

SECTION I: Diseases and Health Control

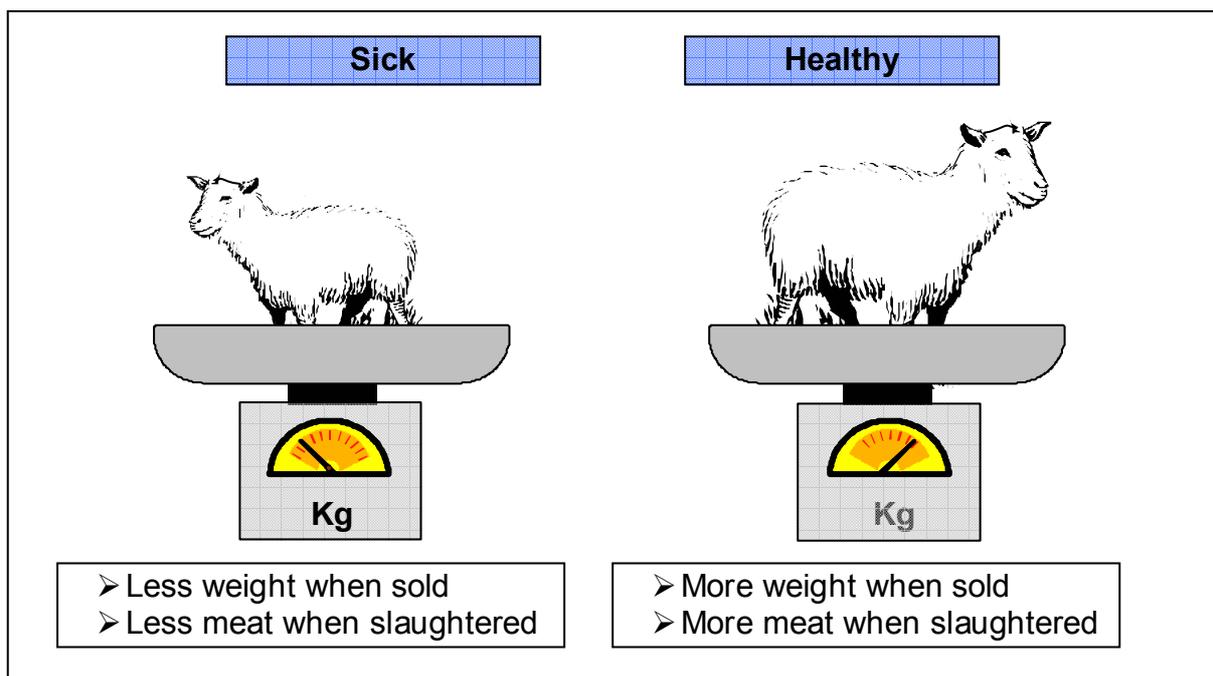
- Trypanosomosis
- Helminthosis
- Ticks and tick-born diseases
- Coccidiosis
- Foot rot
- Peste des petits ruminants (PPR)
- Respiratory diseases (Enzootic Bronchopneumonia)

1. GENERAL INTRODUCTION

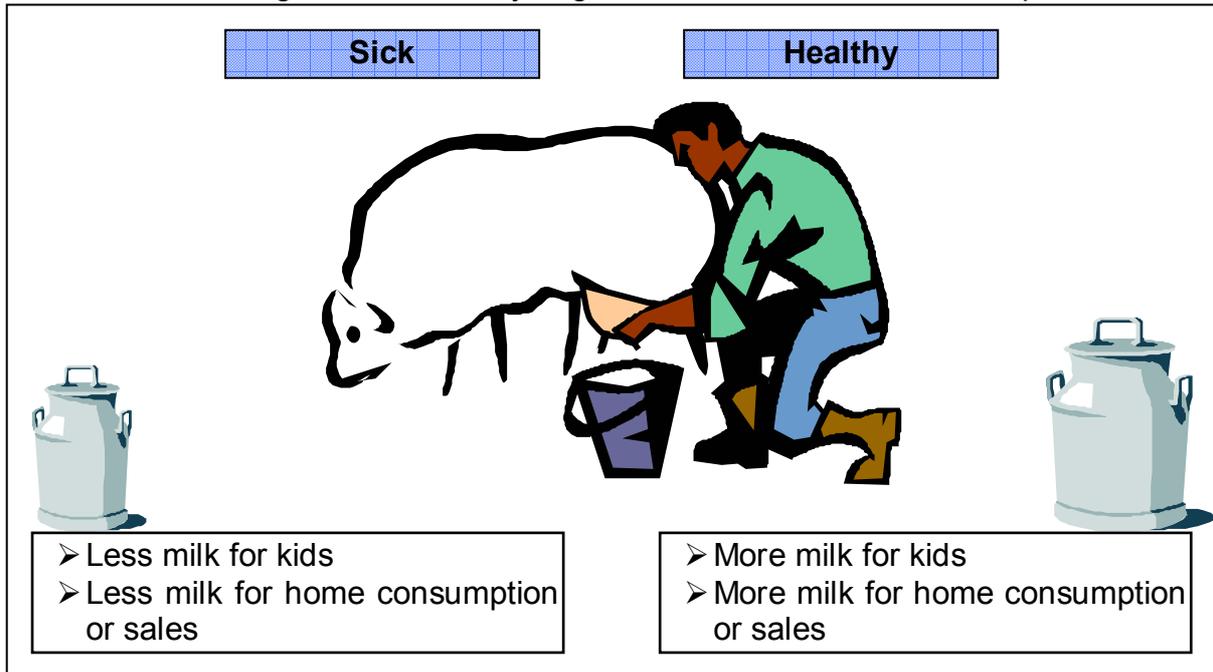
A. Importance of good monitoring for diseases

When goats, sheep or any kind of livestock are sick, this can have serious effects on the benefits that the farmer can get from his animals.

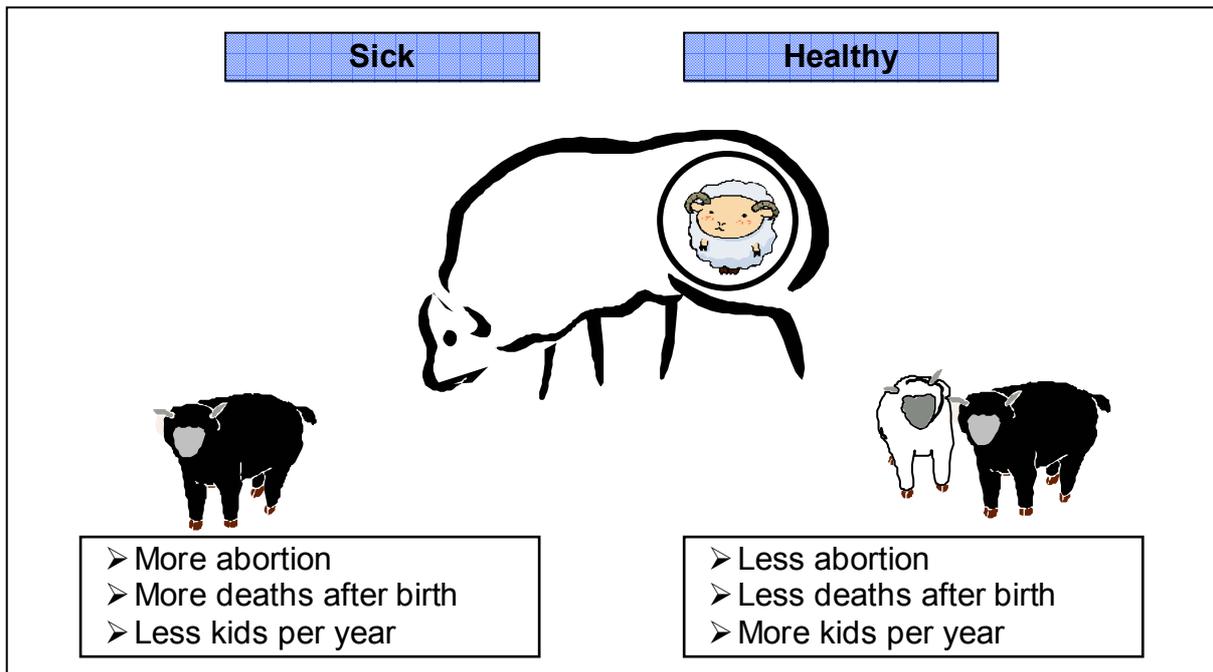
- The animals will not grow as fast as healthy ones or they can even lose weight. When the animal is sold, the farmer will get a lower price for his animals or when slaughtered the amount of meat will be less



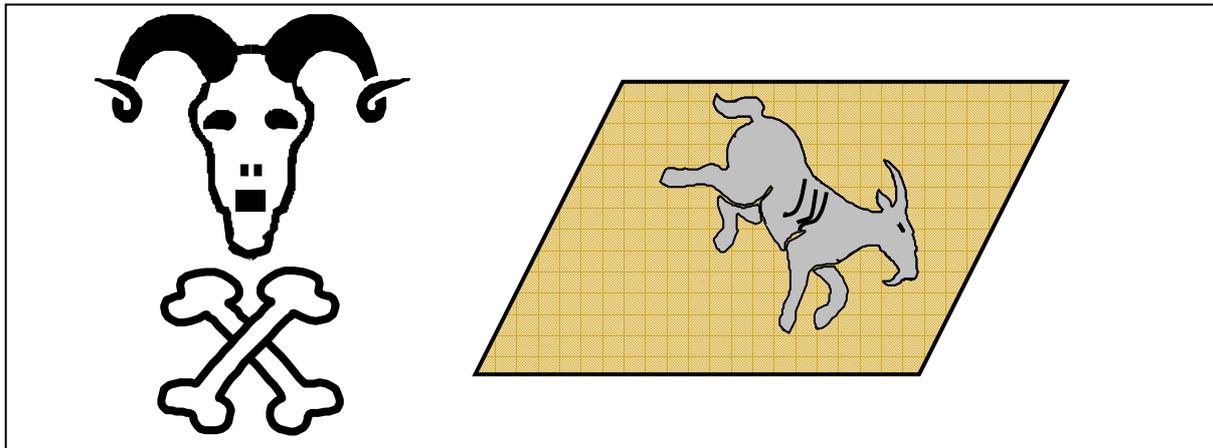
- When a lactating animal is sick, you get less milk for sale or consumption



- Because of diseases as trypanosomosis, females will have fewer live kids per year than the healthy animals



