Diarrhoea in cattle

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What is diarrhoea and what causes it?

- Diarrhoea (purging, scours) can have many causes.
- Possible causes include bacterial and viral infections, certain chemicals, intestinal parasites, poor diet, overfeeding on milk or lush grass, poisonous plants and other toxins, food allergies and even stress.
- In diarrhoea, the intestine fails to adequately absorb fluids, and/or secretion into the intestine is increased. Loss of fluids through diarrhoea produces dehydration and the loss of certain body salts.
- It causes a change in body tissue composition and severe depression in the animal.
- Death from scours is usually the result of dehydration and loss of body salts rather than invasion of an infectious agent.
- The correct determination of the cause of diarrhoea is important in order to take effective preventive measures.

Some conditions are always accompanied by marked diarrhoea

- Poisoning by arsenic or plants such as tulp, chincherinchee, slangkop and certain cereals contaminated with moulds.
- Worm infection, e.g. conical fluke.
- Infectious diseases, e.g. coccidiosis, salmonellosis, colibacillosis, Johne’s disease or paratuberculosis.

When is diarrhoea very risky?

- Calf diarrhoea can cause a greater financial loss to cow/calf producers than any other disease-related problem they encounter.
- The age of the animal is very important. The younger the animal, the greater the chance of death. Many diarrhoea cases can be directly related to a lack of colostrum intake by the newborn calf.
- A calf that consumes 750 ml to 1½ ℓ colostrum in the first few hours after birth will absorb an adequate number of antibodies and therefore will be less susceptible to infections that can cause diarrhoea.
Diarrhoea in calves

Viral diarrhoea

Rotavirus diarrhoea

• Within 24 hours of birth, a germ called rotavirus causes this type of diarrhoea.
• Infected calves are severely depressed. There may be drooling of saliva and watery diarrhoea.
• The faeces will vary in colour from yellow to green.
• Calves lose appetite and the death rate may be as high as 50 %.
• There are no signs on dead animals; however, there is an increased volume of fluid in both the small and large intestine.

Coronavirus diarrhoea

• This occurs in calves that are over 5 days of age; the germ is called coronavirus.
• The animal is not as depressed as in rotavirus diarrhoea.
• The initial signs may be the same as in rotavirus, but later on the faeces may contain clear mucus that resembles the white of an egg.
• Mortality is low (1–25 %).

Bovine virus diarrhoea (BVD)

• Diarrhoea begins 2 to 3 days after exposure to the germ and may persist for a long time.
• Ulcers on the tongue, lips and in the mouth are the usual lesions found in the live calf.
• Bovine virus diarrhoea is controlled by vaccinating all replacement heifers 1 to 2 months before breeding.
• Pregnant heifers should not be vaccinated. Consult your state veterinarian before starting a BVD vaccination programme.

Bacterial diarrhoea

Colibacillosis (Eschericia coli)

• Eschericia coli is a major cause of diarrhoea in young calves.
• E. coli germs attack the intestinal mucous membrane and other mucous membranes and produce toxins (poisons).
• The toxins cause severe inflammation of the intestinal lining (enteritis) and can lead to death within hours. A less severe form of the disease is usually characterised by diarrhoea accompanied by progressive dehydration.

• Colibacillosis lasts 2 to 4 days and its severity depends on the age of the calf.

• *E. coli* inhabits the intestine and is excreted in the faeces. It can contaminate kraals, stables, floors, paddocks and even water supplies.

• Control of *E. coli* scours can be difficult in a severe herd outbreak. Early detection (as well as isolation of affected animals) and treatment of scours help to prevent new cases. Speak to your state veterinarian or animal health technician for advice on the use of the available remedies, which are usually mixtures of sulphas and antibiotics.

• Animals may be vaccinated 6 weeks and 3 weeks before calving. However, the calves must get colostrum in the first few hours of life for the vaccine to be effective.

• Guidelines for colibacillosis control consist of letting cows calve in an uncontaminated environment, e.g. in the veld; ensuring that calves consume enough colostrum and assisting weak calves; feeding or treating cows with a vitamin A preparation during dry periods (winter); keeping calves in clean pens and paddocks; feeding calves out of clean buckets; and the vaccination of pregnant cows.

**Salmonella**

• Salmonella germs produce a poison called an endotoxin.

• Calves are usually affected at 6 days of age or older (the same as in coronavirus diarrhoea).

• Signs of salmonella scours include diarrhoea, presence of blood and fibrin (yellow clots) in the faeces, depression and elevated temperature.

• Salmonella germs multiply in the intestine and many reach the bloodstream, causing blood infection and sudden death.
• Finding a membrane-like cover in the intestine of a dead animal suggests salmonellosis.

• Tick-borne diseases and underfeeding of calves predispose them to salmonella scours. Heavily infected animals may become severely depressed following treatment with antibiotics because treatment causes the salmonella organisms to release toxins.

