

Dehydration

- **Why do calves get dehydrated?**
- **Preventing dehydration is more cost effective than treating it.**
 1. **Reduce pathogen exposure.**
 2. **Increase immunity to pathogens.**
 3. **Feed free-choice water.**
- **Treating it requires timely measures appropriate to the degree of dehydration.**

Why do calves get dehydrated?

Balance or equilibrium is the key concept in fluid management. A healthy preweaned calf is able to balance input with output. Stop and think about what happens to the water part of a calf's ration. Much of the fluid is absorbed in the gut as digestion takes place. Some of this water is used to maintain the fluid part of the body. More is used in new tissue as the calf grows. Part of the water becomes a carrier for liquid waste and is excreted as urine. Another portion is put back into the gut to maintain the proper balance of fluid to solids as digestion nears completion in the large intestine. Overall, this is an amazing balancing act.

So, what can go wrong? Why does this balance get out of order and calves become dehydrated? It is not enough to just say, "Output exceeds input." Fluid losses or output can get abnormally high if the calf has diarrhea or scours. An abnormally large amount of water is being put back into the large intestine resulting in hyperfluidity of feces.

Mild scouring may increase fluid losses by one quart per day or more. How much water can a severely scouring calf pass in one day? Eight quarts is not uncommon. Two gallons.

Other conditions increase the need for water. As environmental temperatures climb above seventy degrees calves increase fluid losses in cooling their body. Recall how respiration rates go up in warm weather? The air leaving the body carries more water than the air going in.

A fluid ration that is high in dry matter requires a lot of water to properly digest. For example, milk replacers fed in the fifteen to eighteen percent solids range. As the calf's body seeks to maintain biologically normal balances, the water put back into the gut may exceed that which is being absorbed even when the calf does not have diarrhea.

Preventing dehydration

- Reduce pathogen exposure. Intestinal infections often cause diarrhea. So, keep the bad guys out of the calf. Practice good calving pen management. Feed clean colostrum. Feed clean milk or milk replacer. Keep calves in a clean environment.

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- Increase immunity to pathogens. Strong immune systems help fight off intestinal infections that cause scours. Feed plenty of good quality colostrum as soon as possible after birth. Feed enough milk or milk replacer to meet not only the calf's maintenance needs but also to support growth of her immune system. If your calves do not gain at least one pound a day, your nutrition program needs an overhaul.
- Feed free-choice water. Give calves the opportunity to manage their fluid intake beyond drinking the limited amount of milk or milk replacer we feed. Calves really do increase water consumption as their needs increase. The classic example is comparing amounts drunk in cold versus hot weather. January compared to July!

One management strategy to encourage water intake for young calves is to feed water close to their body temperature. Small amounts are usually all that are needed. As they are observed to drink all of it, the amount can be increased. Keep another thing in mind if you are bottle-feeding young calves. Offering water in a pail may not be enough initially. You may need to offer a bottle of water until they find the water pail.

One hot weather management tip is to increase the water pail size. Go from five to ten quart pails for water. Or, for older calves, switch to five-gallon pails in July and August.

Treating dehydration

Even with the best management to prevent dehydration, some calves will need remedial care. Remember that most calves, given the opportunity, will try to maintain their own fluid balance by increasing their water intake. That is why free-choice water is a best management practice.

Many of us use oral electrolyte feeding as a first intervention step. Extra fluids offered one or two times daily in between regular milk or milk replacer feedings can do wonders for most calves. The primary purpose of these extra feedings is to increase water consumption.

If a calf is unwilling to drink an electrolyte solution, do not just say, "She is just too dumb to drink." Some infections reduce a calf's ability to absorb fluids in her gut. With the calf standing, use your hands to feel of her gut. Is it more full than normal? Can you hear sloshing sounds? If yes, you may need to work out an alternative treatment protocol with your veterinarian for getting fluids into calves.

Sub-cutaneous (SQ) and intravenous (IV) routes of fluid administration recommended by your veterinarian are very effective treatments for dehydration. Do you have these supplies on hand and know how to use them? If yes, good. If not, consider this your next step in improving the quality of calf care on your dairy.