

Unit 9: Main metabolic disorders Factsheet

Introduction

A metabolic disease or disorder is the name given to a group of illnesses in cattle and sheep that are caused by the imbalance of the inputs to the animal compared to the expected outputs.

It is the over-exertion of the normal metabolism.

Usually the imbalances occur at key times of pregnancy and lactation, where the food an animal gets is not enough to cover the demands on its body. This is why they are sometimes called production diseases.

It is important to note that even though it can be called a disease there is no pathogen involved.

Main metabolic disorders

Cattle

- Hypocalcaemia - milk fever
- Hypomagnesemia - staggers
- Rumen acidosis
- Acetonemia
- Fatty liver syndrome

Sheep

- Hypocalcaemia - milk fever
- Hypomagnesemia - staggers
- Rumen acidosis
- Pregnancy toxaemia -twin lamb disease

Short notes on common disorders of cattle and sheep

1. Hypocalcaemia - milk fever

Hypocalcaemia or 'milk fever' affects cattle and sheep but dairy cows are the most vulnerable. It is caused by a shortage of calcium in the blood. It occurs near, at or soon after calving when the dam has to adjust to having to lose large amounts of calcium in her milk. Usually the animal is lying down, dozy and does not respond much to stimuli. Partial or complete loss of consciousness and paralysis of the hindquarters follow. It is treated with an injection of calcium borogluconate solution.

2. Hypomagnesemia - staggers

Hypomagnesemia or 'grass staggers' occurs in cattle and sheep and is caused by too little magnesium in the blood. It occurs when the diet contains too little magnesium, as with fast growing grass in the spring. The onset of the disorder is rapid and very often, all you see is a dead animal. However, if you catch them early, an injection of magnesium sulphate is the usual treatment.

3. Rumen acidosis

Ruminal acidosis occurs when there has been an overeating of starchy foods such as cereals and concentrate rations. It occurs more often in high yielding dairy herds or finishing lambs. It starts as scour and can lead to death. The increase in starch upsets the equilibrium of the micro-organisms in the rumen. The rumen becomes more acidic than it should be which causes an inflammation or rumenitis. This in turn causes diarrhoea, dehydration and sometimes death.

The following two diseases occur when there is not enough energy in the diet:

1. **Acetonemia in cattle**
2. **Pregnancy toxaemia in sheep**

1. **Acetonemia**

This mainly affects dairy cattle. It happens when the energy required for keeping the animal alive and producing milk far exceeds the feed intake of the cow. This results in breakdown of the fat reserves of the animal. It is characterised by low blood glucose. The signs of acetonemia are appetite loss, a slowing down of the gut and lethargy. Treatment is by injecting the animal to increase glucose production, and sometimes by giving other energy sources by mouth. The animal usually responds well.

2. **Pregnancy toxaemia - twin lamb disease also known as ovine ketosis**

Twin lamb disease or pregnancy toxaemia is a common disease of undernourished, stressed ewes carrying multiple foetuses. This is due to the lack of enough energy (glucose) in late pregnancy. The early signs of pregnancy toxaemia include depression, apparent blindness, and salivation and fine muscle tremors. Death usually occurs as the fat reserves of the body are mobilized quickly and release ketones into the blood stream and this is what poisons the ewe. Treatment in the short term can be to administer glucose orally. This might be a readily available 'twin lamb' dose or syrup/molasses fed in a liquid.

Cattle: fatty liver syndrome

Even though this suggests fat cows, this is not true. Cows do not store extra fat in their liver when they get fat.

The opposite is true. Fatty liver occurs when a cow breaks down too much fat for the liver to process properly, so the liver turns it back into fat and stores it. Therefore, it's usually a thin cow that has had a severe demand for energy, that is not included in the diet, and that breaks down this fat. Sometimes ketones are left floating in the blood and this causes ketosis, which can poison the cow.