- At the end, individuals or large groups of animals can die, with the loss of savings as a result



There are many signs which can indicate that an animal is sick and that can even give an idea to the farmer on what the disease is that is affecting his animal(s). Here follows a list:

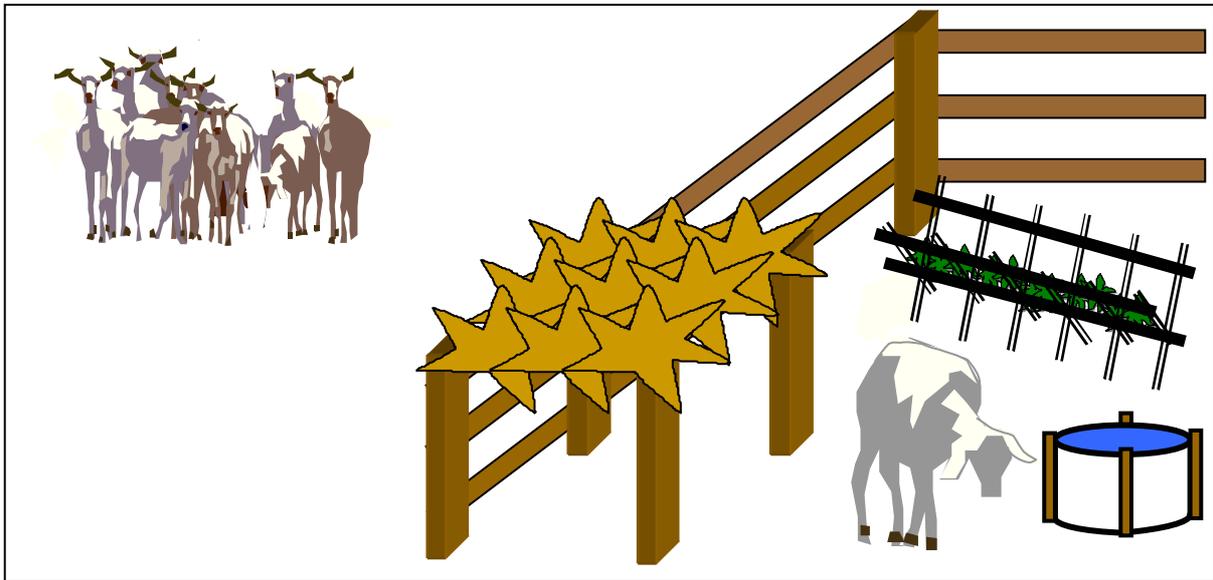
- The animal has fever
- If only one or few animals in a flock are sick, they can be noticed easily as their behaviour is different from that of the others
- The animal is listless and is standing alone
- It is not looking for food as usual, it eats less and loses weight
- Diarrhoea, eventually with blood
- Coughing and sneezing
- Slime from nose and eyes

Fever	Listless and stands alone	Does not eat and loses weight
Diarrhoea, blood	Coughing, sneezing	Slime from eyes and nose

B. What if I think that my animal is sick?

When you see one or more of these signs in one or several of his animals:

- Keep them separated from the others in a pen with shade
 - ⊗ *Separation is important so that you avoid that other animals get the disease*
- Give fresh water and feed stuffs (see section II on target animals)



- Livestock officer will treat animal if necessary
 - *If a livestock assistant is coming to the village regularly, keep the animal enclosed until that time*
 - *Otherwise, contact the livestock assistant or bring the animal to him or to ITC (on well-specified days and hours!)*
- Depending on type of disease and the condition of the animal, the livestock assistant will say if the animal should stay separated and inside, or should be allowed to graze freely



- Continue giving extra feed and fresh water (see section II on target animals)
 - ⊗ *this will result in a fast recovery*

C. How to protect animal from becoming sick?

• Vaccination:

A vaccine protects an animal (or human being) from a particular disease for a long time

Some diseases are very difficult and expensive to treat and it is better to avoid these diseases by giving vaccinations. Vaccines are made for the following diseases:

- PPR
- Pasteurellosis



• Strategic de-worming:

De-worming vulnerable animals at specific times of the year will protect them



• Nutrition: see section II

An animal that is well fed is less likely to become sick



• Housing: see section III

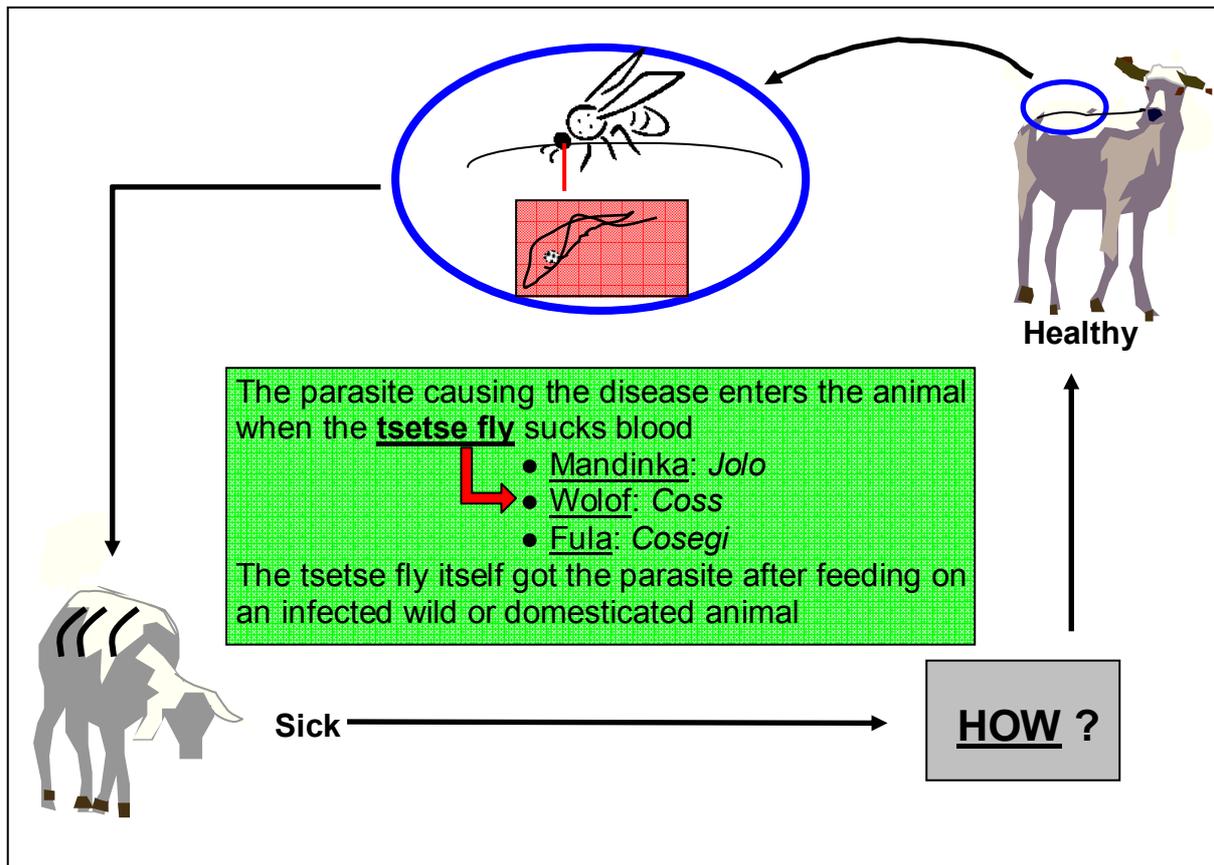
Has to protect animals from rain and wind, because this can cause certain diseases



2. TRYPANOSOMOSIS

- Mandinka: *Koja / Daso*
- Wolof: *Toyi*
- Fula: *Dasa*

A. What is trypanosomosis?



B. Special signs that animal has trypanosomosis

- White lining of the eye socket or whiteness of mucous membranes
- Swollen lymph nodes and swellings at several places of the body
- Fever, weakness, lameness
- Eat less and lose weight

C. When does disease occur?

The highest numbers of tsetse flies in the Niamina area occurs from September to October, followed by a high number of infected animals in November-December. In the Bansang area, the most flies are found from January to February, with the peak in diseases from March to June.

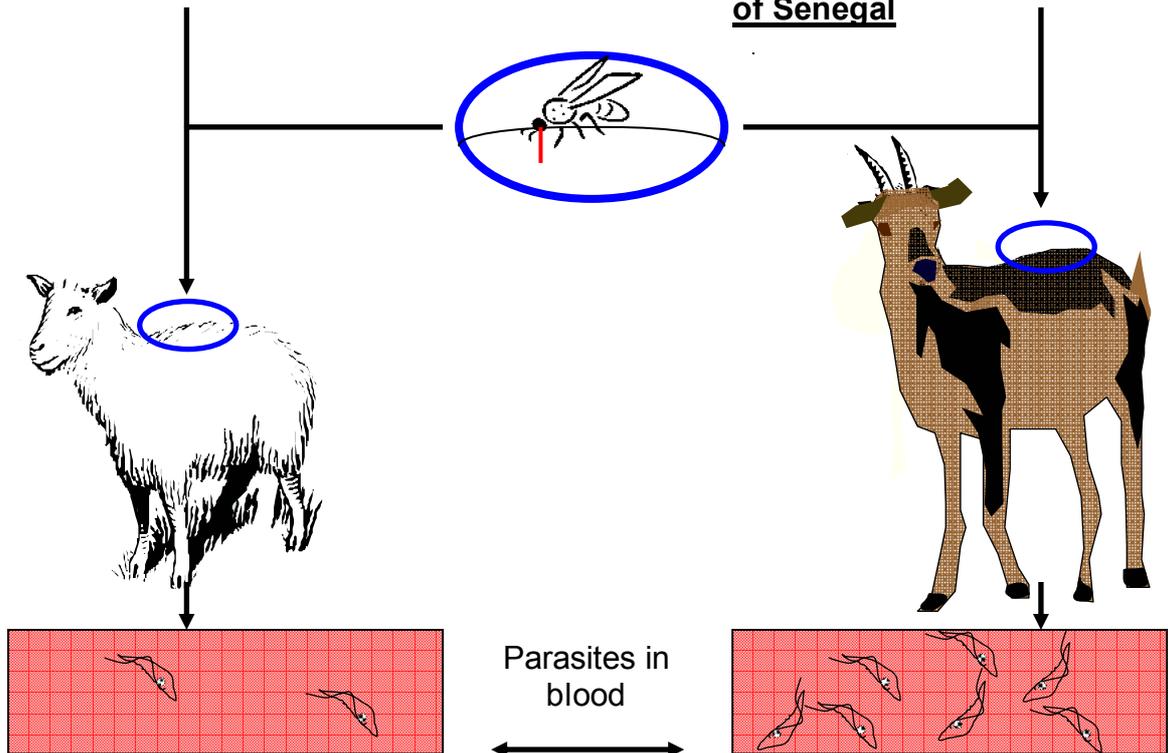
D. How to prevent animals becoming ill with trypanosomosis?

