

Diarrhea in calves during milking period

Every farm is facing problems with diarrhea in calves during the milking period. An important animal health and welfare problem for calves, and an economic problem as well for the farmer. Calves with diarrhea may show reduced growth and sometimes death. Prevention of diarrhea is important.

The cause of diarrhea can be contagious (infectious), non-infectious (non-infectious), or a combination of both. Infectious diarrhea is caused by one or more pathogens. Infectious causes of bacteria can be; *Escherichia coli* (*E. coli*) and *Salmonella*, viruses; can be rotavirus or coronavirus and the causative parasites are *Cryptosporidium* and *Giardia*. It is not possible to reliably determine the cause of diarrhea based only on a visual examination of the manure.

Further diagnostic research is required.

An important cause of non-infectious diarrhea is based on feeding problems (“nutritional diarrhea”).

Causative pathogens

E. coli

E. coli bacteria can be divided into various types. An important type is *E. coli* K99, which may cause severe diarrhea in calves from day 1 to about 5-10 days of age. In addition, *E. coli* bacteria also cause septicemia, with sometimes death even before diarrhea is noticed.

Salmonella

Salmonella can affect animals of all ages, including calves from a few days of age. A *Salmonella* infection may result in the appearance of blood in the manure. *Salmonella* can also give other abnormalities in calves in addition to diarrhea, such as a septicemia, and lung problems (respiratory problems).

Rotavirus and Coronavirus

Rotavirus and / or Coronavirus are major causes of calf diarrhea and usually cause diarrhea between 3-4 days and a few weeks of age. Calves up to 10 days are the most sensitive ones. Both viruses cause damage to the intestinal villi. As a result of dehydration and / or secondary infections (e.g. *E. coli*) calves may die. Calves that survive infection excrete a lot of viruses that can infect younger and healthier calves.

BVD

BVD is not often diagnosed as a cause of diarrhea problem in un-weaned calves. The virus can cause diarrhea in cattle of all ages.

Cryptosporidia

Diarrhea by *Cryptosporidia* occurs in calves from 3-4 days of age and is most common in the second and third week of life. In addition to diarrhea, huge weight loss, weakness and dehydration may occur in severe cases. High mortality may occur in cryptosporidiosis.

Coccidiosis

Coccidia can be the cause of diarrhea in calves from the age of about 3 weeks. Remarkable phenomena may be the presence of blood in the manure.

Giardia

This parasite can cause diarrhea and, if proven, specific treatment is required.

Non-infectious causes

Non-infectious causes are often associated with suboptimal nutrition and / or housing. Sub-optimal nutrition, such as are not well prepared milk (wrong temperature for preparing powder

milk, or a wrong concentration of powder milk), to large amounts of feed, large differences and changes in milk temperature and too large transitions of feed can cause diarrhea. It is also important that the calf is housed in a dry, draft-free environment and with sufficient straw.

Diagnosis of diarrhea in calves

Each pathogen that causes diarrhea requires a specific approach. The advice is to make a plan with your veterinarian. It is important to identify and characterize the pathogen prior to any treatment. You can carry out diagnostic investigations of faecal droppings from sick calves.

“Calf diarrhea diagnostic package”

In cases of diarrhea during the first 10-14 days of life, the faecal sample is then examined, at one time, for the presence of four major diarrhea causing pathogens, namely, E. coli K99, Cryptosporidia, rotavirus, and coronavirus. For this investigation, a quantity of at least 5 grams of faeces is needed to conduct the investigation.

It is important that the faecal samples are taken from calves showing acute clinical symptoms (diarrhea), and not from calves that are treated with an antibiotic. If you observe regularly one or more calves with diarrhea, we recommend to examine at least three to five calves. This will give you insight into the cause at herd level.

Optionally, you can carry out a post-mortem examination of a dead calf, to determine the cause of diarrhea. Also in this case, examine preferably acute dead animals without any antibiotic treatment prior to the post-mortem examination.

Treatment of calf diarrhea

A calf with diarrhea has to be treated as soon as possible. Each calf with diarrhea needs extra intake of fluids and sufficient energy. The natural surrounding should be dry and warm. If you know which pathogen is causing the diarrhea (after diagnosis), you have to consult your veterinarian, and start directly the treatment. This increases the chances of effect of the treatment. Please take specific measures to ensure that the next generation of calves grows up as being healthy calves.

Prevention

Prevention is based on the following factors:

- Provide a clean calving and hygienic situation at calving.
- Remove the calf from the mother directly after calving, and keep the calf individually in clean pens or hutches during the first 14 days of age.
- Ensure good colostrum supply, which means a quick and sufficient intake of the first colostrum containing high concentrations of antibodies.
- Give each calf its own bucket, or clean the bucket after each feeding with water of 65°C.
- New-born calves and calves, having (or that had) diarrhea, should be housed separately
- Start always working with the young calves and then the older ones, and end the working session with taking care of the sick animals
- Apply an all-in-all-out system
- Clean the individual boxes or hutches thoroughly in the open air, let them dry and leave them empty preferably one week before the next calves will enter the boxes or hutches.