

# Neonatal calf diarrhea

Brian Gerloff | Updated: February 1, 2003

In the upper Midwest, where my practice is located, winter seems to be the time of year when we have more cases and complaints about calf scours. And, the fatality rate is higher in these cases than in the summer.

Moderately cold and damp conditions probably allow many of the organisms commonly contributing to calf diarrhea to survive for a long period of time, especially the viral and protozoal causes. This results in a greater accumulation of infectious organisms in the environment, providing a larger infective dose for many calves at this time of year. And the cold weather makes any resulting weight loss and dehydration more likely to result in death.

For effective treatment, it is important to establish which organism(s) are responsible for the infection. The most common infective agents are:

- Enterotoxigenic *E. coli* infections occur almost exclusively in calves less than one week of age. The bacteria cause diarrhea. If the case is severe and goes untreated, acidosis, dehydration and even death can occur.
- Rotavirus infections occur in calves from five to 14 days of age. The virus invades and damages the tips of the villi (absorptive lining) on the upper portion of the small intestine.
- Coronavirus infections commonly occur in calves between five and 14 days of age. The lesion is similar to that caused by rotavirus, except a larger segment of the gut is affected (both small and large intestine), so the diarrhea is typically more severe.
- *Cryptosporidia parvum* is a protozoa that invades the villus tips of the small and large intestine, producing lesions and symptoms similar to those caused by coronavirus. It also affects calves from one to three weeks of age. Relapses are common.
- *Salmonella* bacteria can infect baby calves, as well as older cattle. Diarrhea is usually very severe and hemorrhagic (bloody).
- *Clostridium perfringens* can cause diarrhea in calves less than two weeks of age, as well as sudden death in calves not previously observed to be ill.

Most of the time, clinical infections are mixed — caused by combinations of the above organisms.

## Treatment

- Electrolyte-replacement solutions can help reverse the acidosis produced by the diarrhea and maintain energy intake. In addition to the electrolytes, continue to feed milk or milk replacer, since calf survival is improved when this practice is followed.
- Systemic antibiotics. Approximately 40 percent of calves with neonatal diarrhea become septic, meaning the infection and its toxins have moved into the bloodstream, and survival is dependent upon treating with an appropriate antibiotic.

- Oral antibiotics may be used for a limited time period — two to three days for bacterial infections.
- Gut protectives, such as kaolin, may be given for malabsorptive diarrheas — those caused by viruses or Cryptosporidia.

### **Prevention**

Prevention protocols include sanitation, vaccination and enhancement of calf immunity and resistance through proper colostrum management and delivery.

Colostrum status can be measured by checking a calf's serum total protein concentrations at 48 hours of age. Concentrations should be greater than 5.4 g/dl.

If you find yourself experiencing an outbreak of calf diarrhea in your herd, work with your veterinarian to establish a cause and institute effective treatment and preventive protocols.

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