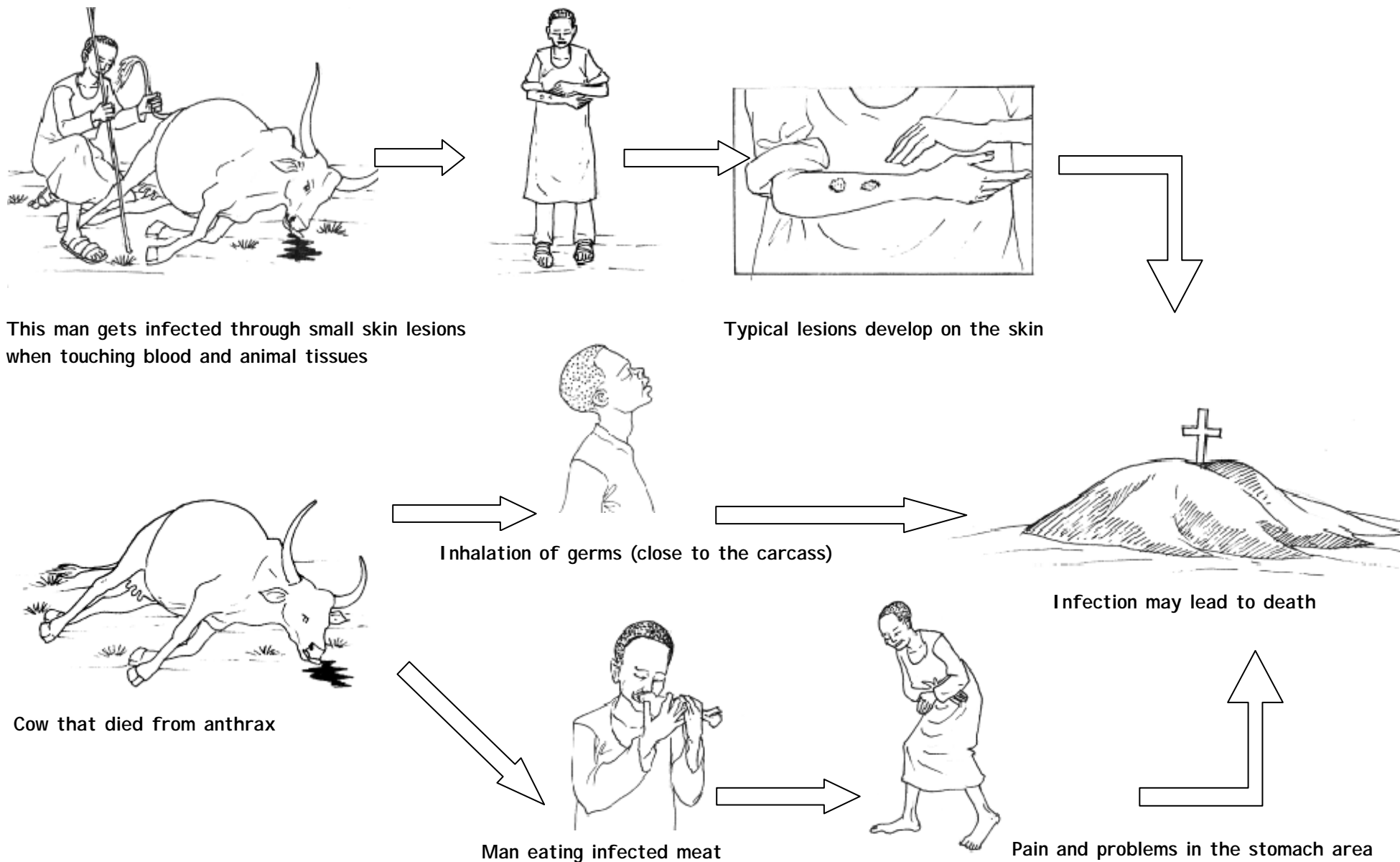
Cattle grazing in same contaminated area with cow's carcass

Sudden death of cattle

141



Transmission from animal to man (zoonosis)



Measures to be taken



143



144



145



146

- Alert the vet authority (143)
- Destroy carcasses 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



147



148 ↑



149

- 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



150



151

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)



152

Does not pass on to human

Post-mortem signs



153



154

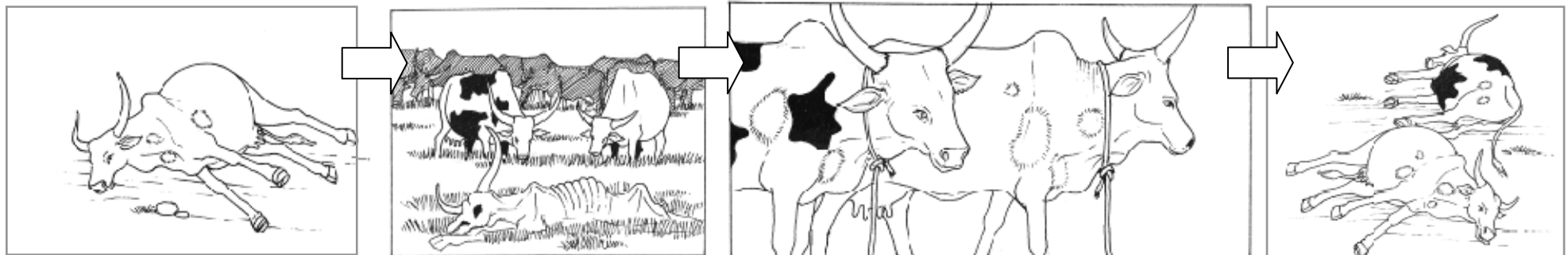
Swollen muscle (153). Dark blood clots.
Rancid smell when opened.

Dark muscle with bubbles of gas,
Skin is dry and shrunken (154)

BLACK QUARTER



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

155



Measures to be taken



156



157



158



159

Alert the vet authority (156)

Destroy carcasses by burning (157,158) or burying them with lime (159) to avoid contamination of another animal.

Preventing



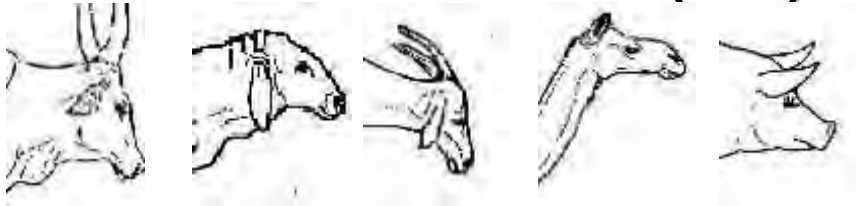
161



162

- 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 carcass
- Keep the dogs away from scattering contaminated wastes (162)

FOOT AND MOUTH DISEASE (FMD)



163



164



165



166



167



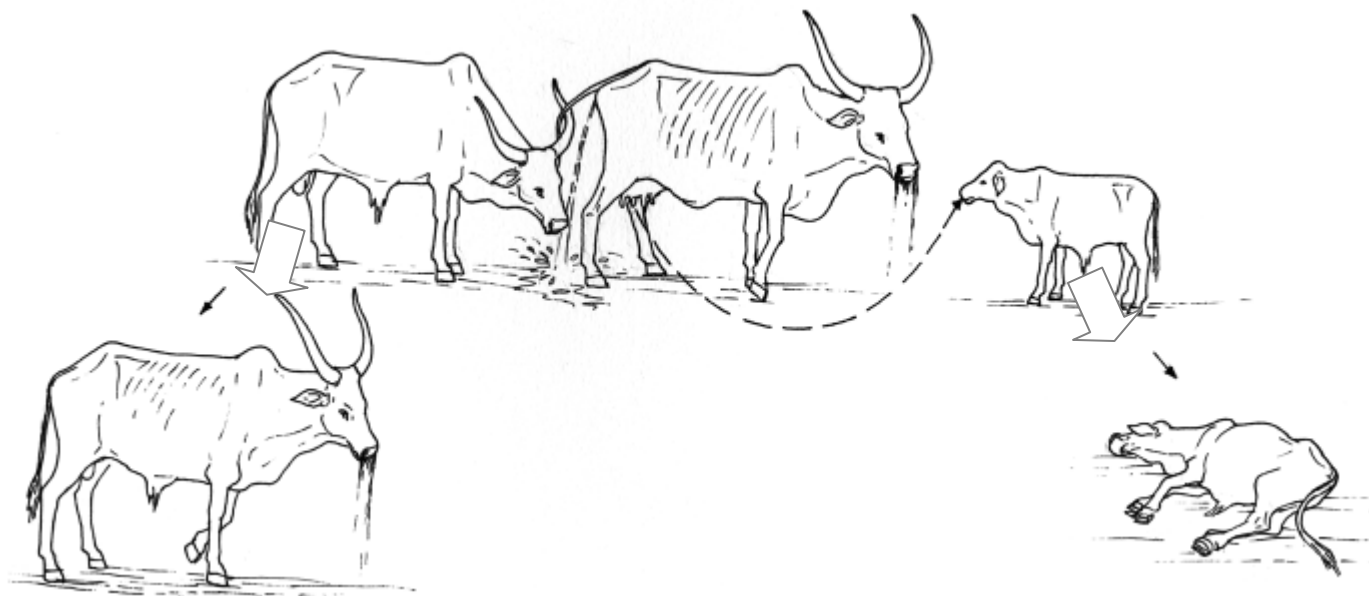
168

Clinical signs

- 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 (FMD)

Transmission



169

Adults get infected by inhaling or ingesting the virus, contained in air and dust, nasal discharge, faeces or urine of infected animals (169).

170

Calves are infected through milk. They may die due to damage of the heart before any lesion is seen (170).

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



172



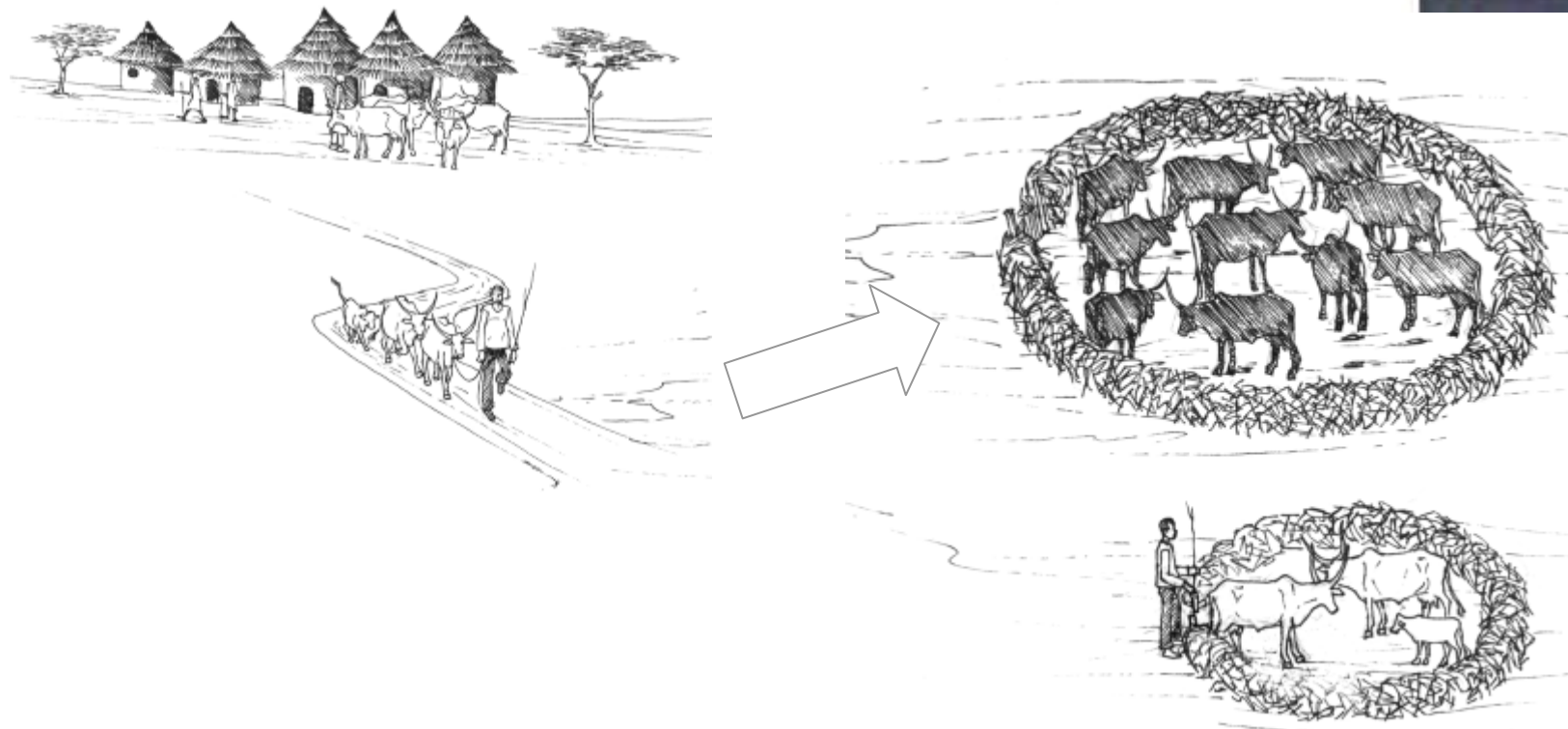
173

- 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)



174

- Quarantine new arrivals (174)

HAEMORRHAGIC SEPTICAEMIA (HS)



176

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



177



HAEMORRHAGIC SEPTICAEMIA (HS)

Post-mortem signs



178

Reddish, congested stomach wall (178)



179

Reddish, congested lungs (179)



180

Dark lung with thickened divisions (180)



181

Thickened throat, yellow fluid in throat (181)



182

Chest haemorrhages (182)



183

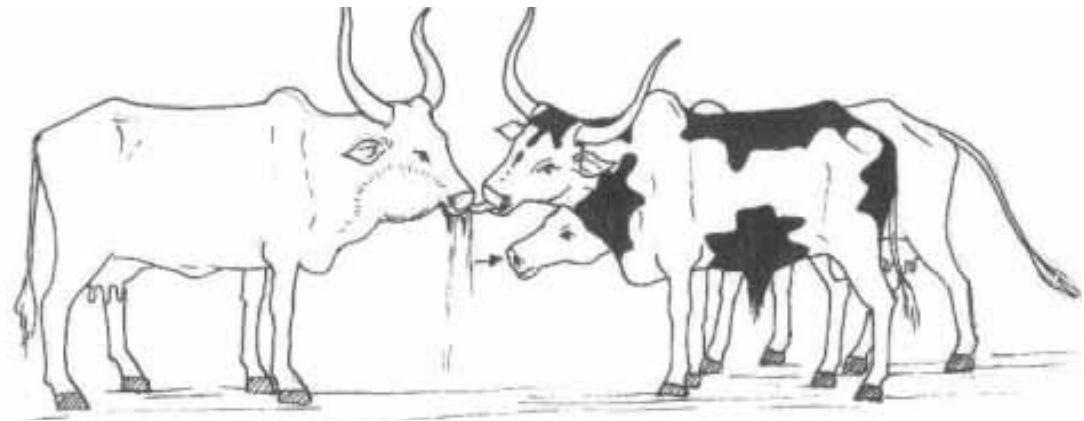
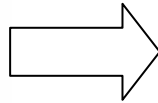
Carcase haemorrhages (183)

HAEMORRHAGIC SEPTICAEMIA (HS)

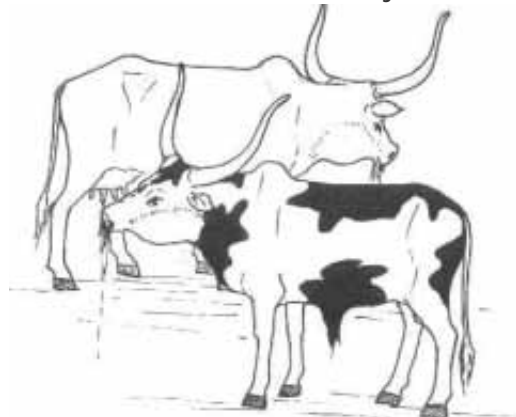
Transmission



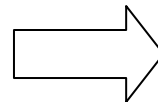
A cow infected by HS



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

184

HAEMORRHAGIC SEPTICAEMIA (HS)

Treatment



185

Preventing



186



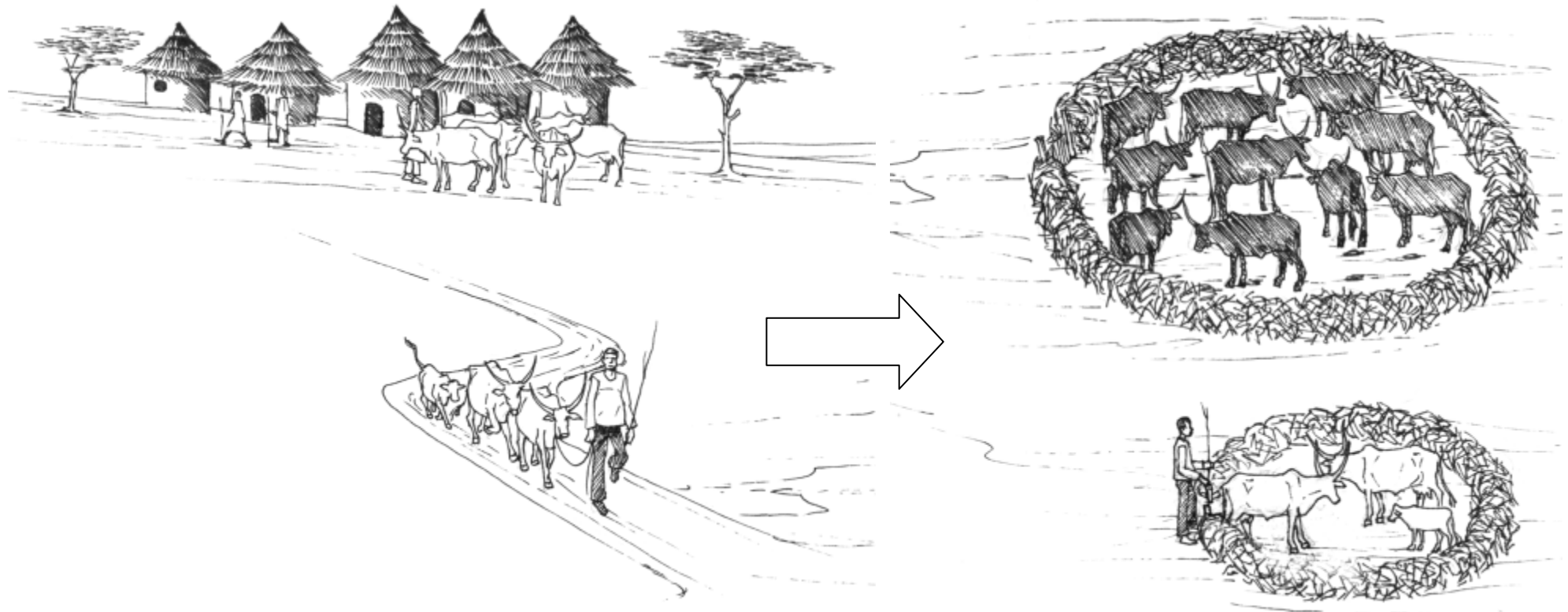
187

I alert the vet authority (185).

