

Unit 3i: Pathogenic causes of ill health Factsheet

Introduction

Pathogens are living organisms that cause ill health in farm animals. They could also be known as Biological agents. There are some good biological agents on the farm that are essential e.g. bacteria that cause silage to be preserved...

How do pathogens get into the body?

3 main ways

1. Inhalation - breathed in
2. Ingestion - eaten
3. Through a cut in the skin

Main points of pathogens:

- Pathogens like to exit from the body of an infected animal
- Multiply fast
- They need to have a host to live in or on
- They have good survival and adaptation mechanisms
- They like to move from animal to animal

Biosecurity is the prevention of pathogens entering a farm or leaving a farm. It also encompasses good farm buildings biosecurity i.e. if a disease is present on the farm, biosecuring should stop the spread

Pathogenic organisms

Everyone is aware of the dangers posed by a whole host of 'bugs'. 'Bugs' is a common term used to cover organisms such as bacteria, viruses, fungi and many other pests.

These biological ill health agents are themselves living organisms. There are six main groups of biological agents:

1. Bacteria
2. Viruses
3. Fungi
4. Protozoa
5. Parasites
6. Rickettsia

1. What are the characteristics of bacteria?

- Small disease causing organisms
- Range of types, shapes and sizes (round, rod shaped, spiral)
- Can grow and multiply outside host cells
- Can live as spores for many years (these may be hard to kill with disinfectants)
- Can be seen with a light microscope
- May respond to antibiotics
- Examples: mastitis, foot rot, joint-ill, anthrax

2. What are the characteristics of viruses?

- Very small disease causing organism
- Can only multiply inside other living cells
- Often very contagious
- May be killed by disinfectants when outside the body
- Can't be seen with an ordinary microscope
- Do not tend to respond to antibiotics
- Examples: foot and mouth disease, Orf

3. What are the characteristics of fungal pathogens?

- Live on the skin
- Enter the skin only when there is a scratch or cut
- Tend to be killed by ultra-violet light
- Can live on wood for years
- Not killed by antibiotics
- Example: ringworm

4. What are the characteristics of protozoa?

- Single celled organisms that move around in a liquid by moving their tail
- Not killed by antibiotics
- Killed by coccidiostat
- Examples: toxoplasmosis, coccidiosis

5. Parasites

Parasites are organisms that live in or on their host, and take all their nutrition from the host, giving it nothing in return.

Both internal and external parasites cause ill health e.g. scab and worms
However they are not pathogenic as they do not cause a 'disease'.

Important internal and external parasites

- Scab
- Lice
- Ticks
- Nematodirus
- Lung worm
- Liver fluke

7. What are the characteristics of rickettsia?

Rickettsia belong to a group of micro-organisms that (like viruses) require other living cells for growth but (like bacteria) use oxygen, have metabolic enzymes and cell walls, and are susceptible to antibiotics.

- They are non moving gram-negative bacteria
- They are intracellular parasites that rely on the cell for growth and replication
- Cannot live outside a host
- They are killed by antibiotics
- They are carried by other parasites such as ticks, fleas and lice
- Examples: tick borne fever, Q fever