

Theme 9: Animal Health

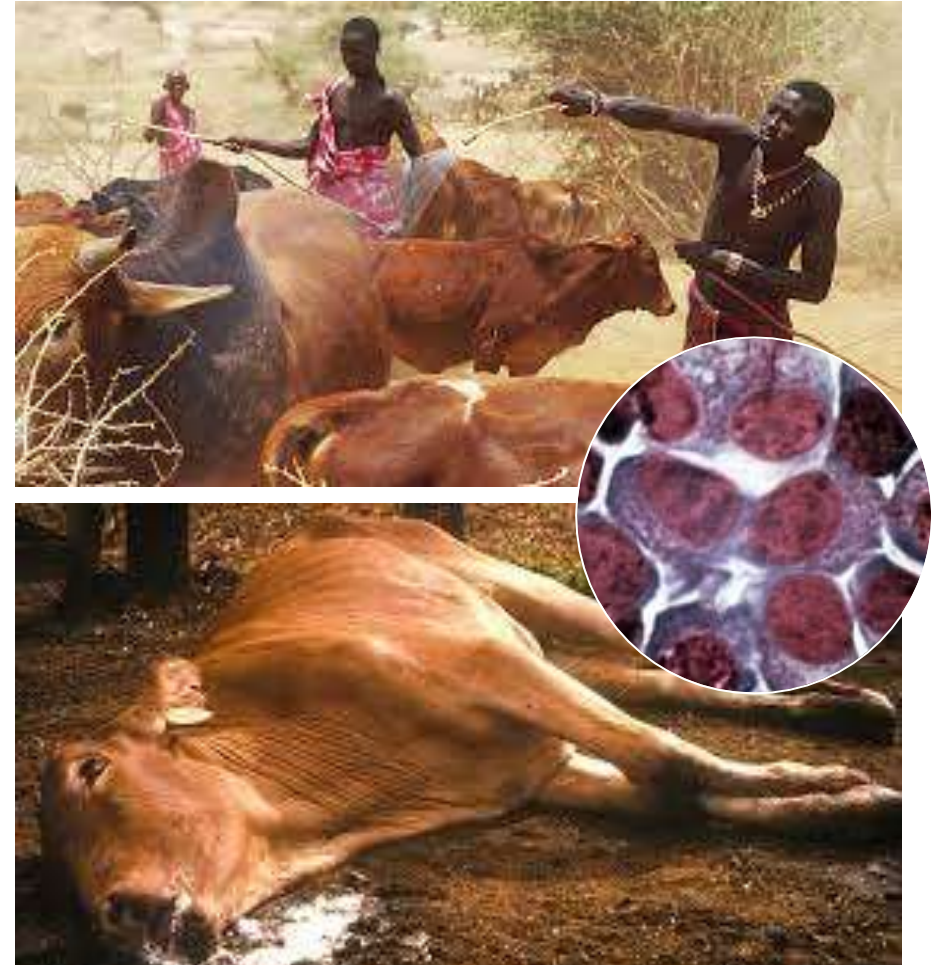
INTRODUCTION TO ANIMAL HEALTH (PREVENTION VS CURATIVE HEALTHCARE) **Level 2**

Topic	Training & information Content
9.1	Introduction to Animal health (Prevention vs curative health care)
9.2	Health signals
9.3	Biosecurity of dairy farms
9.4	Tick born diseases (Prevention and treatment)
9.5	Worm infections (Prevention and treatment)
9.6	Vaccination schedule and planning
9.7	Mastitis prevention and treatment
9.8	California Mastitis Test
9.9	Usage and storage of veterinary medicines on dairy farms
9.10	Administering of medicines to dairy cows
9.11	Instruction use of injectors into teat canal
9.12	Key performance indicators (KPIs) for monitoring health status of dairy herd



1. You will learn about (learning objectives):

- Types/kinds of diseases that affect cattle
- How cattle contract diseases
- How to prevent cattle diseases
- How to cure cattle diseases



East Coast Fever is one of the most devastating cattle diseases in East Africa.

2. Introduction

- To keep cattle healthy and cure them of sickness is (one of) the major challenge for a dairy farmer.
- This presentation gives some general information on;
 - What kind of cattle diseases are there,
 - how do cattle contract them,
 - how can you prevent the diseases,
 - and if they contract them, how do you cure them?



Mastitis is an issue at nearly all dairy farms.

3. Types/Kind of diseases that affect cattle

- Basically there are three types of causes for cattle to get ill.
 - i. Infectious (due to germs and viruses)
 - ii. Metabolic (internal body disturbance)
 - iii. Injury and intoxication



Nail eaten by cow penetrates stomach.

Sunburn is caused by an intoxication.



Foot & mouth disease is caused by an infection (virus).



4. Promoting cattle health: Animal Freedoms

- One of the ways to promote cattle health is to adopt the five animal freedoms.
 - i. Freedom from hunger or thirst.
 - ii. Freedom from discomfort.
 - iii. Freedom from pain, injury or disease
 - iv. Freedom to express (most) normal behaviour.
 - v. Freedom from fear and distress.



