

Livestock Health Series

Calf Scours

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Calf diarrhea, also called scours, is a very costly problem for many producers. Calf scours is merely a symptom of the underlying disease that plagues the calves. Dehydration, electrolyte depletion and acid-base imbalance are the actual causes of the animal's demise. Calves suffering from scours can become critically ill in a very short time.

Several pathogens can cause severe diarrhea in calves. The impact of the pathogen responsible for the diarrhea is determined by the calf's age as well as the integrity of the calf's immune system. If the calf fails to receive the proper amount of colostrum from the dam, it will be more susceptible to the pathogens that cause diarrhea.

Bacteria

The most common bacterial cause of scours in calves is *Escherichia coli* (*E. coli*). It typically affects calves from one to five days of age. By releasing a toxin in the intestine, it causes severe watery diarrhea that is generally yellow to white in color. Calves usually do not have a fever or have blood, fibrin or mucus in their stool. This particular *E. coli* is called the K99 strain due to a specific protein found on its outer surface. Diagnosis can be made using a K99 test kit to demonstrate the presence of this bacteria. Failure to promptly treat this disease may lead to certain secondary problems such as meningitis or polyarthritis.

Another bacteria that can be highly fatal in young calves is *Clostridium perfringens*. It is usually seen in calves less than 7 days old.

The clinical signs produced by this bacteria are due to its release of an enterotoxin. There are six types of toxins released by *C. perfringens*, of which types B, C and D seem to be the most important in calves.

This disease has a sudden onset, and some calves will die without showing any symptoms of disease. It is usually associated with an increased intake in the calf's diet. Therefore, if management practices or the weather cause an increase in the interval between meals, a calf may overconsume milk and thereby establish the proper environment for the bacteria to grow.

Clinical signs include lethargy, abdominal distention, bloody diarrhea and uneasiness (straining or kicking at abdomen). Postmortem lesions normally seen are bloody, fluid-filled small intestines which give rise to the common name "purple gut."

Viruses

Rotavirus and coronavirus are two viruses commonly known to lead to diarrhea in young calves. Rotavirus is very prevalent across the U.S. Approximately 80 to 90 percent of adult cattle are seropositive for this virus. The rotavirus survives

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well in the environment, affects the small intestines and leads to a malabsorptive diarrhea. Most calves infected are from 5 to 14 days of age. Infection leads to a mild disease that has a low mortality rate. Affected calves may only show clinical signs of diarrhea for 1 to 2 days.

The other virus leading to calf diarrhea is coronavirus. This virus also infects the small intestine and sometimes the proximal colon. It causes a more severe, prolonged disease than rotavirus. Most cases are seen in calves 1 to 3 weeks of age. Clinical signs include diarrhea with an occasional mucoid or bloody discharge and increased straining when defecating. Coronavirus leads to more intestinal damage and a longer recovery period than rotavirus.

Protozoa

Two types of protozoa cause diarrhea in calves. *Cryptosporidia* mainly affects calves 1 to 3 weeks of age and leads to a mild malabsorptive diarrhea. Calves usually exhibit good appetites but may show weight loss if diarrhea continues for a prolonged period. This disease has a low mortality rate and is primarily due to poor sanitation and management practices.

Coccidiosis is a protozoal disease affecting calves 3 weeks of age and older. It usually involves young stressed animals. Stress may be related to overcrowding, sudden changes in feed or poor sanitation. These infections are usually self-limiting, and mortality rates are low. Symptoms include mild to severe bloody diarrhea, decreased appetite, sluggishness and dehydration. Clinical diagnosis is made by finding significant numbers of parasites in a stool sample. Hygiene, dry conditions and isolation of infected animals are indicated for further prevention of coccidiosis.

Prevention

When dealing with calf scours, the key is to prevent the disease from occurring in the first place. In order to decrease the incidence of disease in the herd, a good producer should (1) maximize colostrum transfer, (2) increase environmental sanitation, (3) reduce stressors such as overcrowding or poor nutrition and (4) vaccinate bred cows for *E. coli*, rotavirus, coronavirus and *C. perfringens* at 60 and 30 days before calving.

Treatment

Recommendations for diseased calves are:

1. Correct fluid deficits.
2. Treat electrolyte imbalances.
3. Provide nutritional support.
4. Administer a broad spectrum antibiotic.

Once dehydration status is estimated, oral or intravenous fluids may be used to correct the deficit. Electrolyte powders can be added to oral solutions in order to correct imbalances. Young animals have little energy reserves because they are used up quickly during a diseased state. Energy stores must be replaced with oral or IV fluids containing glucose or dextrose supplements.

A broad spectrum antibiotic may be used in some types of infection. Antibiotics only work against bacteria, but if the infection is viral, antibiotics may prevent a secondary bacterial infection from occurring. In the case of coccidiosis, a sulfa antibiotic (sulfaquinoxaline, sulfamethazine) or Amprolium should be used because they are effective against these parasites. It is important to consult with your local veterinarian, since he/she will know what diseases may be prevalent in your particular area.