



Hydration control

**Dehydration
takes its toll on
farms every
single day**



Water is the basic requirement for life

It is needed for the body to be able to function properly. If the hydration status of an animal is compromised, growth, development and performance are also compromised. Hydration of the animal is usually regulated by drinking and excreting water within normal (but very narrow) safety margins in which the body can function.

Animals will cope with the lack of water by prioritising the most important body functions as long as possible or until the state of hydration is restored. The extent to which this restoration is needed is dependent on the root cause of the dehydration and the animal itself. As the animal matures, relative body size decreases and water in the body will be held more inside the cells (intracellular fluid pool) rather than outside (extracellular fluid pool) due to reduction of metabolic rates. Water in this extracellular pool is more easily lost and quickly leads to impactful health issues, especially in younger calves.

Managing the hydration of animals in different life stages therefore means management of these different pools. Type, amount and ratio of electrolytes play an important role in this and should guide rehydration product choice.

LIFESTART HYDRATION CONTROL

A **new** scientifically proven **water balance regulation** concept for healthier calves



Water is important for every living being



Drinking sufficient water is important even under normal circumstances. With increased exercise, physical strain/stress and especially when complications arise this becomes an even greater point of attention. Professional and many amateur athletes seeking improved performance drink isotonic products to increase their endurance.

In case of digestive complications (diarrhoea), the World Health Organization has developed a hypotonic oral electrolyte solution (OES) that is still helping millions of people globally every year since it was first developed in the 1960s.

Dehydration is a significant problem in calf rearing

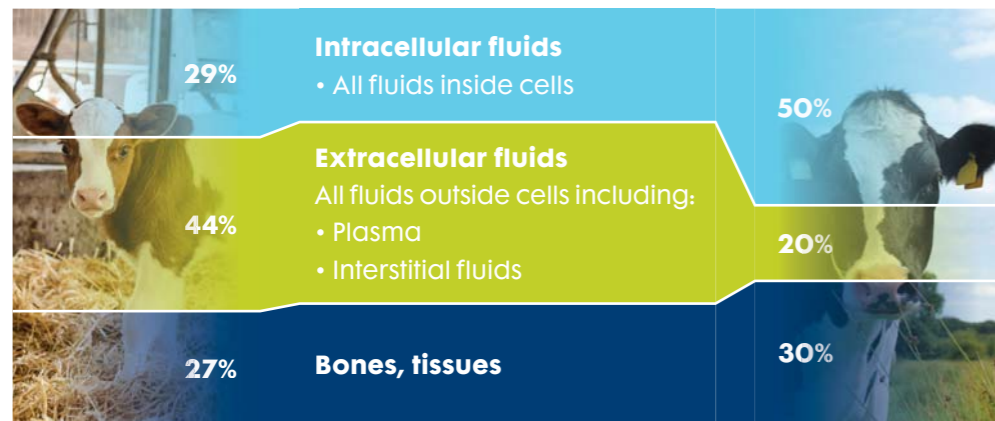
Calves dehydrate faster due to:

- Body size
- Increased metabolic rate
- Body composition

The majority of the calf's fluid is stored outside cells (extracellular). Therefore it will lose fluid quickly if it is affected by diarrhoea.