D.i. Importance of choice of animal: trypanotolerant goats and sheep

The choice of breed is an important weapon

Dwarf breed in The Gambia

Sahelian long-legged breed of Senegal



After infection by a tsetse fly, the West African Dwarf goats and Djallonke sheep will have fewer parasites in their blood and will suffer less from the disease than Sahelian breeds and crosses with Sahelians. They can well survive, grow, give milk and reproduce in areas where tsetse flies are present.

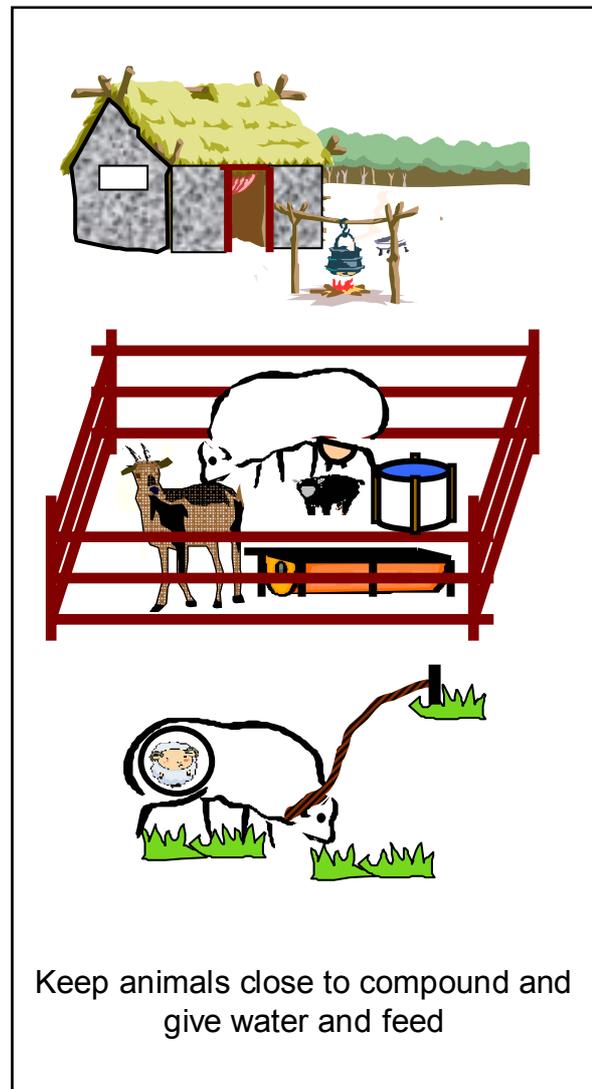
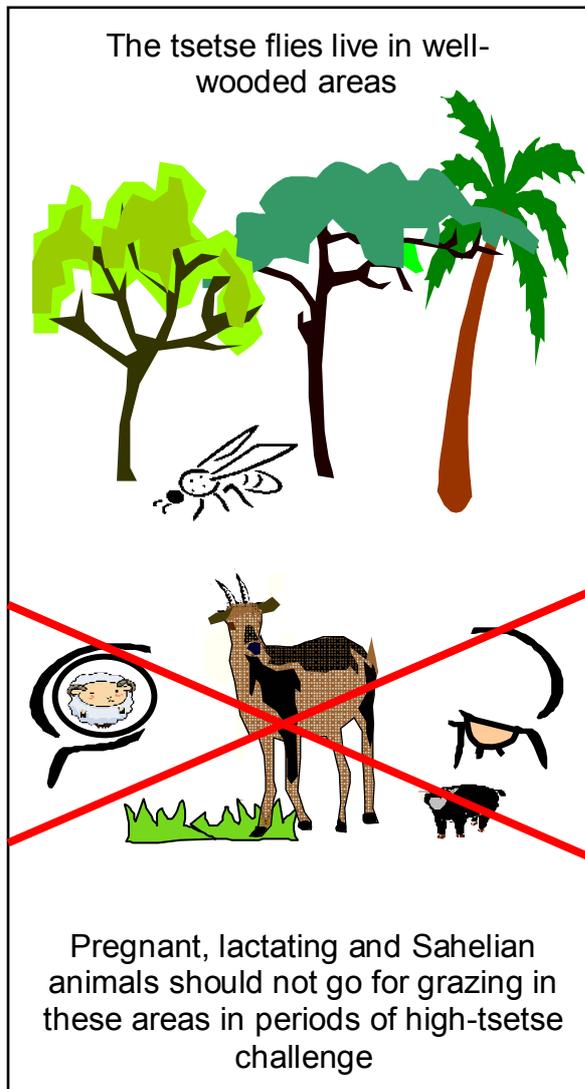
⊛ *This will however depend on the condition of animals. The dwarf animal can still become sick and suffer, just as Sahelians, and will need treatment. This can happen when:*

- Not enough food 
- They are pregnant or lactating 
- They have other diseases, like helminthosis (worms) 

D.ii. Control contact with the tsetse-fly

It is better not to allow animals to go into well-wooded areas for grazing, especially in seasons where tsetse-flies are many.

- ⊛ *Highly pregnant, lactating and Sahelian animals should be herded or kept close to the village and supplemented in order to have a lower risk of being infected*



D.iii. De-worming

If an animal has worms, it is less resistant to trypanosomosis (has more chance of getting sleeping sickness).

- ⊛ *De-worming will have a positive effect (see next section)*

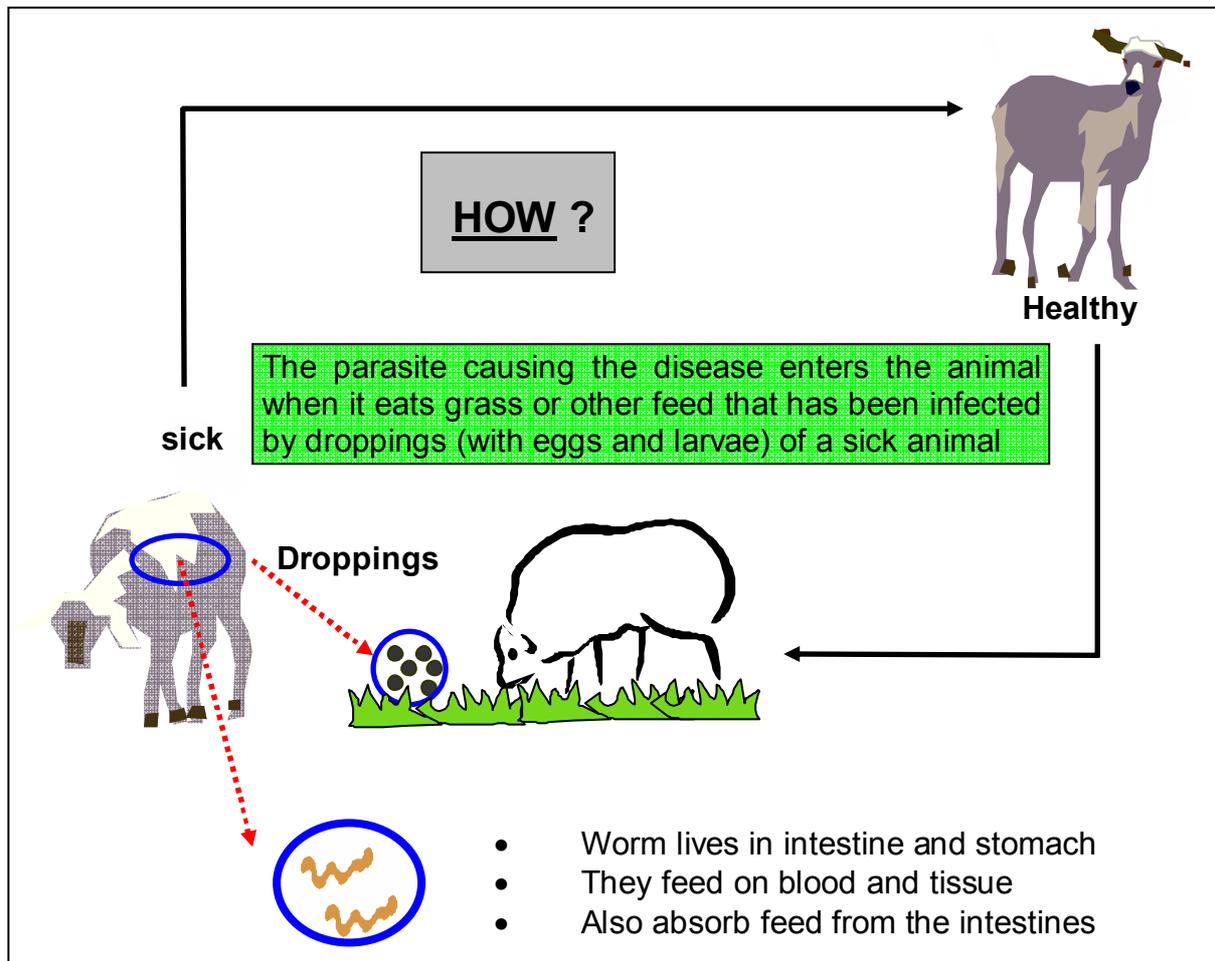
E. What to do when the animal becomes sick?

