

Mountain Valley Veterinary Services

406-599-4549

info@mvveterinary.com

www.mvveterinary.com

Cattle Newsletter – March 2021

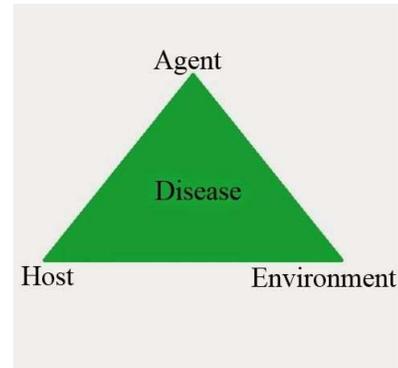
Topic: Calf Care: Scours & Electrolyte Selection

Author: Ben Bennett, DVM

In last month's newsletter, I covered the first topic of a two-part, calf care newsletter series. In that newsletter, I covered the importance of proper selection and use of colostrum replacers on your ranch. Now, in this second, calf care newsletter, I am going to focus on scours; one particular way that people have successfully prevented it and proper electrolyte selection if it does occur. Again, with so many different products on the market, it can be difficult to know which supplement is best for your calves. As with the last newsletter, if you learn nothing else, just know that **NOT ALL ELECTROLYTE SUPPLEMENTS ARE CREATED EQUAL!**

In an ideal world, there would never be a need for electrolyte supplementation on your ranch. If everything worked out perfectly, then the colostrum that the cow provides to the calf would provide a high level of immunity that protects the calf in every situation. Unfortunately though, we do not live in that perfect world. In this world, scours in young calves is a very real issue and is often considered the costliest disease to the cow-calf sector of the beef industry.

When investigating any disease outbreak, we have to consider what is referred to as the "epidemiologic triad".



This triad depicts the three factors that must work in synchrony for an animal to remain healthy; the agent (bacteria, virus, etc...), the environment, and the host. If one of these factors is compromised, then disease likely will occur in the animal. These scenarios would include the agent developing a resistance gene, the host becoming immunocompromised due to a variety of reasons, or the environment causing external stress on the individual that results in suppression of the host's immune system.

When considering scours, there are scenarios that fall into each of these three factors that can result in a scouring calf. There are management practices that we can do to bolster the host's immune system (scours vaccinations, adequate BCS at calving), but most often, I find that a scours outbreak on a ranch is due to an issue with the environment. Spring in Montana, and across the USA for that matter, can be a muddy, sloppy mess. In that mud and slop, the pathogens that cause scours will often thrive. They thrive to a point that the sheer number of pathogens are able to overcome the calf's young

immune system. This scenario is why providing a clean, dry place to calve is so important. When the environment is the issue, it makes it increasingly difficult to treat the disease with drugs and vaccines. That is why I recommend scours vaccines, but usually just adding the vaccine alone will not fix a scours problem.

Sandhills Calving System:

Being that scours is largely an environmental issue is why the sandhills calving system is so effective at preventing it. In the sandhills calving system, all cows are placed in pasture/trap 1 at the beginning of calving. Then, cows that have not calved yet are moved from one pasture to the next every week; leaving pairs in the pasture that they were in. This guarantees that the oldest and youngest calf in each pasture/trap are only a week apart in age. As calves get older and their immune system gets stronger, they are able to fight off more disease without becoming clinically ill. The issue though, is that these older individuals can sometimes act as pathogen factories. Although they are not clinically ill, they can shed large amounts of the pathogens into the environment. If newborn calves are around these older individuals, then there is a much higher likelihood that the younger ones will contract the disease from the older ones and become clinically ill. Think about a children’s daycare and the number of snotty noses, sneezes, and coughing that spreads through there every day. If an infant were to be exposed to that environment, then the infant would become much more ill than the toddler because the infant’s immune system is not nearly as developed. Under that same train of thought, by using the sandhills calving system and keeping calves in groups that only have a week of age in difference, then those much younger calves (newborns) are never exposed to the older, pathogen shedding calves (toddlers).



Picture from: onpasture.com/

Then, once the youngest calf is 4 weeks old, they can be commingled. By 4 weeks of age, calves' immune systems are well developed enough that being exposed to their older herd mates will not be detrimental to their health.

