

Bovine Newsletter

Calf Scours



WINTER 2019

With calving season already starting on some beef farms and with calving being a daily occurrence on most dairy farms, we are bound to be experiencing and treating cases of calf scours. Despite all that we know about calf scours, a 2007 study of US dairy farms found that half of all deaths in unweaned calves were the result of scours. As for beef farms, calf scours remains one of the top causes of financial losses for cow-calf producers; in fact, calf scours causes greater financial loss than any other health condition. There are four main pathogens that cause scours in baby calves that we will outline below as well as the best ways to prevent these bugs from causing scours in the first place. We now have a calf-side test available through the practice that allows us to test calf fecal samples for these major causes of scours on-farm or in our practice laboratory.



E. coli

E. coli is a bacteria that is shed in the feces of most mammals. As a result, baby calves are going to be exposed to *E. coli* from their dam's feces, especially if they are being born indoors. This type of scours is one that will be seen the earliest in baby calves, as early as within 24 hours of birth. *E. coli* scours can very quickly cause dehydration, septicemia, and death in newborn calves if left untreated. There are several strains of *E. coli* that can cause severe diarrhea in humans through direct contact or through ingestion of contaminated food. It is important to use good hygiene practices when dealing with an affected calf.

Rotavirus

Rotavirus is the most common viral cause of diarrhea in baby calves, with typical onset between 3 and 21 days of life (usually within the first 2 weeks of life). The virus replicates in two types of intestinal cells in the small intestine, causing rupture and destruction of these cells. Destruction of intestinal cells leads to the calf's inability to absorb nutrients from milk and subsequent malabsorptive diarrhea. Studies have found that Rotavirus is present in normal-appearing feces of healthy cattle. At the time of calving, cows tend to increase shedding of the virus in their feces, and therefore increase contamination of the calving environment.

Coronavirus

Coronavirus is similar to Rotavirus as it infects and destroys intestinal cells, in this case only cells in the large intestine. This destruction again leads to a malabsorptive diarrhea as the calf's large intestinal cells are unable to absorb nutrients from milk. Another difference between the two viruses is that Coronavirus can also replicate in cells of the respiratory tract and cause pneumonia. Rotavirus is more likely to become chronic when compared to the other common causes of scours. Scours due to Coronavirus typically occurs between 5 and 21 days of life (usually within the first 2 weeks of life).

Cryptosporidium parvum ("Crypto")

Crypto, unlike the other bacterial and viral causes of calf scours, is a protozoan, which is a small parasite. Calves will pick up the protozoa through ingestion of cow feces or from the feces of other infected calves, and there is also some evidence that calves can become infected from contaminated water sources (more so in a beef cattle setting). The protozoa adhere to the intestinal cells at the end of the small intestine and in the large intestine, leading to several negative changes and a substantial amount of inflammation in the intestines. Scours caused by Cryptosporidium usually occurs during the second week of the calf's life. A Crypto infection alone usually causes a mild diarrhea, but when the calf is also infected with Rotavirus or Coronavirus, the calf can quickly become very ill and die if left untreated.



Prevention

Calf and barn management are keys in prevention of calf scours. Ensuring every calf gets an appropriate amount of a good quality colostrum in a timely manner, navels are dipped, and calves are born into a clean and dry environment are the non-medicinal ways to prevent calf scours. Inevitably calves can still pick up a pathogen, even in

the cleanest and most pristine barn with the best calf management practices. There are effective scour vaccines, which when given appropriately to the dam pre-calving, put antibodies into the colostrum to protect the calves after birth from severe infection. These vaccines protect against E. coli, Rotavirus, and Coronavirus. Unfortunately, no one has been able to successfully develop a vaccine for Crypto, but there is a preventive medication called Halocur that is given to calves daily for the first 7 days of life that can prevent in the infection in herds with known Crypto issues.

We know that the fight against calf scours will be ongoing and we will continue to work with our producers to develop protocols to help treat and prevent calf scours. It is important to remember that there will be unique protocols for every operation, as no two farms are the same. We have a calf scours treatment protocol available on our website. This flow chart will help with decision-making and even outlines when to get the veterinarian involved with cases of calf scours. Please contact our office so that we can help you set up effective protocols for prevention and treatment of calf scours in your herd.

Scours agent	Age of onset	Signs
Rotavirus	Possible: 0-28 days. Most often: 3-21 days	Watery brown to light green faeces, blood and mucus
E. coli K99 bacteria	Most often: 1-7 days	Effortless passing of yellow to white faeces
Coronavirus	Possible: 0-28 days. Most often: 5-21 days	Watery, yellow faeces
Cryptosporidia	Most often: 7-21 days	Watery brown to light green faeces, blood and mucus