- ⊛ *Contact livestock assistant and he will decide if treatment is necessary. Keep treated animals inside and feed them well (see page 6).*

3. HELMINTHOSIS (WORMS)

- Mandinka: *Kaliya*
- Wolof: *San / Burr yaram*
- Fula: *Kaliya*

A. What is helminthosis?



B. Special signs that animal has worms

- Weakness, lameness
- Eat less and lose weight
- Stiff and dry coat
- Diarrhoea or constipation
- Digestion problems
- White lining of the eye socket or whiteness of mucous membranes

C. When does disease occur?

Peak in **sama**, the rainy season

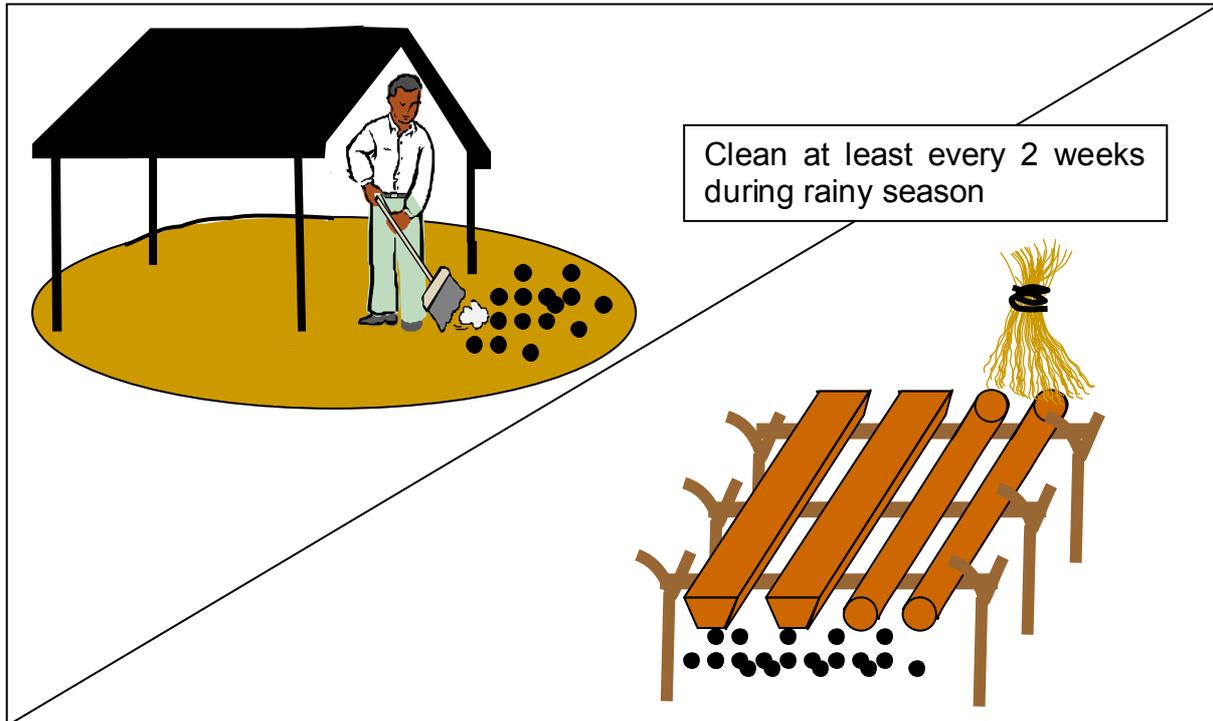


D. How to prevent animals becoming infected with worms?

D.i. Hygiene

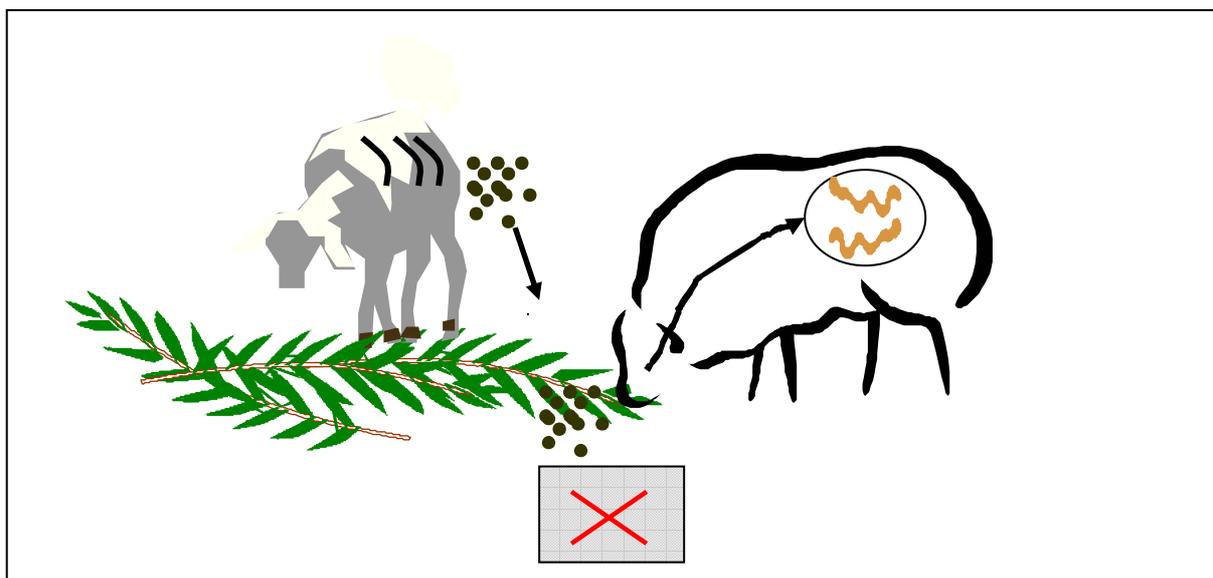
- Animals should not always be kept in the same night-holding place and the pens should be kept clean (see section III)

☒ *Remove droppings, use slatted floors, clean regularly*



- Feed supplements should not be thrown on the floor, but should be put in troughs or racks (see section II on nutrition).

☒ *This will avoid that feed is getting mixed with manure, what can cause infection after eating it*



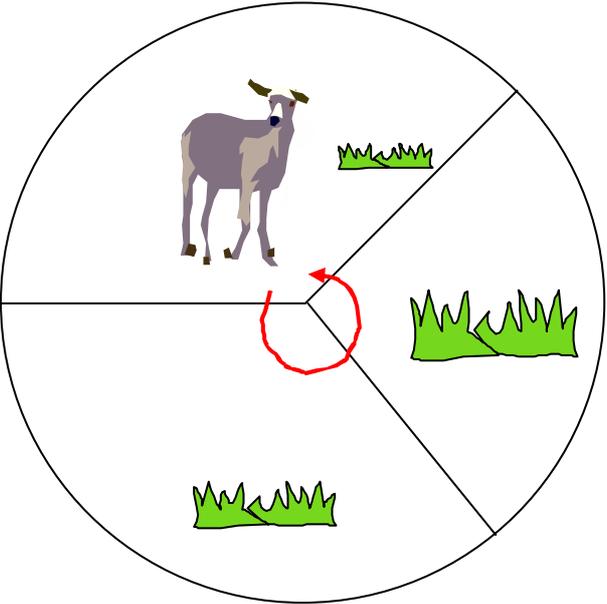
D.ii. Breed choices

There is some evidence from The Gambia, that Djallonke sheep show resistance to helminth infections. This resistance will be less good if animals do not have sufficient and good feed and when they suffer from other diseases.

Goats generally have a bigger chance than sheep to get worm problems and there is less evidence of resistance of breeds.

D.iii. Pasture resting and rotation in rainy season

By letting pasture rest for 8-12 weeks, the amount of larvae and eggs eaten by the animal will be lower.

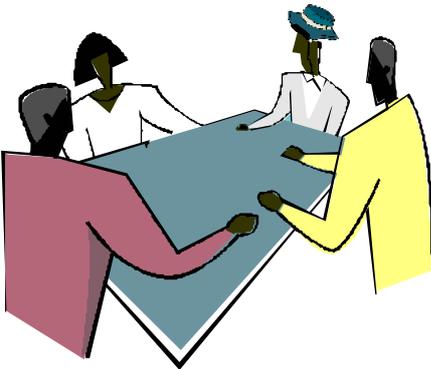


Area 1
(3-4 weeks)

Area 2
(3-4 weeks)

Area 3
(3-4 weeks)

The animals graze in area 1 for 3 to 4 weeks, and then are moved to area 2. After 3-4 weeks, they are transferred to area 3 during that same period of time. Finally, they return to area 1



- ✪ *It is important to meet with the other farmers to make proper arrangements*
- ✪ *Rotation will also allow pastures to re-grow during rest periods*

E. How to overcome disease after infection?

E.i. Protein-rich feed

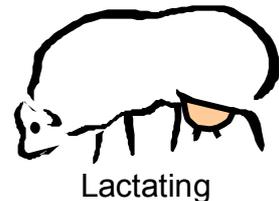
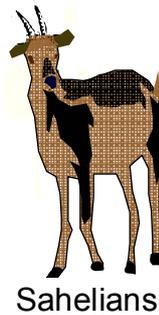
Providing animals with protein-rich fodder, such as *Leucaena* or cotton seeds, will reduce the losses caused by worms



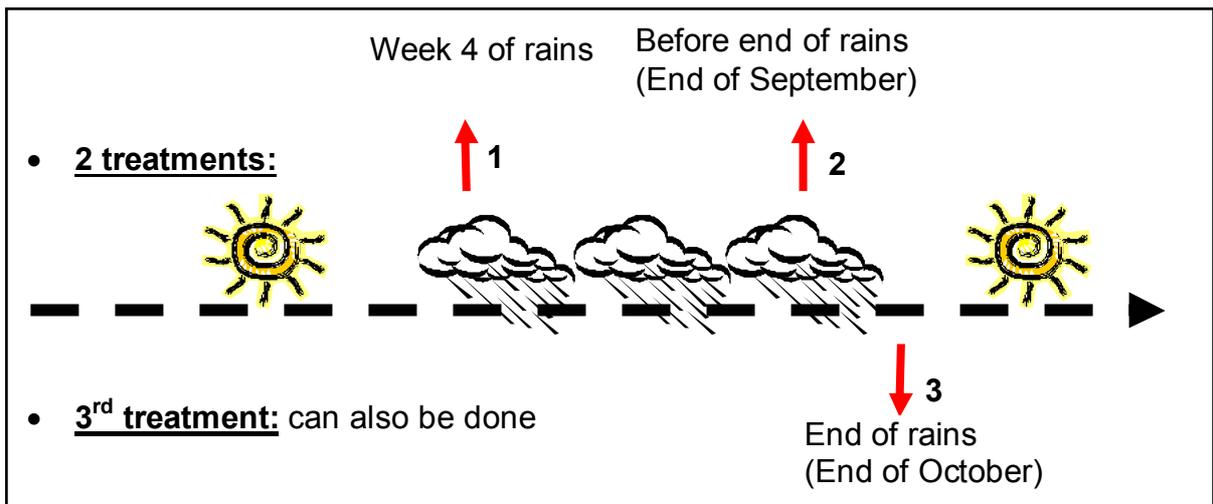
E.ii. Preventive de-worming (= de-worming before animal looks sick)

Speak with the livestock assistants about the correct preventive and curative utilization of these products

WHICH animals?