Antibiotics are effective only if administered early before shipping or long moving (transhumance)

Vaccinate all cattle once a year, especially those between 1-3 years (186, 187)

HAEMORRHAGIC SEPTICAEMIA (HS)



188

Keep newly arrived animals separate for 2 weeks (188).



RINDERPEST (RP)



189



191



192



190



193

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



194

Red striping in colon (194)



195

Sores in the mouth: gums (195)



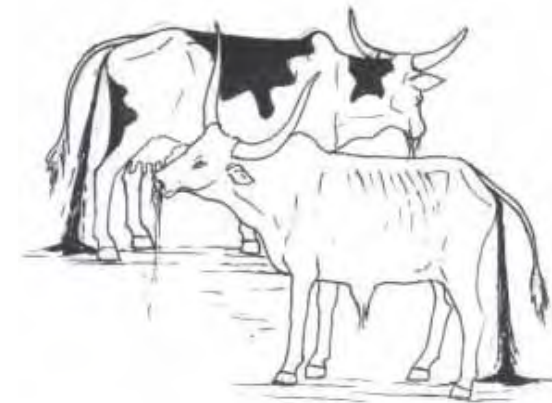
196

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

Transmission in cattle



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



197

Cows with signs of nasal discharge and diarrhoea

197



RINDERPEST (RP)

Transmission: other animals associated with RP



198

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

No cure, only surveillance



199



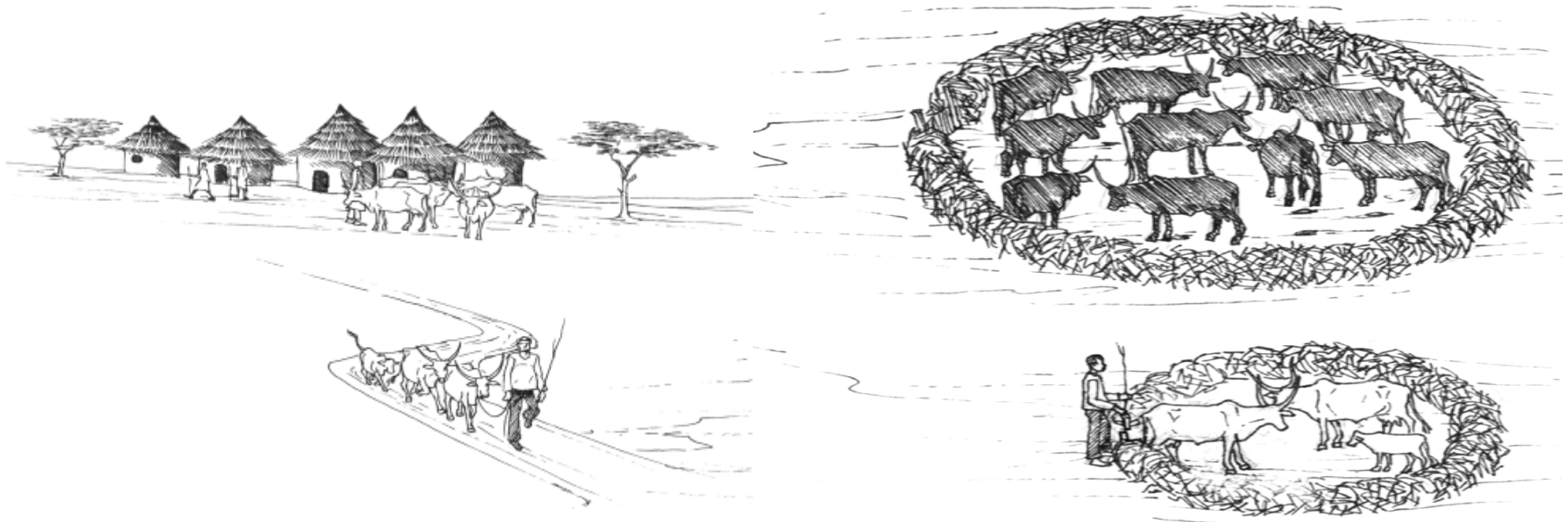
200



201



202



203



Pan-African programme for the Control of Epizootics

RINDERPEST (RP)

Samples from a live animal



204

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



205

Tears (eye) swab (205)



206

Nasal swab (206)



207

Lymph node fluid (aspirate) 207



208

Mouth swab (208)



209

Blood on filter paper (209)

CONTAGIOUS BOVINE PLEURO-PNEUMONIA (CBPP)



210

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



211

Chest adhesions (211)



212

Omelet-like membrane around the lungs (212)



213

Adhesions of heart to lungs (213)



214

Chest adhesions (214)

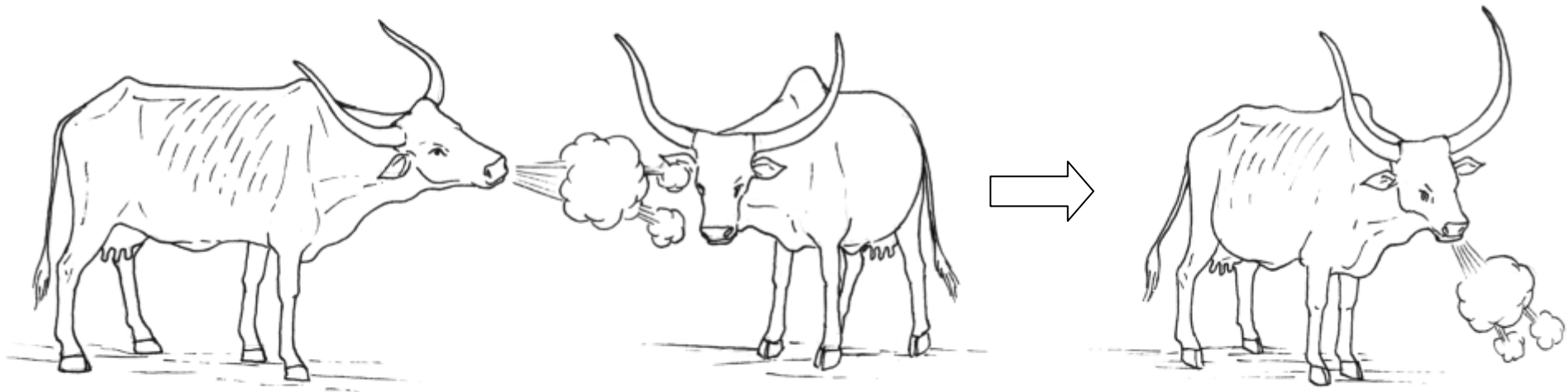


215

Mosaic shaped thickened divisions in lung (215)

CONTAGIOUS BOVINE PLEURO-PNEUMONIA (CBPP)

Transmission



216

217

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).



Traitement



218

Alert vet authority who will treat as per the current policy (218).

Preventing



219



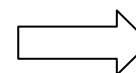
220

Vaccinate all cattle every year (219,220).



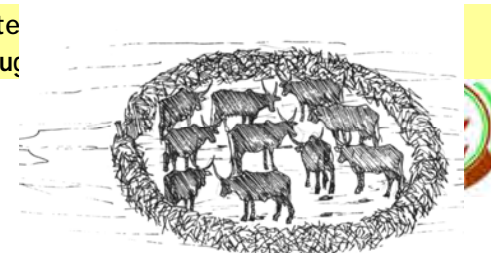
221

Isolate any coughing cattle (221)



Keep newly-arrived animals separate
Slaughter any persistently coughing

222



NEWCASTLE DISEASE



223



224

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



225

Haemorrhages on ovary (225)



226

Haemorrhages on stomach (226)



227

Haemorrhages on caeca (227)





228



229



230



231



232

NEWCASTLE 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.

Preventing



233



234



235

Isolation of new arrivals
Vaccine twice a year all animals (233,235)

Farming in flocks: sanitary void between 2 flocks
(1 month).



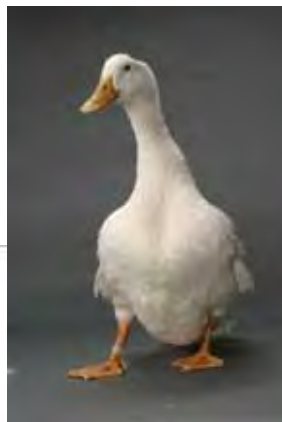
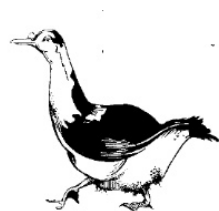
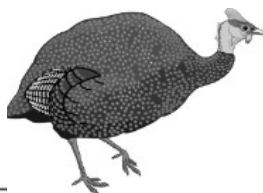
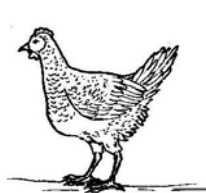
AVIAN INFLUENZA



242 ↑



243 ↑



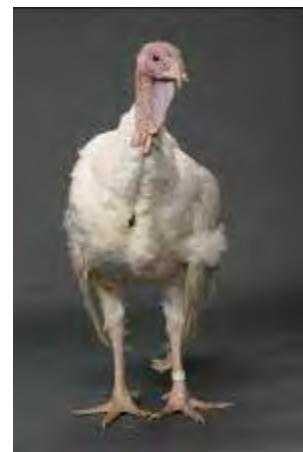
236



237



238



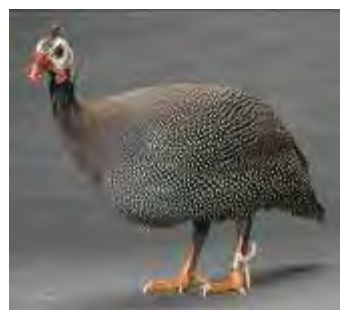
239



244



245



240



241

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



246



247



248

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).



251

250





252



253



254



255



256



257



258

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.

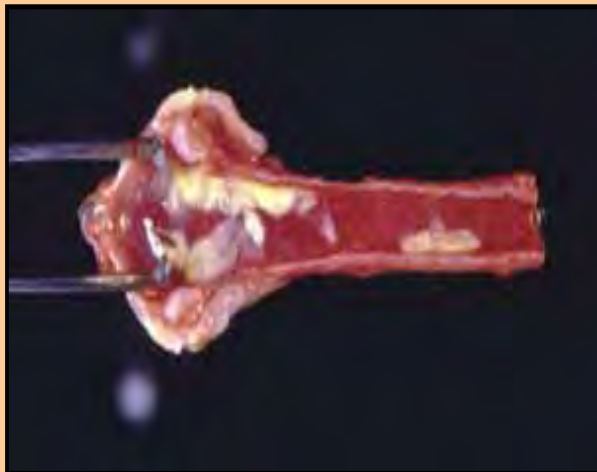
AVIAN INFLUENZA



259



260



261



262

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.

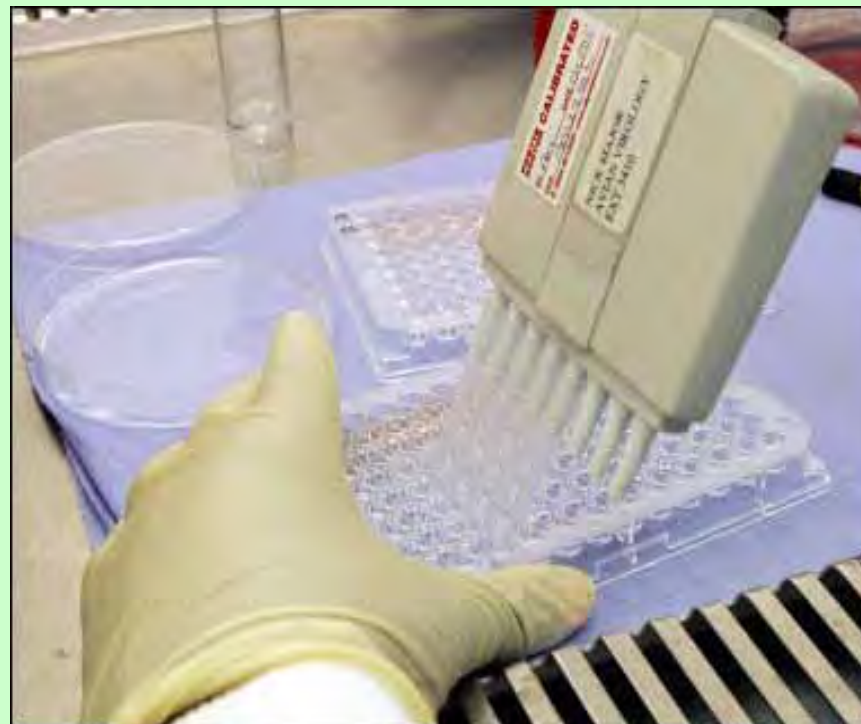
Avian influenza or bird flu is difficult to distinguish from:

- 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.



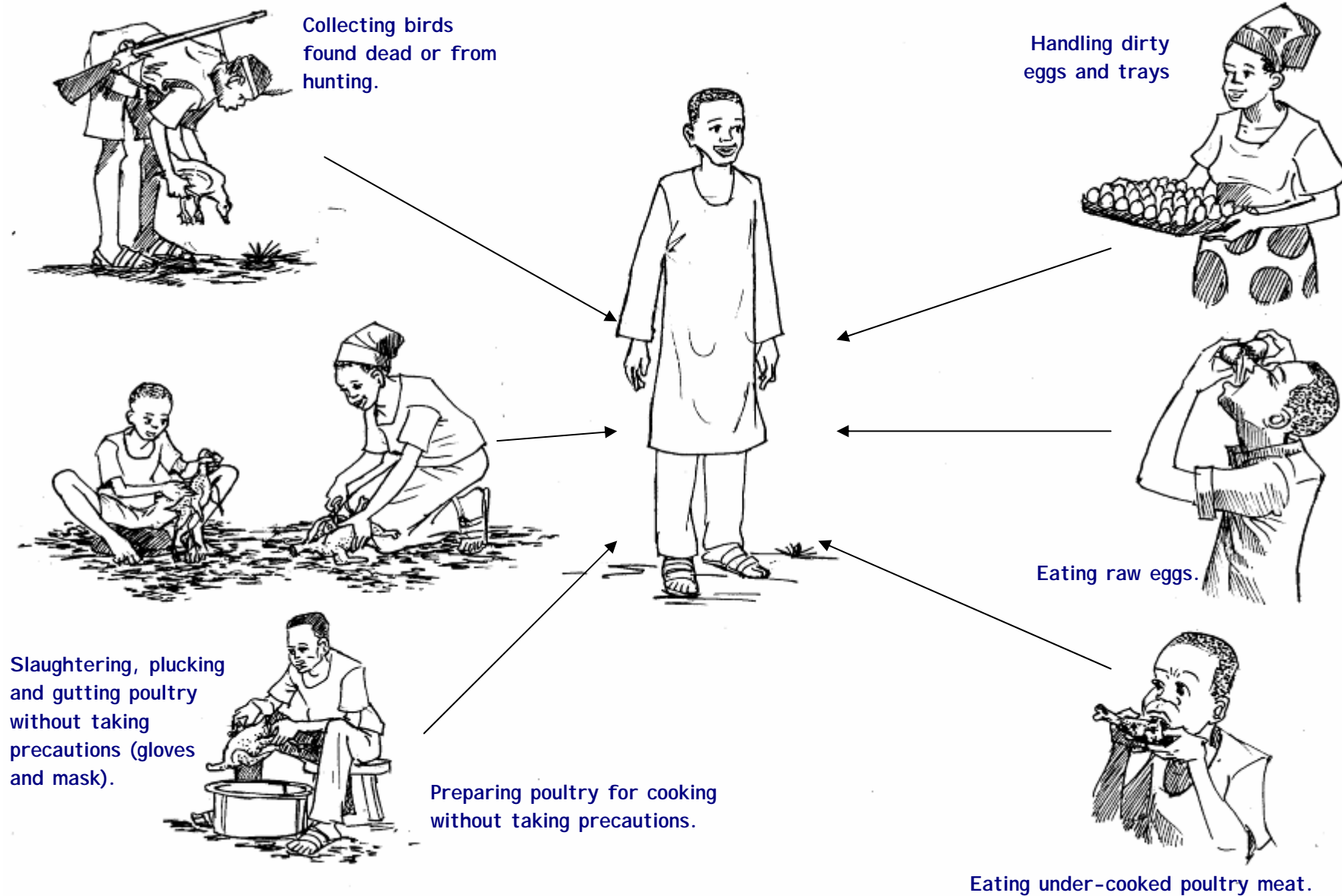
263



264

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.



265



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),

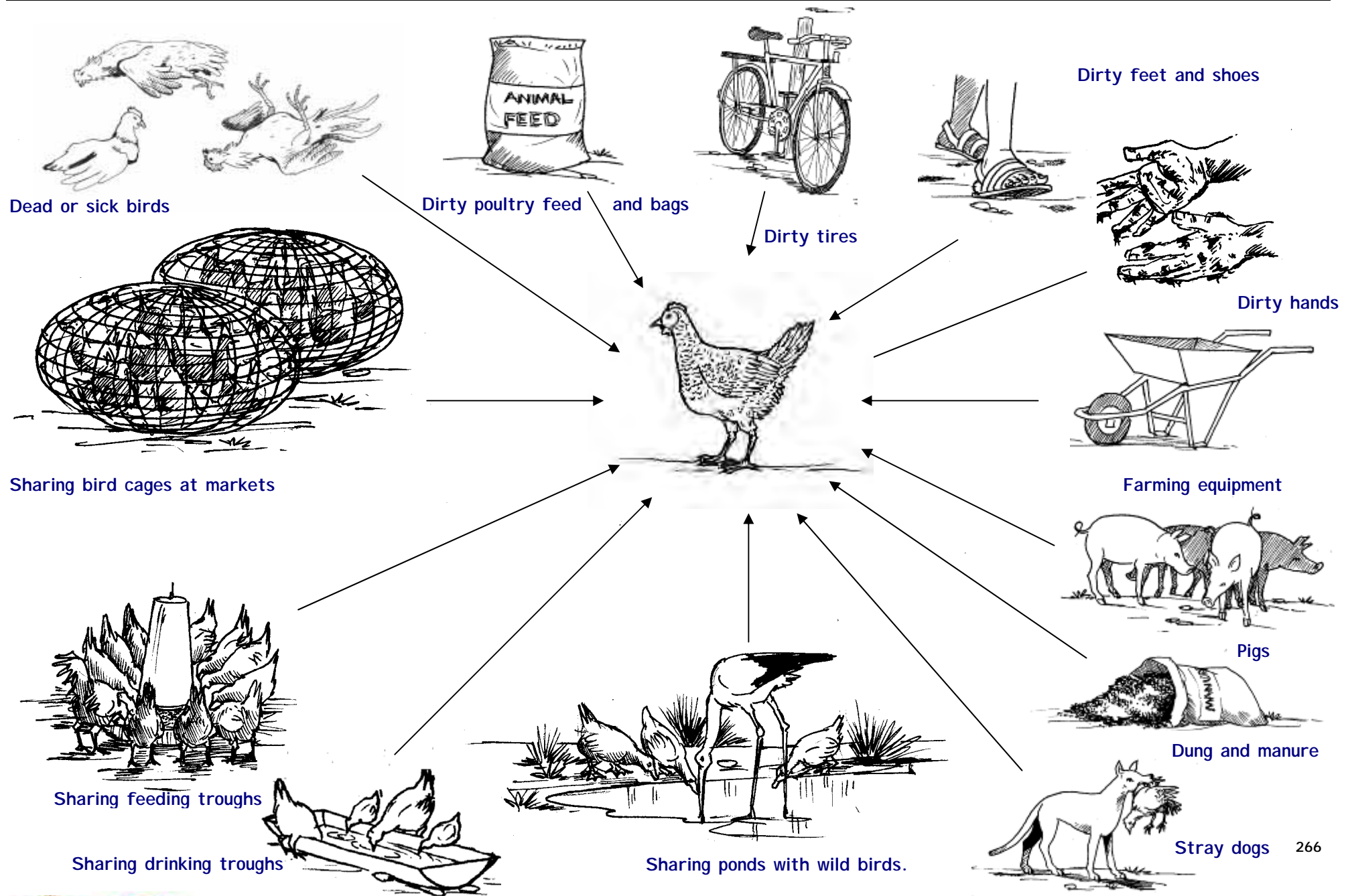
Discharges from beak, tearing of the eyes

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.



