



REMOVING ACTISAF FROM HERD'S DIET RESULTED IN RETURN OF ACIDOSIS...

The inclusion of Actisaf in cow rations has enabled one family farming partnership in Annan, Scotland, to maintain high milk yields without having to worry about the negative impact of acidosis on cow health and performance.

Callum Jamieson (pictured) farms in partnership with his father and two brothers, helping to manage a 400 strong Holstein Friesian dairy herd at Woodhead Farm. Milk is supplied to Arla and yields currently stand at an average of 11,500 litres/year, with butterfat at 3.9 per cent and protein, 3.3 per cent.

"The cows are indoors all year around so that we can carefully monitor their health and performance," explains Callum. "Calving takes place throughout the year, with the aim for first service at 13 months. We are currently working to get first calving down to between 22 and 24 months."

Cows are fed a TMR all year round, with a 50/50 split between forage (grass and whole crop silage) and concentrates. The farm makes use of large quantities of homegrown grass silage, and aims for at least four grass cuts a year; reseeding leys every 4-5 years.

"We have an automated Wasserbauer Butler robot which runs up and down the feed passageways pushing up feed throughout the day," continues Callum. "As well as pushing up feed, the robot also periodically distributes a small quantity of blend, which draws the cows forward to feed and helps maintain good intakes."

In order to ensure high levels of milk production and maintain cow energy levels, the farm's TMR is high in terms of starch and sugar content. Whilst beneficial in many ways, the formulation of the diet can result in problems with acidosis.

"We used to find that some cows had very loose dung and were being affected quite badly with acidosis, which obviously had a negative impact on milk yields," explains Callum. "I know how important it is for feed and the rumen environment to remain as

consistent as possible to help maximise feed utilisation. It wasn't a great situation and was one we actively looked to resolve."

In 2015 Ros Hughes, from Kite Consulting, started to work with Callum and suggested feeding Supersaf, which contains Actisaf live yeast, to help combat the acidosis problems.

"As soon as we started using it, things improved," Callum explains. "We stopped having problems with acidosis, cows seemed much more settled and milk butterfat levels also started to rise."

However, in the spring of 2016 the decision was made to remove Supersaf from the herd's rations, largely due to the continuing pressure of low milk prices.

"We only ended up taking Supersaf out of the diet for about a month," continues Callum. "It soon became apparent that without it, we were going to have the same old problems with acidosis. As soon as we reintroduced the supplement, acidosis settled down again and it made us realise that, whilst it is an extra cost on our total feed bill, it is one that is certainly worthwhile."

Callum currently feeds cows 70g of Supersaf a day and doesn't plan to take it out of their diet again.

"Supersaf gives us a brilliant control of acidosis, and by doing so allows us to continue feeding a high energy diet that not only helps maintain strong milk yields, but is hopefully also going to help with fertility," concludes Callum. "If cows have more energy and aren't being held back, we are hoping that over the coming year or so we will see an improvement in conception and calving rates."



SUCCESSFUL HEIFER REARING: FOCUS ON THE PRE-WEANING CALF

Heifer rearing costs represent the second highest cost on dairy farms after feed, with costs ranging from 13-20 per cent of total milk production costs. Calving at between 22-24 months reduces rearing costs and also results in greater lifetime performance and reduced metabolic issues at calving compared to calving at a later age. As such, the goal should be to calve a heifer at between 22-24 months of age at 85-90 per cent of the mature bodyweight of the herd.

It is now widely accepted that the period from birth to weaning is a critical phase in a heifer's development. The target is for calves to double their birth weight by weaning at 8-10 weeks of age. For a typical 45kg calf at birth, this requires a growth rate of 0.80kg per day to reach a weaning weight of 90kg after 8 weeks.

Colostrum – Quality, Quantity, Quickly

Probably the most important part of calf management is getting quality colostrum into calves quickly and in the correct quantity. The neonatal calf is born with very few energy reserves and colostrum is a rich source of carbohydrates, protein, fat and insulin-like growth factor 1 (IGF-1 – a hormone that is important for promoting gut development within the calf), which serve as essential nutrient sources during the early stages of life.

Most importantly, calves are born with an undeveloped immune system and new-born calves depend on the passive transfer of immunity from colostrum (immunoglobulins-IgG) to protect themselves from infection and disease until their immune system can start to develop its own antibodies. Colostrum quality can be tested using a Brix refractometer. It is worth remembering that the IgG level (antibody level) increases in colostrum with increasing maternal age (parity of the dam/mother), and colostrum from first calving heifers should, therefore, be avoided. Surplus good quality colostrum should be frozen and stored to ensure that a stock is built up. Frozen colostrum should be gently thawed using warm water before feeding, to minimise damage to the IgG.