WHEN?



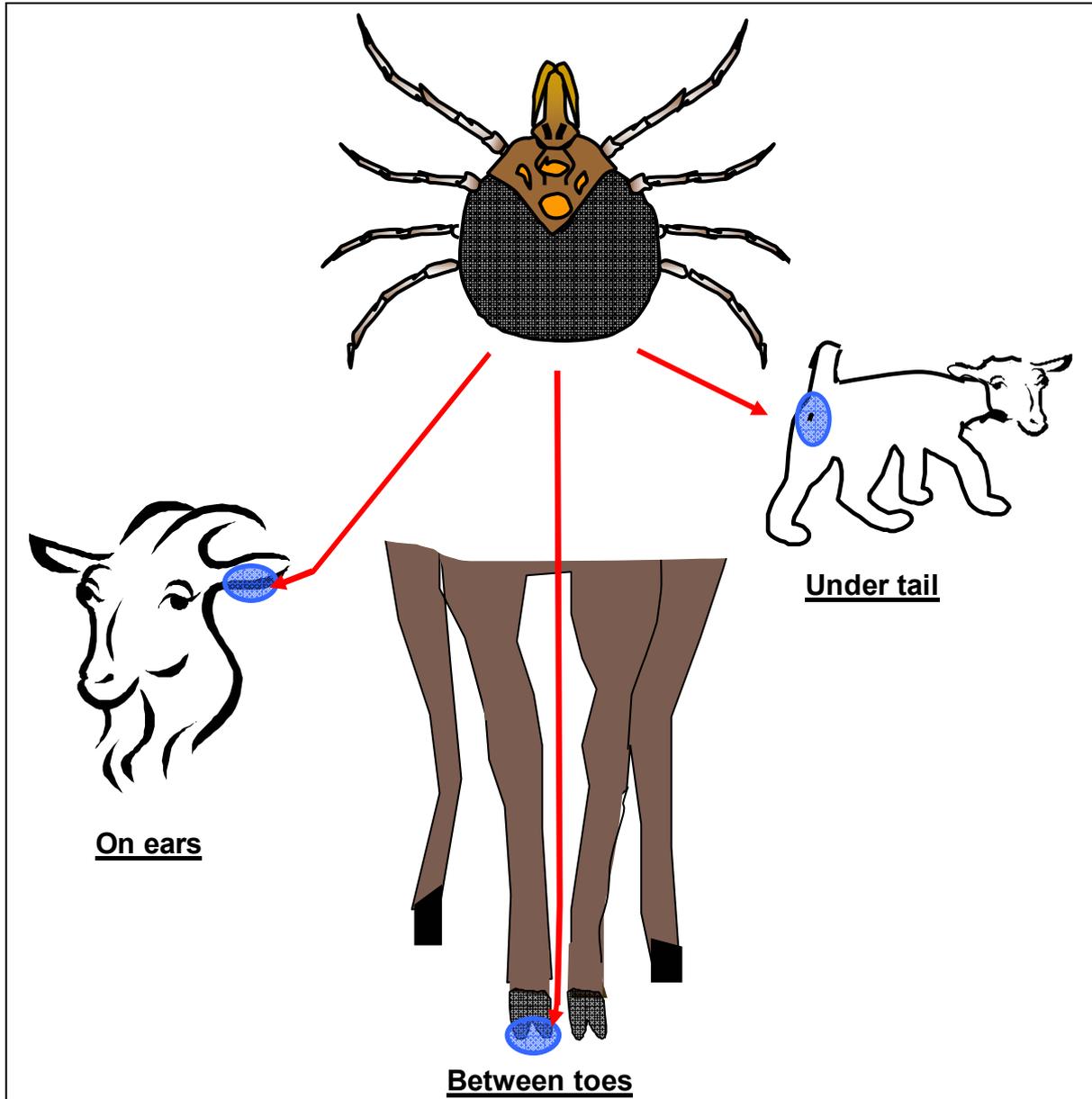
E.iii. Curative de-worming (= de-worming when animal looks sick)

All animals that show signs of disease during the rainy season (anaemia, diarrhoea and weight loss) should be treated after examination by livestock assistant.

4. TICKS AND TICK-BORN DISEASES

A. Ticks on small ruminants

- Mandinka: *Meto*
- Wolof: *Weteng*
- Fula: *Koti*



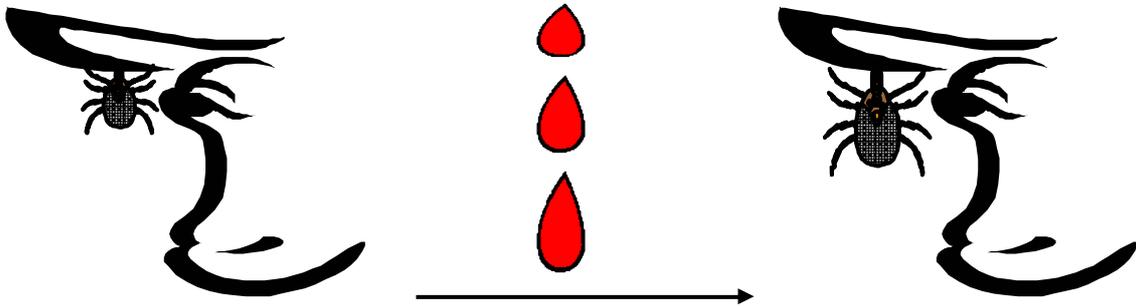
B. When?

Peak in **sama**, the rainy season

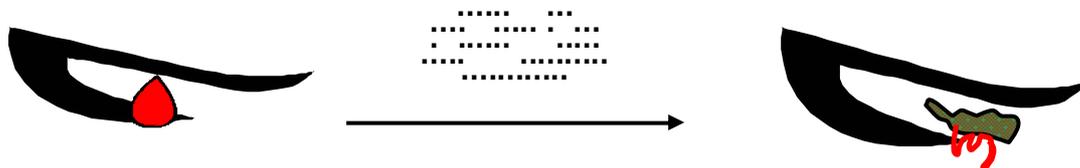


C. Effect of ticks

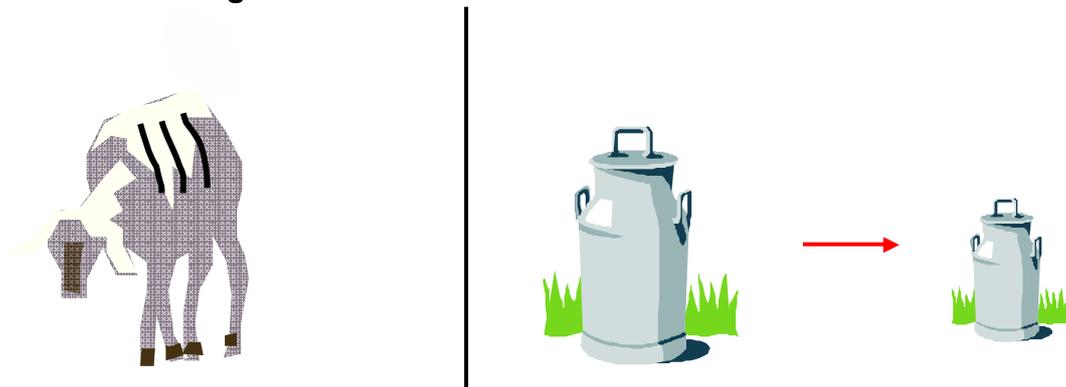
C.i. Ticks can suck a lot of blood from the animals



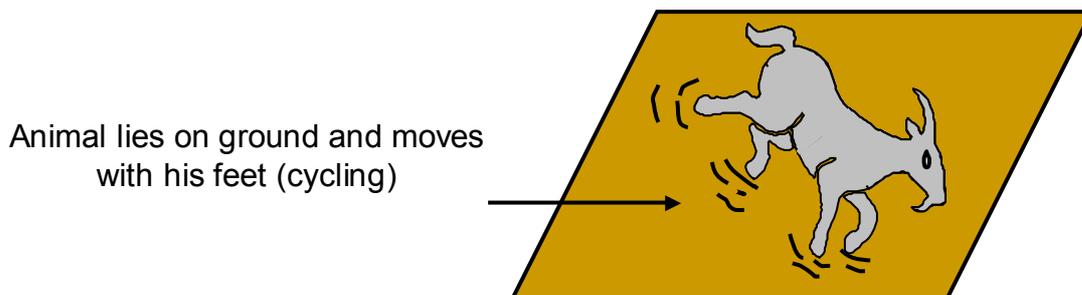
C.ii. Wounds caused by ticks can get infected



C.iii. Loss of weight and milk



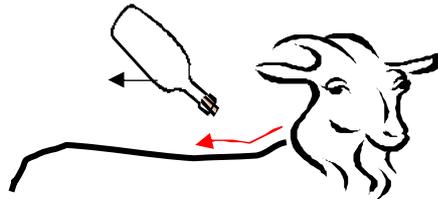
C.iv. Ticks transmit diseases such as Cowdriosis (heartwater)



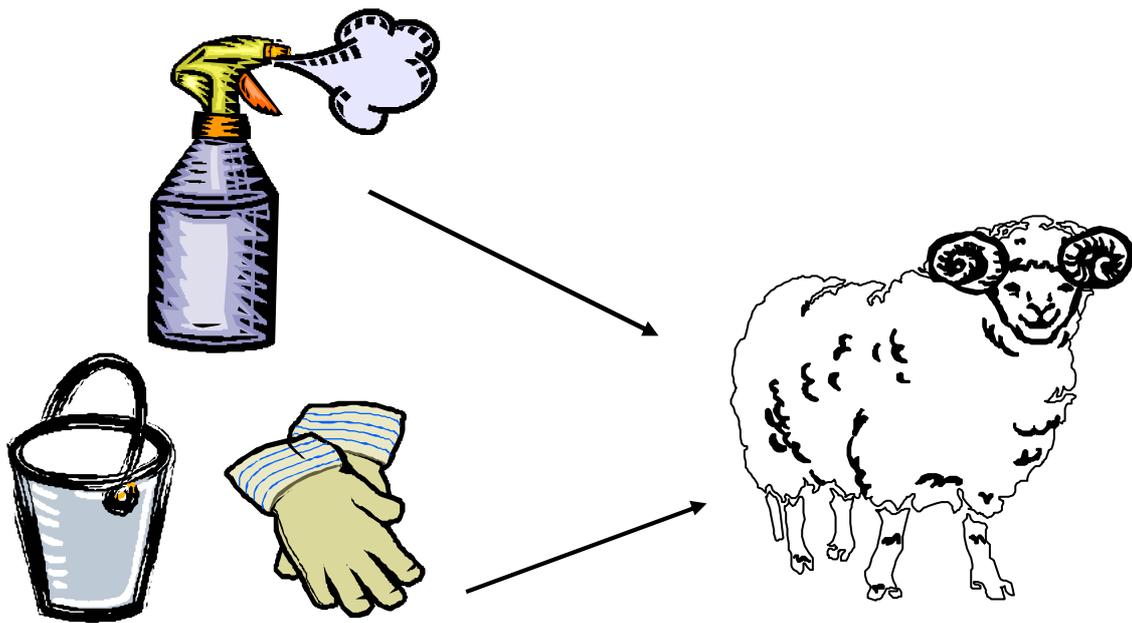
D. Prevention of ticks by using acaricides

D.i. How?