5. Infectious diseases

According to the world health organization:

- Infectious diseases are caused by pathogenic microorganisms*, such as bacteria, viruses, parasites or fungi. The diseases can be spread, directly or indirectly, from one animal to another.
- Pathogenic organisms include;
 - i. Bacteria
 - ii. Viruses
 - iii. Parasites (protozoa, worms, ticks, etc.)
 - iv. Fungi.

*See next slide



Womb infection is caused by a bacteria.



Ringworm is caused by a fungi.



Lumpy skin disease is caused by a virus.

6. Micro organisms

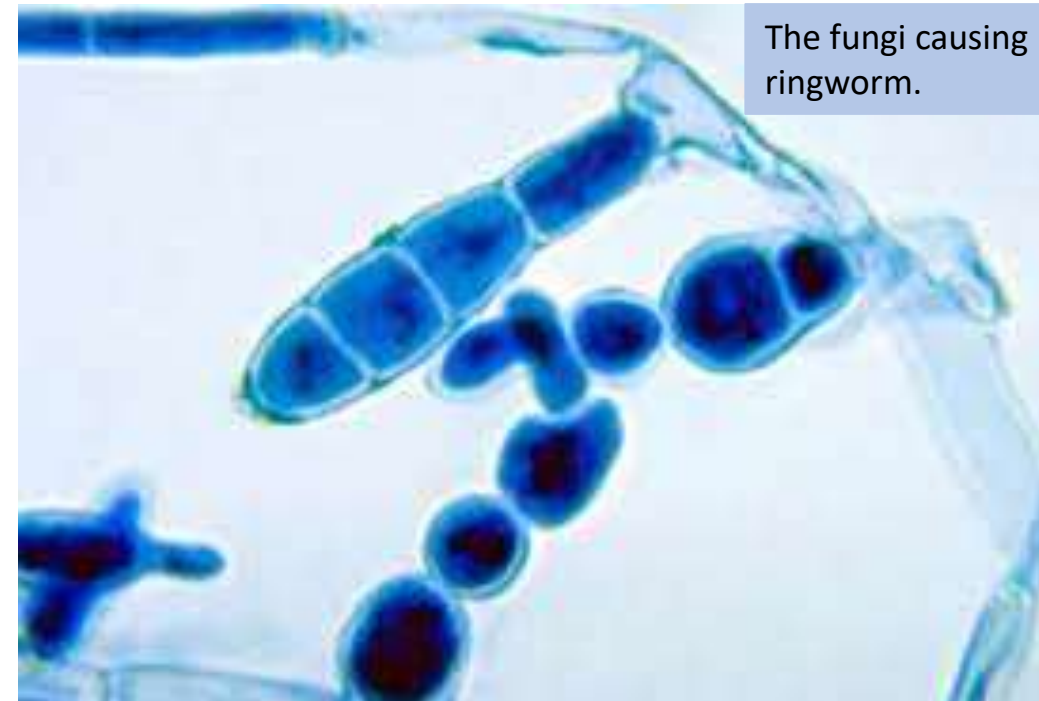
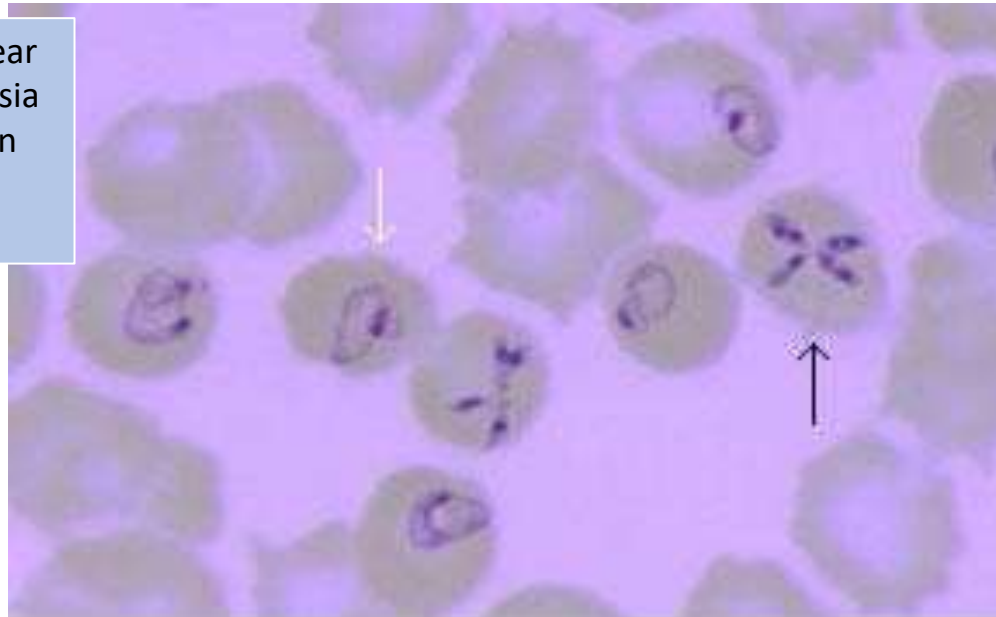
- An organism can be seen only through a microscope. Microorganisms include bacteria, protozoa, algae, and fungi. Although viruses are not considered living organisms, they are sometimes classified as microorganisms.

