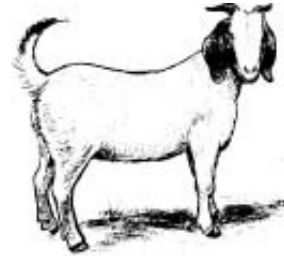
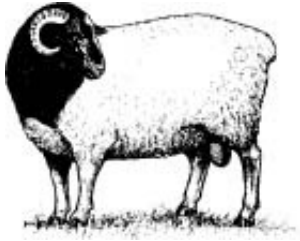




Directorate Communication

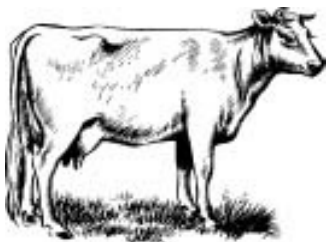


National Department of  
Agriculture



## TICK-BORNE DISEASES IN RUMINANTS

Jenny Turton



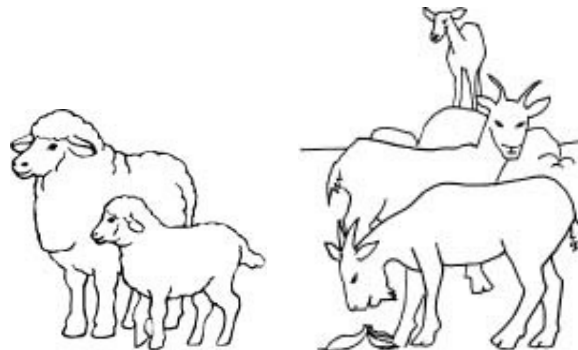


## What are tick-borne diseases?

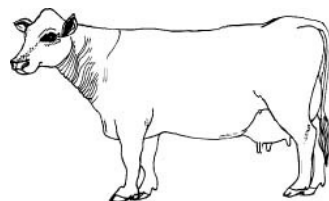
- Tick-borne diseases are diseases which are spread between animals by the bite of an infected tick
  - Ticks become infected by feeding on animals that are either sick from disease, or are healthy but have the parasite in their blood (carriers)
  - Ticks infect animals when they feed on them, through their saliva
  - A single infected tick can pass disease on to an animal
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## Important tick-borne diseases in ruminants

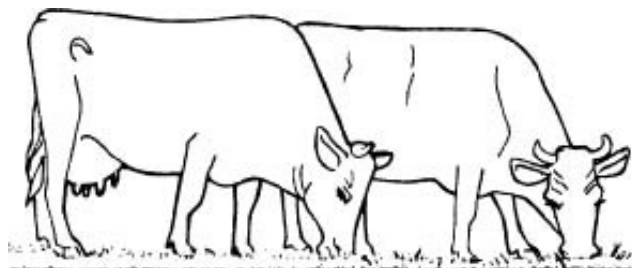
- Heartwater in cattle, goats and sheep



- Redwater in cattle



- Gallsickness in cattle



## Which tick species transmit the different diseases?

- Heartwater: bont ticks



*Male*



*Female*

- Redwater: blue ticks



*Male*

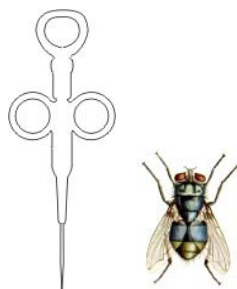


*Female*

- Gallsickness: blue ticks, others also important (such as red-legged tick)



*Male red-legged tick*



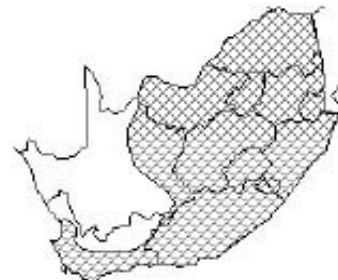
Gallsickness can also be spread from one animal to another by biting flies and by blood on instruments and needles (eg during vaccinations, injections, dehorning and castration)

## Where do the different tick-borne diseases occur?

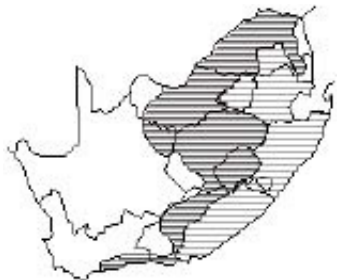
◆ The diseases occur wherever there are ticks



*Distribution of heartwater*



*Distribution of gallsickness*



*Distribution of redwater*

*African redwater--dark area*

*Asiatic redwater and African redwater--lighter area*

## How important are tick-borne diseases?

◆ Tick-borne diseases can cause heavy losses of animals

◆ They can prevent the introduction of high-producing animals to upgrade or replace local stock

## Which animals are most at risk from tick-borne diseases, and when

## is disease most likely?

- Exotic (European) breeds (tropical breeds like the Nguni and Brahman tend to be more resistant)



- Older animals
- Goats and sheep are more at risk from heartwater than cattle
- Animals moved from disease-free areas to disease areas
- Animals born in winter (not exposed to parasites when young)

- Disease is most likely after good rains, because then there are more ticks




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## Signs in sick and dead animals

- The disease can range from mild to severe, depending on different factors like species, age, protection, tick control, climate, season and seriousness of parasite strain
- The early signs for all diseases are often loss of appetite, depression and weakness, and lower milk production in milking animals
- Pregnant animals can abort

