

COW/CALF MANAGEMENT**Causes of Calf Scours****Bethany Lovaas, DVM, University of Minnesota Beef Team**

The newborn calf has many challenges to face as it begins life on its own. The first of these challenges is a change in environment. If a calf can get beyond the challenge of finding its feet and finding mom's teat, there is a good chance it will be able to handle life. However, some challenges won't manifest themselves until later in the calf's life. The first of these is enteric disease (scours).

The best therapy for calf scours is prevention because exposure to enteric pathogens occurs immediately after (and during) birth, it is important to limit or minimize the extent of exposure to newborn calves. Keeping calving areas clean, or calving on a new, clean pasture is best. The Sandhills Calving System is a very effective method for reducing incidence and severity of calf scours. (For more information on the Sandhills Calving System, see the University of Nebraska Veterinary Extension website at <http://vetext.unl.edu>) Unfortunately, not all producers have the pasture space to move cows through one week at a time. However, even one move of the cows that have not yet calved, will help to reduce the incidence in the later born calves. An important key to this system is that the calves are not commingled together, as one herd, until the youngest calves reach approximately 4 weeks of age.

The source of pathogens that cause scours is the cow. Cows will shed these pathogens to varying degrees, based on the levels of stress that they are experiencing. Highly stressed cows will shed more pathogen, which, in

turn, increases the load in the newborn calf's environment. Keeping the cows comfortable, clean, and not crowded will decrease the pathogen load in the environment. It is often routine for producers to pull the cows together, in a smaller wintering area, to facilitate feeding and observation during the winter and spring months. However, this practice may contribute to a more highly contaminated environment. One must not forget that the cow herself, is part of the calf's environment, and any amount of manure and contamination that she is carrying on her belly, flanks, and udder is a route of exposure for the newborn calf.

Though cleanliness is a key factor in preventing scours, adequate colostrum intake is likely the best protection for the newborn calf. The antibodies and immune system cells that are present in the mother cow's colostrum are specific to the pathogens that she is/was exposed to, which include the pathogens that she is actively shedding. In effect, the mother cow's colostrum is a 'custom made' antibiotic preparation for her calf. Because this colostrum is specific for/from her, there is no better preparation available to her newborn calf.

The cause of calf scours is usually fairly easy to diagnose. Field diagnosis is generally based on 'calf age at onset', because a calf is exposed the day it is born, and different bugs have different incubation, or prepatent, periods. For

instance, the incubation period for coccidia (protozoal parasite) is about 3 weeks; therefore, it is unlikely that a 1 week old calf will have scours due to coccidia infection. For this reason, treatment for scours should be based on calf age and the likelihood of the pathogen causing the disease. Oral antibiotics will only work with reasonable efficacy in cases of bacterial scours, usually caused by *E. coli*. In the case of coccidial scours, a coccidiostat, such as amprolium (Corid®) would be the appropriate anti-infective. In the case of cryptosporidium, there is no perfect anti-infective, however, sulfa drugs have had some positive therapeutic effects. It is very important to keep in mind that sulfa drugs are excreted from the body through the urine. If the calf is not properly hydrated, there is potential for accumulation of the sulfa drugs in the kidney and potentially kidney damage or failure.

Calf scours may seem to be a monumental problem. However, diagnosis is simple, colostrum is vital, and prevention is key. If on-farm management strategies can be implemented, to maximize each of these factors, the problem of calf scours will simply cease to exist.

| TABLE 1. CAUSATIVE ORGANISMS OF SCOURS | | |
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| ORGANISM | AGE OF ONSET | FREQUENCY |
| E. COLI | 0 – 5 DAYS | COMMON |
| CLOSTRIDIUM | 0 - 21 DAY | RARE |
| ROTAVIRUS | 4 – 14 DAYS | COMMON |
| CORONAVIRUS | 7 – 30 DAYS | COMMON |
| SALMONELLA | 7 + DAYS | RARE |
| CRYPTOSPORIDIUM | 8 – 16 DAYS | COMMON |
| COCCIDIA | 21 + DAYS | COMON |

As with most biological systems, there will be some variation in age of onset based on the pathogen load the calf is exposed to, as well as the innate capabilities of the calf’s own immune system to fight infection. The exception to this is cryptosporidium. Calves will start to scour 8 to 16 days of age, and if the first calf starts to scour on day 11, all the sick calves will start to scour right around day 11.