

Management Practices Minimize Risk of **Scours Outbreak**

After 285 days of waiting, watching and worrying, you finally get a live calf, suckling and thriving. But it's not out of the woods yet. The risk of scours — a leading cause of calf mortality — is highest for calves within the first weeks of life.

Scours is calf diarrhea caused by a combination of pathogens and conditions, often resulting in dehydration. A calf suffering from scours often will appear weak and depressed, while calves with extreme infections may have sunken eyes and a wobbly stance. They may or may not suckle

and can be identified by wet fecal material sticking to the tail and buttocks.

While not every herd has problems with scours, the disease can have a major effect on an operation. If left untreated, a scours outbreak can result in devastating death losses. But death loss attributed to scours can be prevented through early diagnosis, proper treatment and preventive management strategies.

Neil McPhail knows the importance of management strategies in preventing scours. He calves 170 cows on his family's ranch,

Tokeena Angus, near Seneca, S.C. McPhail says he sees, on average, seven to 10 cases of scours each year, depending largely on the weather conditions during his winter calving season.

"We have the worst problems in cold, rainy, nasty weather. It stresses the calves and makes them susceptible," McPhail says. "Milk scours is also there, probably in part because our mama cows are such good milkers."

By implementing management strategies, such as rotating pastures and feeding locations and watching susceptible calves for signs of infection, McPhail minimizes the incidence of scours in his herd.

"We have been fortunate over the years," he says. "This year we haven't had any death from scours, and I attribute that to the management strategies we have implemented."

The culprits

Scours are caused by a variety of infectious agents and conditions. While it is difficult to determine the cause of the scours based on clinical signs, it is important from a preventive standpoint to identify the infectious agent causing an outbreak. This can be done through diagnostic testing by a veterinary laboratory.

Scours can be caused by viral infections [rotavirus, coronavirus or bovine viral diarrhea (BVD)]; bacterial infections (*E. coli*, salmonella or enterotoxemia); parasites (coccidia or *cryptosporidium*); or dietary changes. The clinical symptoms can be used to establish a preliminary diagnosis.

Diarrhea due to rotavirus, coronavirus and other viral agents usually occurs when calves are 5-15 days of age. Rotavirus infection causes calves to produce a profuse, yellow to green, watery scour. The calves may have near-normal body temperature, appear weak and become dehydrated.

Coronavirus infection causes symptoms similar to rotavirus; but, with coronavirus, feces may contain a clear mucus that appears similar to an egg white.

Chronic BVD cases may not express any immediate symptoms but may be susceptible to infection. Severe cases of BVD scours result in a high fever, respiratory problems and severe diarrhea.

Scours caused by *E. coli* tend to occur in the first few days of life, resulting in yellow or



PHOTOS BY SHAUNA ROSE HERMEL

Scours-causing agents are present in most herds, says Don Smith, University of Nebraska Extension veterinarian, even herds without scours.

white feces and dull, weak, depressed calves. The onset can be sudden, with profuse, liquid feces, resulting in the calves' rapidly becoming depressed and recumbent. Death can result in 12-24 hours.

Scours caused by salmonella usually affect calves 6 days of age or older. They often prove fatal within 12-48 hours of infection. Clinical signs of salmonella include watery, foul-smelling feces with a gray, dark brown, black or bloody appearance, dehydration, weakness and a high fever.

Clostridial perfringens (*C. perfringens*) types B and C cause a hemorrhagic enterotoxemia characterized by acute onset of depression, weakness, bloody diarrhea and severe abdominal pain, resulting in discomfort and kicking of the abdomen. Death may occur within a few hours. Vigorous calves, a few days old, that have large appetites and a ready source of milk are often the ones affected.

Coccidiosis usually affects calves 3 weeks of age or older. Chronic forms of the disease often result in few outward signs of infection, but the acute form results in bloody diarrhea, dehydration, depression and weight loss.

Cryptosporidium scours usually hits calves 1-3 weeks old, in conjunction with coronavirus, rotavirus or *E. coli*. Symptoms are similar to coccidiosis.

Nutritional scours also can affect young calves. This classification of scours is caused by a disruption in the calf's nursing schedule. If the calf's dam isn't available to nurse and it gets hungry, the calf may binge on the milk when it regains access to its mother.

The resulting white scours, caused by the undigested milk's passing through the intestinal tract, usually presents little problem. Producers should not need to treat the calf, unless it becomes depressed or fails to nurse, at which time oral antibiotics should be administered.

According to Don Smith, Extension veterinarian at the University of Nebraska, factors other than the infectious agents may play a large part in whether scours develops.

"When we look closely, we find many scour-causing agents present in most herds — even herds without scours," Smith says. "This fact suggests that other factors will be more important than the agent in determining if scours will develop."

These other factors include colostrum intake, calf stress, environmental conditions and exposure to high levels of multiple scour-causing pathogens.

Proper treatment

The treatment of scours is similar in most cases, regardless of the cause. The most important scours treatment — one that



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requires immediate attention — is fluid replacement.