Pour-on: Some products are ready to use and can be applied on the animal directly (without diluting and spraying):



Spray: For some products an amount of water has to be added (diluting) before using. Then they can be applied by spraying.



Rub in animal with plastic gloves

⊗ *These products can also help to control lice, mange, mites and flies*

D.ii. When to use?

- ✪ *In the rainy season (sama)*



- ✪ *Every 6 weeks*

D.iii. Warning concerning use of acaricides



**No contact with skin and eyes!
Do not drink from it!
Do not eat or drink food whilst using product!**



Illustration of a hand with a flame above it, crossed out with a large red 'X'.



Illustration of an eye with a flame above it, crossed out with a large red 'X'.

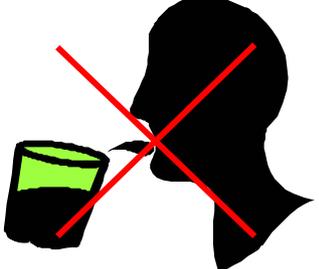


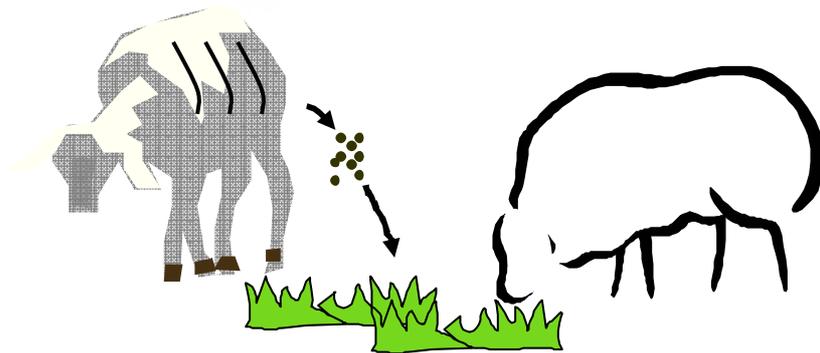
Illustration of a person's silhouette drinking from a cup, crossed out with a large red 'X'.

Speak with the livestock assistants about the correct dilution and application of the products

5. COCCIDIOSIS

A. What is coccidiosis?

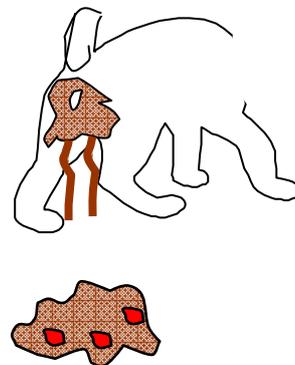
The parasite can be found in the intestines of sheep and goats. Through the dropping of an infected animal, the eggs of the parasite will fall in the grass or on other food. A healthy animal, eating this grass, will also eat the eggs. These eggs will develop in the parasite in the intestine.



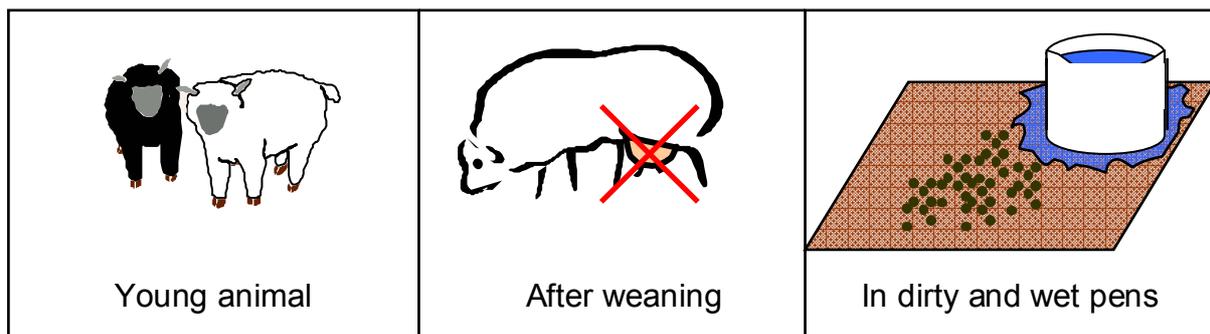
Animals can die from the disease, especially when other disease occur at the same time

B. Special signs that indicate that animal has coccidiosis

- The animal will have diarrhoea, which can contain blood if disease is severe and be very dark
- Fever, weakness, lameness
- Eat less and lose weight

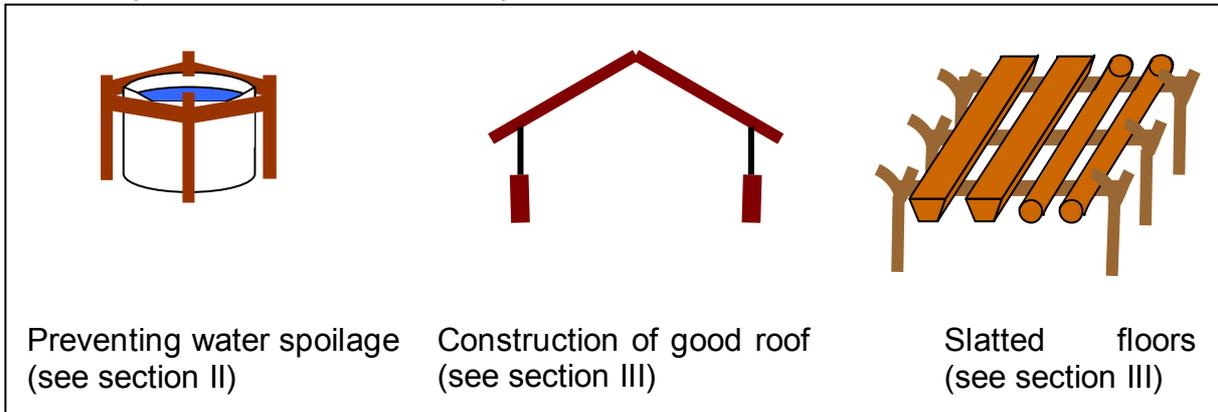


C. Risk animals

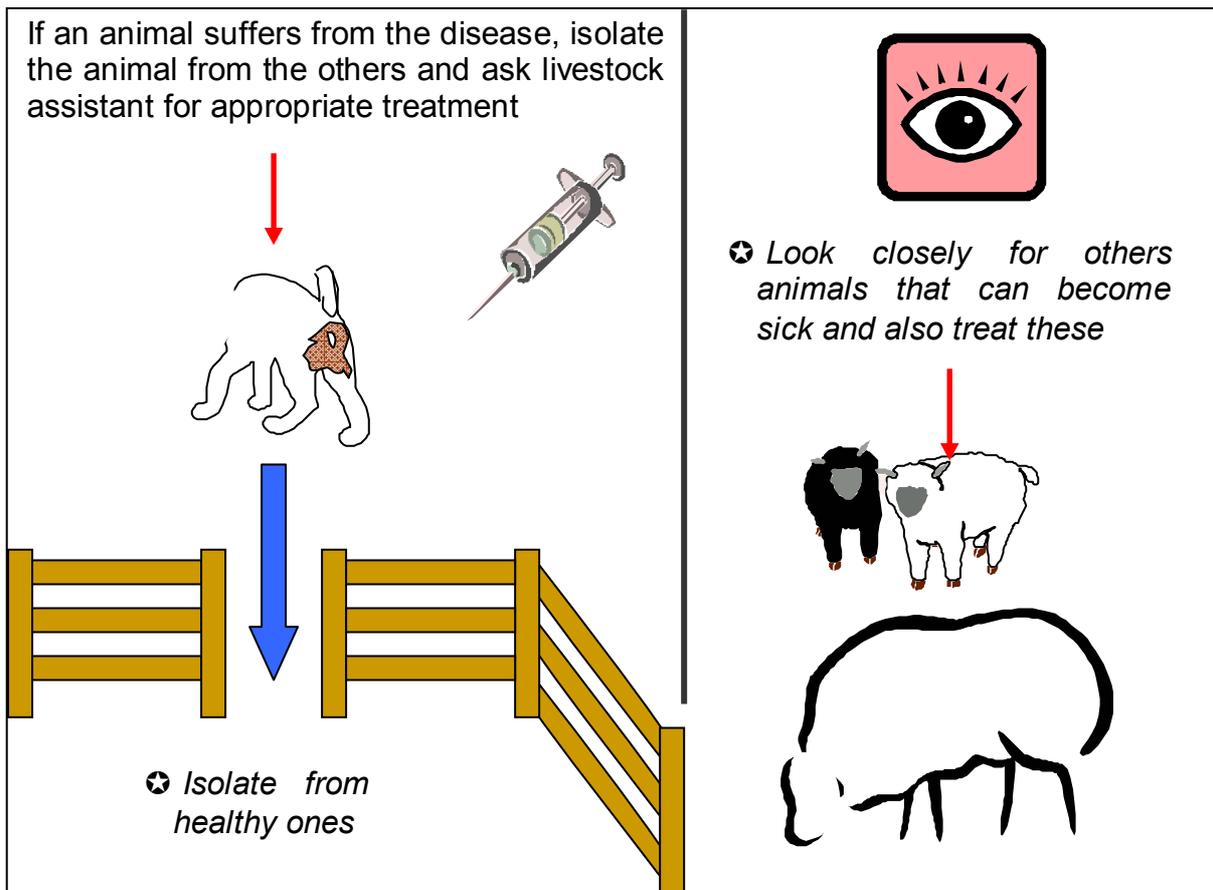


D. How to avoid an animal becoming infected?

- ✦ Pasture resting and rotation (see page 13)
- ✦ Clean pens and night-holding places (see page 12)
- ✦ Dry floors can be obtained by:



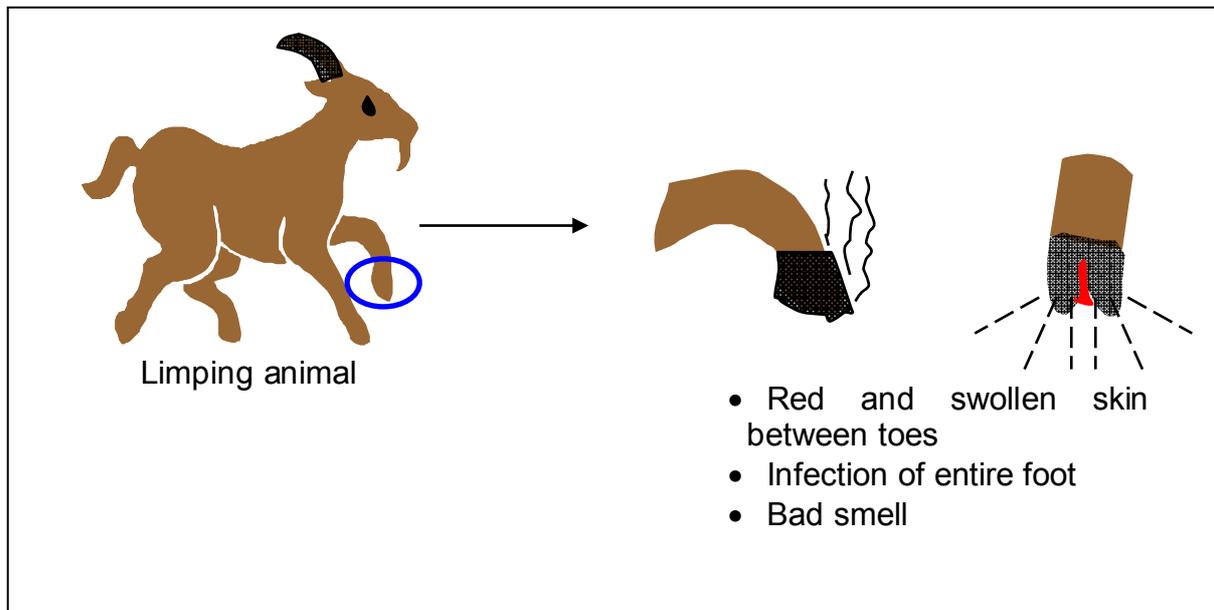
E. How to overcome disease after treatment?



6. FOOT ROT

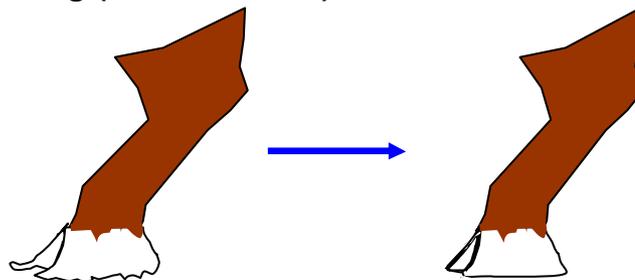
- Mandinka: *Mbunyang kungo*
- Wolof: *Tankabu harr*
- Fula: *Mbunyo*

A. What is foot rot?



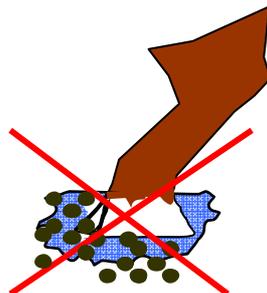
B. How to protect an animal from getting foot rot?

B.i. Hoof trimming (see section IV)

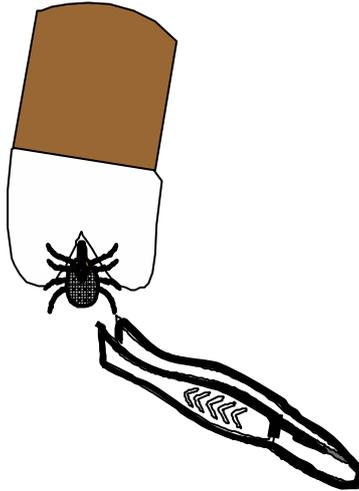


B.ii. Keep animals on clean floors (see page 12)

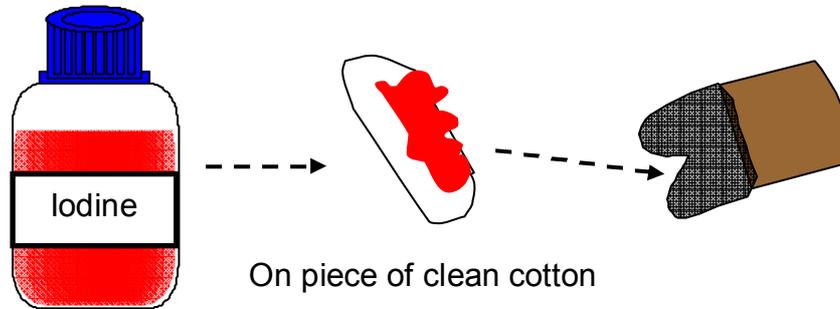
B.iii. Provide good roofing (see section III)



B.iv. Remove ticks completely from between toes

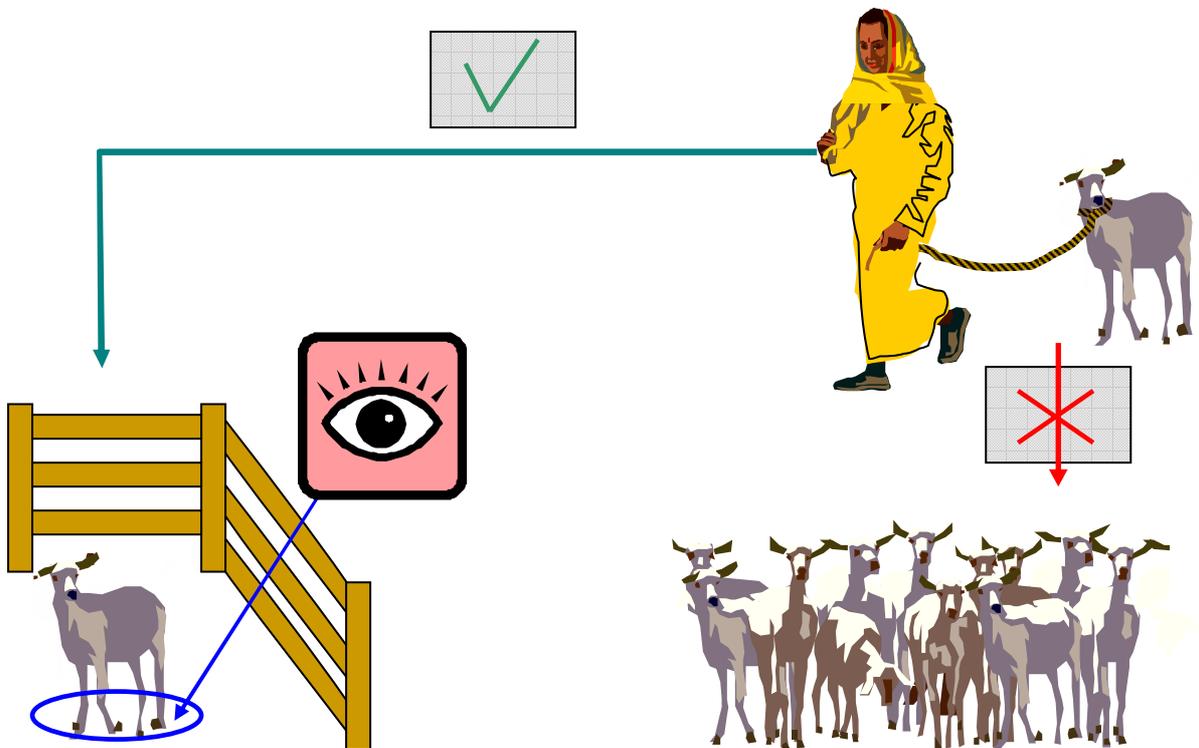


B.v. Disinfect all wounds at foot



On piece of clean cotton

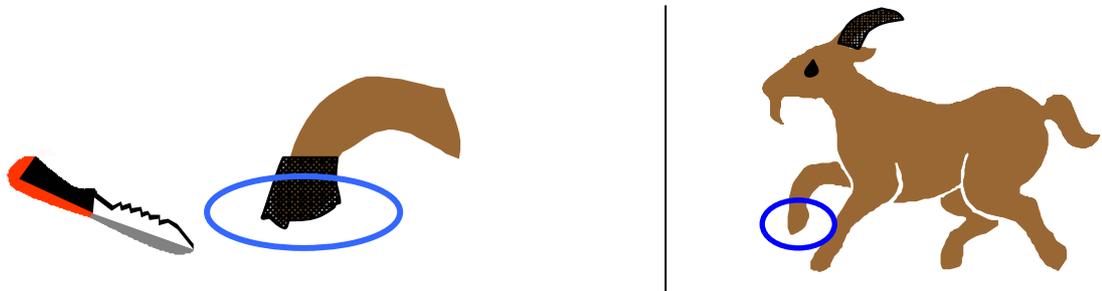
B.vi. Keep new animals separated for 1 month and examine feet



C. What to do when animal has foot rot?

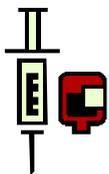
C.i. Treatment of feet

- Hoof paring: trim and remove horn until you expose necrotic tissue



- Apply bactericidal solution every 2 – 3 days
 - **Foot bathing:** animal has to pass with his foot in a solution of 10 % zinc sulphate, 10 % copper sulphate or 5 % formaldehyde
 - **Foot soaking:** animal has to stand 1hour in a solution of 10 % zinc sulphate and 0.2 % laundry detergent (=2 ml detergent in 1 litre of water)
 - **Spray:** Oxytetracycline

C.ii. Injections



Go to livestock assistant for treatment

C.iii. After treatment:

Put animals on a clean and dry floor!