Note: All pictures are microscope images, magnified 100 to 400 times.



Bacteria (streptococcus) as found in mastitis milk.

Blood smear with babesia infection in red blood cells.

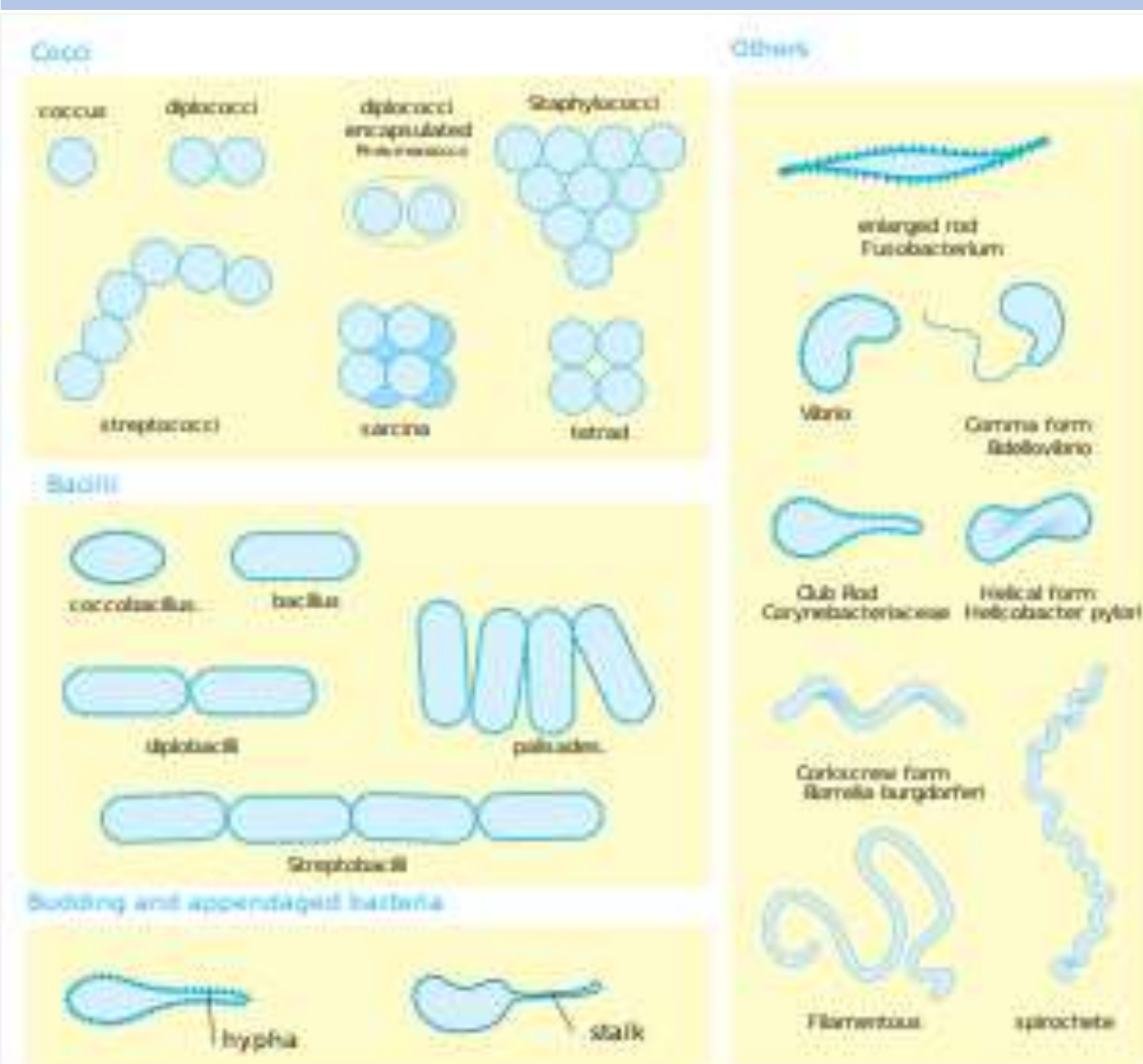


The fungi causing ringworm.

7. Bacteria

- Bacteria are just one cell.
- They can multiply quickly (once per half hour) in preferential circumstances.
- Some are pathogenic, most them are not.
- They have different shapes.
- Some need oxygen others do not.
- In general they like warm and wet surroundings.
- They do not like heat, drought, alcohol, etc.

