



WHY SUPPORTING THE RUMEN IN CALVES SETS YOU UP FOR A PROFITABLE AND HEALTHY COW

As we now know the rearing period is critical to the subsequent performance of dairy heifers when they enter the milking herd and to the overall profitability of dairy herds. For example, research from Cornell university shows that for every 1kg increase in average daily gain pre-weaning contributed to between 850kg - 1,113 kg more milk in first lactation¹.

Because the rumen converts ingested feed into nutrients used for growth - and in time milk production - it is key to your herd's lifetime profitability. Yet the most crucial time for rumen development, from birth to 13 months, can be overlooked. Phileo's technical manager, Kevin Doyle, explains the importance of the rumen in calves and what you can do to get the best possible results.

Growth rate targets for a profitable herd

Research supports that calving heifers between 22 and 24 months of age reduces rearing costs, improves lifetime performance and reduces metabolic issues at calving. To achieve this in your own herd, hitting growth targets early in

life is essential. Young calves should double their birth weight by weaning at 8-10 weeks of age. For a 45kg calf at birth, this requires a growth rate of 0.80kg per day to reach a weaning weight of 90kg after 8 weeks.

How does the rumen develop in calves?

Calves are born in a vulnerable state, with little to no functioning immune system. This is why colostrum is important: it provides much-needed immunity in the first weeks of life while the calf's own immune system develops. Equally, the rumen is not fully functioning or digesting fibre and feed particles until calves are 6 months old.

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To achieve this, the wall of the rumen and the microbes within it (known as the rumen microbiome) must be developed, both of which are influenced by the diet in early life.

At birth, the rumen wall is smooth and without papillae, important finger-like structures in the rumen of adult cattle that absorb nutrients after rumen microbes have digested and fermented solid food.

To stimulate papillae growth, and help the digestive tract develop, we must encourage early microbial development in the rumen and the production of volatile fatty acids (butyrate & propionate). These are produced from the digestion of high-quality starter feed rich in starch from cereals. Simply put: if the rumen is well developed calves will eat well, have higher intakes and absorb more nutrients - ultimately leading to better growth.

Improving colostrum quality

Optimum calf nutrition doesn't start at birth - it starts with the dam. Colostrum is essential in getting the calf off to the right start, but you need to follow the three Qs: quantity, quality and quickly.

Newborn calves need at least 3 litres of high-quality colostrum within the first 2 hours of birth, followed by a further 3 litres within 12 hours. The colostrum needs to measure at least 50 g/L of immunoglobulin (IgG) when measured with a refractometer (approximately →22% on Brix scale).

Quality really is crucial for the all-important immune transfer, and 50 g/L of IgG is just the threshold between poor and good colostrum - not the gold standard. Transfer of IgG across the mammary barrier begins approximately 5 weeks before calving (Maes et al., 2010). Stimulating the mother's immune system a few weeks prior to calving can, therefore, improve the transfer of immunity to her calf.

Our research² found that supplementing dry cows with both Actisaf® live yeast Sc 47 (*Saccharomyces cerevisiae*) and Safmannan® premium yeast fraction increased IgG concentration by 15% when compared with a control group. Transfer of immunoglobulins from the mother to the calf was significantly higher where cows received Actisaf® and Safmannan®, and serum IgG concentration was seen to increase by 39% in calves during the first 12 hours of life.

Preventing disease and infection in calves

Calf growth prior to weaning is a particularly key stage, as what happens in these first weeks has a direct correlation to the future performance of the animal (Soberon, 2012). However, these early stages are also when a calf is most vulnerable - susceptible to disease, parasites, and trauma.

Supplementing with Safmannan®, a premium yeast fraction, is beneficial from a pathogen binding point of view. Beta glucans and mannans - the functional properties of Safmannan® - help support the immune status of calves, thereby supporting the defence mechanism to on-farm challenges. Safmannan can also bind to pathogenic bacteria, which can result in reduced pathogen pressure for the young, vulnerable animal. It's a



preventative, rather than reactive approach and is vastly cheaper than a rampant scours outbreak in calves.