Body composition, %BW

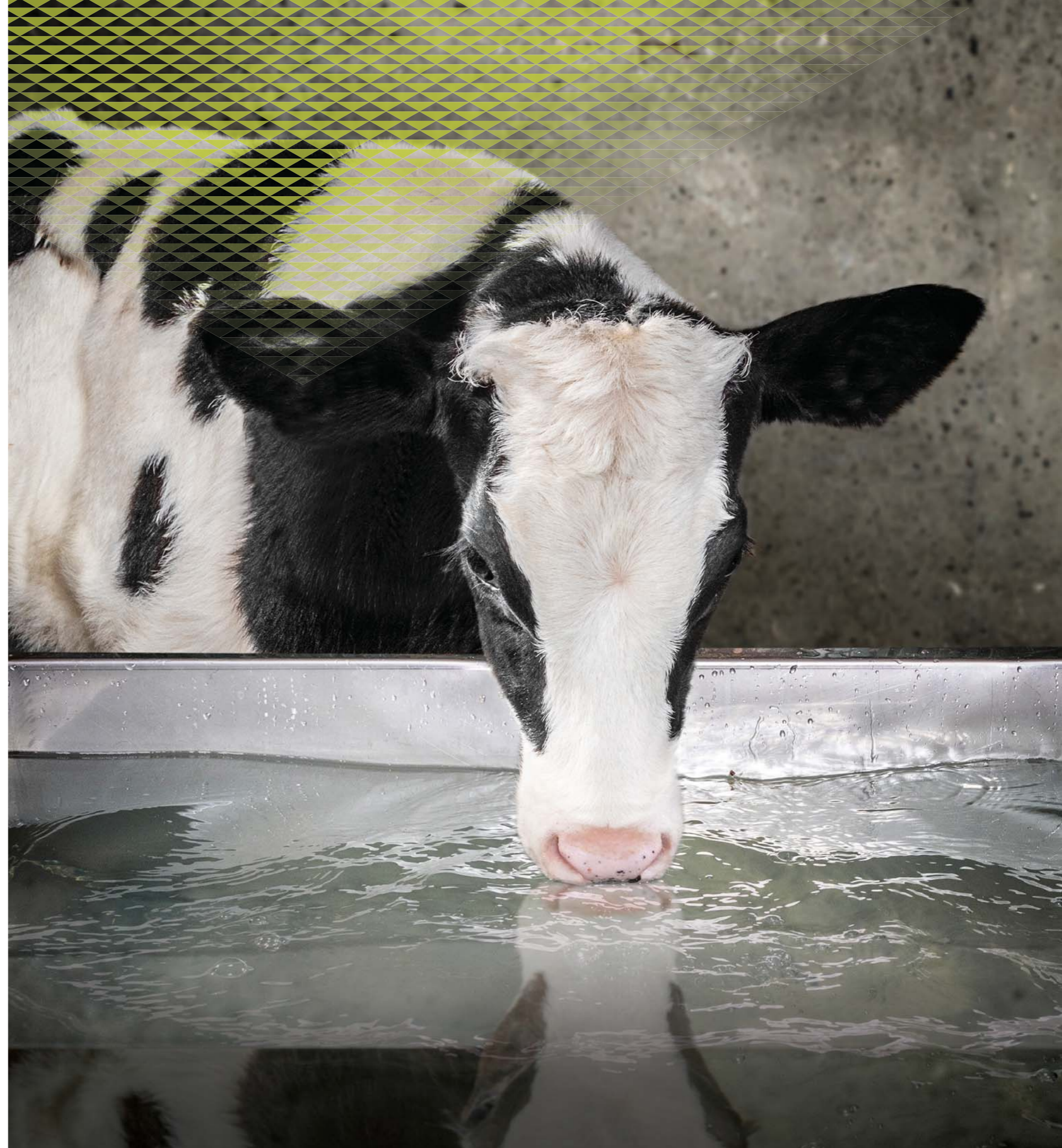
Body composition, %BW



Neonatal calf (0-3 weeks)

Cattle

Dehydration resulting from diarrhoea is the cause of 55% of all calf deaths in their first stage of life.





OsmoFit

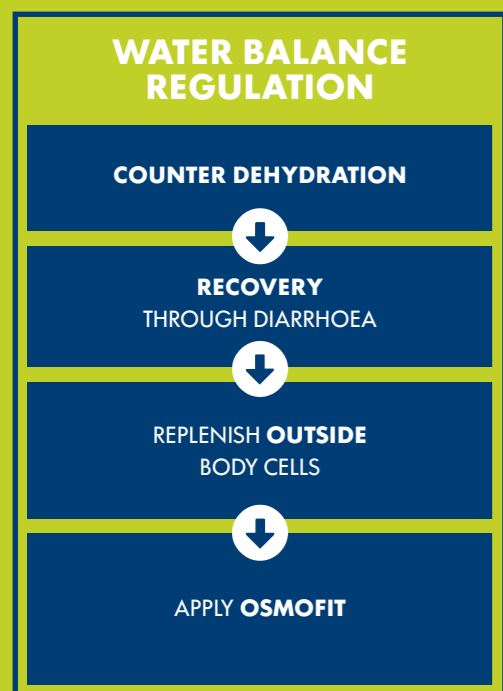
OsmoFit is a dietetic water-soluble calf rehydration product. It is able to stabilise the water and electrolyte balance of the extracellular fluid pool in cases of diarrhoea by providing the required salts and sugars in the right amounts and in the correct ratio. Therefore, OsmoFit is always provided in a fixed concentration in water.

