

## **Calf Care Corner – Recognizing signs of dehydration in calves**

Dehydration is a serious condition that impacts calf health and productivity and can lead to death if not identified and treated in a timely fashion. Dehydration occurs when water lost by a calf is not replenished. Dehydrated calves will eat less and can have weakened immune systems.

Calves that are scouring or experiencing heat stress are at greater risk of becoming dehydrated. Sick calves or calves with limited or no access to clean, fresh water are also at risk of developing dehydration.

### **Assessing dehydration**

Skin tenting can be used to evaluate hydration levels. Pinch a fold of skin on the neck of a calf and count the number of seconds it takes to flatten. The skin of adequately hydrated animals will flatten almost immediately, within two seconds. If the skin takes longer to flatten, the calf is dehydrated.



Gum colour and moisture can also be checked when assessing hydration levels. This is most easily done when calves are laying down or depressed. Abnormal gum colour may indicate dehydration, but can also indicate problems such as anemia, shock, and reduced blood flow. As such, gum colour and moisture should not be the only assessment you make when determining if a calf is dehydrated. Normal gums will be pink and damp, while gums of a sick calf will be white and dry. You can also push down on the gums (so it turns white), release your finger, and count the number of seconds it takes to return to pink. If colour hasn't returned in less than two seconds, the calf is sick.

**Photo: capillary refill test - normal (pink) and abnormal (white) gum colour**



Calves will have specific symptoms depending on the level of dehydration they are experiencing. Consult with your herd veterinarian to develop a protocol for identifying and treating dehydrated calves. Your protocol should include how to treat calves that are experiencing dehydration in addition to other symptoms (such as scouring), when to give electrolytes (at milk feedings or at a separate feeding), as well as type, amount, and frequency of electrolytes. Your protocol should also include when to call your herd veterinarian, as a severely dehydrated calf (14 per cent dehydration) is in immediate danger of coma and death and hitting a vein in a dehydrated calf is especially difficult. Your herd veterinarian can help customize a rehydration protocol to meet the needs of your calves and fit your management system.

Level of dehydration (per cent of body weight lost as fluid loss)	Symptoms	Action required
Mild (five to six per cent)	Mild diarrhea Cool ears or leg extremities	Oral electrolyte fluids
Moderate (six to eight per cent)	Skin tents for two to six seconds Mild depression Weakness Sunken eyes Slightly tacky, light pink gums	Oral electrolyte fluids or Offer fluids via esophageal tube (if no suckle response) or Subcutaneous or intravenous fluids if necessary
Critical (greater than eight per cent)	Skin tents for over six seconds Calf will not stand Cool extremities Sunken eyes Dry, white gums	Contact your herd veterinarian Intravenous fluid therapy

### Electrolytes

Electrolyte solutions are designed to replace water and minerals lost via sweat or diarrhea. Electrolyte solutions typically contain sodium, potassium and chloride. Some electrolyte solutions contain dextrose to elevate blood sugar levels and provide energy to the calf. Ensure dehydrated calves are offered electrolyte fluids in addition to their normal milk ration. Ingredients in some electrolyte solutions can impair formation of the casein clot, reducing digestibility and exasperating scours and dehydration. If feeding whole milk or milk replacers containing significant amounts of skim milk or casein, feed electrolytes several hours after milk feeding. Talk to your herd veterinarian to determine the best electrolyte solution and administration schedule for each calf's needs.

Ideally, electrolytes should be offered as an additional meal, separate from milk feeding times. Electrolytes should not be fed mixed with milk replacer or offered at the same meal.

The amount of electrolytes to offer will depend on the level of dehydration of the calf. For example, if a 40 kg calf is eight per cent dehydrated, it has lost  $40 \times 0.08 = 3.2$  L of liquid. This calf needs 3.2 L of liquid in addition to its normal intake<sup>1</sup>.

### Preventing dehydration

Healthy and not heat-stressed calves will drink five to 7.5 litres of water per day at one to two months of age in addition to their normal milk intake. Weaned calves at three months of age will drink eight to 10 litres of water per day and four month old calves drink 11 to 13.5 litres of water per day. The amount of water a calf drinks increases as it eats more starter. A calf's water requirement can also increase by up to 50 per cent in hot weather. Be sure to monitor your calves' water intake. If they are fevered, not drinking and/or are scouring, you may want to administer electrolytes to prevent dehydration before they become noticeably dehydrated. Cleaning water bowls may also encourage calves to drink more.

Tips to prevent dehydration:

- Ensure calves have free access to fresh, clean water.
- Move feed dishes away from water sources or put a divider between feed and water dishes to prevent contamination.
- Clean and maintain water bowls, nozzles and water lines.
- Check water supply daily in cold weather to ensure water is not frozen in bowls or pipes.
- Warm water (32°C) can be offered in winter to reduce freezing.

Free access to water encourages dry feed intake, helps rumen development and fermentation, and improves feed efficiency. Preventing dehydration is the most efficient way to safeguard productivity, however, this is not always possible. As such, knowing how to identify and treat dehydrated calves is an important part of calf care.

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<sup>1</sup> <http://www.calfnotes.com/pdf/CN043.pdf>