Recommendation: Feed colostrum with more than 50g/litre of IgG at a rate of 10 per cent of the calf's bodyweight within 4 hours after birth, to achieve a minimum of 10g/litre of IgG in the calf's plasma by 24hrs after birth. Typical feed rates are 4-5 litres per calf but this will depend on IgG content. Colostrum should be fed as soon as possible after birth as IgG absorption rates reduce by 60 per cent 6 hours post birth. Don't let calves suckle their mother as there is no way of knowing the quality or quantity of colostrum consumed, and there is a risk of contamination from dirty teats.

If insufficient or poor quality colostrum is provided to the calf, or if calves are delayed in receiving colostrum, then it is possible to get failure of passive transfer of immunity. This increases the calf's susceptibility to respiratory infection and pathogenic diarrhoea. There is also a correlation with failure of passive transfer of immunity to incidence of diarrhoea and resulting slower growth and poorer lifetime performance. Calves with serum IgG >10g/litre 30-60hrs post birth are healthier and at less risk of succumbing to disease. They also reach required bodyweights for first insemination sooner. Good hygiene should be followed when managing colostrum to avoid pathogenic infection and colostrum should not be left in buckets around dairies or calf sheds for extended periods of time, as this heightens the risk of contamination.

Milk replacer

Current recommendations are to feed 6 litres of milk per calf per day, containing 125g of milk powder/litre. It is important to promote high rates of daily gain with milk replacer early in life but also not to over-feed as it can reduce or delay starter feed intakes, which are vital for rumen development.

A 45kg calf requires approximately 380g of milk replacer (3 litres fed at 125g/litre) for maintenance alone, with any additional milk intake being utilised for growth.

Recommendation: As an easy rule of thumb, provide 1.5 per cent of bodyweight as solids during the first week of life, increasing to 2 per cent of bodyweight from the second week of life until the week before weaning, when one feeding is dropped.

Increasing the milk replacer feed rate during cold periods of weather maybe required as the calf's energy requirements to stay warm increase during such periods and this can reduce growth rates. It is important to ensure that protein and energy are in balance to deliver efficient growth and you should consult your milk replacer provider for the correct specification for your calves.

Rumen development

At birth the rumen is a sterile environment and the initial bacterial community is transmitted to the rumen of the calf via the skin, saliva and birth canal from the mother, as well as from the environment. Populations of cellulolytic bacteria become established within a few days after birth, however they cannot increase to the numbers necessary for significant forage fermentation until the rumen pH stabilises at or greater than 6.0. Fifteen days after birth the ruminal diversity of the calf is the same as that of a mature cow but

population numbers continue to increase throughout the first few weeks of life.

Starter feed intake and chopped forages

It is vital to promote early intake of starter feed to physically and microbially develop the rumen so that the animal can start to digest fibre. Don't forget the importance of clean, fresh water provision either! Promoting high rates of starter feed intake is essential to produce Volatile Fatty Acids (VFAs), which are the result of rumen fermentation of carbohydrates. These VFAs, and specifically propionic and butyric acid, are vital for the development of the rumen papillae, which are essential for nutrient absorption from the rumen.

Recommendation: Fresh starter feed should be fed daily and target 300g of starter feed intake by 3 weeks of age, of a feed that contains >32 per cent starch, high quality protein (with good levels of UDP) and low digestible fibre. In addition, current recommendations are to feed a source of forage as 4 per cent of total solid feed, chopped to 2.5cm and containing >65 per cent NDF (e.g. chopped hay or straw) as this promotes muscular development of the rumen thereby facilitating higher intakes of starter feed. A source of chopped forage will also aid rumination which will contribute to raising rumen pH above 6.0.

The weaning process should start when the calf is approximately 45 days old and should involve gradually reducing the volume of milk fed daily, which should promote increased intake of starter feed. A typical recommendation is to wean Holstein calves once they are consuming 2 kg of starter feed per head per day for three consecutive days.

Actisaf

Including Actisaf Sc47 protected live yeast in the ration provides significant benefits to calves during the pre-weaning stage. Through its mode of action, Actisaf reduces oxygen levels 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, as it conditions 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, which can greatly impact on feed digestion, rumen development and calf growth rates. Trials have also demonstrated that when supplemented during the pre-weaning period, Actisaf increases average daily gain and feed conversion efficiency, which ultimately can reduce the days to weaning by up to 7 days.

Calf health

It is generally recommended that animals are individually housed to minimise the spread of disease and facilitate the control of starter intake. With many farms now feeding calves by automatic milk feeders it is proving increasingly difficult and impractical to house calves individually. Grouping calves in batches of ten or less in this scenario is advisable to minimise stress and reduce disease risk. Ensuring calves are bedded in a clean, dry environment, which is well ventilated and supplied with adequate lighting, is vitally important to minimise stress and reduce the risk of scour and respiratory disease.