The composition of OsmoFit focuses on:

- Mainly sodium salts and to a lesser extent potassium salts to correct the losses of these electrolyte minerals, to enable water absorption and counter metabolic acidosis.
- Highly digestible components that provide energy and do not influence extra outflow of water. Blood is classed as isotonic. Solutions with a higher osmolality value than blood will extract water from the body; they are classed as hypertonic. For this reason, OsmoFit's patent pending formula has been designed with a low osmolality value and is therefore a hypotonic solution.
- Buffering agents that counter – and prevent further occurrence of – metabolic acidosis.

Depending on whether the diarrhoea is caused by nonpathogenic or pathogenic causes, there is a need to change feeding management to support the immune system to overcome the infection or if needed, provide veterinary treatment. Dehydration and the consequential metabolic acidosis is what ultimately makes the calf succumb to an illness state that is commonly referred to as calf diarrhoea.

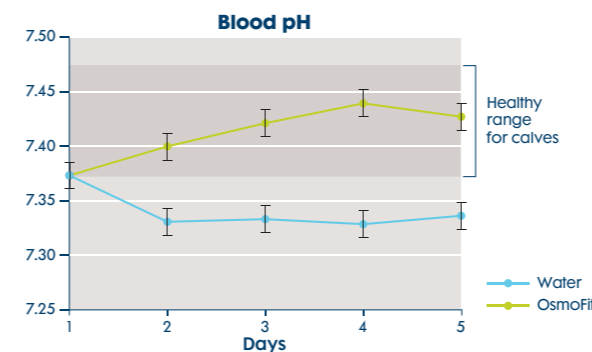
How to regulate and control hydration



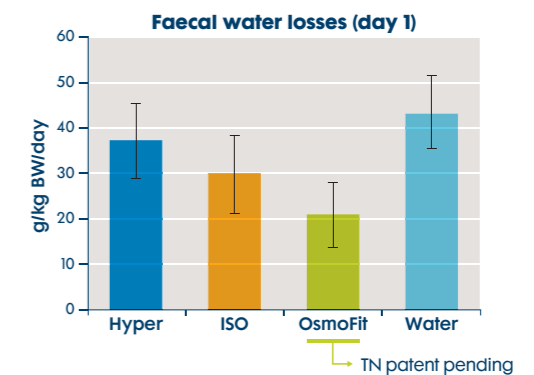
Trials carried out at the Trouw Nutrition Calf & Beef Research Centre demonstrated that OsmoFit is able to keep and/or restore blood pH of calves within the normal range whereas water is less able to do so. (This is illustrated in graph 1.)

Another trial demonstrated that OsmoFit is able to reduce faecal water loss on the first day of treatment compared to a control group provided with water only. Groups of animals that were offered hypertonic solutions instead, did not have consistent or even any reduction of faecal water loss. (This is illustrated in graph 2.)

Graph 1: OsmoFit effectively corrects metabolic acidosis.



Graph 2: Effect of products with different tonicity on faecal water loss.



How to use

OsmoFit is to be used in case of risk of, during periods of, or recovery from diarrhoea. The ratio of components in OsmoFit has been optimised for water uptake and should therefore only be provided in the recommended application of 60 grams (1 sachet) / 2 L of lukewarm water (25-35°C).

To avoid changing the ratios of minerals and sugars, OsmoFit should not be mixed in milk, but can be fed in between milk (replacer) feeding twice daily. It is highly recommended to always have access to fresh drinking water when providing products containing electrolytes.



OsmoFit® and LifeStart® are brands of Trouw Nutrition, a Nutreco company.

Trouw Nutrition is a global leader in innovative feed specialities, premixes and technical services for animal nutrition. Quality, innovation and sustainability are the guiding principles behind everything we do – from research and raw material procurement, to the delivery of cutting-edge products and services for agriculture.

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