Bacteria have many different shapes. | Source: Wikipedia



7.1 Bacteria Cont'd...

Bacteria can cause diseases like:

- Udder infection
- Anthrax
- Tuberculosis
- Abortion
- Lung infection
- Womb/uterus infection
- Many lameness

Bacteria can cause abortion.
After births spread bacteria.



Anthrax is one of the most deadly diseases and not only in cattle.



Different bacteria can cause udder infection.

7.2 Bacteria Cont'd...

In most cases cattle lameness is caused by bacteria not by injury.



An after birth staying on can cause womb infection.

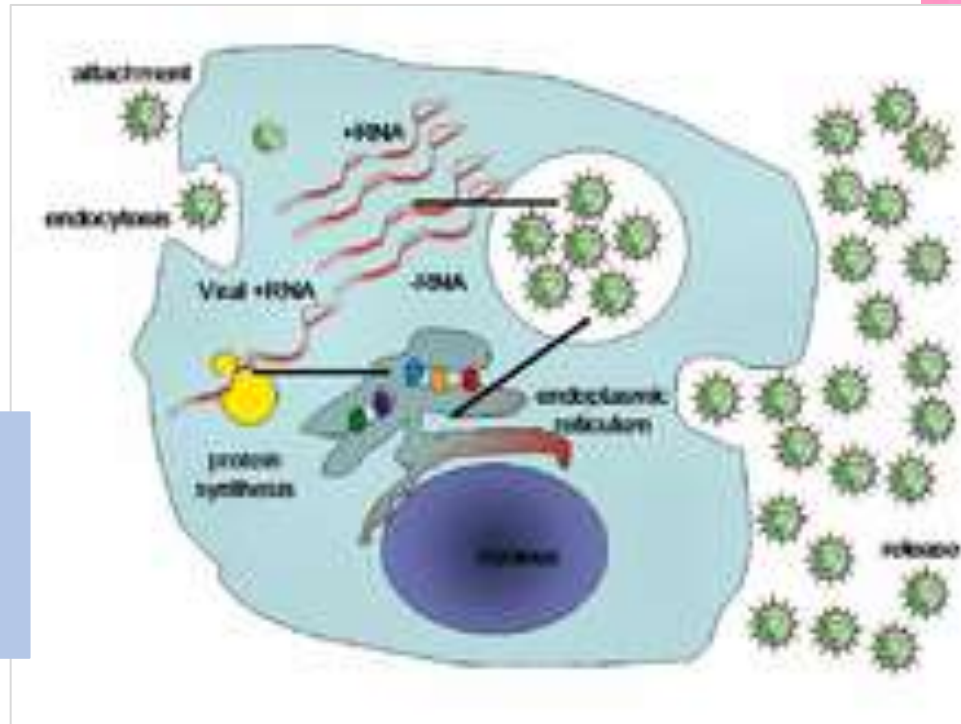
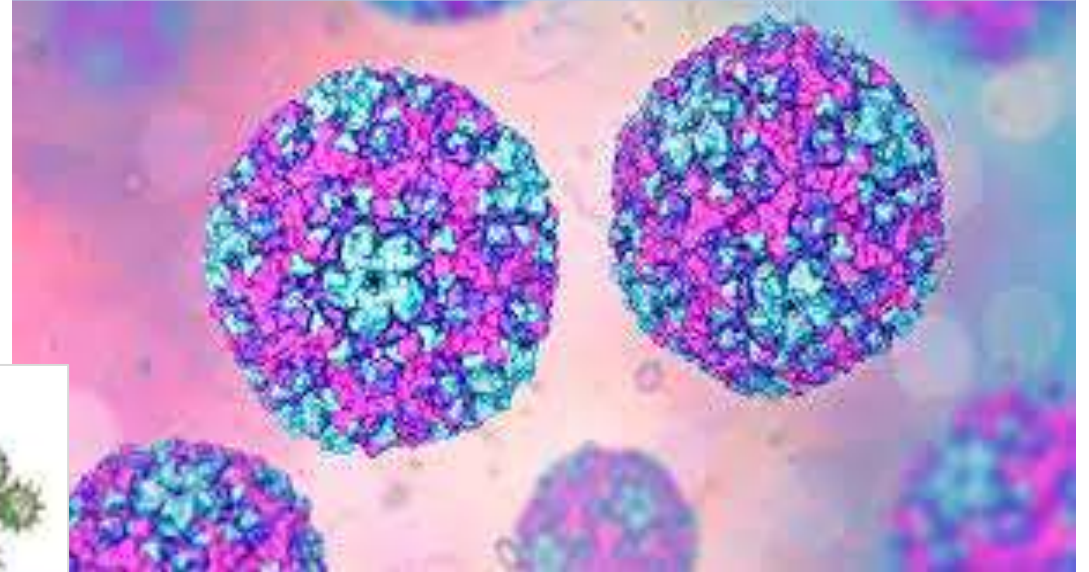
Tuberculosis is caused by a bacteria which is also infectious for men. This is called a zoonosis.



8. Viruses

- A virus cannot even be seen by a normal microscope, so small is it, that it replicates only inside the living cells of an organism microorganisms, including bacteria.

