



# Cattle Producer's Handbook

Animal Health Section

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## Calf Scours: Cause, Prevention, Control, and Treatment

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### Cause of Calf Scours

Calf scours is a multi-factorial disease of calves less than 30 days of age. The disease has two major causes: stress or infection. Stress scours is a result of the calf's inability to adapt to the neonatal environment from the fetal environment that results in what animal scientists call physiologic scours. Physiologic scours is an upset in homeostasis resulting in intestinal function and fluid and electrolyte imbalances. This is reported to be the most common form of calf scours! Stress, of course, can lead to increased susceptibility to infectious agents with concomitant disease exacerbation.

Infectious causes of calf scours include parasites, bacteria, and viruses. The common parasitic cause is *Cryptosporidium parvum*. This small unicellular parasite is a common inhabitant of the intestines of adult cattle and is readily transmitted via fecal contamination to a newborn calf. Cryptosporidial scours generally develops at 14 to 21 days of age in heavily contaminated calving areas. In stressed calves, cryptosporidium diarrhea can develop as early as 1 week of age.

The common bacterial causes of calf scours include *Escherichia coli* and various strains of *Salmonella*. These infections are transmitted via fecal contamination of teats and milk as well as direct ingestion of fecal material. *E. coli* can cause disease as early as 3 days of age while *Salmonella* generally does not cause disease before 10 days of age.

Bacterial scours is generally accompanied by a fever. *Salmonella* scours may be blood tinged with evidence of intestinal lining sloughing in the feces. Both of these infections can become septicemic, which compounds the disease course and worsens the prognosis.

The clostridial organisms are occasionally associated with calf scours. Enterotoxemia, the common intestinal disorder caused by these organisms, may be seen in calves that have been off feed for a period of time and when reintroduced to food may overeat resulting in the classical sudden death that may or may not be accompanied by actual diarrhea.

Coronaviruses and rotaviruses are the significant viral causes of calf scours. Both viruses cause disease after 14 days of age. These viruses remain localized in the intestine and do not spread to other organs. Infections with rota- or coronaviruses may predispose an animal to secondary bacterial infections, but the common bacterial (*E. coli*, *Salmonella*) calf scours occurs before these viruses infect the newborn calf. Bovine Virus diarrhea virus is not associated with calf scours except possibly in the rare persistently infected calf!

### Control and Prevention of Calf Scours

Control and prevention of calf scours has four basic herd health management plan components: nutrition, hygiene, colostrum, and vaccination. These components must be applied to both the calf AND the dam and should be considered in the above listed order.

Calf scours prevention and control begins with nutrition, including minerals. The nutrition of the dam is the first step in prevention. Nutrition provides the energy and substrates (proteins, etc.) necessary to support fetal growth and development, lactation (also colostrum quality and quantity), and immune system function to produce antibodies and immune cells for transfer to colostrum. Proper mineral nutrition for the dam is essential for the survival of calves because their reserves at birth are dependent on maternal status.