AVIAN INFLUENZA



270



267



268



269

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 270 > 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) :

271 >

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

In the kitchen :

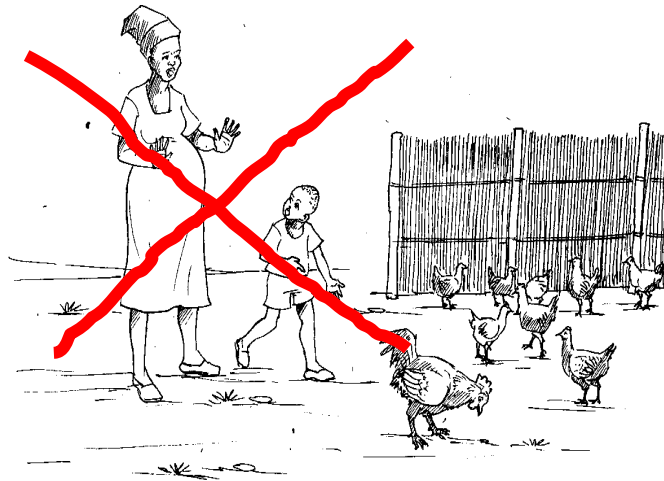
Be careful, the preparation of poultry is one of the ways in which people can become infected :

- 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.



272

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).



273

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).

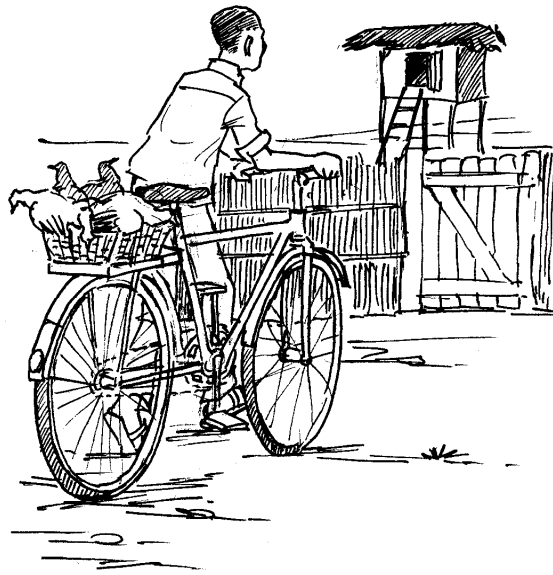
These measures should be fully respected and applied once a farm in the neighborhood or in the village has been affected or suspected!



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.



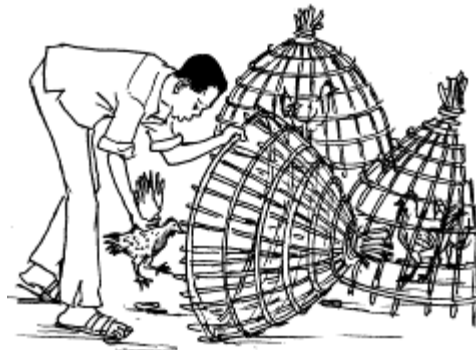
How to avoid bird flu in poultry?



274



275



276

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).

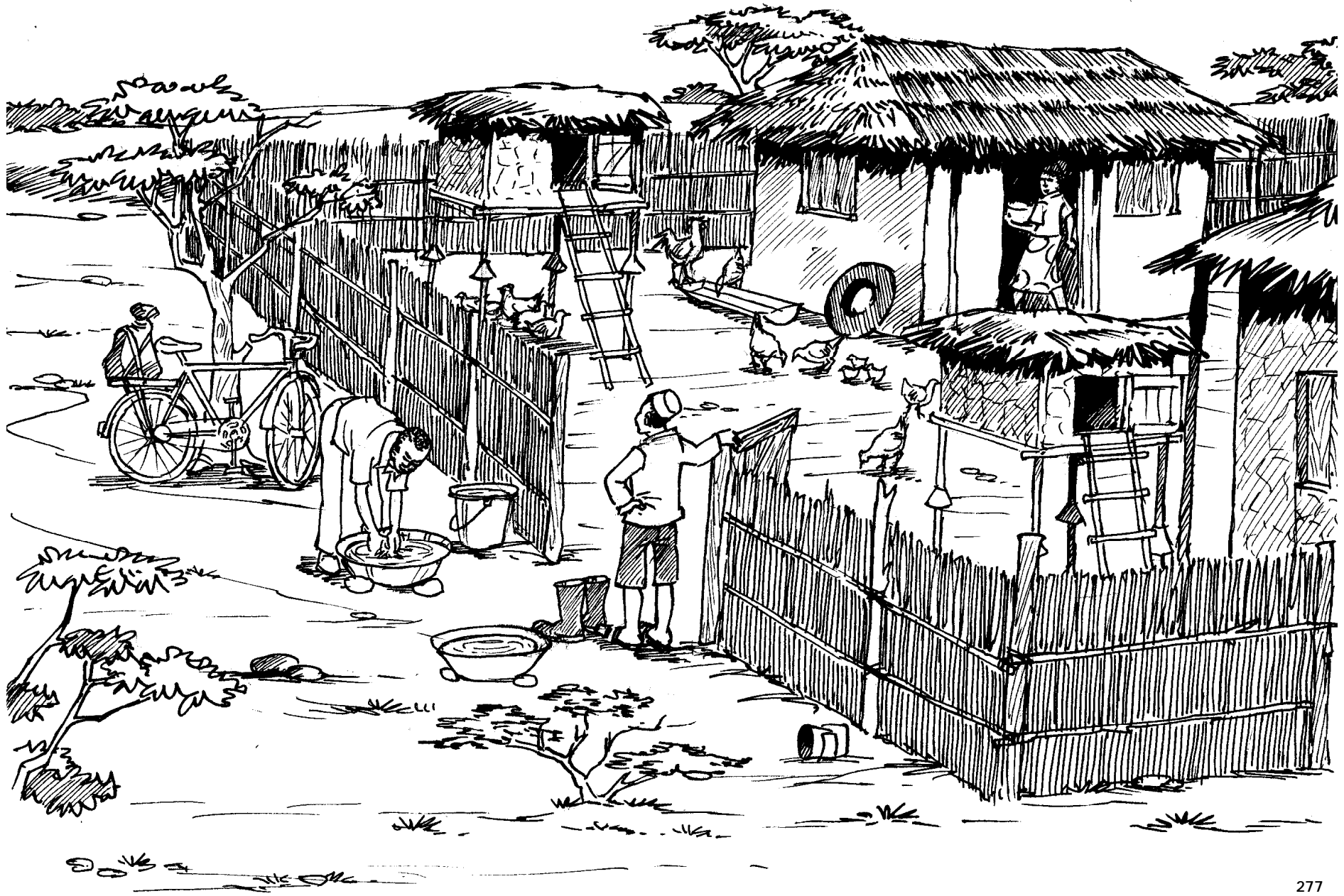
The CAHW must wash his hands and his shoes thoroughly with disinfecting soap before entering a farm and when leaving. If he travels by bicycle, the bicycle has to remain outside the premises (277). Foot-baths (disinfecting of shoes) must be available at the entry of the farm or of every poultry house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

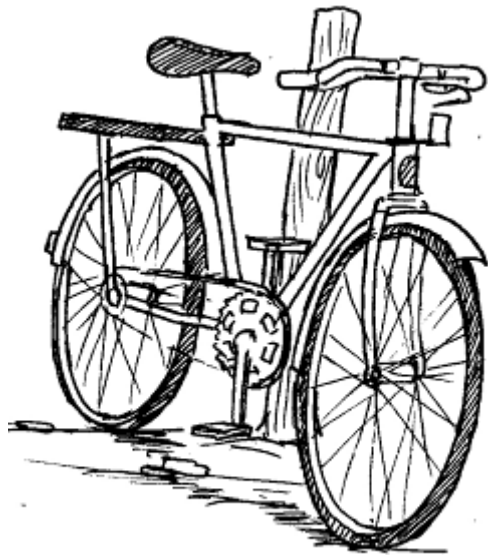


277





278



279



280

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.

AVIAN INFLUENZA



< 281



283 >



282

- 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 water fowl 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.

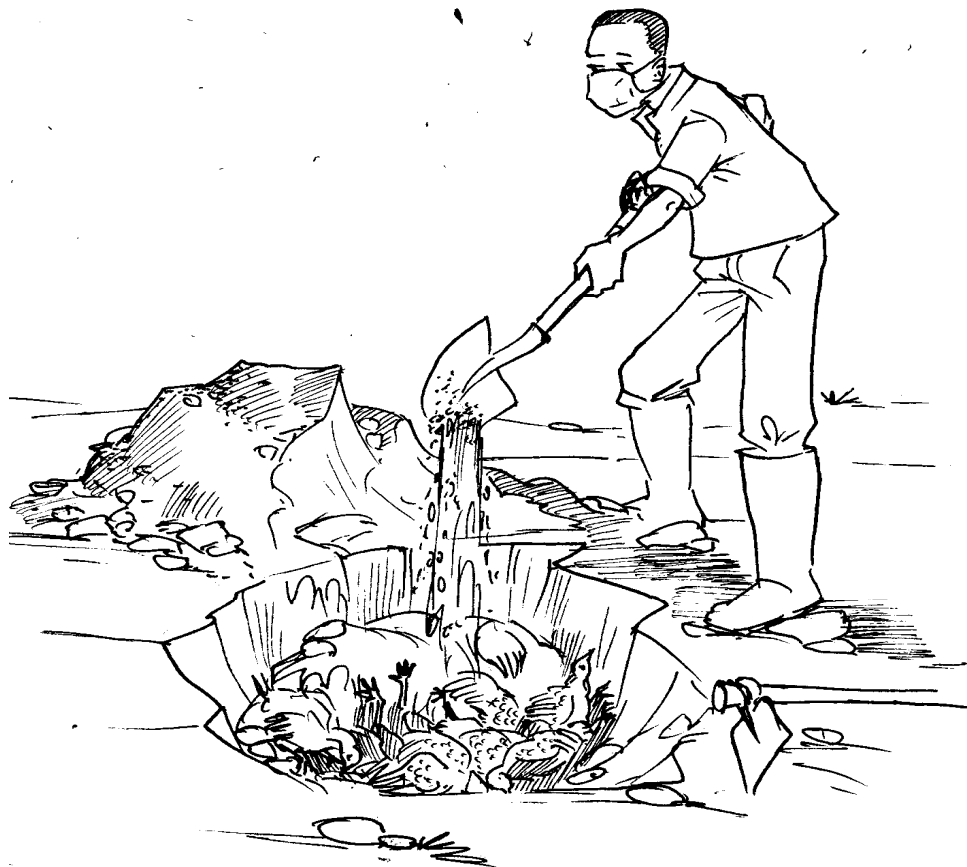
For ducks: keep ducks in a fenced yard with a pond (during the day) and a shelter (at night).



AVIAN INFLUENZA



284



285

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 or 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.



286



287



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).



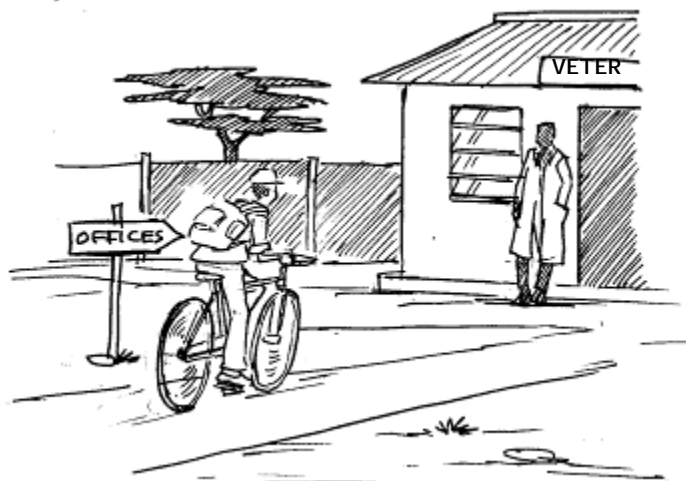
288



289

I quickly go to my supervising veterinarian (290).

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



290



291

AVIAN INFLUENZA



292



293



294.



295

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 :

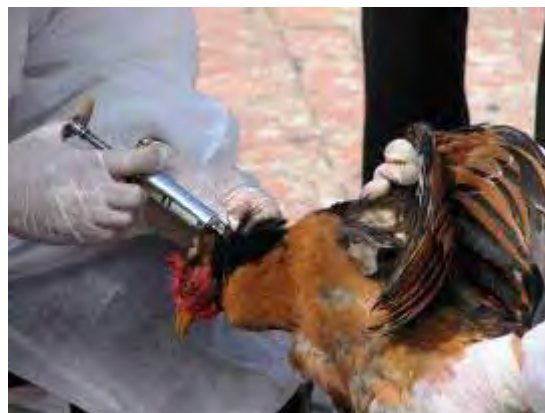
1. Slaughter of all sick birds and of all birds in contact with the sick birds (stamping-out).

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).



297

298 ↓

- 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.



296



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

300 301

Post-mortem examination



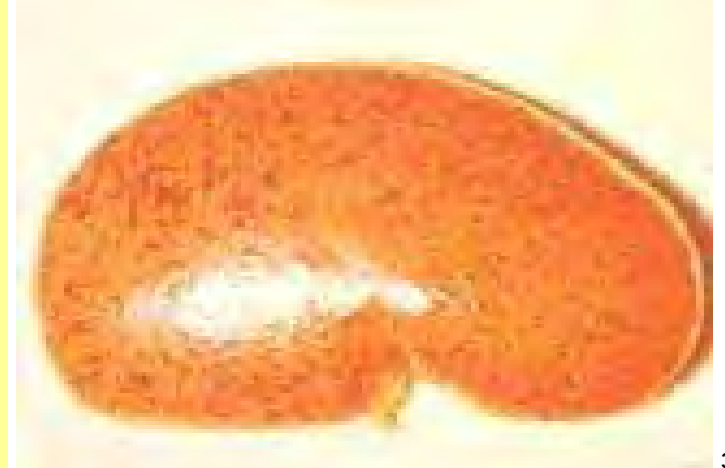
302

Hemorrhagic (red) carcass (302)



303

Enlarged spleen (303)



304

Red spots on kidney (304)



Measures to be taken



No cure
No vaccine

305



307



306

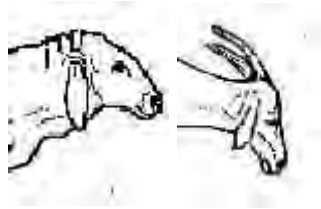


308

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)

SMALL RUMINANT PEST (PPR)



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



309



310



311



312



Post-mortem and close examination signs



313

Haemorrhages in lungs (313)



314

Red striping in colon (314)



315

Sores in the mouth: lips, gums, cheeks (315).

No cure, only preventing



316



317

Alert and report
Stop all concentration (316) and movements (317)
when disease occurs.



318



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

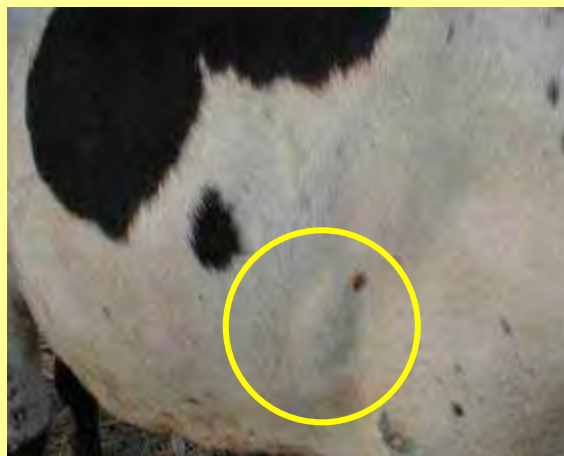


TRYPANOSOMOSIS



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



320



321



322



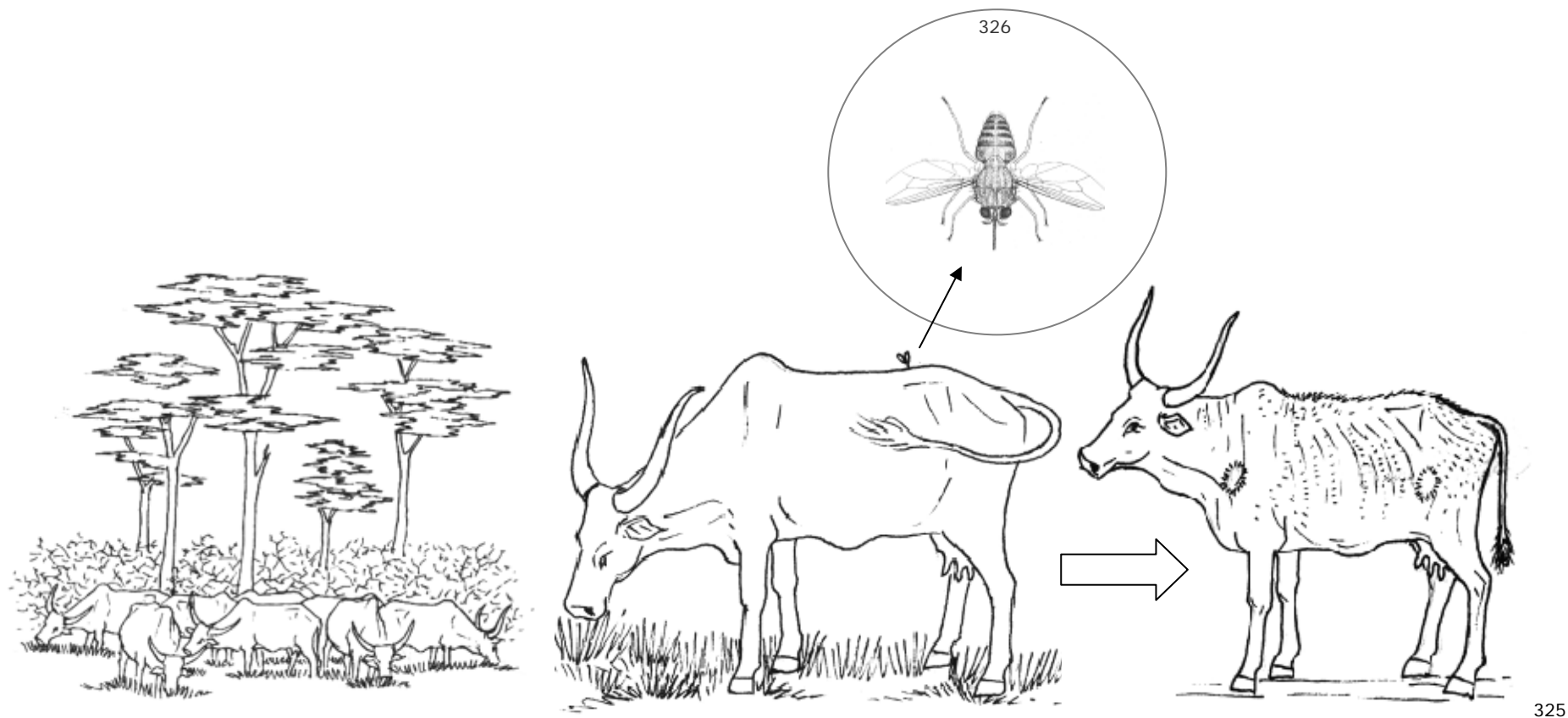
323



324

TRYPANOSOMOSIS

Transmission



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)



TRYPANOSOMOSIS

Treatment

327



328

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

Preventing



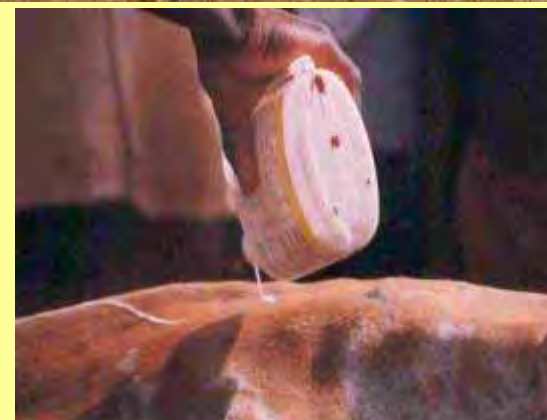
332



329



330

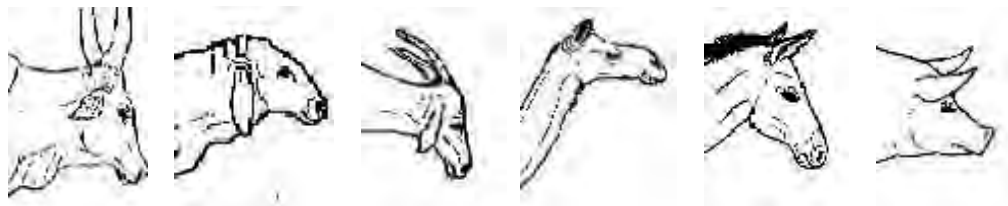


331

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 isomethamidum or homidium bromide

GUT WORMS



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.