The excessive diarrhea associated with scours often causes the calf to become dehydrated and low on electrolytes. The calf needs fluid, usually absorbed through the intestinal tract, for the body organs to continue to function. In scouring calves, the necessary fluid does not get absorbed because of the diarrhea. Dehydrated calves will appear weak, with sunken eyes, dry skin and a wobbly stance. If left untreated, dehydration can be fatal.

There are a number of formulas available to restore fluids and electrolytes, including electrolyte powders, homemade remedies

and — if necessary — intravenous (IV) treatments. Smith advises producers to consult their veterinarians to determine which formula would be best.

Electrolyte powders are mixed with water to form a gel or paste, then administered orally. If electrolyte powders aren't available, there are homemade solutions or recipes. Here are three examples provided by the University of Nebraska Cooperative Extension Service (www.ianr.unl.edu/pubs/animaldisease/g269.htm):

1. Combine one can of beef broth, one package of fruit pectin, 2 teaspoons of low-sodium salt, 2 teaspoons of baking

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soda and enough warm water to total 2 quarts.

2. Combine one can of beef broth, three cans of warm water and 1 heaping teaspoon of baking soda.
 3. Combine 1 tablespoon of baking soda, 1 teaspoon of salt, and 8 ounces of 50% dextrose or 8 ounces of light corn syrup, and enough warm water to total 1 gallon.
- These recipes should be used only when electrolyte powders aren't available. As with any scours treatment, veterinary consultation is recommended.

Some electrolyte powders can lower acidity in the calf's gut by adding bulk and absorbing toxins. Using alkaline electrolyte treatments for 24-36 hours can reduce the acid level in the scouring calf's gut, further lowering the risk of acidosis and stress.

These treatments only work if they can be administered orally. If a calf won't nurse, an esophageal probe or stomach tube can be used to administer the fluid. For best results when using a stomach tube, insert only 18 inches of the tube into the calf's mouth to avoid administering the treatment directly into the stomach.

No matter which treatment is used, the producer must make sure the calf gets sufficient amounts to combat the dehydration. Smith recommends producers administer 1 quart every three to four hours for one to two days. Milk or milk replacers should not be administered at the same time as the electrolytes because the milk can cause bacteria to grow in the gut, promoting the scours.



PHOTO FROM ANGUS JOURNAL FILE

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Some producers also administer antibiotics to scouring calves to prevent secondary infection and to boost the immune system's ability to fight the scours-causing pathogens. However, it is difficult to identify scours correctly without testing at a diagnostic laboratory, and “blanket” antibiotic administration can lead to antibiotic resistance by certain organisms. For these reasons, it is best to consult a veterinarian for proper examination and sample collection before administering an antibiotic.

Producers also might want to provide a heat source for scouring calves, as the sick calves may lose the ability to maintain body heat.

Prevention

“There are two keys to preventing scours,” Smith says. “First, maximize the calf's ability to fight infection. Second, provide an environment that minimizes a calf's exposure to scours agents.”

A calf that ingests sufficient colostrum right after birth will have a stronger immunity and will be able to fight infection. Sufficient colostrum also encourages the transfer of passive immunity from the cow to the calf against some of the infectious agents, providing the calf with immunity to some scours. Ensuring a calf receives the proper amount of colostrum can minimize the risk of scours and other illnesses in the months to come.

The best preventive measure, Smith says, is to provide a good calving environment. To prevent scours, calves need to be put into an environment that favors the calf and does not favor buildup of the infectious agent. As the calving season progresses, the environment can become increasingly contaminated with these scours-causing pathogens.

“The adult cow herd may be the initial source of scours agents,” Smith explains. “First calves born may not be exposed

enough to these agents to scour, but the calves multiply the infectious agents in their intestines and shed the agents through feces. Later calves are then exposed to the higher levels of infectious agents, and their risk of scours is much higher.”

Smith says some producers have been successful at preventing scours by moving cows that have calved into new pastures.

“The result of moving the cows is that pastures contain calves approximately the same age, and young calves are not exposed to the high doses of scour-causing pathogens,” Smith says.

McPhail implements a rotational pasture system to provide a healthy environment for his calves. Once he gets a group of 30-40 calves 1-2 weeks old, McPhail moves the group from a gestational pasture to a fresh area.

“This usually helps eliminate the problem by giving the calves some new ground,” he says.

McPhail further lowers the scours risk by moving the feeding area within the new pasture.

“In cold and rainy weather, the calves like to lie in the hay, and the cows tend to congregate in the feeding area,” McPhail says. “So, to keep the calves healthy, we unroll the hay in different locations.”

The risk of scours also can be minimized — along with a host of calving problems — by providing adequate nutrition and reducing stress in cows. A calf, born without problems to a well-nourished cow, that receives proper amounts of colostrum often will have a stronger immune system than a stressed, malnourished calf.

Vaccines are available to help prevent scours. Some are administered to the cow herd and rely on passive transfer, while others can be administered directly to the newborn calf. But Smith says it is not always possible to prevent scours by relying solely on vaccines.

“The effectiveness of vaccines may be limited depending on other factors, and there aren't vaccines available against some important calf-scours agents,” Smith says. “Other important contributing factors — such as crowding, environmental hygiene and body condition of the dam — can be modified to present a more favorable environment for the calf and a less favorable environment for the scour-causing pathogens. That is the best prevention against scours.”