Picture of a foot and mouth disease virus with huge magnification

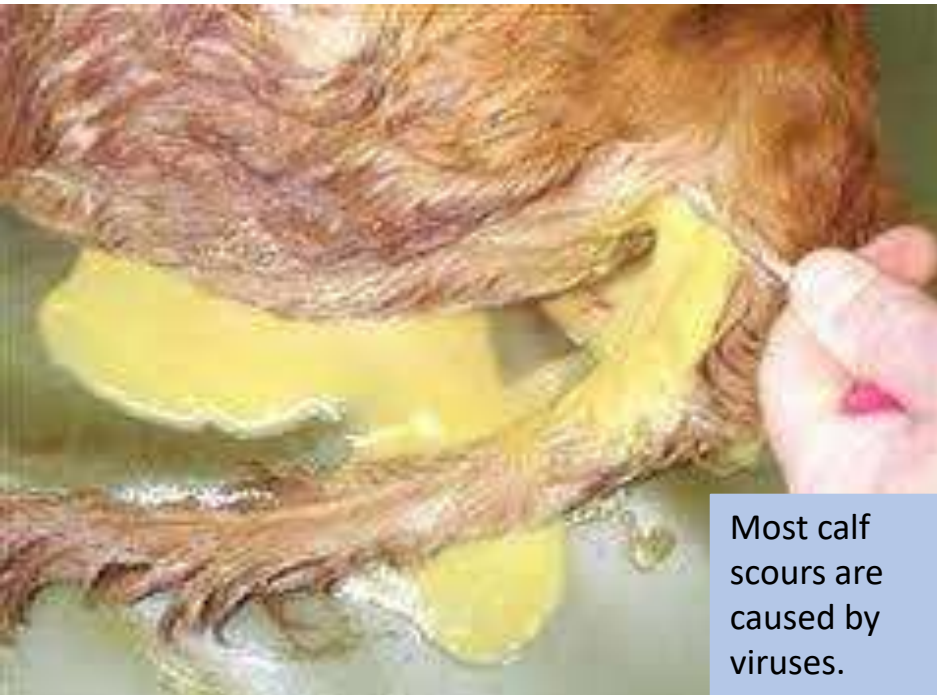
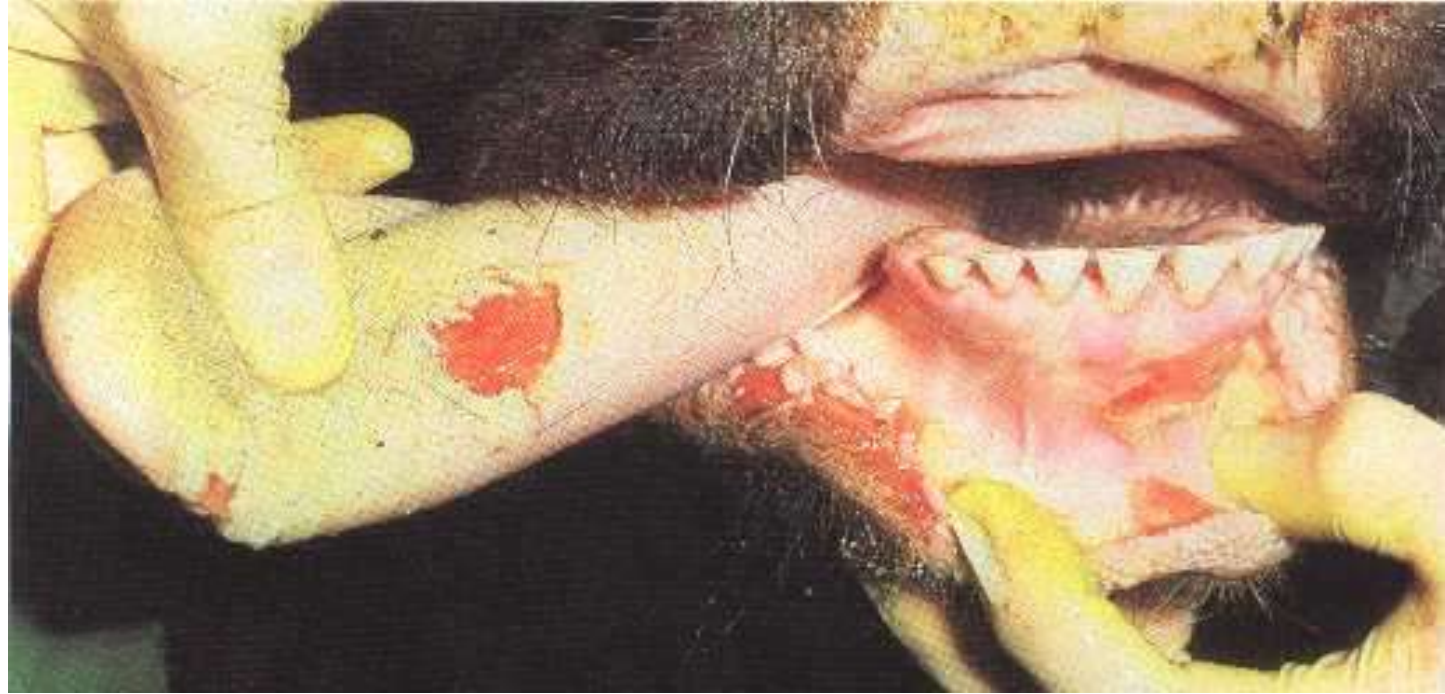


Virus penetrating and multiplying in cell.



