

# A Practitioner's Perspective on Scours in Beef Calves

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One of the things I learned early in practice is that the nature and pace is determined not only by our own approach, but also by the demographics of our clientele. That explains how practices can differ so much between parts of the country and, indeed, even from one side of a county to the next.

We describe our community as being "semi-rural": there is every category of cattle in our practice, including stockers, cow-calf, large dairies, registered and commercial, and even some calf-raising operations. But unlike many primarily agricultural areas of the country, the vast majority of our beef producers have a nonagricultural primary source of income. Due in large part to the pattern of land ownership where local families have subdivided farms over three or four generations, most of the herds are small and the income from them would be inadequate to support a family. Unemployment is low, the local economy is in a growth phase and our clients are well employed but they still think of themselves (and in many cases conduct themselves) as farmers.

These demographics mean that Saturday mornings are busy in the clinic, that a number of calls come early in the morning or just after work, and that some problems are not identified at a desirable early stage. We have attempted to adapt to these challenges by emphasizing client education and the importance of preventive care, and our clients have been quite receptive. Cattle production may not be a full-time enterprise for them, but it remains a passion.

Most of our calves are born in late winter or early spring, which means that the weather can be warm and sunny, or extremely cold with 18 inches of snow on the ground. (Either condition is as likely to occur in April as it is in January.) The terrain is quite hilly, with plenty of woods for shelter and abundant natural water from springs and creeks. With grass hay as the primary source of nutrition, this year's calves are profoundly influenced by last year's growing season. Having experienced two consecutive years of extremely dry weather (until it was time to harvest the hay), the average hay quality is poor, and the body condition of the cows is less than desirable on many farms.

A typical presentation of a case of scours might go something like this: "Doc, I've got a weak calf that I found yesterday that doesn't seem to be eating." As we begin the history-taking process in the clinic or on the

phone, I want to know if other calves have been sick or have died (clients are informally rated by how many have to die before calling the vet); what the cows are being fed, including any minerals or supplemental protein or energy sources; the age of the mother of the sick calf, and how her last year's calf performed. Even if the producer brings the calf with him, we always try to schedule a farm visit in order to see the conditions for ourselves so that any suggestions for solutions can be custom-tailored to the individual farm. In short, although a sick calf may not be too exciting, we find it is a wonderful opportunity to start a conversation with the producer on all aspects of herd management, and is an extremely good lead in to herd health work in the fall.

When working with a sick calf, our patient does not have much in the way of energy reserves to survive a lengthy period of anorexia and dehydration. For that reason, I try to think of 3 things when first evaluating the calf: how to save the calf through treatment and support, which samples to take to provide for an accurate diagnosis several days from now, and most importantly, what management changes need to be made on the farm in order to stop the disease process in this year's calf crop. Remember that this is a case where the initial treatment decisions mean life or death for the calf and that in most cases they must be made prior to a definitive diagnosis.

As in many other livestock diseases, diarrhea in young beef calves can be the symptom of the primary disease, or merely the result of a secondary or concurrent disease. The initial physical exam needs to look for respiratory disease, umbilical infection which may or may not have spread to the joints, and any evidence of birth defects or neurological conditions. Anything that interferes with nursing and the intake of adequate colostrum usually will result in diarrhea. It also is imperative to examine the cow for evidence of mastitis, uterine infection, or other diseases which may have impaired milk supply or produced more than the calf could easily handle (think Holstein-cross cows).

This may be easier said than done, since many times the first examination of the calf takes place in the pasture.

Before taking the calf's temperature, I always insert a culturette well into the rectum to acquire samples for viral and bacterial identification at our local State

Diagnostic Lab. After removing the thermometer, I'll take a second, larger sample of manure for evaluation of parasitic conditions. Blood samples also are necessary for a zinc turbidity test and for selenium levels, which commonly are deficient in our area. All these samples can be acquired quickly, easily and inexpensively, and processed back at the clinic.

Of course, the owner often is present during the exam, and it is an opportune time to think out loud and set the stage for management changes. If we can communicate effectively during these "teachable moments", the overall outcome of the visit will be positive regardless of the final status of our patient, and most importantly, we'll lay another block in the foundation of our ongoing relationship with the client.

Once the samples are safely labeled and tucked into our pockets, it is time to complete the physical exam and determine an initial course of treatment. Supportive care is essential since many of these calves are hypothermic, wet, and dehydrated. Of the three, hypothermia is the limiting factor and in my experience, a calf that does not enjoy thermal support will die regardless of the other therapies. The easiest way to attack hypothermia is to put the calf in a warm environment, ie. house, barn office, or truck cab. Response can be remarkably rapid and a few hours is normally sufficient. The calf normally will receive oral fluids, which can contribute to thermal support when mixed with body-temperature water. Hot water bottles and blowing warm air at the calf are much less effective, but do have their place. Many times it will be necessary to separate the calf from the mother for several hours. This normally is not a problem, and sure beats the alternative, which is permanent separation due to death of the calf. Ideally (which means it occasionally happens in practice), I like to reintroduce the cow and calf in a sheltered environment to partially protect the calf for a few days while it regains its strength. This also allows the producer to supplement the cow with an additional energy source to improve milk quality.

