YEASTSOLUTIONS

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ACTISAF AND SAFMANNAN SUPPORT HEALTH AND IMMUNITY IN CALVES PREWEANING

Early life is a particularly challenging period for calves. Their immune system is still developing, making them more susceptible to disease challenges and subsequent setbacks. By supporting immunity and encouraging gut development, we can ensure the calf is primed for a quick transition on to solid feed. Supporting the animal through this difficult life stage translates to better performance later on in life, including completing their first calving by 24 months of age.

Mike Smith milks 450 Holstein-Friesians with his brother Peter at Pelcomb Farm in Haverfordwest, Pembrokeshire. His herd yields 8,900 litres at 4.24% butterfat and 3.48% protein on average and supplies First Milk's Haverfordwest Creamery. The farm runs an autumn block calving system and raises its own replacement heifers on site, with bull calves going to beef.

About 430-450 calves are raised every year by employee Karen Golding, who oversees all aspects of calf management on the farm. She starts heifer calves on milk replacer from two days old, gradually building their intakes up from 5 L/day in the first week to 8 L/day in week four, and straw and coarse mix also available ad lib. Calves are weaned at 80 kg or 7 weeks old over a period of 2-3 weeks, and TMR is introduced alongside the coarse mix toward the end of this period. All calves are band weighed every two weeks by the vet from birth to weaning to monitor their progress.

"When I began working with the calves two years ago, I didn't feel that our heifers' milk replacer was meeting their needs during this crucial stage of development. Overall calf health, condition and growth rates could have been better," said Karen.

"We introduced a new milk replacer that included Actisaf and Safmannan on the recommendation of Matthew Van Djik from Bibby Agriculture. As soon as we started feeding the new replacer, the calves massively improved," said Karen.

Actisaf and Safmannan work together in calf diets to support gut health and immunity, giving them the best start in life. This results in better feed utilisation, good digestive development, smoother transitions to solid feed and improved immune status, and subsequently strong growth rates and reduced growth checks during periods of stress and challenge.

Since introducing the new replacer, Karen has also seen improvement in her calves' ability to handle health challenges, and she continues to see positive growth in of 0.5 kg/day even during bouts of illness. On average, daily live weight gain is 0.7-0.8 kg/day, but can go up to 1.2 kg/day.

The successful calf rearing programme at Pelcomb Farm is also paying off when heifers enter the milking herd: "Our heifers have an average age of 23 months at first calving," said Mike. "We have given Actisaf and Safmannan to over 500 heifer calves in the last two years, and with success like this I feel it represents a good value as a part of our rearing strategy."

Karen added, "As a block calving unit with all of our calves in one area of the farm, we will have occasional health challenges. These will have an impact on our calves' digestive systems but having Actisaf and Safmannan in the diet helps to keep negative effects to a minimum. These products are a part of my toolkit as a calf rearer, components of our programme that I wouldn't be without!"

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THE TRANSITION PERIOD – THE SPRINGBOARD TO A SUCCESS

BY JAMES AMBROSE, TECHNICAL MANAGER, UK & IRELAND, PHILEO BY LESAFFRE

The transition period is full of challenges for the dairy cow. We expect her to go through the physical trial of late pregnancy and calving without suffering any metabolic disorders, as well as going on to achieve peak milk production within 4-8 weeks of calving, with optimal milk solids yield. On top of that, she needs to show strong signs of heat and get back in calf by day 83 in milk to maintain a 365-day calving interval. This is a lot to ask and requires her to be supported, both nutritionally and through careful management, during this period.

Transition cow nutrition

From a nutrition point of view, the demand for major nutrients increases dramatically from approximately 3 weeks pre-calving to 4 days post-calving. Demand for fatty acids increases five-fold, calcium demand increases four-fold, glucose three-fold and amino acids two-fold. This draw on nutrients is controlled primarily by a significant increase in growth hormone levels, which directs energy (glucose) towards the udder for milk production at the expense of the cow's own body reserves.