8.1 Viruses Cont'd...

- Viruses can cause diseases like:
 - Foot and mouth disease
 - Lumpy skin disease
 - Lung problems
 - Calf scour (Rota/'Corona')



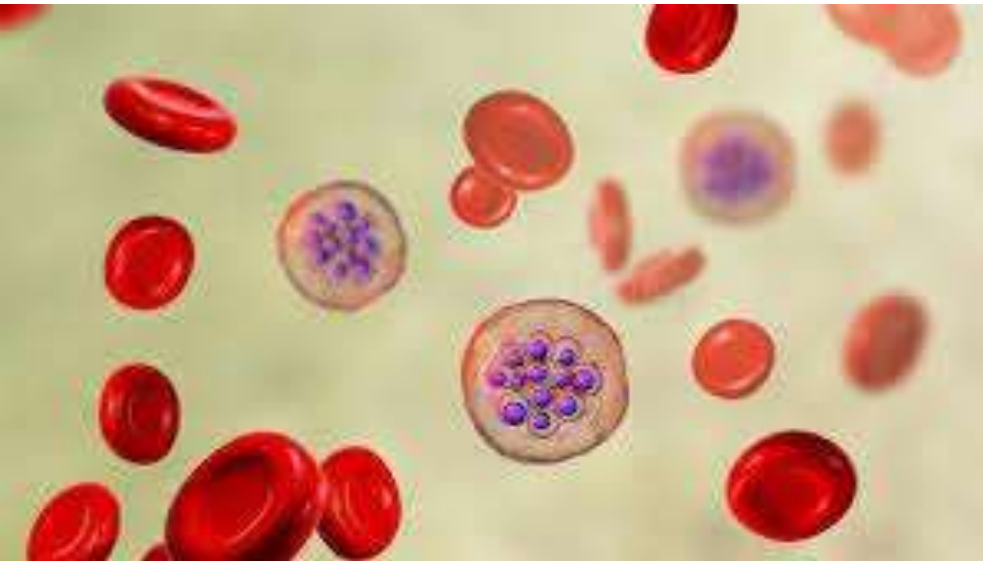
Most calf scours are caused by viruses.



Lumpy skin disease.

9. Protozoa

- Protozoa is an informal term for a group of single-celled organisms, either sick making or not, that feed on living matter such as other microorganisms or live and dead tissues.

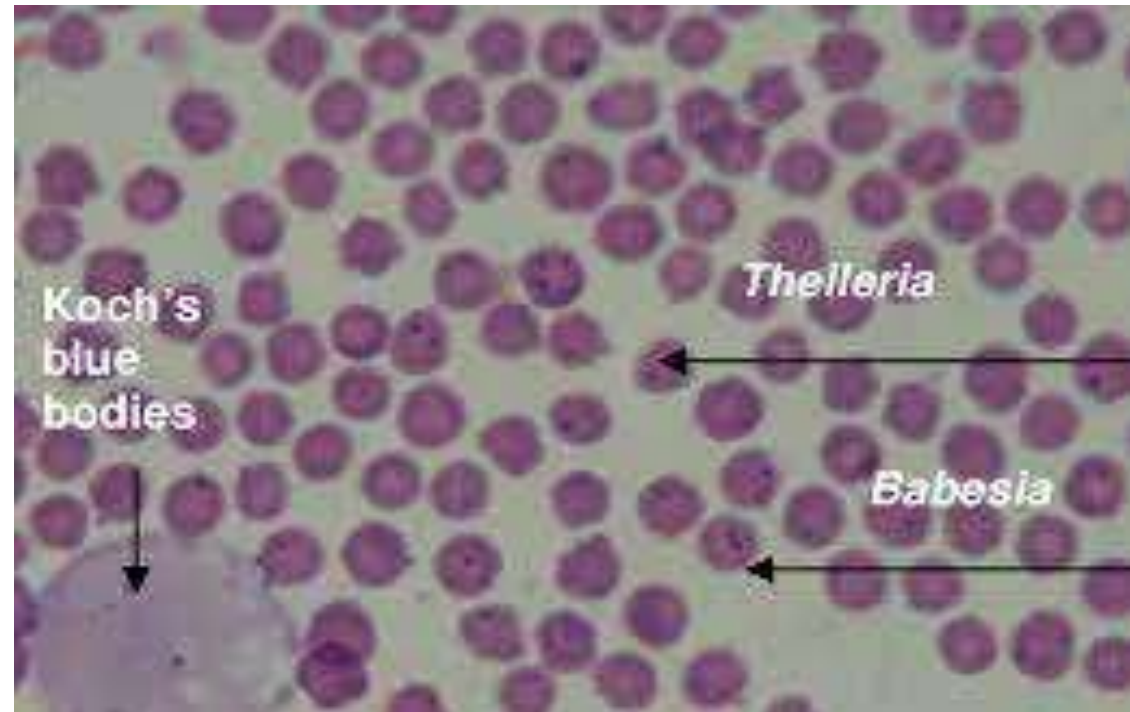


The most (in)famous protozoon causes malaria (here in red blood cells).