Improved fibre digestion equals better growth rates

Including Actisaf® Sc47 in the ration provides significant benefits to calves during the pre-weaning stage. Through its mode of action, Actisaf® reduces trace levels of oxygen in the rumen and creates an environment where the main cellulolytic bacteria will grow and thrive, thereby improving fibre digestion when it is already challenged by low rumen pH and enhancing the development of the core ruminal microbiome.

Actisaf® also eases the transition on to starter feed, conditioning the rumen microbes for the change in diet by biologically buffering the rumen and promoting a higher rumen pH through the stimulation of lactic acid-utilising bacteria. These bacteria reduce the build-up of lactic acid in the calf's rumen, which reduces the incidence of digestive upsets such as acidosis, while at the same time producing more usable energy in the form of propionic acid which can greatly impact on feed digestion, rumen development and calf growth rates.

Take home tips for calf nutrition

1. Focus on colostrum quality by supplementing dry cows
2. When feeding colostrum, focus on the 3 Qs: quantity, quality and quickly
3. Feed a high-quality milk replacer to support →0.9 kg of ADG/day
4. Provide clean, fresh water and chopped forage to calves
5. Ensure starter feed contains a balanced source of starch and high-quality protein
6. Aim to double a calf's weight by 8-10 weeks of age through targeted high quality calf milk replacer and starter feed
7. To improve growth rates and reduce disease incidence and the resulting setbacks, include Actisaf® and Safmannan® in your calf diets

1. Soberon F, Raffrenato E, Everett RW, Van Amburgh ME. Preweaning milk replacer intake and effects on long-term productivity of dairy calves. J Dairy Sci. 2012 Feb;95(2):783-93. doi: 10.3168/jds.2011-4391. PMID: 22281343.

2. The addition of live yeast Sc 47 (Actisaf®) in the feed of dry cows during the close-up period on colostrum quality (Rodriguez-Quiros, 2008)

ACTISAF® AND SAFMANNAN® IN ACTION



"We want our calves to get the best start possible, so we supplement calves on milk with Actisaf® and Safmannan® to get them going so they can thrive in their early months. They do very well on it. We won't be without Safmannan® and Actisaf® for our calves or our milking herd."

Stephen and Nevin Greenaway, who farm 60 Holsteins in Annaghmore, Co Armagh. The Greenaways provide Actisaf® and Safmannan® to their calves through an automatic calf milk feeding system, in addition to feeding Actisaf® to their milking cows.

"The combination of Actisaf® and Safmannan® means calves are definitely growing faster and intakes have improved. I'm confident that this will mean that they reach target sale weights earlier, so it will really pay off. I'm certainly going to continue using Actisaf® and Safmannan® with my calves in the future."

Jim Scott, Killylea, Co Armagh who runs a calf-rearing unit on 80 acres. Jim now feeds Actisaf® and Safmannan® as supplements to calves, which he buys as a pre-mixed calf bucket, and he adds into milk as soon as they are taken away from the mother.



"Healthy, high performing young stock are key to my business. I aim to provide my customers with calves that have had the best possible start and will continue to perform well for them within their businesses. Adding Safmannan® is a natural way of providing calves with that extra support at a crucial time in their lives".

Chris Pickering runs a calf rearing unit in Sutton, Thirsk, rearing between 1,000 and 1,500 calves a year.



"We now include Actisaf® and Safmannan® in feed across the farm from calf feed to dry cow and dairy cows and won't be taking it out in a hurry. We are happy in the knowledge that it's in there and the herd are responding well."

Colin, Brian & Mary Murphey, near Knockbridge, Dundalk who milk 350 cows on their 400-acre farm.



GIVE THEM THE BEST START



Every bite counts when it comes to milk production and profitability. Give your calves the best start in life with Actisaf® and Safmannan®.

Actisaf® Sc 47 live yeast is scientifically proven to support rumen function. Feeding Actisaf® live yeast to your calves contributes to:

- Improved feed conversion rate and live weight gain
- Greater digestion of fibre
- Reduced risk of acidosis

Safmannan® premium yeast fraction is rich in specific beta glucans and mannans which support the immune system and bind to certain pathogens. Feeding Safmannan® to your calves helps:

- Support the immune status of calves
- Bind harmful, disease-causing bacteria
- Improve performance later in life

SafMannan ActiSaf^{Sc 47}

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