This process is facilitated by receptors in the liver becoming insulin-resistant and the uncoupling of the growth hormone and insulin-like growth factor axis, which typically directs nutrients towards the reproductive tract. If this uncoupling lasts for a long period of time in early lactation, due to a lack of energy, then it can have detrimental effects on fertility 3-4 months after calving.

It is normal to have a period of negative energy balance in the first few weeks of lactation as the cow utilises her own reserves for maintenance and milk production. It is vital, however, that we manage the transition cow's diet to close this energy gap as fast as possible to avoid issues with metabolic disorders and resulting poor fertility.

The key thing is to maximise dry matter intake (DMI) during this period by feeding an energy-dense, balanced diet and managing feed access. A glucogenic-based diet to maximise milk yields, minimise body condition loss and facilitate a good immune response; this will also get cows showing strong heat after calving. It is also critical to supplement with the correct balance of trace elements, antioxidants and minerals.

Risk of metabolic disorders

If transition cows are not managed correctly, a number of metabolic disorders can occur, leading to poor production and reproductive performance. What's more, a cow with one metabolic disorder is more likely to suffer from another problem (e.g. a case of clinical milk fever increases the risk of mastitis eight-fold). The ability of the immune system to mount a challenge is also lowered during the transition period making the cow more susceptible to pathogenic diseases like mastitis and metritis. The major risks, however, come from clinical and sub-clinical ketosis (due to excessive or prolonged energy deficit) along with immune suppression, which can have long lasting effects into lactation.

A suppressed immune system means that there is a higher chance of infection, promoting metabolic disorders and reducing DMI. Indeed, sub-clinical ketosis (>1.2mM BHB/litre of blood) is negatively correlated with a host of metabolic disorders, with cows 5.38x more likely to get clinical ketosis, 3.33x more likely to suffer a displaced abomasum and twice as likely to suffer lameness. There are also indirect and direct milk yield losses of around 340 kg over the lactation, plus a negative impact on reproduction. We really don't want a cow to get even sub-clinical ketosis!

SFUL LACTATION

Figure 1: Evolution of haptoglobin (g/L) content in blood over transition period

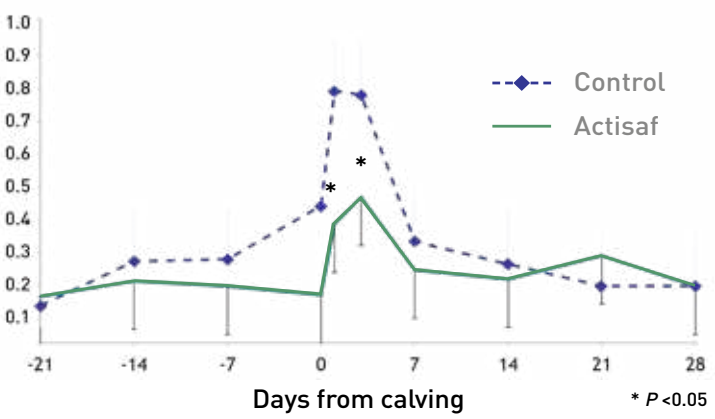
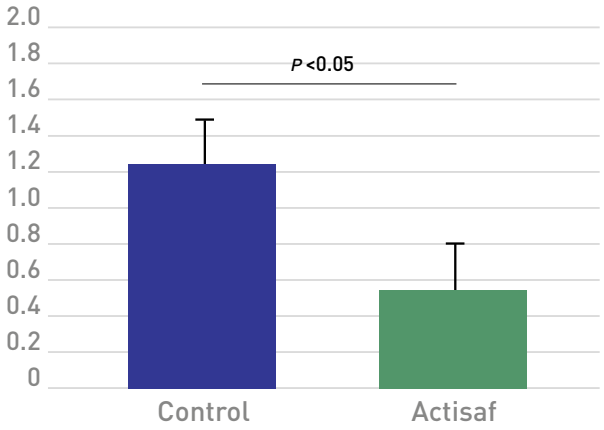