Theileria, the cause of East Coast Fever also lives in (white) blood cells.

Protozoal parasites live often in cells and can be diagnosed with blood smears.



10. Vectors

- Protozoal diseases are transferred by a vector.
- A vector is another living organism what carries the disease from one animal to the other.
 - In the case of malaria these are mosquitoes.
 - In the case of ECF it are brown ear ticks.
 - In the case of Babesiosis it is also a tick.



Tick, the vector for Babesiosis.



Brown ear Tick



Mosquitoes transfer malaria.

11. Worms

- Two kinds of worms can cause problems in cattle;
 - Flat worms to be divided in fluke like worms and tapeworms.
 - Round worms.



11.1 Worms Cont'd...

Symptoms of worm infections are not very specific and are rarely lethal.

- Cattle growth will decrease and ultimately they will get skinny.
- The haircoat gets rough.
- In severe cases of fluke they develop a bottle jaw.
- Production decreases.
- Developing diarrhea in rare cases.



Skinny
with a
rough
haircoat



12. Fungi (ring worm)

- Diseases caused by fungi are rare in cattle.
- The only common one is ringworm.
- The fungi spreads by direct contact.
- Be careful it is a zoonotic because you can also get infected.



The fungi under a microscope.



Typical ringworm lesion on human skin.

13. Metabolic diseases

- These are diseases of cattle caused by lack of minerals like calcium or magnesium or when feed cannot meet the needs of the body.
- They are most of the times seen in extreme high yielding cattle, which a for the moment rare in East Africa.
- Examples are:
 - Milk fever (lack of calcium)
 - Hypomagnesaemia (lack of magnesium)
 - Stomach displacement.

Cow getting calcium infusion to treat milk fever.



Starting an abomasal surgery



14. Injuries and intoxications

- Injuries and intoxications are maybe not the most common diseases in cattle, but most of the time they are caused by human errors.



For an adult cow, a fractured leg is a one way ticket to the butcher.



Sunburn is caused by eating toxic plants.



Bacteria producing toxins can cause severe mastitis.

15. How to manage cattle diseases

- A disease free farm is impossible. So every dairy farmer needs to deal with diseases.
- Basically there are two things he or she can do.
 - Prevent animals from getting sick.
 - Cure animals who get sick.

By drenching you cure cattle from existing worm infections.



By giving medicine you try to cure the cow.



By spraying you prevent animals from getting sick.



16. Prevention of cattle diseases

- By preventing cattle diseases two things make the goals;
 - To increase the resistance of animals against diseases.
 - To lower the infection pressure of microorganisms causing cattle diseases.

Biosecurity measures you take to decrease infection pressure.



You vaccinate cattle to increase resistance.



Colostrum is necessary to get resistance.



17. Disease resistance

Resistance depends on:

- Immunity.
- Quality of the feed.
- The presence of stress factors, like using sticks to get cattle in a crush, overcrowding at the watering place, very hot weather, long periods with limited water supply, calving, heat, regrouping, moving, ranking, discomfort, etc.

In other words keep your cows happy.



18. Good dairy farming practices

The first step to a healthy herd is good dairy farming practice. Hence, have a day to day management in order like;

- Providing enough and clean drinking water.
- Feed a proper ration (difficult enough, this is the art of dairy farming).
- Have good milk technique.
- Give the necessary vaccinations.
- Avoid stress (of both farmer and animal).

Always keep the five animal freedoms in mind!



Provision of clean drinking water many times per day to cattle is often not done properly.



18.1 Good dairy farming practices Cont'd...

A good milk technique is key to protect the teats.



Banana stem and Napier grass hardly have any feed value.

19. Infection pressure

- Infection pressure indicates the number of pathogenic microorganisms and their ability to infect the animals in a farm.
- The lower the number of pathogenic microorganisms on your farm, the better it is for the health of your animals.
- Measures to decrease infection pressure are called biosecurity measures.



19.1 Lowering Infection pressure

- Lowering infection pressure aims for two things:
 - i. Making sure pathogen microorganisms do not enter the farm,
 - ii. Make life impossible for pathogen microorganisms or at least minimize the chances of survival.

Disinfection of the navel prevents bacteria to enter the new born calf.



Milking in a clean environment prevents udder infection.



Drying milk equipment kills bacteria.