333



334

Post-mortem signs



335

Pale and watery carcass (335)
Absence of fat.



336

Worms found in abomasum (336)



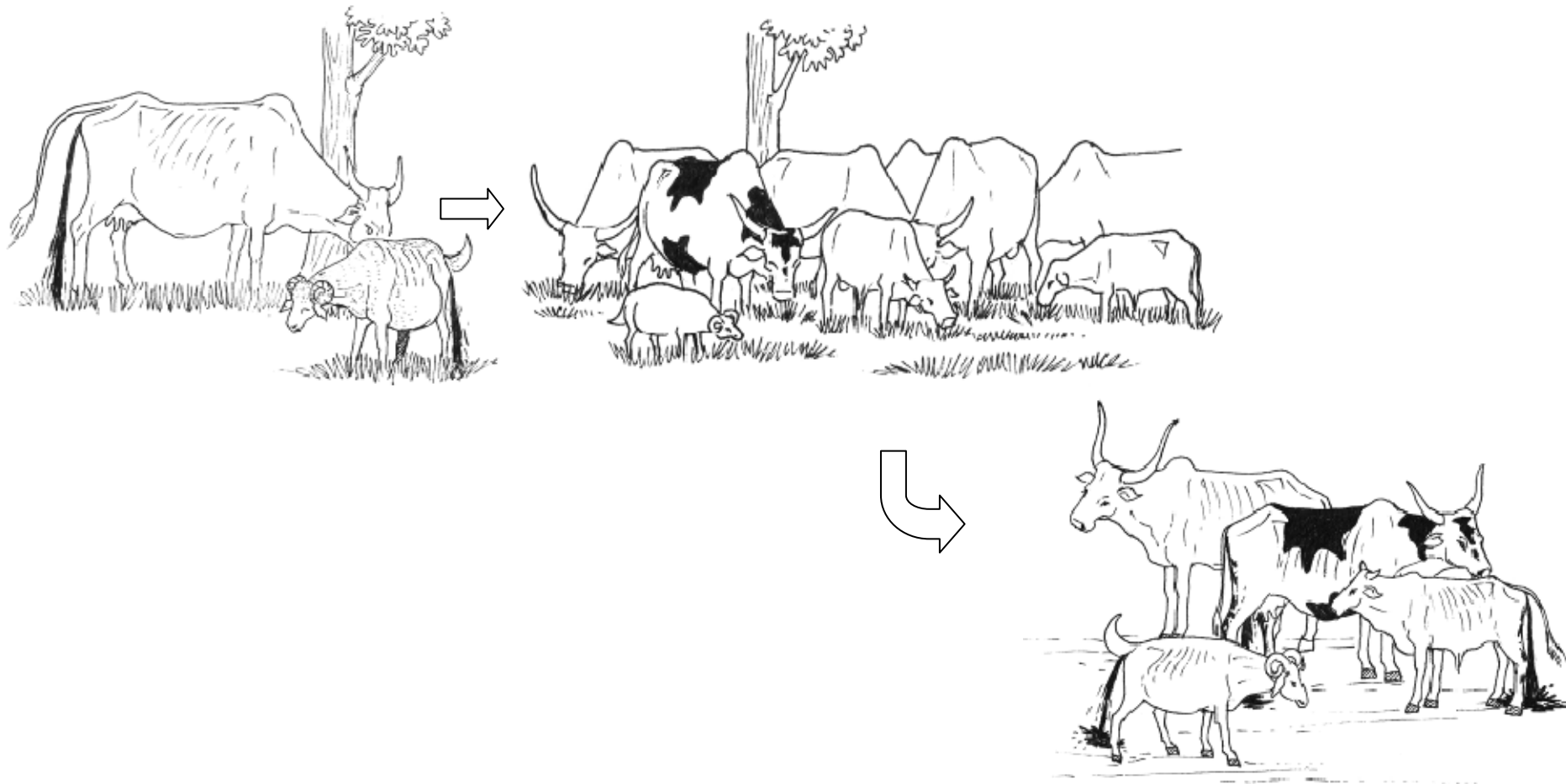
337

Worms found in colon (337)



GUT WORMS

Transmission



338

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 diarrhoea and weight loss after 3 to 4 weeks.

GUT WORMS

Treatment



- Albendazol 10% (339, 340) : 1 ml/10 kg peroral or
- Albendazol bolus 2500 mg (343, 344, 345) : 1 bolus/250 kg
- Albendazol 300 mg (342, 348) : 1 bolus/30 kg
- Albendazol 152 mg (349) : 1 bolus/15 kg
- Levamisol 1 g (346) : 1 bolus/150 kg
- Levamisol 300 mg (350) : 1 bolus/50 kg
- Tetramisol (347)

Preventing



- 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.
- When some animals show signs, treat the whole herd with levamisol or tetramisol. Avoid highly seasonal concentration of animals in pasture area (354)



LIVER FLUKE



355

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



356

Liver hard and gritty when cut (356)



357

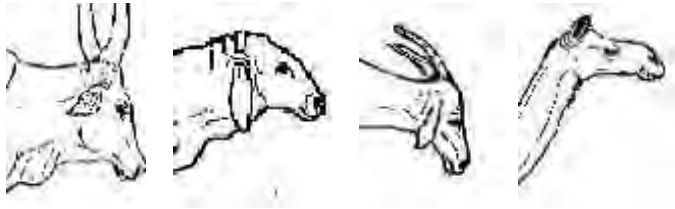
Bile duct thickened (357)



358

Adult flukes (358)

LIVER FLUKE



Transmission



359

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

They develop diarrhoea and loss of weight.



LIVER FLUKE

Treatment



360



361



362



363



364



365

366



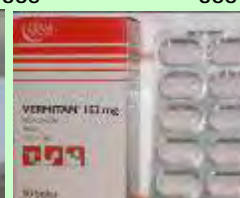
367



368



369



370

- 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



371



372



373



374

- 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).

MANGE



375



376

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.



377



378



379



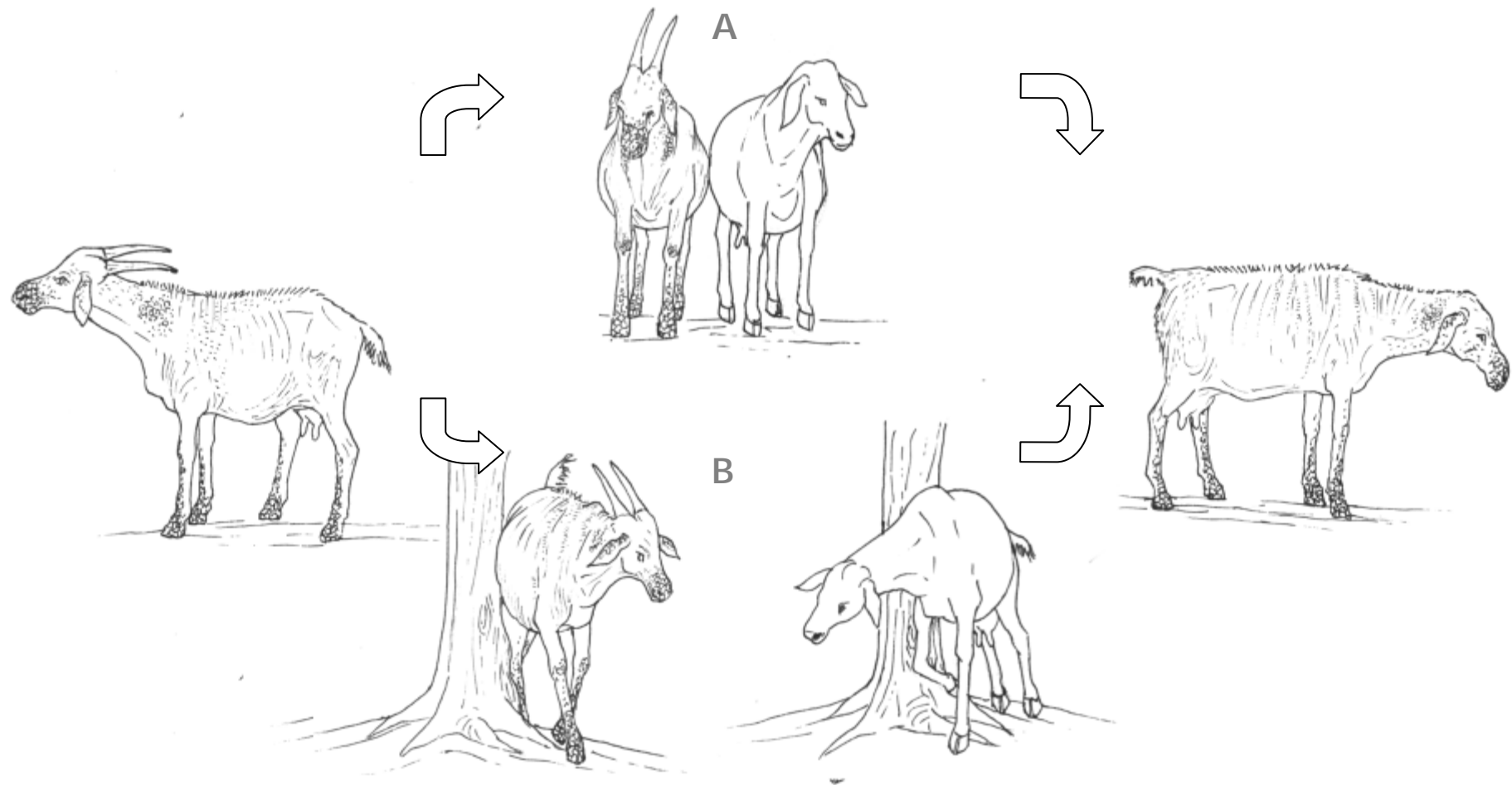
380



381

MANGE

Transmission



382

Transmission of the mange mites occurs through close contact (A), either directly or indirectly at scratching trees or poles (B).



Treatment



383



384



385

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



386



387

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



388



389



390

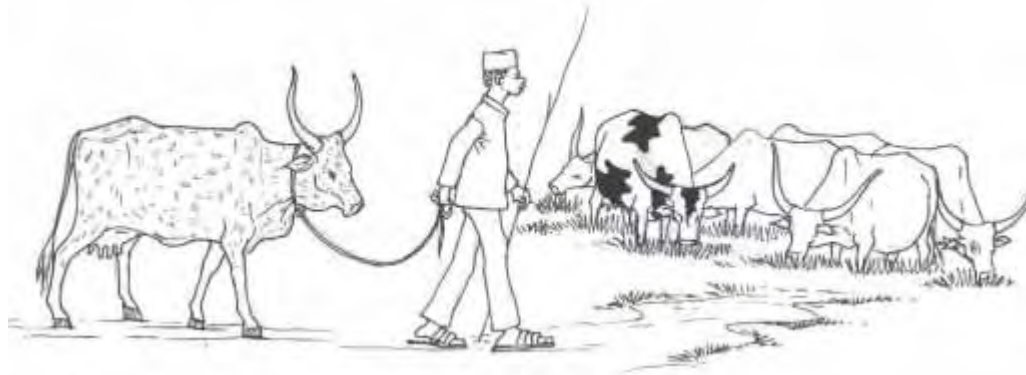


391

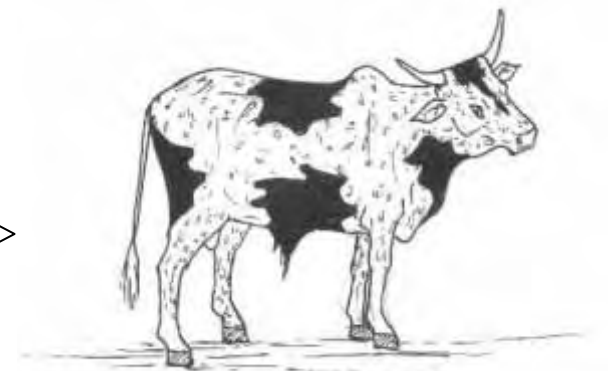
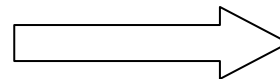
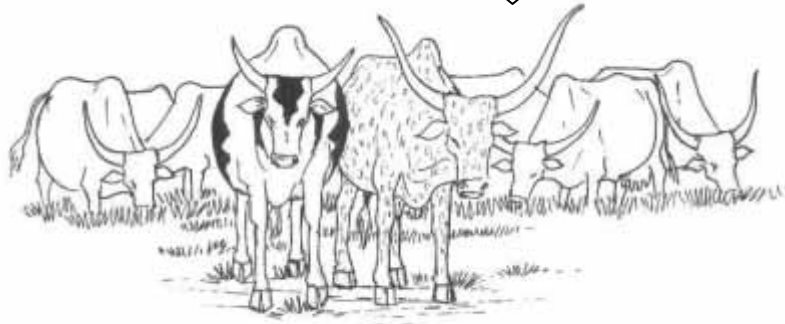
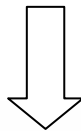


DERMATOPHILOSIS

Transmission



An unaware farmer brings a new animal into his herd, despite its visible lesions of dermatophilosis.



392

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

A new cow is now affected by dermatophilosis.

DERMATOPHILOSE

Treatment



393



394



395

Apply iodine on affected areas (393,394)

Alert the veterinarian, he might apply the appropriate drugs (395).

Preventing



396



397

Isolate sick animals (396)

Slaughter chronic cases and severely affected animals (397).



PHOTO-SENSITIZATION



3



400



401

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).

PHOTO-SENSITIZATION

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





Second part

Common diseases

3. Zoonoses (diseases which affect man too)

120 Brucellosis

126 Tuberculosis

127 Rift valley fever

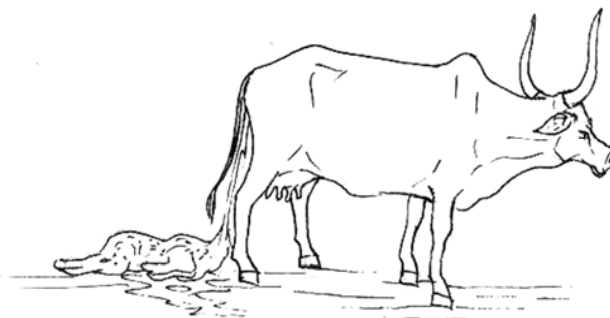
128 Rabies

129 Hydatid cysts (Echinococcosis)



BRUCELLOSIS

Clinical signs



406



405



407

408

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)



409



410

Disease in human:

- Periodic fever,
- Aching back and joints,
- General sickness and weakness,
- Abortion, infertility in women.
- Painful/swollen testicles in men.

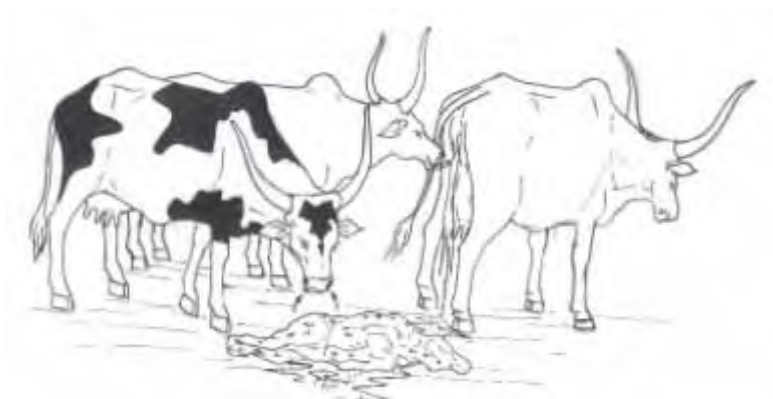


For the children who are often fed with raw milk from sheep and goats, the risk of transmission of brucellosis is higher than with raw cow milk or raw camel milk.

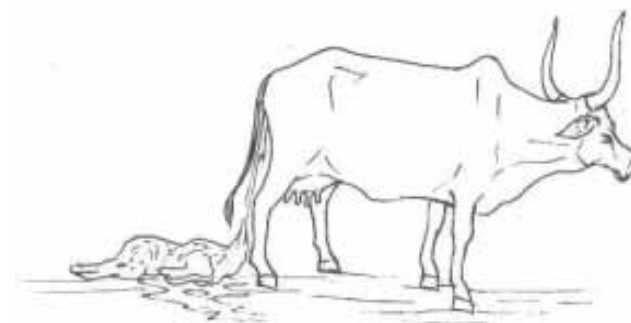
So, if the child has fever, it is important not to confuse malaria and brucellosis.