### *Heartwater*

### Sick animals

- **Fever (40 °C or higher)**

- ◆ **Nervous signs**

- Nervous signs are more obvious in cattle than in sheep and goats
- Trouble with walking
- High stepping walking
- Unusual behaviour like walking into fences, circling, falling down, chewing movements (can look like rabies)
- Slight tapping of the forehead with a finger causes blinking
- Convulsions, with pedalling movements

- ◆ **Death**



## Dead animals

- Large amounts of fluid in belly and chest and the sac surrounding the heart (especially in sheep and goats)
- Swelling of the brain with fluid
- Fluid in the lungs and froth in the airways

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## *Redwater*

## Sick animals

- There are two types of redwater, namely Asiatic redwater and African redwater
- Asiatic redwater is the more serious disease, although African redwater is probably more important as it is more widely spread. The signs are the same, although nervous signs also occur with Asiatic redwater
- Fever (40-41,5 degrees C)
- Pale to yellow eyes and gums
- Red-coloured urine
- With Asiatic redwater there could be nervous signs, with difficulty in walking and convulsions (can look like heartwater)
- Death
- Calves are resistant for the first 6 to 9 months of life



## Dead animals

- **Pale or yellowish carcass**
- **Blood thin and watery**
- **Large spleen**
- **Gallbladder large and filled with bile**
- **Red-coloured urine**
- **Brain pink in case of Asiatic redwater**

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## ***Gallsickness***

## Sick animals

- May have a fever
- Pale to yellow eyes and gums
- Trouble with walking
- Heavy breathing
- Constipation (from rumen movements stopping)
- Death
- Calves are resistant for the first 6 to 9 months of life



## Dead animals

- Yellowish carcass
- Large spleen
- Large gallbladder filled with thick brownish-green bile

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## How can you know if your animals have these diseases?

You can suspect these diseases by:

- ◆ Clinical signs in sick animals
- ◆ Appearance of dead animals



**Your veterinarian or animal health technician will confirm this by looking for parasites in:**

- ◆ **Blood smears for redwater and gallsickness**
- ◆ **Brain smears for heartwater and Asiatic redwater**

## **What other diseases can tick-borne diseases be confused with?**

- **Any disease which causes similar signs**
- **For example, the nervous signs seen with Asiatic redwater and heartwater can be the same, and can also look like diseases such as rabies and infection in the brain from other causes**
- **The fluid in the lungs in the case of heartwater can look like poisoning or other diseases such as pulpy kidney and bluetongue**
- **Gallsickness and redwater can look much the same**

**The only way to be sure of the disease  
is to have it confirmed by tests  
on the sick or dead animal**

## **How can tick-borne diseases be treated?**

- **Animals must be treated quickly when signs of disease are noted, or they may die**
- **Strictly follow the directions on the labels of drugs, otherwise the drug either will not work or may even harm the animal**
- **If you are not sure which disease the animal has, you should seek advice**
- **Some of the drugs prescribed for treatment can only be given to an animal by a veterinarian**

- **If in doubt and you cannot quickly get help from your veterinarian you could perhaps use a combination of tetracycline and diminazene aceturate**

## ***Heartwater***

- **Tetracyclines (many different brands)**

## ***Redwater***

- **Imidocarb dipropionate (eg Imizol or Forray 65) or diminazene aceturate (eg Babazene, Berenil, Veriben)**
- **Keep the animal quiet and do not let it walk long distances**

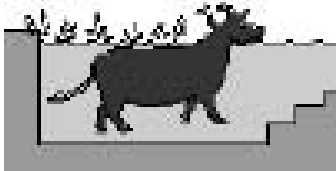
## ***Gallsickness***

- **Tetracyclines (many different brands) or imidocarb dipropionate (eg Imizol or Forray 65)**
  - **Keep the animal quiet and do not let it walk long distances**
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## **How can tick-borne diseases be prevented or controlled?**

- **The prevention and control of tick-borne diseases are very complex and varies in different areas. Ask your animal health technician or veterinarian for advice about the best methods in your area**
- **Animals should preferably be exposed to the parasites at a young age so that they can develop natural immunity in areas where the diseases occur**
- **Tick control by dipping or spraying can reduce the risk. Strategic tick control is good, as it is a level of control that prevents ticks becoming a nuisance, but allows enough ticks to remain for**

- infection to occur at an early age so that the animals become protected against the diseases**
- **Try to keep only tropical breeds such as Ngunis or Brahmans which are more resistant to ticks and tick-borne diseases**
  - **Vaccines are available for heartwater, redwater (both types) and gallsickness. The vaccines, particularly for heartwater, must be used carefully as they contain live parasites and can cause disease and even death if the animals are not treated in time. Pregnant animals should not be vaccinated, as abortion may occur**

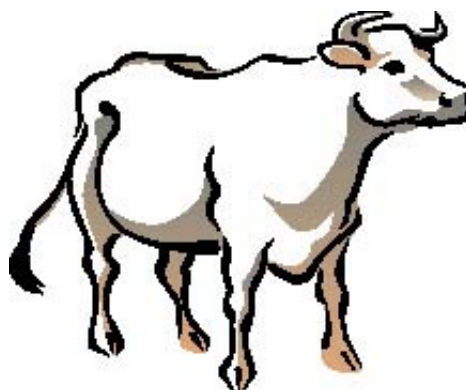


**For further information about the control,  
recognition and treatment of these diseases,  
contact your animal health technician or  
state veterinarian**

**or**

***Animal Health for Developing Farmers*  
at the ARC-Onderstepoort Veterinary Institute  
Private Bag X05, Onderstepoort 0110**





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