

TREATMENT OF CALF SCOURS

What causes calf scours? As new calves arrive, so does the threat of the common condition known as "calf scours" or neonatal calf diarrhea. Infectious agents such as viruses and bacteria cause this condition. These agents have the common property of causing a **net loss** of water and electrolytes from the calf's body via the gut. This causes potentially life-threatening dehydration and electrolyte imbalances that can easily result in death. The main infectious organisms that can cause diarrhea in beef calves are:

- Rota virus
- Corona virus
- Cryptosporidium parvum*
- E. coli* (K99 enterotoxigenic form)

The first 3 on the list usually cause diarrhea at 7 to 21 days of age, while the common *E. coli* strains cause diarrhea within the first few days of life. The diarrhea is the result of a combination of factors including: (1) dose (number) of organisms the calf is exposed to, (2) calf immunity (colostrum), and (3) stress on the calf. The number of organisms in the calf's environment is a result of sanitation or the lack of sanitation, i.e., mud, manure, and other cattle. The immunity of the calf is dependent on the quality and quantity of colostrum that the calf received from the cow. Calves that do not receive adequate colostrum are much more susceptible to disease and are at much greater risk of dying from the resulting diarrhea that occurs. Stressful conditions (low milk production by underfed cows, bad weather, crowding) further increase the risk of diarrhea in young calves. The balance of all these factors determine if disease occurs and the severity of disease.

When should I treat the calf? Calves running around the pasture with their tails in the air, bucking and kicking with yellow or white watery manure may not need treatment. The main indications for treatment are (1) general disposition, (2) appetite, (3) dehydration, and (4) body temperature. If the calf is weak, depressed, or reluctant to move these are all indications that something is wrong. If the calf is not eating, the cow's udder will be distended and this is sign of trouble also. Dehydration can be evaluated easily by pulling up the skin on the side of the neck or shoulder. In a normal calf, the skin snaps back into position quickly. In a dehydrated calf, the skin remains "tented" for a period of time—the longer it remains "tented" the worse the dehydration. Also, as dehydration worsens, the eyeballs sink back away from the eyelids—this is a bad sign and fluids are indicated immediately. Normal body temperature (measured with a rectal thermometer) is 100.5° F to 102.5 ° F. Body temperatures less than 100 ° F and greater than 102.5 ° F is a sign of problems and treatment should be started promptly.

What are the recommended treatments? The main treatment for diarrhea is fluid therapy. Secondary treatments are antibiotics and nursing care. Because the main

problem in scouring calves is loss of body fluid and electrolytes, the primary treatment must be aimed at restoring the water balance. The calves are thirsty, but they are too sick to drink. Therefore, the first line of treatment is *oral electrolyte solutions*. There are a number of excellent commercial products on the market for treatment of calf scours. All of these products contain glucose or a similar material, sodium chloride (table salt), and other electrolytes. The glucose and sodium allow the animal to absorb the water they need from their digestive tract. **Giving straight water does not work.** Usually 2 liters (just over 2 quarts) of the oral fluid solution is given 1 to 3 times per day to the sick calf. Consult with your veterinarian regarding appropriate products to use for calf scours on your operation. Do not rely on advice from anyone other than your veterinarian for choosing oral electrolyte preparations. **Always follow the label mixing instructions**—do not add too much powder to the solution as this may kill the calf and unnecessarily adds to the cost of treatment. Antibiotics are often given to scouring calves even though antibiotics do not kill most of the calf scours agents. Due to damage in the gut of scouring calves, bacteria will “leak” into the blood stream of these calves and cause further problems. Antibiotics are of value for this reason. Again, consult with your veterinarian regarding the correct choice of antibiotics to give. Many of the antibiotics are not labeled for calf scours and thus require a prescription from your veterinarian and an extended withdrawal time. Avoid the use of injectable gentamicin or kanamycin. Tissue residues from these drugs can persist for more than a year and this can cause problems in the packing plant. Long acting tetracyclines can cause some kidney damage in dehydrated calves and should be avoided. Baytril® is not labeled for scouring calves and cannot be used for conditions other than pneumonia. In addition to fluids and antibiotics, nursing care may be essential for the calves to recover. Shelter from the wind, heat lamps, etc can be very helpful. However, this requires a clean facility as you want to always avoid a contaminated environment and the spread of the other germs that can cause calf scours or pneumonia. Additionally, the problem of separating the cow and calf has to be solved. **When treating sick calves, always treat them after you have attended to all the normal calves.** This will decrease the spread of germs from the sick calves to the younger healthy calves. Also, keep all your treatment equipment clean—including your hands and clothes, as you can easily transmit these agents.

What can I do to help prevent calf scours? The quality and amount of colostrum produced by the cow or heifer is very important to prevention and the CCA column from December 2005 can be reviewed. Also, vaccination of the cow herd about 90 days before the calving season with the Rota, Corona, E. coli K99 vaccines can be very helpful. Keeping the cattle, their feed, and environment as clean as possible is always helpful. Making sure the trace mineral supplementation program is adequate can also be a critical aspect in the prevention of calf scours.

When do I need additional help? If your treatment methods are not working, contact your veterinarian immediately for additional help. If more than 5% of your calves are scouring and require treatment, you need help. If death loss is greater than 2% due to calf scours contact your veterinarian. Many advances have made the diagnosis of these conditions. Your veterinarian can submit refrigerated (not frozen) stool samples to the University of California's Veterinary Diagnostic Laboratory and receive answers in as

little as a few days. Freshly dead calves can also be examined to determine the cause of the diarrhea and to aid in determining those factors needed for prevention and treatment in your herd.

John Maas, DVM, MS
Diplomate, ACVN & ACVIM
Extension Veterinarian
School of Veterinary Medicine
University of California-Davis