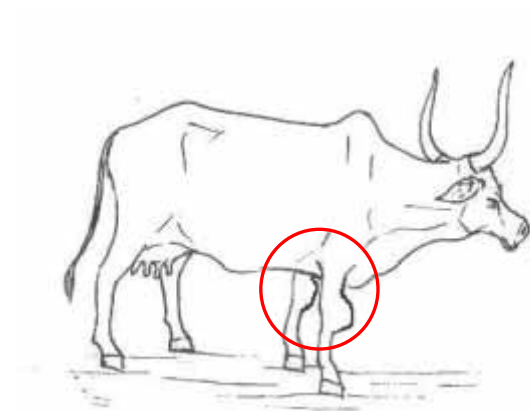
Transmission



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



Abortion occurs usually once after infection.



Occasionally brucellosis is also transmitted through mating.

411
Swollen joints in chronically infected cow

BRUCELLOSIS



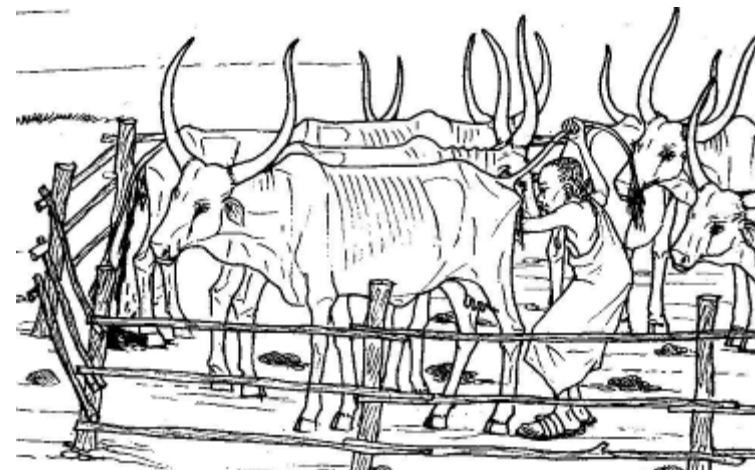
412



413



414



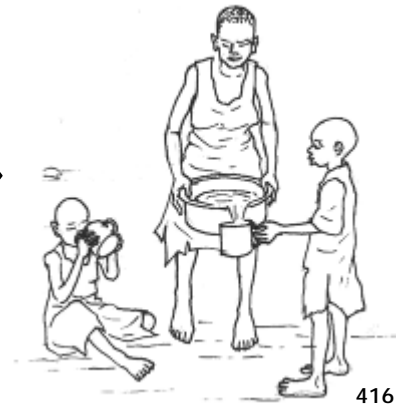
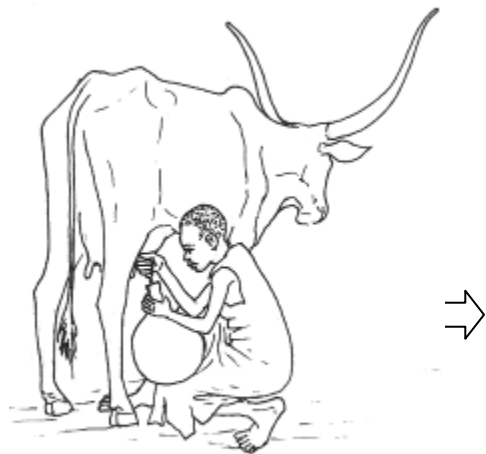
415

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 fetuses 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).



418



419



422



423



420

Use gloves!

421



TUBERCULOSIS



Disease in Human



424



425

- 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.

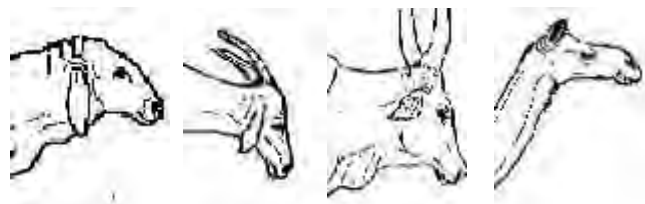
Risky behaviours in man :

- 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).

RIFT VALLEY FEVER



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 carcasses (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).
- Vaccinate livestock,
- Do not touch meat or discharges from infected animal.



426



427



428



429



430



431



432



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:

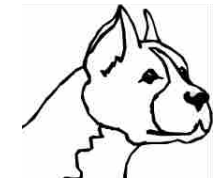
- Be careful with aggressive, nervous dogs (433).
- Limit straying of dogs (434).
- Slaughter stray dogs.



433



434



Contamination:

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

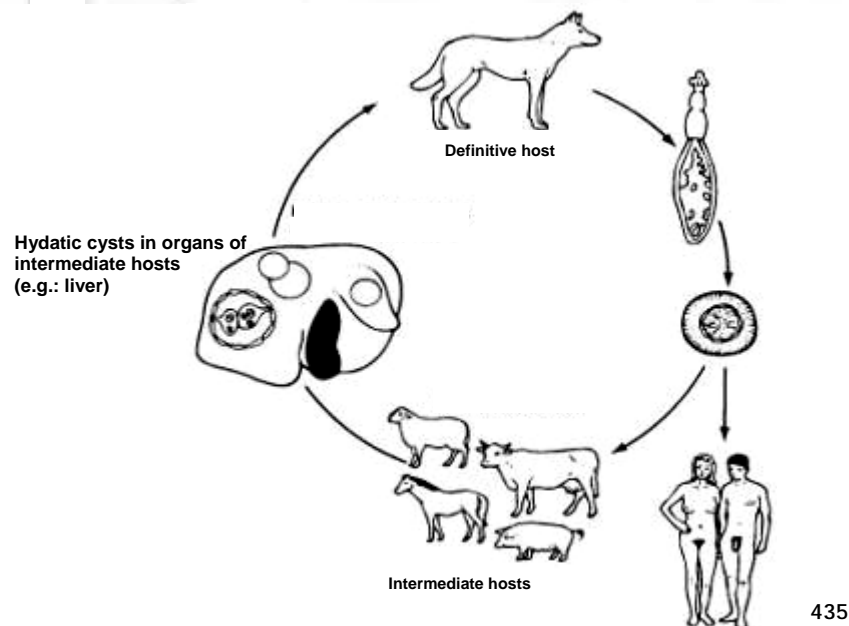
Disease in human.

- 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.

ECHINOCOCCOSIS or HYDATIDOSIS



Parasitical cycle (435) between dog, definitive host without symptom and sheep (mainly), intermediate host who gets 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.



Hydatid 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.



436

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

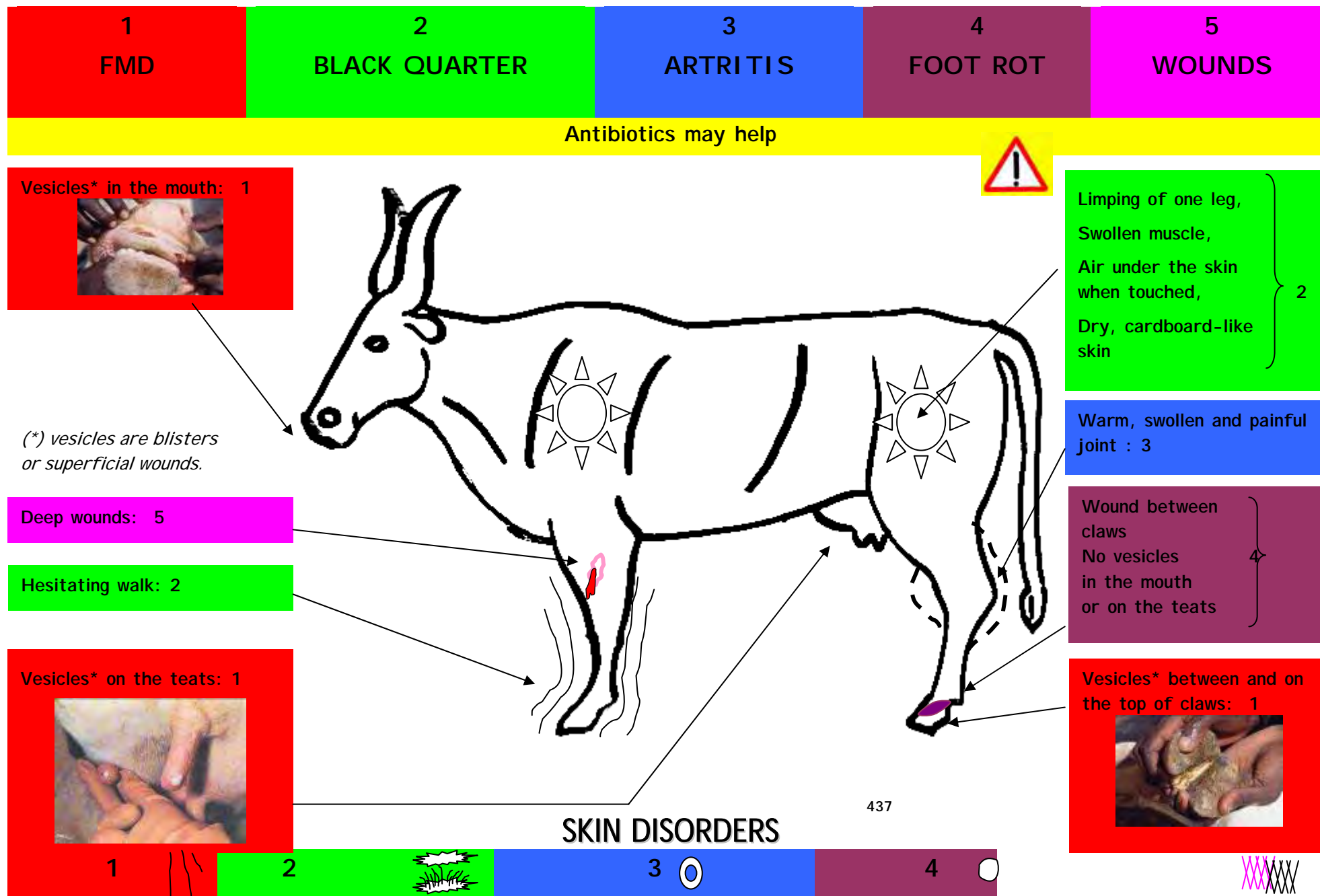
134 Sudden death

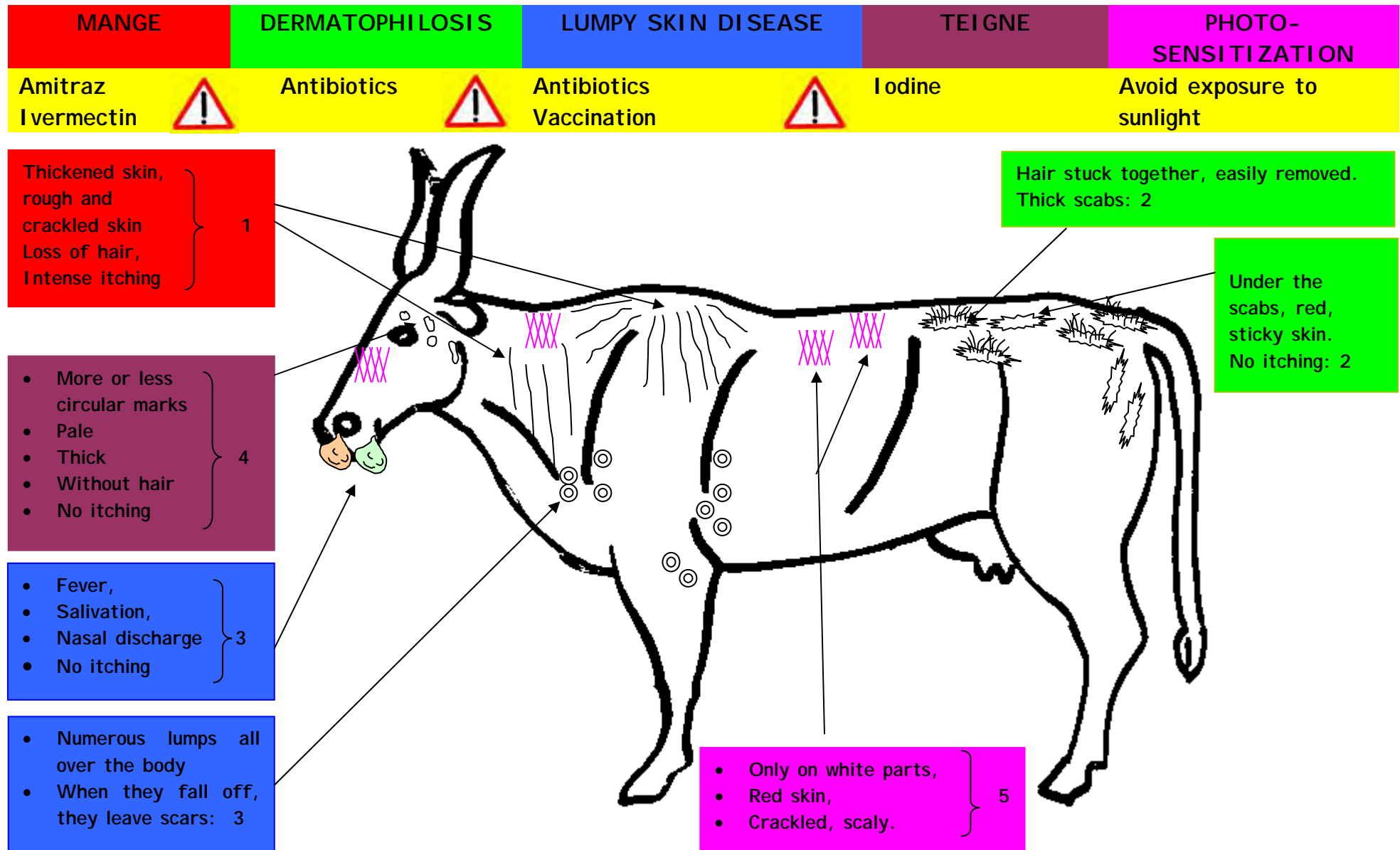
135 Differentiating rinderpest from PPR

136 Loss of condition


LIMPING

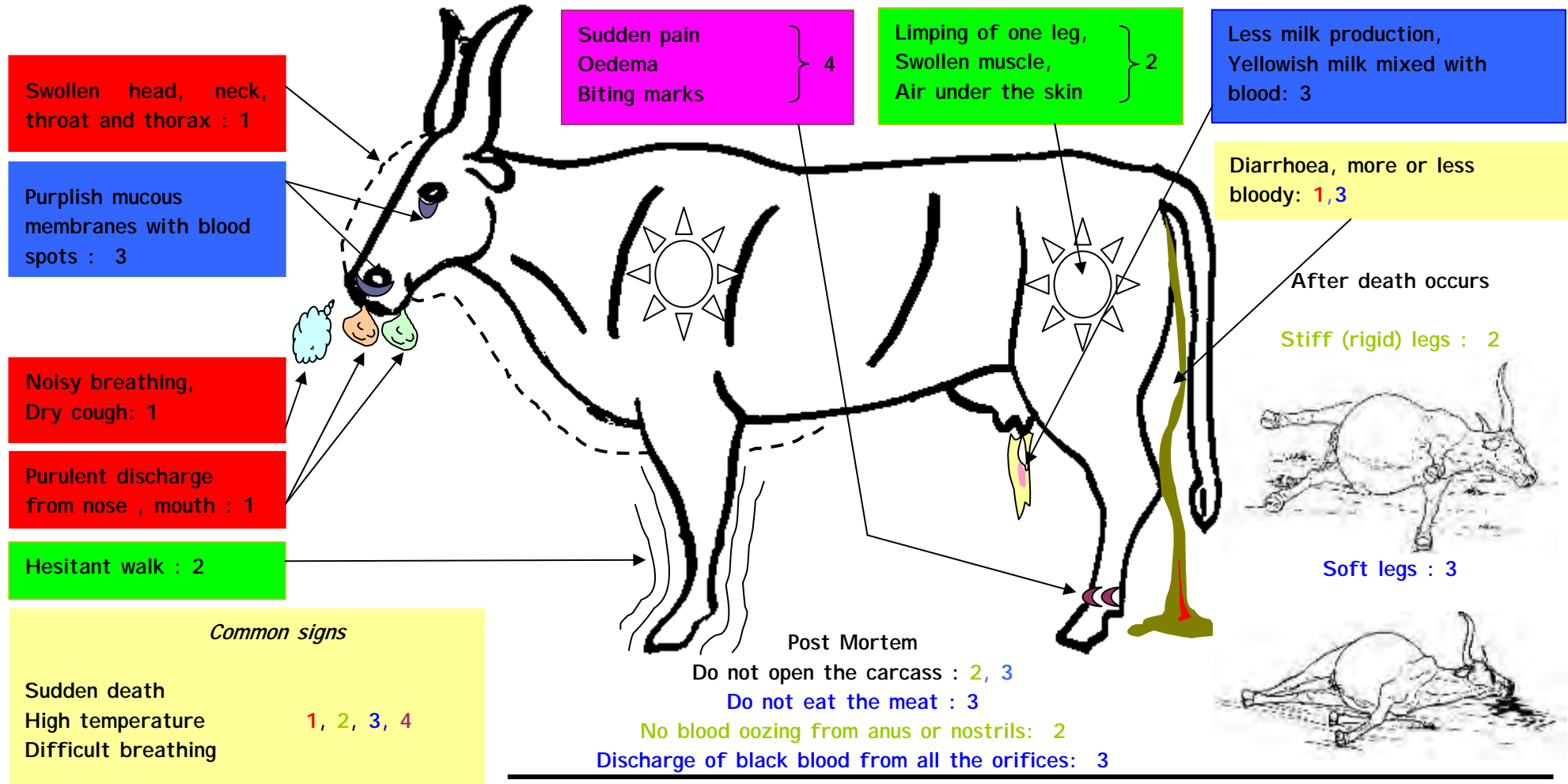






SUDDEN DEATH (except rinderpest and PPR)

1	2	3	4
HEMORRHAGIC SEPTICAEMIA	BLACK QUARTER	ANTHRAX	POISONING
ALERT the veterinary authority. Antibiotics  as from the first symptoms			