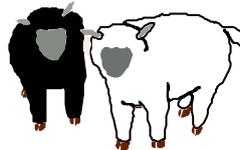


7. PESTE DES PETITS RUMINANTS (PPR)

- Mandinka: *Konobaiye kurango*
- Wolof: *Chaar*
- Fula: *Charu*

A. What is PPR?

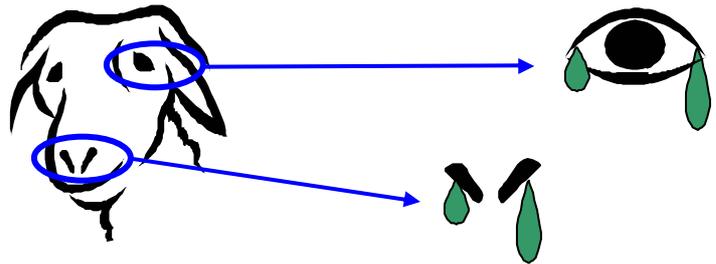
Disease is more severe with young animals, which can die because the animals lose a lot of weight and fluid (water). Can be more severe when other disease also develop



B. How to recognize PPR?

B.i. Respiratory problems

- Slime from eyes and nose



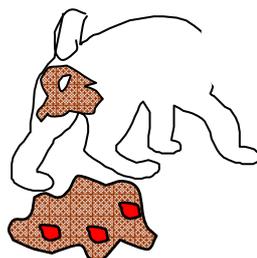
- Coughing and sneezing



- Wounds around nose and mouth



B.ii. Diarrhoea and blood

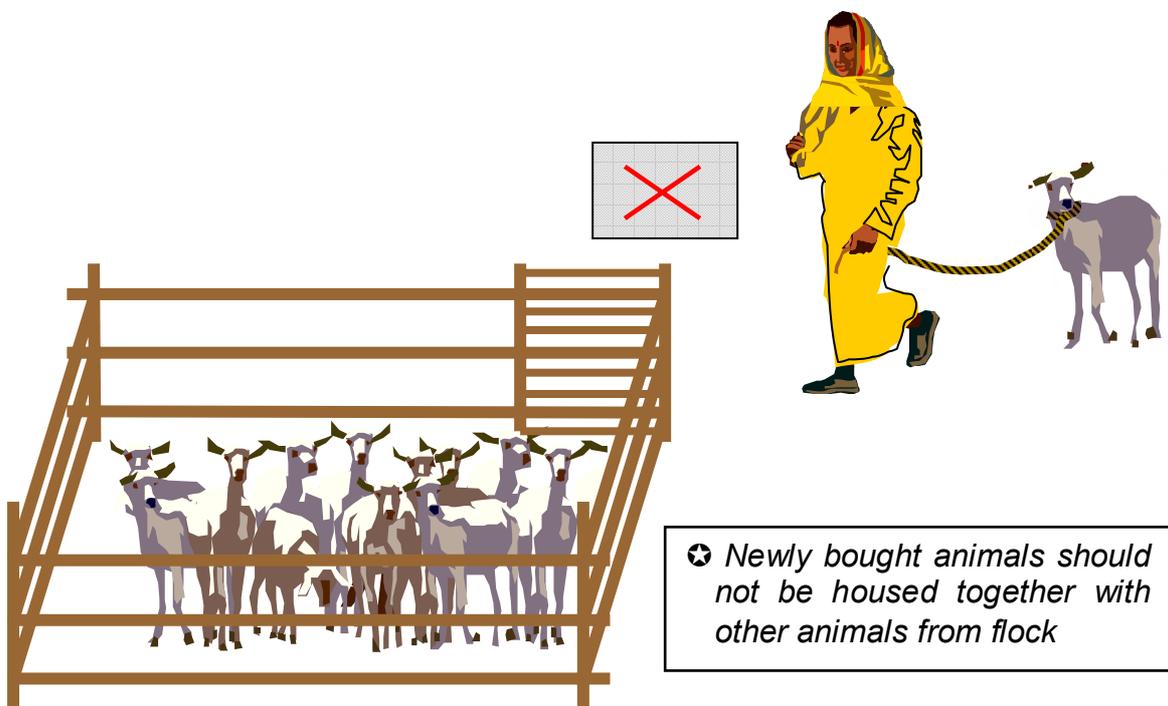


C. How to protect an animal from getting PPR?

C.i. Join vaccination campaigns

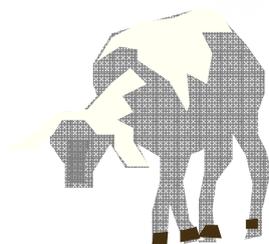


C.ii. Prevention: do not house animals coming from different areas together



D. What to do when animal gets PPR?

When animal becomes sick, it should be removed from the flock and livestock assistant should be notified

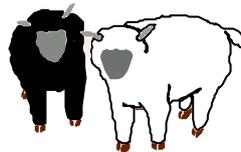


8. RESPIRATORY DISEASES (PASTEURELLOSIS)

- Mandinka: *Kuffu kaffeh kurango*
- Wolof: *Jiffe Jaffeh / Seda*
- Fula: *Jofeh*

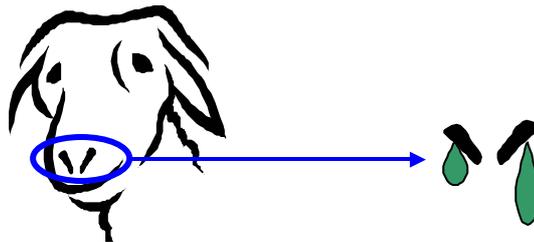
A. What are respiratory diseases?

It is a disease that can occur when animals are not housed in good conditions. Especially young animals can become sick. **Pasteurellosis** is the most important



B. How to recognize respiratory diseases?

- Slime from nose



- Coughing and sneezing



- Difficulties breathing

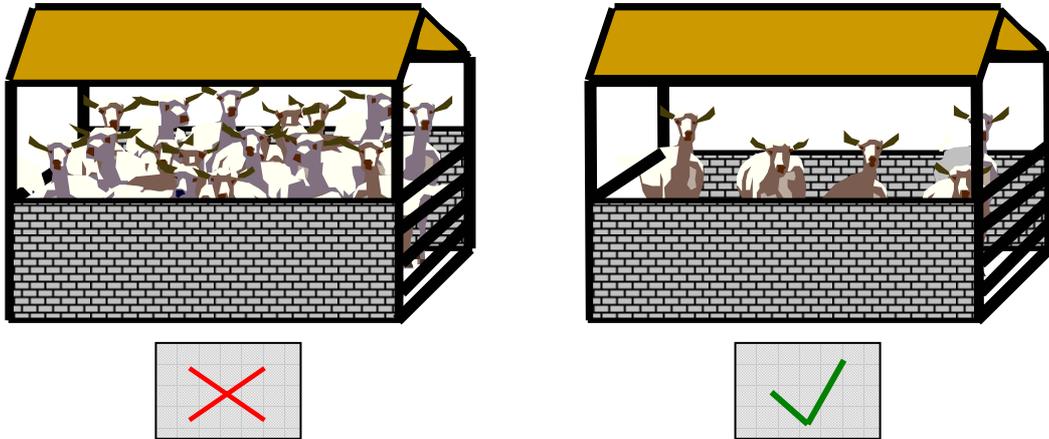
C. How to prevent an animal becoming sick?

C.i. Vaccination against Pasteurellosis

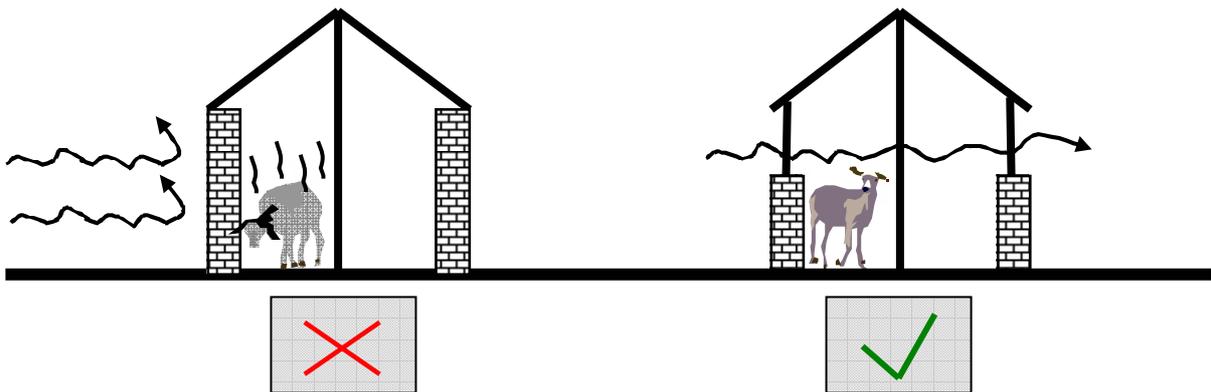


C.ii. Give animals enough space (1 by 1 meter, see section III)

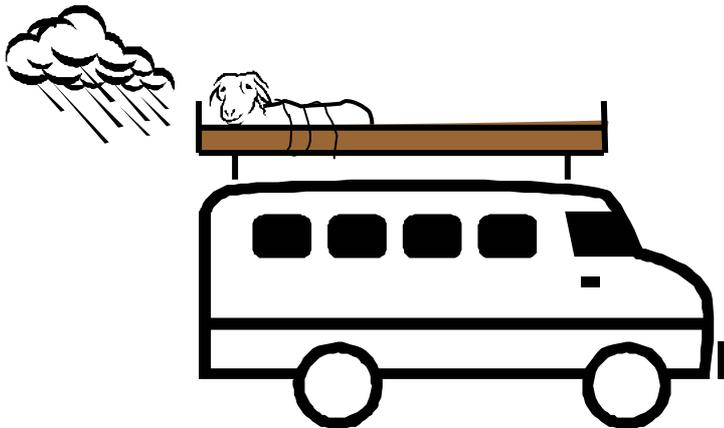
Example: a house of 3 meters long and 4 meters wide can take 12 adult goats



C.iii. Enough ventilation in houses (see section III on housing)



C.iv. Avoid transportation in difficult conditions



D. What to do when animal becomes sick

Contact livestock assistant for treatment