Poor calf health during the pre-weaning period has been shown to affect lifetime performance. Figure 1 shows the impact of pre-weaning scour on dairy heifer performance and figure 2 details the impact of persistent calfhoo pneumonia on the performance of dairy herd replacements in first and second lactation.

Figure 1: Impact of pre-weaning scour on dairy heifer performance (Source: AFBI herd data)

Parameter	No Scour	Scour	Significance
Live weight (kg)			
12 months	270	265	**
18 months	439	427	***
% mortality	Base	+3%	*

Figure 2: Impact of persistent calfhoo pneumonia on the performance of dairy herd replacements (Source: AFBI herd data)

Parameter	No pneumonia	Multiple episodes of pneumonia	Significance
1st lactation yield (kg) Milk	7204	6867	*
Fat	284	272	0.06
Protein	241	227	*
2nd lactation yield (kg)			
Milk	8933	8084	**
Fat	354	318	**
Protein	305	270	**

Safmannan

Feeding Safmannan, which is a Mannan oligosaccharide-based (MOS) pre-biotic, can prove beneficial to calf performance, and is particularly pertinent with the increasing focus surrounding antibiotic usage and subsequent resistance in calves.

Safmannan is a premium yeast cell wall, manufactured from unique strains of yeast under extremely consistent manufacturing conditions. Beta glucans and mannans - the functional properties of Safmannan - strongly support the immune system of the calf, thereby strengthening its defence mechanism to challenges. During farm evaluations, which included nasal and respiratory observations, an improvement in Health Scores was observed.

Safmannan also promotes the growth and repair of the intestinal villi, ensuring that nutrient absorption from the lower gut is maximised, while also binding to specific bacterial pathogens that may enter the calf's gut, thereby reducing the calf's susceptibility to scours. Supplementation with 1 gram of Safmannan per head per day results in stronger, healthier calves that exhibit greater growth rates.

SUMMARY

- Pre-weaning rearing period has a significant impact on herd profitability
- Colostrum protocols critical to health and performance
- Adequate starter feed required from young age to drive rumen development
- Supplementation with Actisaf live yeast and Safmannan premium yeast fraction can support gut development and performance



SAFMANNAN SUPPORTS HEALTHY, THRIVING YOUNG STOCK

When you have a calf rearing system that shows excellent results, seeing a benefit from making a change to the diet can be hard. But at Chris Pickering's calf rearing unit in North Yorkshire, adding Safmannan has made a noticeable difference to calf health and liveweight gains.

"Our plan," says Stuart Rhodes, Technical Sales Manager for Varley/Lloyds Animal Feeds, "was to trial Safmannan on a unit that was already achieving good results and see if even here we could find a discernible improvement in performance. I knew that if we could see a difference in the performance of calves at Chris's, the product was really working."

Chris, who farms at Hambleton View in Sutton, Thirsk, buys in high quality calves from a broad spectrum of breeds, both native and continental, at 10 to 14 days old. Some calves are sold at 10 to 12 weeks, while others are reared and sold on at a year old. But Chris is keen to stress that all calves need to be saleable at anytime.

"If a buyer comes to me at any point I want to be able to show them healthy, thriving, well performing animals. They need to look their absolute best at any stage in the rearing process," he explains. "I'm looking to rear on health and performance, in a natural system, with reduced need for antibiotics or intervention."

In 2017 Chris is planning to rear between 1,000 and 1,500 calves. By bringing in quality calves, housing them in a well-ventilated building, providing deep straw bedding and paying a high level of attention to detail in diet management, Chris is already achieving calf live weight gains (LWG) of between 1 and 1.5 kg per day. However, he was happy to challenge himself to achieve more by using Safmannan.

Chris and Stuart, with the help of Debby Brown, veterinary nutritionist for Phileo UK and Ireland, designed an on-farm trial that

compared the performance of 50 young calves (27 black and white and 33 Limousin and Belgian Blue) given Safmannan in their Elite Calf Starter Pellets and 50 similar calves without the additive in their diet.

"The only thing we changed between the two sets of calves was the Safmannan in the diet," explains Stuart. "All calves were regularly assessed using a weight band, which is something that Chris already did, and the difference in results were then compared at the end of a trial period."

Over the period of the trial, calves with Safmannan included in the diet achieved a 1.6kg/day liveweight gain, while those on the standard Elite Starter Pellets achieved 1.2 kg liveweight gain/day.

"Calves on the Safmannan were also brighter in themselves," says Chris. "We noticed a reduction in respiratory issues and saw practically no scouring. Calves were up and bright and keen to feed. We had a few with ringworm and that cleared up quickly. I particularly noticed that the black and white calves, which traditionally seem to stall a bit when they're weaned, have continued to do well across the whole period."

"Safmannan is a yeast cell wall product," explains Stuart. "It helps support the growth of beneficial gut microflora, as well as supporting the animal's own immune system."

Chris continues; "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".

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