SECRETIONS, DIARRHEA, SUDDEN DEATH

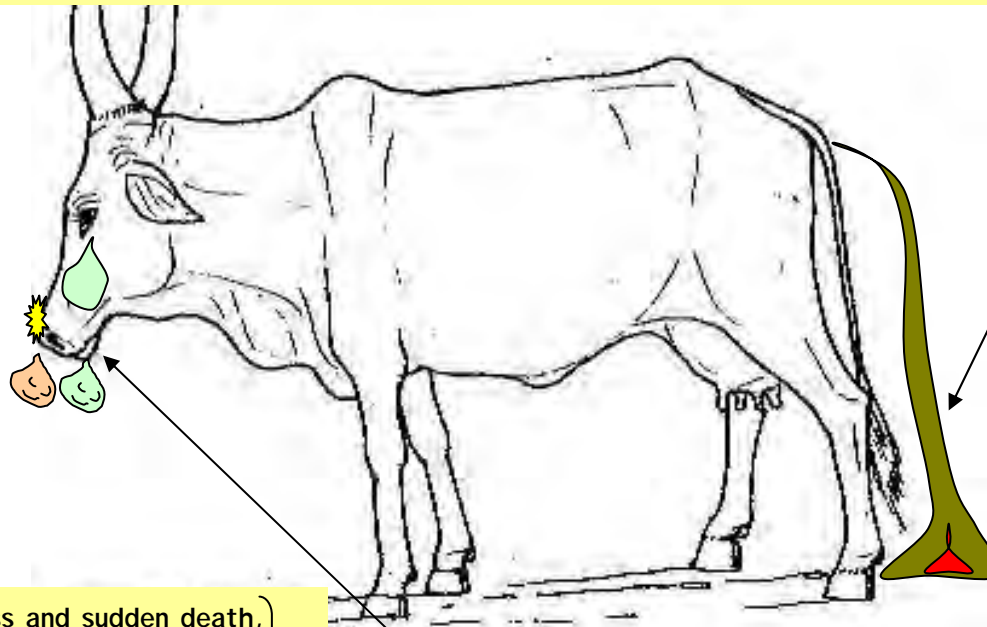
1 RINDERPEST

No treatment. Surveillance

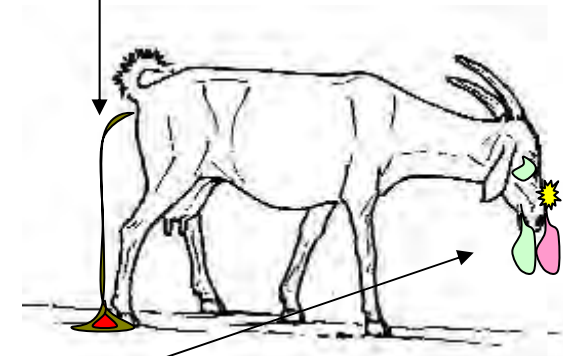


2 PESTE DES PETITS RUMINANTS (PPR)

No treatment. Vaccination



Severe diarrhoea becomes bloody: 1,2



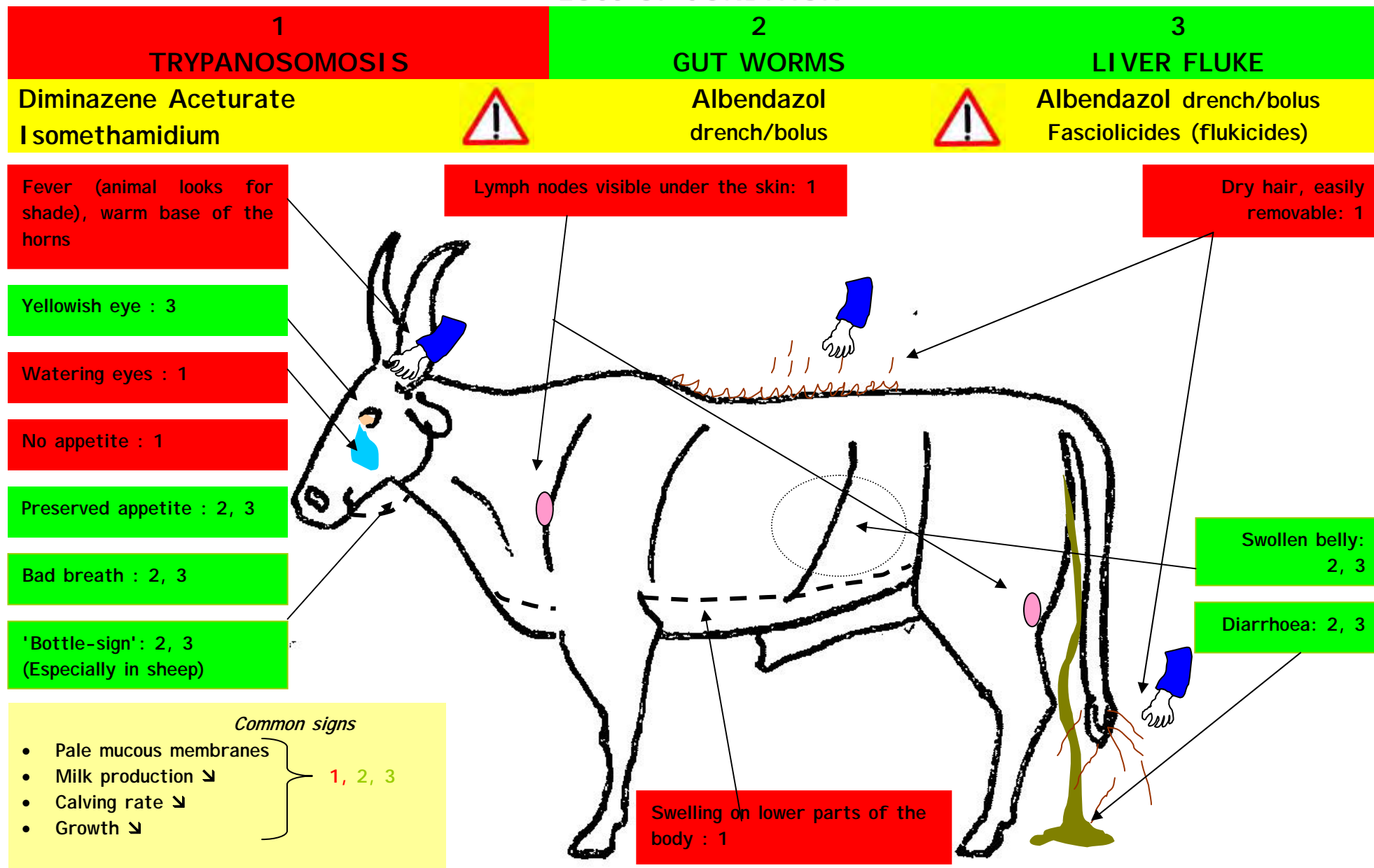
443

- 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
- 1,2

Purulent ocular, nasal and oral discharges
Dry and crackled muzzle, nostrils: 1,2



LOSS OF CONDITION



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**

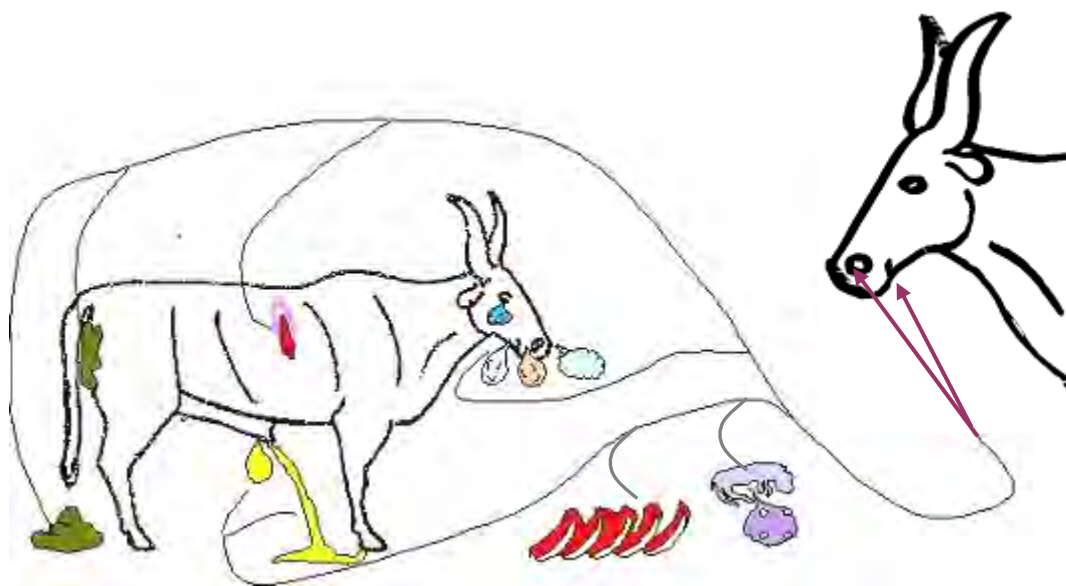


HOW ARE DISEASE AGENTS SPREAD?

From livestock to livestock

By absorption of :

Ocular, nasal and oral discharges, breath droplets, urine droplets, faeces, products of abortion, genital membranes and fluids, blood and slaughter wastes.



Portal of entry:

Digestive and/or
respiratory tracts

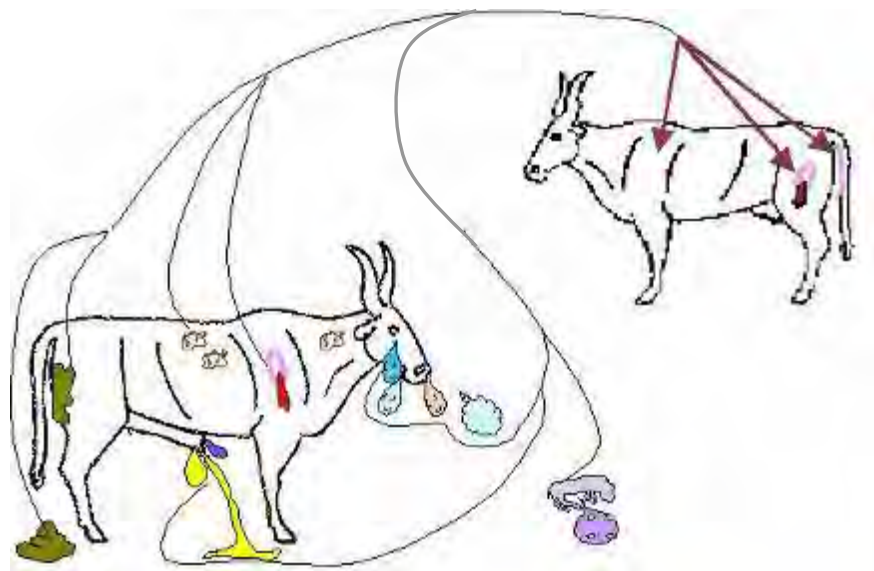
Diseases:

Anthrax
ASF
Blackquarter
Brucellosis
CBPP
FMD
HS
Newcastle
PPR
Rinderpest

447

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.



Portal of entry :

Intact skin,
Wounded skin,
Genital mucous
membranes

Diseases :

ASF
Blackquarter
Brucellosis
FMD
Mange
Newcastle

448

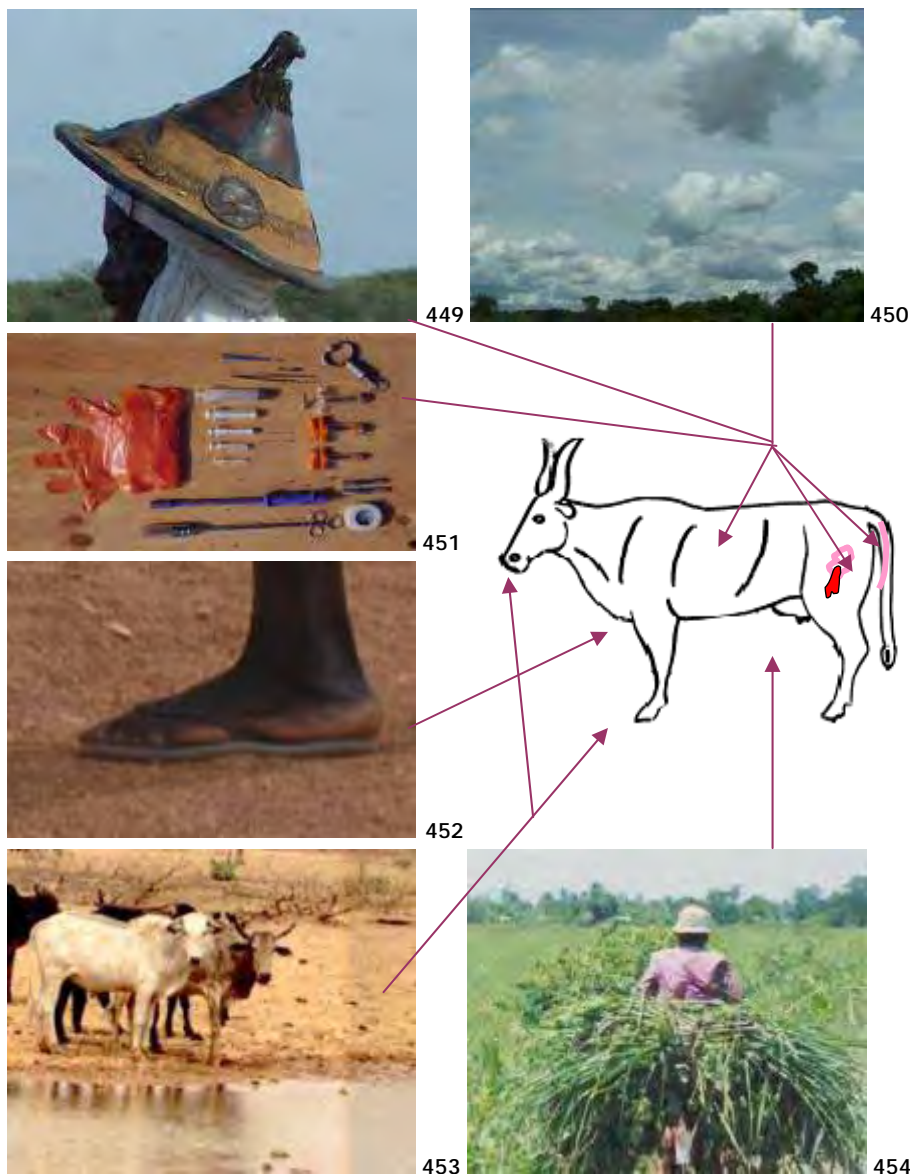


HOW ARE DISEASE AGENTS SPREAD?

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:

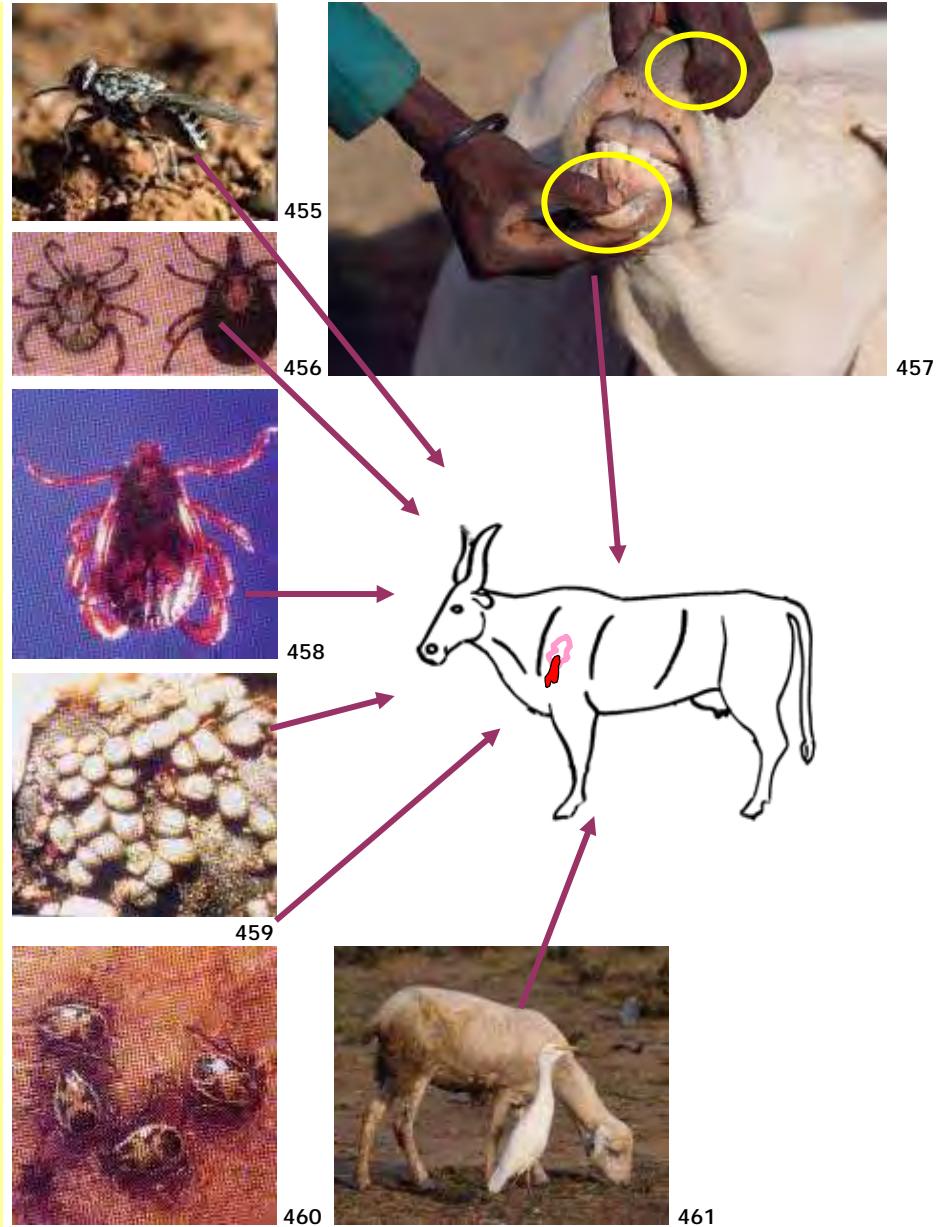
Anthrax
ASF
Blackquater
FMD
HS
Newcastle
PPR
Rinderpest

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).



Portal of entry:

Intact skin or
wounded skin

Diseases:

Anthrax
ASF
Blackquarter
Certain worms
FMD
HS
Newcastle
PPR
Rinderpest
Trypanosomosis



WHAT IS CURING?

WHAT IS PREVENTING?

Prevention



462



463

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).



464

Killing the disease agents after they have entered the body but before they have caused any harm: regular deworming treatment (464)...



465

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

REMEMBER:

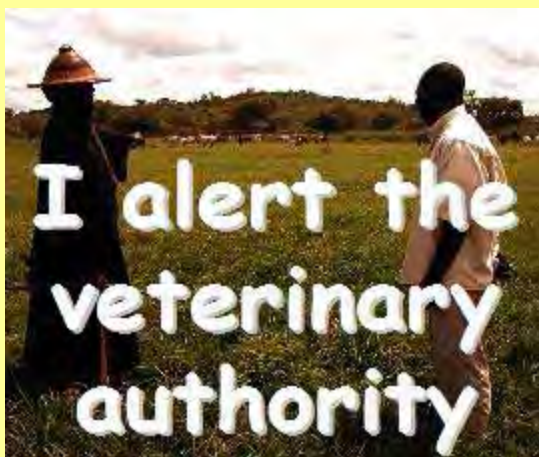
1. Preventing is always better than curing, when possible.
2. Vaccines and drugs are effective only if they are:
 - Chosen with the right active component at the right concentration,
 - Used at the right dosage,
 - Not expired.

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).