I realize that implementing the sandhills calving system exactly how it is depicted is not without challenges in this region. Finding ways to modify it to fit your ranch that still keeps newborn calves on fresh ground, and keeps older calves away from younger ones will help accomplish many of the same benefits.

Scours:

If scours does occur though, what treatment options are available for these calves? As we all know, and is the same with any health issue, the sooner that we can intervene to help a calf, the better chance that calf has of making a full recovery. One unfortunate fact about battling scours is that we do not have many good drug options to fight the actual pathogen. Most of the pathogens that cause scours are viruses and protozoa. Because of this, we often are left with treating the symptoms of the disease (i.e. dehydration, acidosis, and electrolyte imbalances). In calves, the thing that usually causes death is not the pathogen itself, but the dehydration and acidosis that come with it. So, if we can offset those issues, then we can support the calf as the pathogen runs its course.

Treatment:

When it comes to treating scours, there are two general ways of doing so; orally with electrolytes, or IV fluid therapy. Oral electrolyte supplementation usually being performed on the ranch, while IV therapy usually takes place in a veterinary clinic. This is where early intervention is most important. If caught early, a good oral electrolyte can adequately support a scouring calf though their issue. Generally, if the calf is still standing, then oral electrolytes

should be adequate. If the calf is unable to rise, but is laying sternal/upright, then I check for a suckle reflex by putting my finger in their mouth. If the suckle reflex is weak or absent, then IV fluid therapy is probably necessary. If there is still a moderate to strong suckle reflex, then oral electrolyte supplementation is still an option.

One fatal flaw I often observe when treating scours on the ranch with electrolytes is not treating often enough. Between the calf's need for maintenance and the continued fluid loss from the ongoing scours, a 100 lb calf can easily burn through 10 L of water a day. This though, does not account for the level of dehydration that that calf is already suffering from that needs to be replaced. Add that to the equation, and a 100 lb calf may need 12+ L of water a day. This is why I recommend that a scouring calf be tubbed with quality electrolytes every 4 hours.

So, what makes up a quality electrolyte?

Electrolytes:

When shopping for a quality electrolyte that will adequately support scouring calves, there are a few golden rules to keep in mind.

1. The electrolyte must contain **adequate sodium**. Sodium is very important in helping the calf retain the water that it absorbs. If we do not replace the sodium that the calf has lost through scours, then any water that we give the calf will pass right through. A concentration of 90-130 mEq/L in the electrolyte is necessary to help ensure proper water uptake by the calf.
2. Next, the electrolyte must contain **something that helps the body uptake that sodium**. Some things that the body absorbs it does so in a passive manner; meaning that the body does not have to expel any energy to absorb it.

Unfortunately, sodium is not one of those things. In order for sodium to transport across the intestinal barrier and into the calf, it must be accompanied by one of a few different molecules. These include glucose, glycine, and acetate. Ensuring that the electrolyte that you are using has one of these additional ingredients will allow that calf to properly uptake the sodium and water that it needs.

3. Next, the electrolyte must contain an **alkalinizing agent**. As stated before, scours in calves causes the calf to become acidotic. This is one key area where calf scours differs greatly from infant diarrhea in humans; human babies do not tend to get acidotic. Being that some of the calf electrolytes are designed after human electrolyte formulas, there are many products on the market that do not contain an alkalinizing agent. For calves, this is a **MUST**. That acidosis is what is responsible for much of the lethargy and inability to rise that these calves suffer from when they have scours. By counteracting that, the calf will begin to regain vigor and life more rapidly. The two different products that are most often used as alkalinizing agents are sodium bicarbonate and acetate. Acetate is preferred because sodium bicarbonate can inhibit their desire to suckle milk. Not only that, but acetate is preferred because it also acts as one of the products that can assist with sodium absorption.
4. Lastly, the electrolyte must contain a **source of energy**. Unlike a human baby that is born with 10-15% body fat, a baby calf will often only have 3%. This means that when that calf gets cold and

sick, it can burn through the energy stores that it has VERY rapidly.

Providing glucose to that calf will give it the fuel that it needs to fight back to health. Fortunately, like acetate, glucose also assists with the uptake of sodium. So, an electrolyte that contains glucose is a great plus.