Figure 2 : Change to Blood BHB (mmol/L) content at 28 days after calving or post calving



Immune response and inflammation

An immune response is a natural consequence during early lactation. This helps the cow deal with pathogens in the uterus and infectious pathogens in the udder or teat canal, as well as to help involution of the uterus. Inflammation is a natural part of an immune response, however, is typically a short, sharp response to resolve infections quickly. It is not advantageous to have a prolonged immune response as this saps glucose, which will have a serious impact on performance. Recent studies have highlighted that an activated immune response can utilise up to 2 kg of glucose per day, diverting energy away from production and reproduction.

Measuring haptoglobin levels (an indicator of inflammation) during the transition period from day 0 – 14 after calving can allow the accurate prediction of disease development. As outlined above, inflammation is natural in early lactation, so even healthy cows have a significant increase in haptoglobin levels during the transition period. Critically, however, this spike in haptoglobin levels will return to baseline levels relatively quicklyin a healthy cow. Cows with severely elevated levels of haptoglobin for a prolonged period in early lactation are likely to develop serious metabolic problems.

Indeed, cows with elevated post-partum haptoglobin levels exhibit a higher risk of uterine infection or respiratory disease, a four-fold increase in the risk of metritis, a 40% decrease in the chance of successful conception during the first 150 days in milk and, typically, around nearly 1,000 litres less milk yield over the lactation.

Of course, increased inflammation can also be caused by pathogenic infection (such as mastitis), fatty liver disease, heat stress, handling or social stress and excessive body condition, so wider management factors are also important alongside careful transition cow nutrition.

Other factors such as heat stress, handling or social stress can also pose problems so good overall management is imperative alongside careful transition cow nutrition.

How does Actisaf® help?

Supplementing dairy cows with Actisaf® live yeast to transition cow diets ensures cows make a better start to the lactation, which contributes to better production and reproductive performance.

There is considerable peer-reviewed trial work to show that Actisaf® supplementation reduces the risk of acidosis and improves fibre digestion and feed conversion efficiency, as well as increasing DMI, thereby reducing negative energy balance in early lactation. This is because Actisaf® increases VFA production and improves rumen pH and redox potential, resulting in more glucose pre-cursor, which is what the cow requires to address negative energy balance. This can help to reduce the risk of sub-clinical ketosis in early lactation.

More recent research, presented at the ADSA Discovery Conference on Food Agriculture in the USA last year, backed this up, showing a reduced drop in DMI in the days preceding calving and higher intakes post calving, as well as higher milk yield throughout the early lactation period.

It also showed lower blood BHB levels at 28 days post-calving when cows were supplemented with Actisaf®, clearly demonstrating that cows had a reduced risk of sub-clinical ketosis. In addition, the trial found that haptoglobin levels were reduced in early lactation when cows were supplemented with Actisaf® (see Figures 1 & 2).

HELP YOUR HERD MANAGE THE TRANSITION PERIOD WITH **ACTISAF**

The transition period is demanding, as nutrient requirements increase whilst dry matter intake is reduced, leading to body weight loss through negative energy balance. What's more, the immune system of the cow is challenged at this time and typically a cow's immune response elicits a non-specific systemic inflammatory response in the cow, which requires energy – something the cow is lacking at that time.

Ultimately, this increases the risk of metabolic disorders and problems such as reduced milk yield and poor fertility, which impacts your bottom line. Combine this with the potential for poor rumen function caused by the change from transition to lactating diets and you have a problem!

Luckily, research proves that Actisaf can help. Feeding 10g of Actisaf live yeast 21 days pre-calving and 21 days post-calving lowers the risk of poor rumen function and acidosis, increases propionate production, providing the cow with more much-needed energy, helping to reduce negative energy balance and subsequently improving performance.

Can you afford to be without Actisaf in your transition diets? Find out more at **www.phileo-lesaffre.com** or call us on **028 9334 3900**

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