• Treatment should therefore be designed to combat the effects of endotoxins. Consult your state veterinarian if possible. Animals that recover may become sources of infection and therefore should preferably be destroyed.

• Poor feeding, unhygienic conditions and other predisposing causes should be guarded against. Vaccines are available and details on their use may be obtained from the state veterinarian or animal health technician.

Enterotoxaemia (pulpy kidney)

• The disease usually starts quite suddenly. Affected animals become listless, display uneasiness, and strain or kick at their abdomen. Bloody diarrhoea may or may not occur.

• It is usually associated with change in the weather, a change in the feed of the cows, or management practices that cause the calf to nurse for a longer period of time than usual. The hungry calf may overconsume milk which establishes an environment in the gut that is conducive to the growth and production of toxins by germs.

• In dead animals the gut may be red in colour or have bloody, purplish areas.

• The disease can be controlled by vaccinating cows with an appropriate vaccine (Clostridium perfringens toxoid) 60 and 30 days before calving.

Other causes of calf diarrhoea

Coccidiosis

• Coccidiosis occurs in calves of 3 weeks of age and older, usually following stress, poor sanitation, overcrowding or sudden changes of feed.

• A typical sign of coccidiosis in young calves is diarrhoea with faeces smeared over the rump as far around as the tail will reach. The symptoms are diarrhoea, with slimy and bloody faeces, emaciation, weakening and anaemia. The affected calves strain excessively when they defecate.

• Speak to your veterinarian or animal health technician for treatment of the disease with appropriate remedies such as sulphonamides and Amprolium.

• Good feeding practices, management and sanitation are possible control options.
**Nutritional diarrhoea**

- Nutritional scour is caused by anything that disrupts the normal nursing pattern, for example storms, strong wind or the mother’s temporary absence. When the hungry calf gets the opportunity to nurse, the cow’s udder may contain more milk than normal and the calf may take in excessive quantities, resulting in nutritional scour.
- It is usually white scour caused by undigested milk passing through the intestinal tract.
- It usually presents little problems. Milking the cow to limit the milk intake by the calf usually clears up the problem. Oral antibiotics may be used if the calf becomes depressed.

**Treatment of calf scours**

- Treatment of the forms of diarrhoea is very similar regardless of the cause.
- Specific treatment is often not possible and symptomatic treatment of the diarrhoea itself should be applied.
- It should be directed towards correcting the loss of fluids (dehydration), acidosis (acidity) and loss of salts.
- Calves may be given milk diluted with an equal quantity of clean water.
- Antibiotic and or sulpha treatment can be given simultaneously with the treatment for dehydration.
- There are salt powders (also called electrolyte powders) available that can be mixed with water for oral administration.
- If these powders are not available, oral preparations can be made on the farm. Speak to your state veterinarian or animal health technician.
- For example, you can combine 1 tablespoon baking soda, 1 teaspoon salt and 250 cc of 50 % dextrose (or light Karoo syrup), and add enough water to total 5 ℓ. You can also combine 2½ dessert spoons of salt, 2½ dessert spoons of baking soda, 8 dessert spoons of glucose and add water to total 2 ℓ.

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**Diarrhoea in adult cattle**

**Johne’s disease or paratuberculosis**

- Johne’s disease is an incurable wasting disease of adult cattle.
• It is of greater concern in dairy herds than in beef operations. This difference reflects variations in management practices—especially close confinement in dairy operations, which promotes easier transmission of the organism.

• The germ causes an infectious inflammation of the intestines with severe weight loss and diarrhoea.

• It is economically important because some animals may become so emaciated that they are unfit for slaughter.

• Milk production is reduced.

• Johne’s disease should be suspected when, despite persistent diarrhoea, animals continue to eat well and look bright. The manure of typical cases is not mixed with blood or mucus.

• An adult cow with persistent diarrhoea, lasting for months, that is not responding to treatment, is likely to have Johne’s disease.

Other causes of diarrhoea

• Salmonellosis (unusually a wasting disease in adults).

• Bovine virus diarrhoea.

• Winter dysentery, which affects several adult cattle in a herd simultaneously. It is characterised by a dramatic decrease in milk production and loss of body condition.

• Intestinal parasites rarely produce severe diarrhoea in adults, but it is possible.

• Poisonous plants and other chemical poisonings (e.g. arsenic) usually cause sudden diarrhoea.

Treatment

• A veterinarian or animal health technician should be consulted if possible on the best course of treatment—especially when diarrhoea is severe or persistent.

• Try to determine the cause and then apply appropriate treatment.

• Always administer clean water or barley water at intervals of 2 to 3 hours to compensate for the loss of body fluids.

• Dosing activated charcoal with water may be of benefit in cases of poisoning.

• Limewater, tannic acid or commercial diarrhoea remedies could be used to treat diarrhoea if the animal is in danger of dehydrating. If the diarrhoea is not severe and the animal is not dehydrating it is better not to stop the diarrhoea.

• Sulphas and antibiotics should only be used on the recommendation of a veterinarian or animal health technician.