466



467

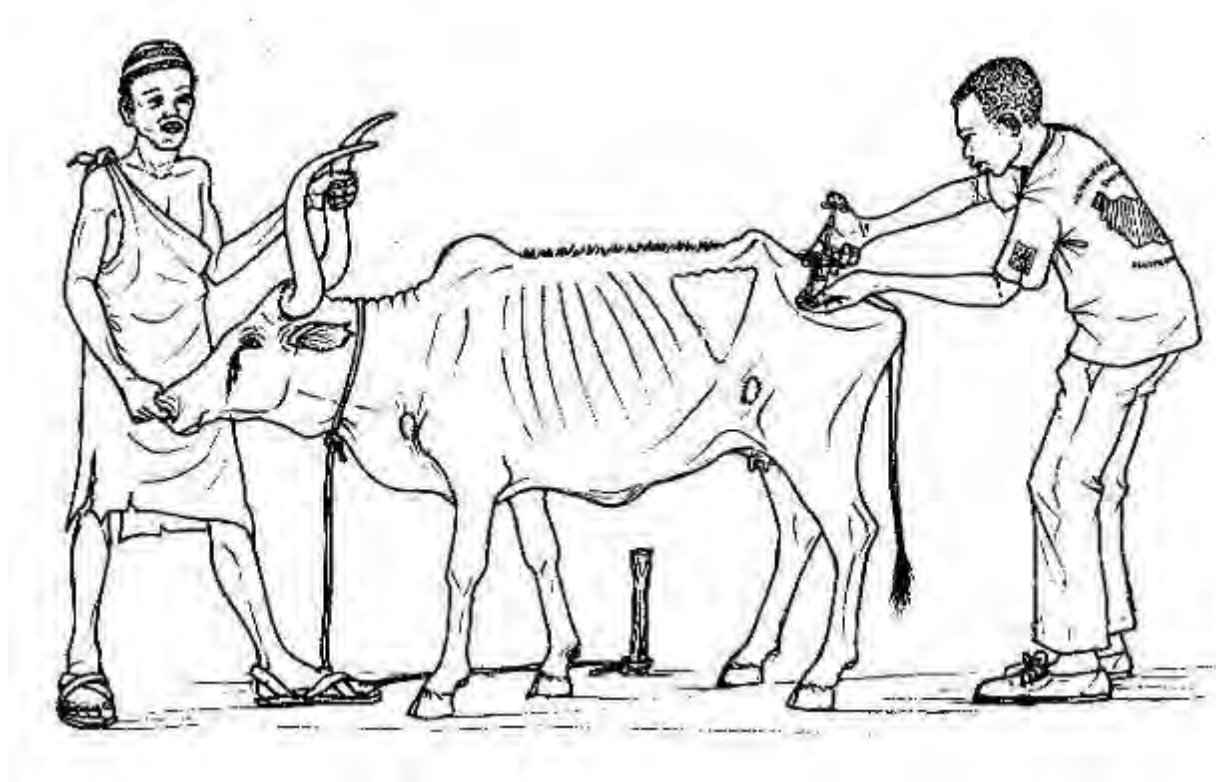


468



469

Curing



470

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).



471



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?



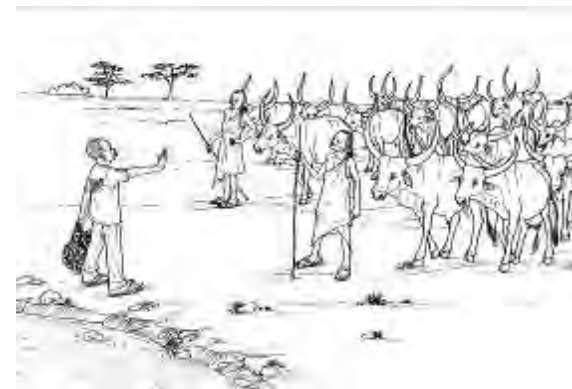
498

Practice a good personal hygiene (498).



499

Clear the camp or homestead from dung (499)



500

Prevent animals from different herds mixing during grazing and watering (500)



501

Always boil the milk before drinking (501).



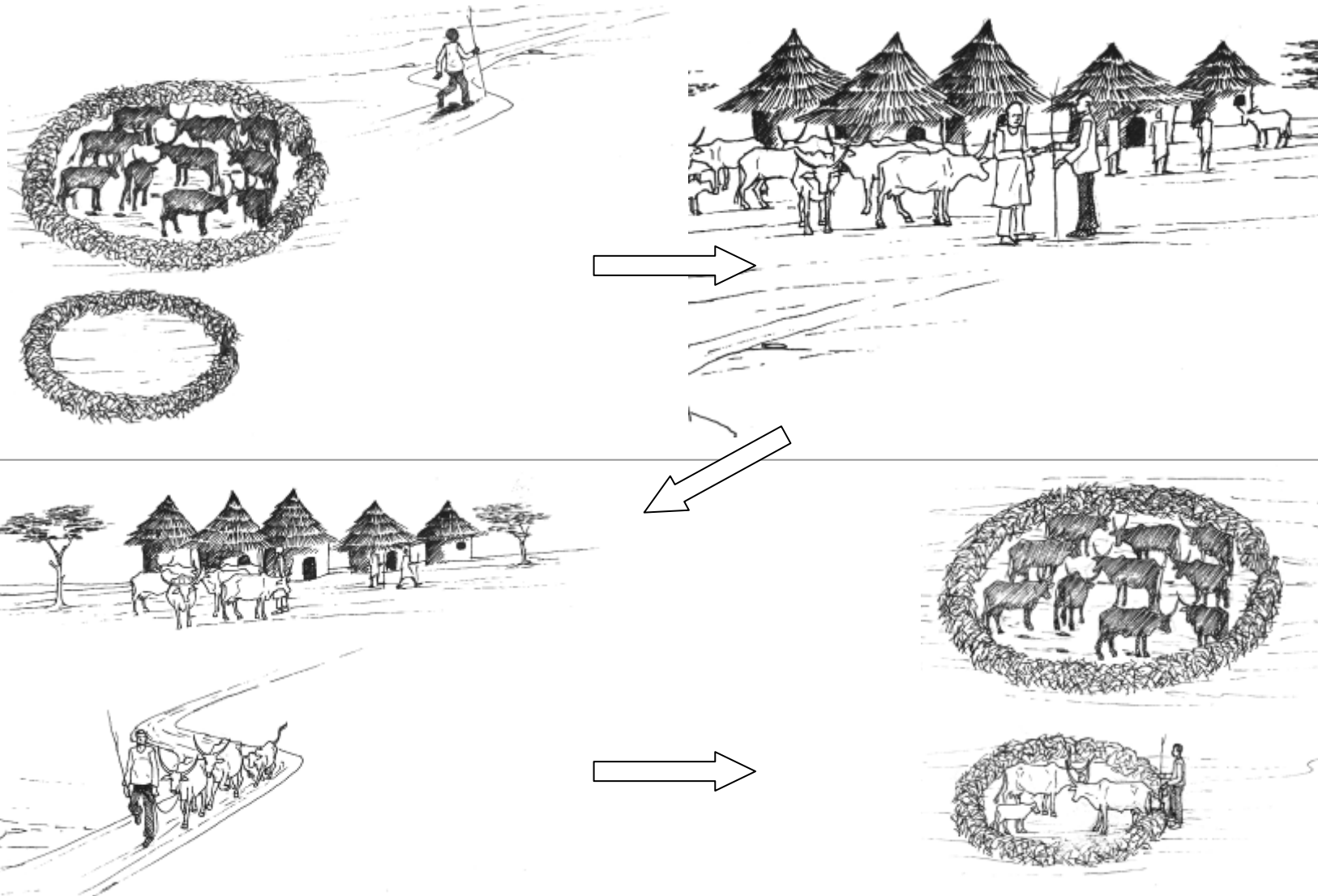
502

Practice good hygiene of the animals and keep them clean (502).



503

Keep a safe distance between tethered animals (503).



504

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?



505

Make sure the animals in the village are regularly vaccinated against the known diseases (505)



506

Make sure the animals in the village are regularly dosed with worm drench (506).



507

When using syringes, ensure that they have been properly disinfected with boiling water



508

Build clean and solid slaughter slabs (508)



509

Fence the slaughter slabs in order to prevent dogs intruding (509)



510

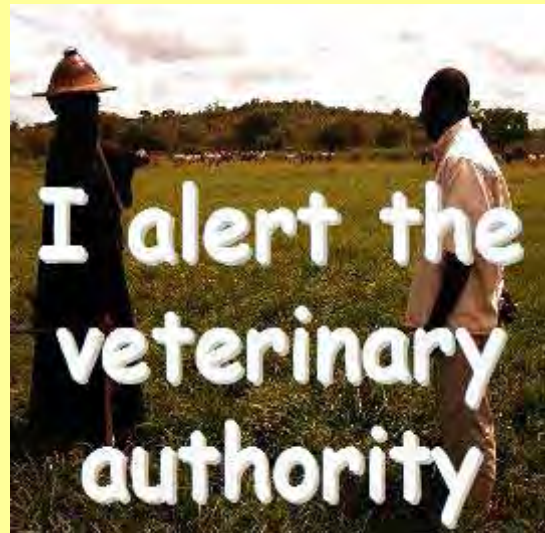
Avoid scattering of slaughter wastes by stray dogs (510)

HOW TO REACT IN THE FACE OF A DISEASE OUTBREAK?

Alert the vet authority (511)



511



512

Burn and/or bury dead or slaughtered animals (513 to 519)



513



514



515



516



517



518



519

HOW TO REACT IN THE FACE OF A DISEASE OUTBREAK?



Quarantine (isolation) of newly arrived (520,521)



520

QUARANTINE



521

Quarantine (isolation) of sick animals (522,523)



522



523

HOW TO REACT IN THE FACE OF A DISEASE OUTBREAK?

Prohibit animal concentrations and mixing of herds
(524,525)



524



525

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



526



527

HOW TO REACT IN THE FACE OF A DISEASE OUTBREAK?



Prohibit mixing herds at watering points (528,529)



528



529

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



530



531

HOW TO REACT IN THE FACE OF A DISEASE OUTBREAK?

Inform livestock owners (532,533)



532



533

Avoid scattering of slaughter wastes by stray dogs (534, 535)



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)



536



537

Slaughter any cow repeatedly aborting, especially those positive to a test for brucellosis (538,539).



538



539

HOW TO REACT IN THE FACE OF A DISEASE OUTBREAK?

Participate in ring or emergency vaccination (540,541)

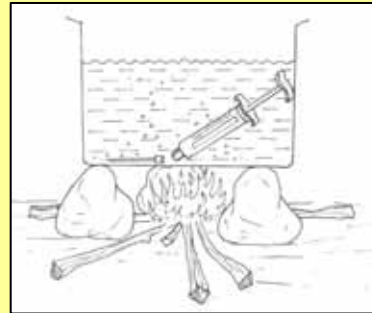


540



541

Treat with medicines of authorized list, for example: eye ointment (542) or worm drench (543)



Disinfect syringes properly 544














542



543



WHICH VACCINE FOR WHICH DISEASE?

Anthrax	Blackleg	CBPP	PPR	HS in cattle	HS in sheep	Newcastle dis.	Bird flu
							
ANTHRAVAC	CLOSTRIVAC	PERI - TI / SR	OVIPESTE	PASTOBOV	PASTOVIN	ITA-NEW	FLU-KEM
							
BLANTHAX		PERIBOV	PPR-VAC	PASTOVAX		ND VACCINE	ITA-FLU
							
1ml	2ml	1ml	2ml	1ml	2ml	1ml	0,5 ml

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

545


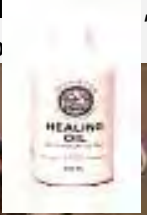










Third Part











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**



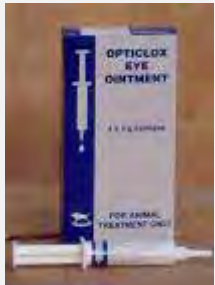





WHICH DRUG FOR WHICH DISEASE OR GROUP OF SIGNS?

Type	Active ingredient and dosage	Trade names (brands)	Administration	Diseases or conditions that can be treated
Worm drench	Albendazol 10% Liquid	Liquid : Vermitan, Worminex, Albenol, Dolzaben, Valbazen	Oral (through the mouth)	Infestation by intestinal worms & liver flukes according to the different seasons  
	1 ml/10 kg	 550  551  552		
	Albendazol Bolus	Bolus : Vermitan, Valbazen, Benzal, Worminex		
	2500 mg → 1 bolus / 250 kg 300 mg → 1 bolus / 30 kg 152 mg → 1 bolus / 15 kg	 553  554		
	Intestinal worms and liver flukes (adult stages)	 555  556		
		 557  558		 559

Type	Active ingredient and dosage	Trade names (brands)	Administration	Diseases or conditions that can be treated
Worm drench	Fenbendazol 750 mg → 1 bolus / 150 kg	Panacur 	Oral	
	Oxfendazol	Synanthic 560 	Oral	
	Levamisol 1 g → 1 bolus / 150 kg 300 mg → 1 bolus / 50 kg	Bolumisole (562, 564), Triver (563)   	Oral	 
	Tetramisol	Vadephen 	Oral	
	Bithionol sulfoxide	Disto 5 	Oral	

WHICH DRUG FOR WHICH DISEASE OR GROUP OF SIGNS?

Type	Active ingredient and dosage	Trade names (brands)	Administration	Diseases or conditions that can be treated
Extrenal anti-biotics	Oxytetracyclin 2.5 % 1 - 3 puffers per eye	 567 : Pink Eye Powder	External Ocular (in the eyes)	<p>Eye infections (571)</p>  <p>571</p>
	Cloxacillin Penicillin 5 g 3 cm per eye	 568 : Opticlox		
	Chloro-tetracyclin 500 mg Intra-uterine oblets/pessaries	 569 : Gynobiotic  570 : Metricyclin	External Intra-uterus (in the uterus)	<p>Following any abortion or difficult calving (572)</p>  <p>572</p>
	PESSARIES OBLETS			

Oxytetracyclin spray

Oxyspray (573),
Alamycin, Limoxin, Vetmycine (574),
Spray Plus (575), Pederipra Spray
(576), Vetospray (577).



573



574



575



576



577

S P R A Y S

External
(not in the eyes)

Wounds or cuts,
external treatments (578)



578



579



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, Prococ, Powervit, EST (584),
VPV (585), Stromiten (586).



580



581



582



583



584



585



586

Oral
(mix with
drinking water)

Diarrhoea in poultry



587

Un-hygienic housing



588

Type	Active ingredient and dosage	Trade names (brands)	Administration	Diseases or conditions that can be treated
Acaricides	<p>Insecticides</p> <p>Synthetic pyrethrinoids</p> <p>Flumethrin 1% (486,487,489) Cypermethrin 1% (488)</p> <p>1 ml / 10 kg – pour on</p> <p>Deltamethrin 1% :</p> <p>7,5 ml in 15 l. of dipping water</p>	<p>Spot-On (589), Bayticol (590, 591, 593), Ectopor (592), Butox, Renegade.</p>  <p>589 590 591 592</p>  <p>593</p>	<p>External (<u>not</u> in the eyes)</p>	<p>Against ticks and biting flies</p>  <p>598</p>  <p>599</p> <p>600</p>  <p>601</p>   
	<p>Amitraz (594, 595, 596)</p> <p>20 ml per 1 liter water (used as a spray)</p>	<p>Taktic</p>  <p>594</p>  <p>595</p>  <p>596</p>	<p>External (<u>not</u> in horses)</p>	<p>Against ticks and for the treatment of mange</p>  <p>602</p>  <p>603</p>
	<p>Organo-phosphates (powder)</p> <p><i>Do <u>not</u> inhale</i></p>	 <p>597 : Poultry Louse Powder</p>	<p>External</p>	<p>Against fleas, lice, flies, for disinfecting stables</p>  <p>604</p>

Disinfectants

Iodine solution

Povidone iodine

External
(not in the
eyes)

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



605



606



608

Quaternary ammonium

External
(not in the
eyes)

Disinfection of wounds (609). Cleaning of syringes
and other material.



607



609

CONCENTRATION OF DRUGS AND FRAUDS

WHAT DOES CONCENTRATION OF ACTIVE COMPONENT MEAN?

OXYTETRACYCLIN 5%



610

OXYTETRACYCLIN 10%

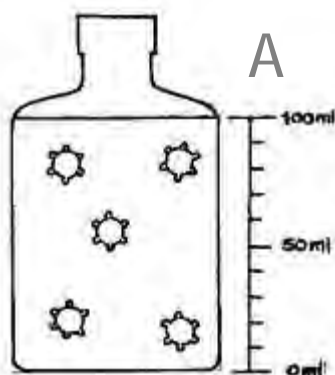


612

OXYTETRACYCLIN 20%

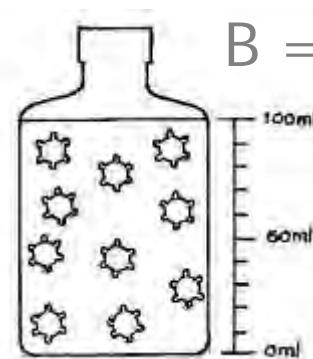


614



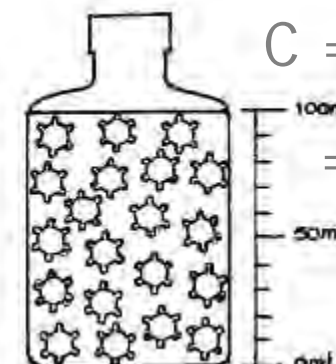
A

611



B = 2 x A

613



C = 2 x B

= 4 x A

615

5 g. of active component (610) in a vial of 100 ml (611).

Dosage: 1ml / 10 kg

One injection lasts 12 hours.

6 injections in 3 days are necessary for a proper treatment.

10 g. of active component (612) in a vial of 100 ml (613).

Dosage: 1ml / 10 kg

One injection lasts 24 hours.

3 injections in 3 days are necessary for a proper treatment.

20 g. of active component (614) in a vial of 100 ml (615).

Dosage: 1ml / 10 kg

One injection lasts 72 hours.

1 injection only in 3 days is necessary for a proper treatment.



HOW CAN PEOPLE BE DECEIVED?

First way

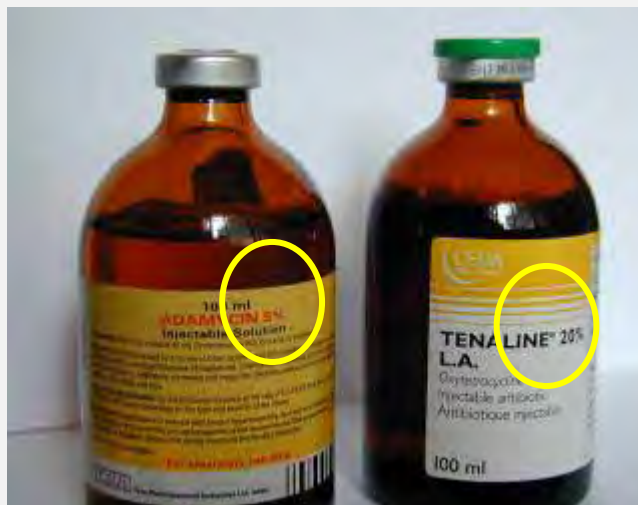
Choosing the wrong concentration (616) because it is cheaper or the only one available.

Second way

Choosing an under dosed or faked brand (617) coming from a non-registered company

Third way

Combination (618) of under concentrated product from a non-registered company



616



617



618

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

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

- Left:
Poorly visible concentration, non-registered brand.
- Right: Concentration well indicated reliable brand and well-concentrated product.