Recommendations:

So, when it comes down to it, what electrolytes do I recommend? There are 3. This does not mean that there are not others, it is just that these three are readily available and work well.

1. Diaque – This is the electrolyte that I carry at MVVS. The main reason that I carry it over the other two is because it is most easily available from my distributors. It adequately supplements a scouring calf, and I have had good success with it.
2. Land-O-Lakes Electrolyte Base w/ Add Pack – For this one, you must also get the “Add Pack”. The electrolyte base on its own is not adequate for a scouring calf.
3. BlueLite Replenish M – Again, this product adequately supplements a scouring calf. I personally do not have much experience with this product. I have some clients who use it and have had good success with it. One interesting feature about this product is that it turns the calf’s manure blue.

With that, I believe I have covered everything that I intended to share about scours and its treatment. The key things to remember are:

1. Early intervention is KEY
2. Scours is most often an environmental issue. **THUS IT IS DIFFICULT TO TREAT WITH A NEEDLE!**

3. If IV fluid therapy is necessary, don't wait on this either and get the calf to the vet!
4. Be sure that the oral electrolyte that you choose contains all that it needs to!
5. If treating with oral electrolytes, treat early and often (every 4 hours).

With that, good luck with the rest of calving season. If you ever need anything, please do not hesitate to call!

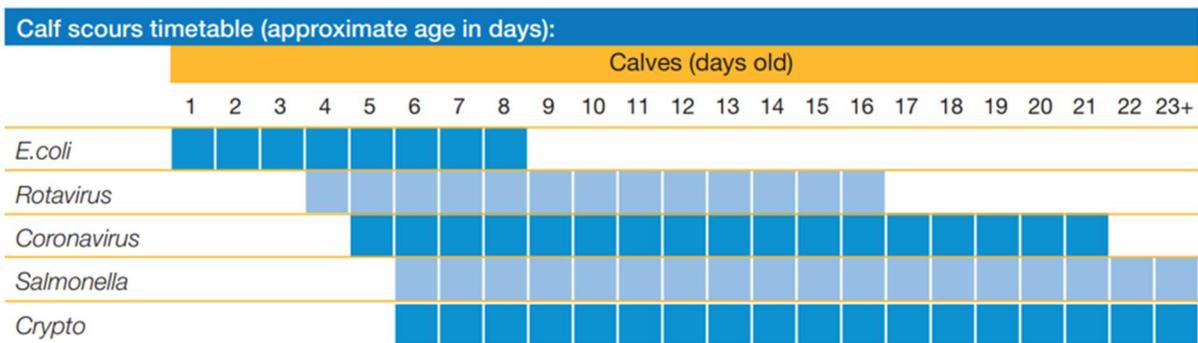
Sincerely,

Ben Bennett, DVM

Thanks again for taking the time to read this month's newsletter.

*****DISCOUNT!***** Mention this newsletter and get 10% off an order of Diaque! Available in 3.5 oz packets, 6.6 lb tub, and 22 lb buckets.

**I must give credit where credit is due – much of the information regarding electrolyte supplementation I learned from Dr. Geof Smith at NC State. Dr. Smith is regarded as one of the calf care specialists in the country and I make sure to seek out his presentations at any conference he is speaking at.



Other infectious organisms, such as *Coccidia*, BVDV, *Clostridium perfringens* and other *E.coli*, may also affect calves, often after 3–4 weeks of age.

Picture from: <https://www.dairyaustralia.com>

Since scours is largely an environmental issue, I intentionally did not go into much detail about the different pathogens responsible for it. I do include this figure though to make a couple points. First, if your ranch is suffering from a scours issue, I believe that it is advantageous to run some diagnostics to figure out which pathogen you are combatting. That information can serve as a tool in our tool belt as we prepare to combat the issue. Second, outside of scours in calves at 1-3 days of age (typically *E. Coli*), it is very difficult to know which pathogen you are fighting without running diagnostics. As calves get older, there are a myriad of pathogens that may be causing issues. Yes, there are certain pathogens that tend to cause blood or mucous in the stool, but I have observed blood and mucus in the stool with every pathogen. Diagnostics are necessary if you want to be sure about which pathogen you are fighting.