Fluid therapy is essential in the treatment of calf scours. Fortunately, there are a number of excellent electrolyte products available to the profession. We have used a single product for over 10 years that contains a great deal of energy in a form readily available to the calf, as well as a buffer. By leaving the producer several doses, he can continue to supplement the calf for several days if necessary. This also is an excellent time to demonstrate the use of an esophageal feeder. I open a new feeder and leave it with the producer, explaining how it can be used to feed colostrum to a calf following an assisted birth. Oral fluids are adequate for most calves, especially those that can stand. On recumbent calves, intravenous fluids often are indicated. This is especially true in potentially valuable calves which of-

ten are the products of embryo transfer programs and may be the product of a poor-quality recipient cow.

Intravenous fluid therapy takes a bit more planning, since I like to use commercially prepared fluids in plastic bags which are easily warmed in the clinic incubator. Another technique to make IV fluids economically viable is to use tissue adhesive (ie, super glue) to attach the catheter to the skin of the calf. This speeds the process of catheterization and allows us to turn our attention to the herd situation while the calf receives the fluids. Volume is important and is based on the size of the calf. We typically use 2-3 liters of lactated Ringer's solution w/5% dextrose, and may repeat that later in the day depending on response and the perceived value of the calf. Calves sick enough to need IV fluids are at greater risk for septicemia, so I like to give them a broad-spectrum antibiotic such as Nuflor. Healthier calves, with no evidence of bacterial infection, clear lungs, and a normal body temperature may not benefit from antibiotics at all.

Knowing that the sick calf is often only a harbinger of things to come, we turn our attention to the herd as a whole. I always explain to producers that manure and moisture are the two major enemies when it comes to calf scours. Look at the condition of the calving pasture and the stocking rate. A common mistake, especially as producers attempt to improve the herd with a higher quality bull, is to congregate cows in an area close to the house to make it easier to monitor them during the calving season. Of course, this also has the unwanted effect of exposing newborn calves to more feces than on open, dispersed pasture. Heavy foot traffic also will disturb the ground, and muddy conditions often are associated with increased incidence of scours. Many times the simple act of buying a few more bunk feeders to disperse the cattle can stop a scours problem in its tracks.

We'll use this opportunity to discuss the concept of body condition, and lead into nutrition and the need for supplements in some herds. In order to produce quality colostrum, the cow needs to be in good health herself, so calves born to thin, "challenged" cows will have a tougher start than those from well-conditioned herd mates. Many times we'll take a hay sample at this time and work towards developing a nutrition program for the producer. This also is a good time to discuss culling strategies. I find that as the average age of the farmer advances, so does the average age of his cows, and it is not uncommon to find poor udders on cows whose calves are suffering from scours.

We carry a 2-part "Large Animal History Form" in our trucks which is ideal for recording the diagnosis, treatment for the individual calf, changes to make now in the herd (disperse the cows), and changes to make later (palpation, nutrition, vaccination). We leave 1 copy with the producer, and take the second back to the clinic

for use in preparing lab submission forms and as a memory aid when we call back later in the week with the test results.

As a rule of thumb, *Escherichia coli* tends to effect calves less than 10 days, Rota/coronavirus is often the culprit from 10 days to 3 weeks, and *Cryptosporidium* tends to rear its ugly head in calves slightly older. We are fortunate that the microbiologist at our local diagnostic lab is extremely conscientious in providing us with accurate, repeatable results with a quick turnaround. Although the common pathogens mentioned above usually are the culprits, don't forget to consider *Salmonella* (especially when older animals also are involved) and bovine virus diarrhea as possibilities. I have also found crypto more commonly in herds that have a history of grafting dairy calves onto cows who have lost calves. In my experience, these herds are also more likely to have Johne's disease in the adults.

Once the lab results are back, it is time to call the owner and provide a plan for the fall to prevent a recurrence of the problem. This often involves environmental management (where will the cows calve and when will they be introduced to the area?), nutrition (how to feed the cows to keep them healthy, including hay testing and mineral selection), and in some cases

vaccination for specific pathogens. As with any management input, your suggestions have to be in the realm of the possible, hence using a product that requires giving 2 doses to pregnant cows may well be impractical (time is money to the producer as well as the veterinarian). In our practice, some of the *E. coli* vaccines have been very effective in reducing clinical cases of scours. In many herds, simply improving the viral vaccination protocol will improve cow immune status and subsequently, her calf's health.

Few of us in practice get too excited about an individual calf with scours, but when viewed in a broader sense, the beef calf with scours provides an excellent opportunity to communicate with the producer and identify a number of areas for improvement, many of which will involve veterinary input and consultation. This is a perfect example of taking an individual case of a sick calf and finding ways to help ensure the farm's continued viability by defining opportunities for management improvement. Clients tend to be most receptive to advice when they are experiencing a problem. It is an extremely fulfilling experience to walk onto a farm, define the problem, treat it and help the client move forward by making positive management changes.