CONCENTRATION OF DRUGS AND FRAUDS



619



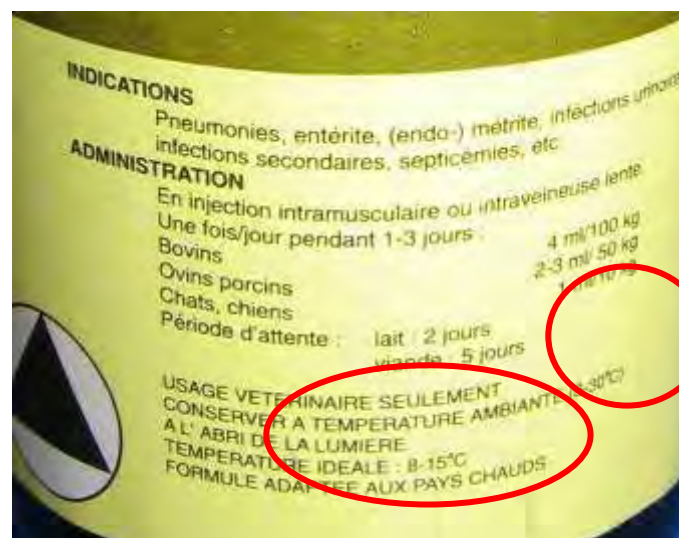
620



621



622



623
















624

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


















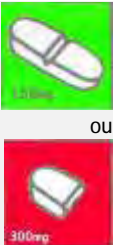



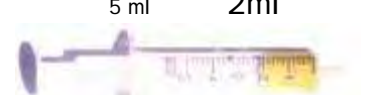





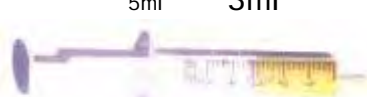

ALBENDAZOL

Product			Diseases	
 625	 626	 627	 632	Gut worms (632)
 628	 629	Drench (625,626)		Liver-fluke
 630	 631	Bolus (627-631) 2500 mg, 300 mg, 152 mg.		
Species			Way to use	
			 633	Syringe (633) Drench gun (634) By hand (635) Bolus gun (636)
LEAVE THE MILK TO CALVES ONLY, DON'T DRINK THE MILK FOR 2 DAYS			 634	
			 635	
			 636	



ALBENDAZOL






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

50 kg 	5ml 50ml 		300 kg 	30ml 50ml 	
100 kg 	10ml 50ml 		350 kg 	35ml 50ml 	
150 kg 	15ml 50ml 		10 kg 	5 ml 1ml 	
200 kg 	20ml 50ml 		20 kg 	5 ml 2ml 	
250 kg 	25ml 50ml 		30 kg 	5ml 3ml 	

637

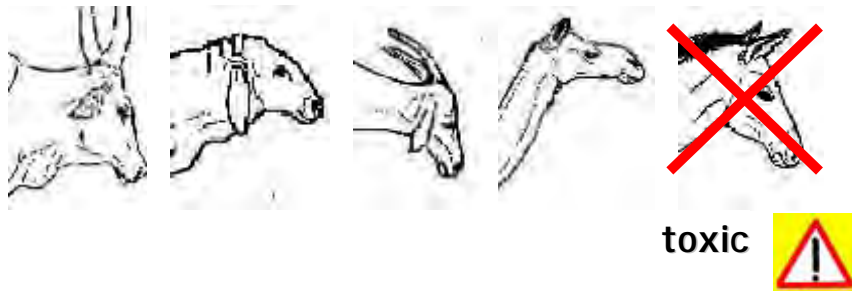


AMITRAZ

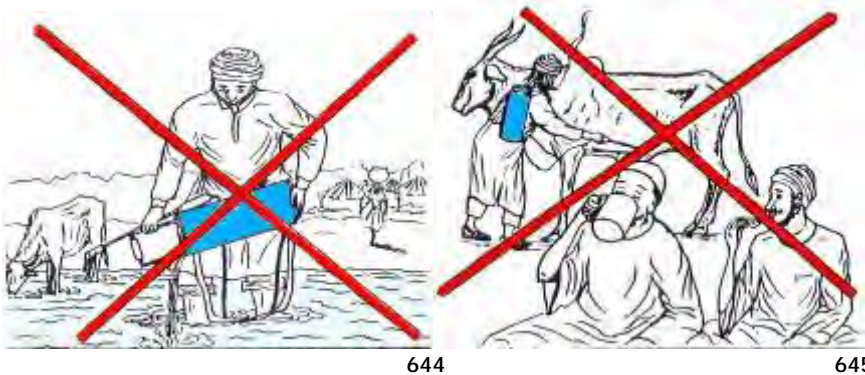
Product		Diseases	
 <div>(a) (b) (c) 638</div>  <div>639 640</div>	<p>Taktic (638,639), Milbitraz (640)</p> <p>12,5%</p> <p>1 litre (a), 250 ml (b), 100 ml (c)</p>	 <div>641</div>  <div>642</div>  <div>643</div>	<p>Ticks (641,642) and lice : spray once</p> <p>Mange (643): spray twice within 9 days</p>
	<p>Milk : no waiting time</p> <p>Meat: wait 24 hours before slaughter</p>		

AMITRAZ

Product

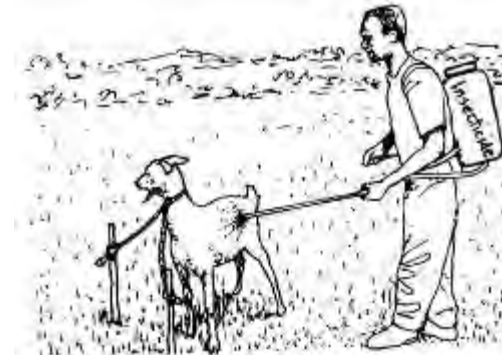


Do not !



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).

Way to use









Dilute 20 ml
in 1 litre of
water

Spray in this
order (646,
647) : hind
part, belly,
legs, body,
udder, fore
part, head

Wash
clothes, tools
and hands
(648)
thoroughly
after
treatment

SYNTHETIC PYRETHROIDS

Product	Diseases
<div data-bbox="129 207 331 470">  </div> <div data-bbox="409 207 589 470">  </div> <div data-bbox="129 486 566 778">  </div> <div data-bbox="645 244 913 316"> <p>Bottle 1 litre pour-on :</p> </div> <div data-bbox="645 430 913 574"> <p>Bayticol (649,650,651) Spot-on (651) Ectopor (651)</p> </div>	<div data-bbox="952 207 1691 770">  </div> <div data-bbox="1758 244 2078 316"> <p>Ticks (652) and flies (tabanids, tsetse flies)</p> </div>
Species	Way to use
<div data-bbox="107 917 896 1125">  </div> <div data-bbox="100 1169 913 1241"> <p>Dangerous for fish and bees: do not empty in water ponds or rivers, destroy the empty bottles.</p> </div>	<div data-bbox="1041 861 1736 1385">  </div> <div data-bbox="1870 938 2123 1085"> <p>Pour on the back bone (653), from the head to the tail.</p> </div>

SYNTHETIC PYRETHROIDS

Dosage: 1 ml / 10 kg

(only treat animals as from one year of age)

100 kg
heifer



10ml 30ml



250 kg
cow with 3 calves



25ml 30ml



150 kg
cow with one calf



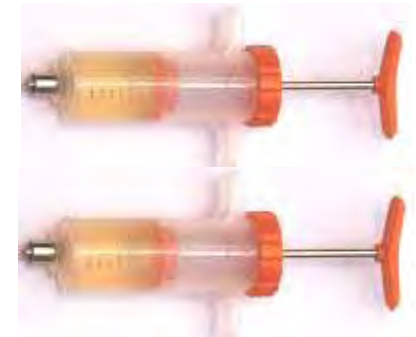
15ml 30ml



300 kg
bull



(15ml+15ml) 30ml 30ml



200 kg
cow with 2 calves



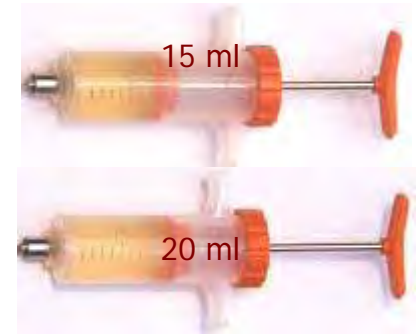
20ml 30ml



350 kg
ox



(15ml + 20ml) 35ml 30ml







No waiting time for milk and meat consumption



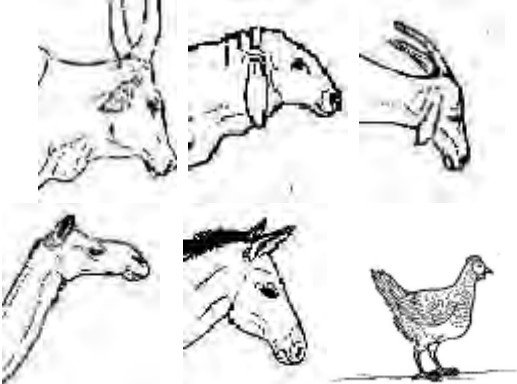



654














EYE OINTMENT

Product	Diseases
 <p data-bbox="555 818 600 842">655</p> <p data-bbox="656 292 947 395">Syringe of 5 grammes ointment (540): Cloxacillin Penicillin</p>	 <p data-bbox="1552 818 1597 842">656</p> <p data-bbox="1630 292 1809 355">Eye infection (656)</p>
Species	Way to use
	 <p data-bbox="1675 1361 1720 1385">657</p> <p data-bbox="1731 930 2045 1121">Separate eyelids. Press 3 cm of ointment in both eyes, even the healthy one (657).</p>







INSECTICIDE POWDER

Product	Protection against
 <p>400 g of organo-phosphate powder (658) for poultry</p> <p>658</p>	 <p>Lice, fleas, flies, disinfections of cowsheds, stables, sheep pens and hen houses (659)</p> <p>659</p>
Species	Way to use
 <p>Apply powder as shown (660 - 662)</p>	 <p>660</p>  <p>661</p>  <p>662</p>

ANTIBIOTIC SPRAY

Product				Diseases	
<div><div><p>663</p></div><div><p>664</p></div><div><p>665</p></div><div><p>200 ml spray bottle containing oxytetracyclin and gentian violet (663-665).</p></div></div>				<div><p>666</p></div>	<p>Wounds (666) or bruises after cleaning them with iodine or healing oil (605-607)</p>
Species				Way to use	
<div></div>				<div><p>667</p></div>	<p>Spray the wound largely for, at least, 5 seconds (667). Don't get closer than 10 cm from the wound</p>

PESSARIES / INTRA-UTERINE OBLETS

Product	Diseases
<div data-bbox="497 244 875 523">  </div> <div data-bbox="824 528 875 552">668</div> <div data-bbox="497 555 875 810">  </div> <div data-bbox="824 815 875 839">669</div> <div data-bbox="909 248 1155 355"> <p>Pessary of 1 g. of chlortetracyclin (668,669).</p> </div>	<div data-bbox="1473 209 1877 496">  </div> <div data-bbox="1888 323 2112 395"> <p>Difficult birth or calving (670)</p> </div> <div data-bbox="1473 512 1877 879">  </div> <div data-bbox="1888 699 2078 730"> <p>Abortion (671)</p> </div>
Species	Way to use
<div data-bbox="203 959 1160 1166">  </div>	<div data-bbox="1290 959 1865 1390">  </div> <div data-bbox="1895 1002 2130 1182"> <p>Use a glove (672) to carefully introduce the pessary inside the uterus.</p> </div> <div data-bbox="1895 1374 1939 1398">672</div>

OTHER PRODUCTS / DRUGS

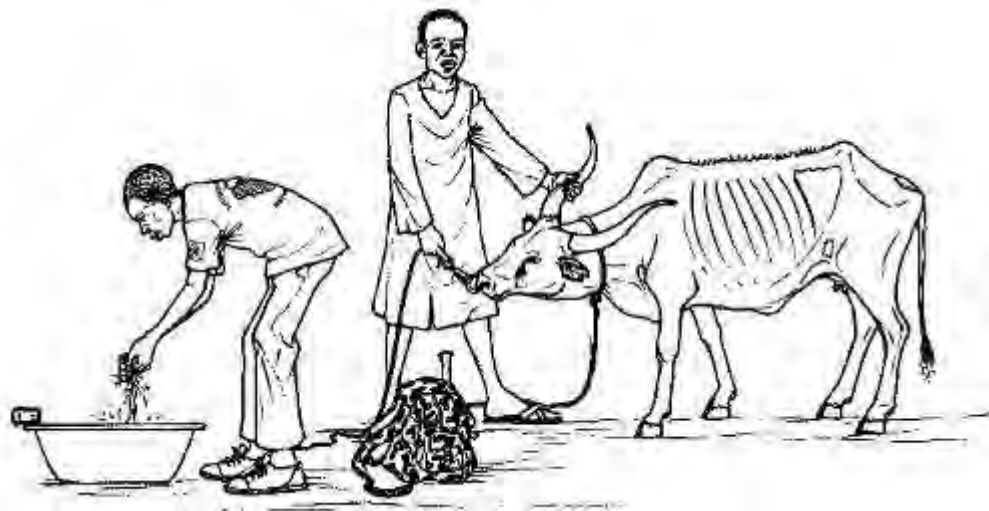
4

Fourth Part Basic skills

- 182 **Common disinfection**
- 183 **Weight assessment**
- 184 **Administering drugs**
- 188 **Precautions**
- 189 **Cleaning of wounds**

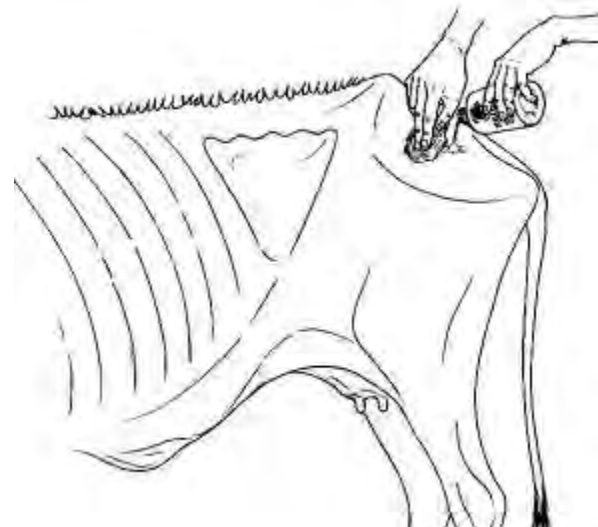


CLEANING THE INJECTION SITE (COMMON DISINFECTION)



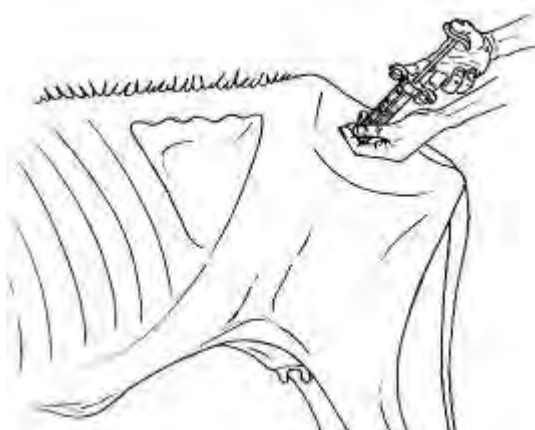
673

Wash hands in water with soap (673)



674

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



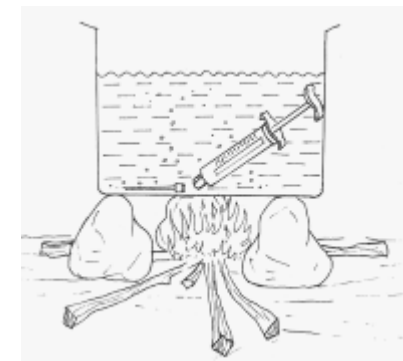
675

Inject on the cleaned site (675)



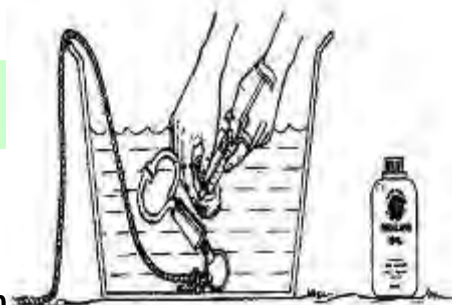
676

Clean again injection site with iodine (676)



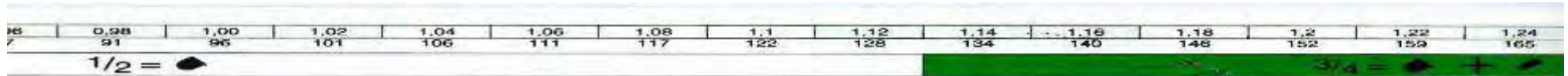
677

678



(678) and wash hands again

WEIGHT ASSESSMENT



Girth tape (679).

679



680



681



682

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

Use goat-scale (682) for sheep and goat.

ADMINISTRATION OF DRUGS

Oral route. Example : Albendazol drench



683



684



685

Oral route. Example : Albendazol bolus



686



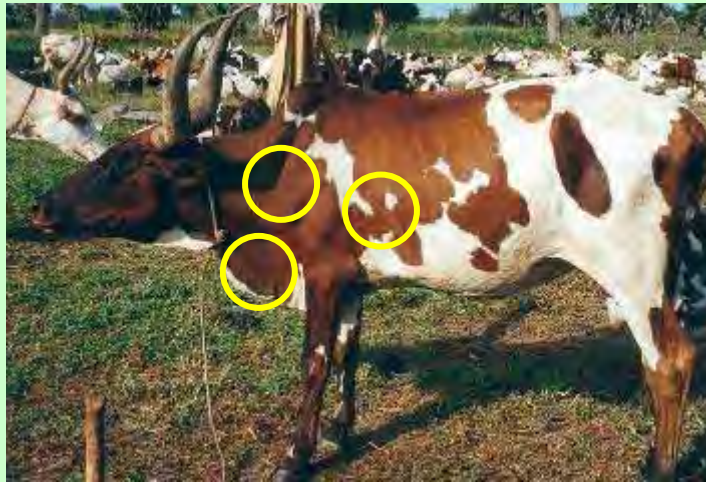
687



688

ADMINISTRATION OF DRUGS

Sub-cutaneous injection for vaccination (under the skin)



689



690



691



692

ADMINISTRATION OF DRUGS



Antibiotic spray



693

Pour-on



695

Insecticide powder



694

Eye ointment



696

ADMINISTRATION OF DRUGS

Acaricide spray



697

Pessary (intra-uterine oblet)



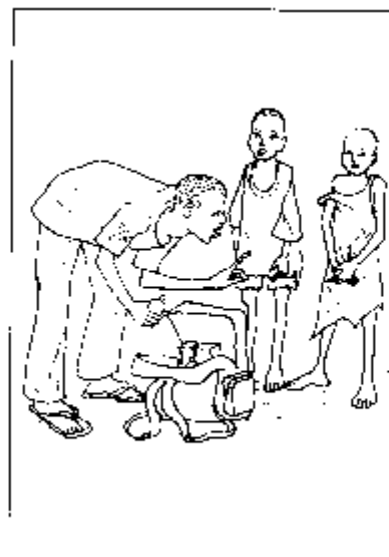
698

Always use gloves (698).

PRECAUTIONS



699



700



701

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)

CLEANING OF WOUNDS



702

Deep wounds (702) have to be cleaned and treated.



703

Remove all dirty and dead tissues with soapy water (703).



704

Drain with a syringe filled with hydrogen peroxide (704) or iodine.



705

Let hydrogen peroxide, or iodine, flow out of the wound (705).



706

Spray antibiotic (706)



The PACE programme is funded by the European Union



This document was produced with the support of FAO



and the French Cooperation



African Union



Inter-African Bureau for Animal Resources