20. Prevention versus cure

- The best way to keep cattle healthy is make sure they do not get sick.
- So prevention of diseases should be number one.
- If cattle get sick try to cure them as soon as possible.

Keep observing the health of your cattle.



A farmer is not a vet. Call for his expertise when needed.

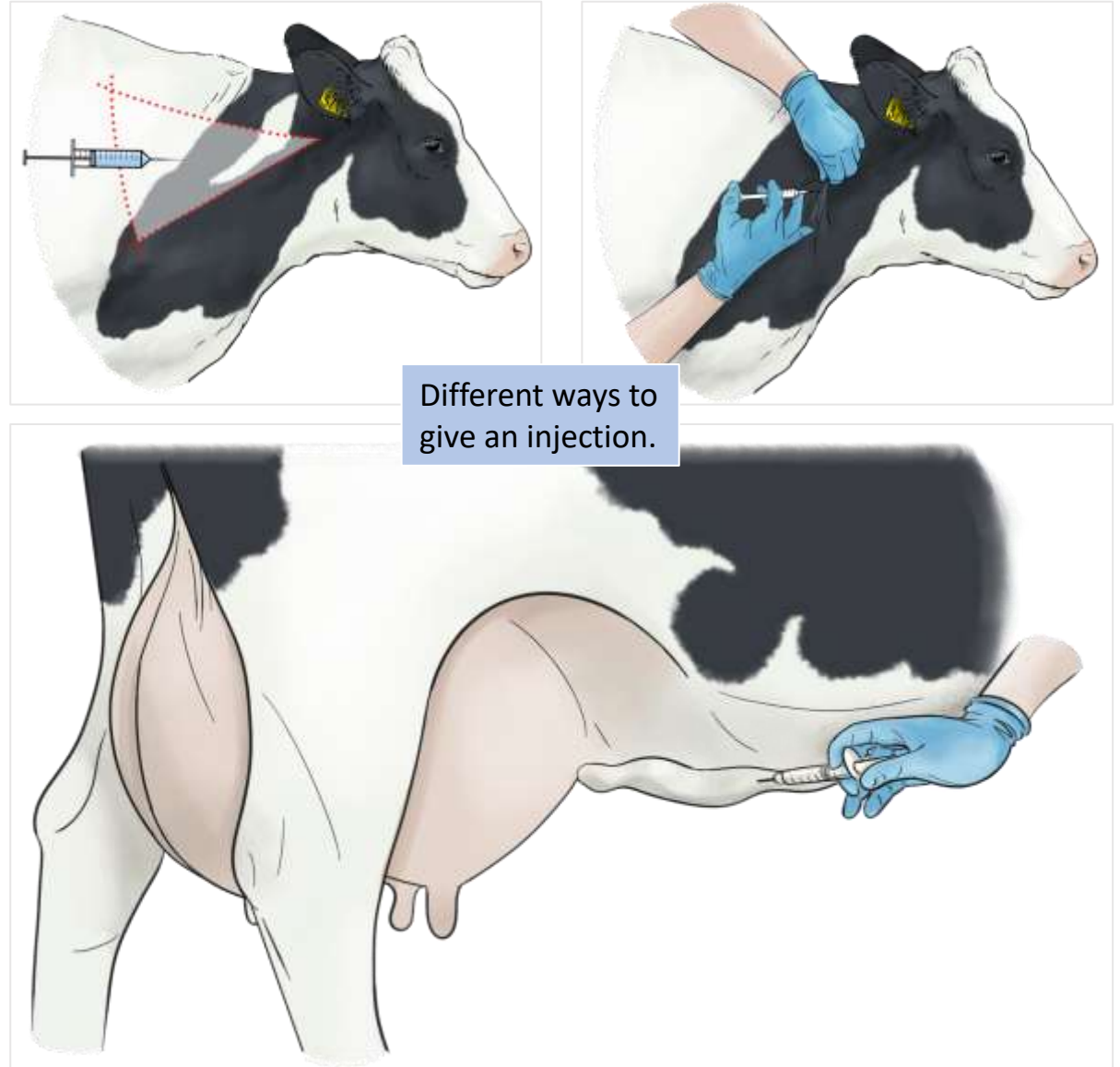


If playing doctor yourself do it right!



21. Prevention versus cure

- There are many ways to cure an animal.
- This is often done by giving medicines.
- Bandages can be used to treat wounds.
- Vets can do surgery.
- Most importantly:
 - Start treatment on time.
 - Make sure the diagnosis is correct.
 - Make sure you use the right medicine.
 - Do not hesitate to call an expert (vet).
 - Use only registered medicines.
 - Respect the medicine withdrawal time.



22. Summary: Take home messages

Prevention is better than cure!

- Animal health is complicated.
 - There are many diseases.
 - They have different causes.
 - They have different ways of prevention.
 - They have different treatments.
- This presentation is meant to give some background knowledge in order to help to get a better understanding; NOT as a training to become a veterinarian.

Experts can help to increase knowledge.



A healthy cow gives more milk.

