



Inside this issue

Farmer Feature: Hillside Farm
Vet Special: It's in the detail

LifeStart sets life performance
Feeding heifers this Winter



Elysha Chell

Farmer Feature: Cavenagh Mainwaring Farms at Hillside, Staffordshire

Hillside Farm is home to 300 Friesian-Jersey cross cows in a spring block calving system and has been managed by Paul and his team for the past year. Previously, Paul lived in New Zealand for 6 years where he worked and managed 400-900 cow herds before coming back to the UK to be closer to family.

The cows at Hillside are fit for purpose; hardy enough to withstand the weather and well suited to the grass-based system. The herd average 5,500 litres per year with milk constituents of 4.8% butterfat and 3.6% protein. Paul aspires for this herd to become more efficient, and in time is hoping to explore the use of DNA testing and genomics to make more informed breeding decisions

Elysha has been working with the team at Hillside, focusing on the youngstock. "Our

aim has been to give them the best start in life, as it is key to improving the longevity and performance of the heifers and therefore the future herd" comments Elysha Chell, NWF Youngstock Specialist.

When the cow calves, "we want the calf to have as much colostrum as possible" says Paul, "if they drink 4L great, if they drink 6L even better". Calves stay in individual pens until they are confident drinkers which can take a couple of days before they are moved to a group pen.

"We judge this on an individual basis, to make sure they will suck well when in a group situation" comments Paul.

When moved to a group (of 6), they are fed a minimum of 3 litres at each end of the day, "we do not restrict feeding, if they want 3.5-4L at a feed, we will give it to them. I wouldn't want someone to take my fish and chips off me halfway through eating it!" comments Paul. When the calves are around 5 weeks, they are moved into groups of around 40. The farm has a stallion cafeteria feeder which can feed 50 calves at a time. At around 7 weeks "we think about the weaning process and will start to alter the feed curve to ensure a smooth transition to once a day feeding and then to fully weaned" says Paul.

To aid the farms weaning process, which involved a minimum benchmark of 90kg being met, NWF weighed the calves monthly providing data back to the farm after each visit.

Calves were fed a minimum of 6L's of NWF's Ultra Milk Yellow per day; a 50% skim, 100% dairy protein milk replacer, alongside NWF's Calf Pellets and straw. The calves achieved an average DLWG of 0.9kg, despite a cryptosporidium outbreak partway through the season, which was managed by segregation and stringent biosecurity. The group was the "healthiest looking, sick calves they vet had seen" comments Paul, which just highlights the importance of good nutrition and calf management.

Although having an average DLWG is useful, it can hide animals that are not growing as well.

Table 1 below shows the % of calves achieving over 0.6kg (the critical threshold), 0.8kg and 0.85kg (the target). "It is a delight to see that 96% of the calves hit the lower critical threshold despite the crypto outbreak, and with just over 65% achieving over 0.85kg DLWG, it really is testament to the team at Hillside," Elysha concludes.

Table 1

	% Average
% Achieving 0.85 kg/D or above	66
% Achieving 0.80 kg/D or above	77
% Achieving 0.60 kg/D or above	96

NWF would like to thank Paul and the team at Hillside for this insight and wish them all the best for the coming calving season!

If you are wanting more from your youngstock, please get in touch with the team!

NWF Ultra Life Endorsement

"As with many farming families, some members of the team here at Knapman Farms were a little reluctant to change their milk replacer. The calves were doing ok, but with advice and support from Paul Crocker (NWF Sales Specialist), we decided to trial NWF's Ultra Life Skim and the LifeStart concept, meaning increasing the litres offered from 6 to 8 litres, and to extend the weaning process to 10 weeks" Laura explains.

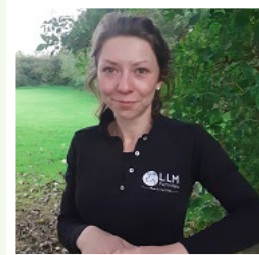
Rearing in poly tunnels with forster technic machines, the team at Knapman Farms are delighted with Ultra Life Skim, noticing a significant improvement in not only growth of the calves, but the health, shine and demeanor of the future herd's cows. "The health and performance of the calves far outweigh the worries we had with regards to the change and the cost" says Laura.

"We are actually going to trial Ultra Milk Yellow on our beef calves next, if we can get these growing quicker and looking better, they will be on the farm for a shorter amount of time, saving time and money from that perspective".

Laura from Knapman Farms - 360 Autumn Block Calving herd in Devon

Optimising calf health

It's in the detail



Written by Jenny Bellini and Hannah Fitzsimmonds, vets at LLM Farm Vets

Calf health and management has changed dramatically over the last 10 years, with the benefits of optimising calf performance well known as being vital to the future productivity and profitability of the herd. The increased investment in calves both in resources and time, makes it even more frustrating when things go wrong. Calves are highly sensitive to change and inconsistency, and performance can easily be derailed!

BACK TO BASICS – TOP TIPS

Automatic Feeders – With increasing use of auto calf feeders and ad lib feeding (e.g. 40 FIT programmes), as with any robotic technology, they are only as good as what goes in. Ensuring the milk replacer being fed is suitable for high levels of feeding is important. Also checking settings of machines, whether old or new, as it is often found calves are not getting what you may think, e.g. is milk too dilute, 1L of water is added on to powder rather than being made up to 1L. Therefore, regularly reviewing the settings, alongside cleanliness and maintenance of any automatic calf feeders is of high importance. Optimising health is only possible when calves are fed well.

Vaccine Protocols – Vaccines are often key to success on many units, both in the dry cows to boost passive transfer success and in young calves to prevent pneumonia. Whether using in cows or calves, ensuring vaccines are stored and given correctly is key. A recent study (MSD, 2020) found 89% of fridges on farms were outside of 2-8°C temperature range for vaccine storage some of the time, with the maximum temperature reached being 12°C and the minimum -11.5°C. Most vaccines should be used up within hours of opening the bottle and should not be broached multiple times. Using clean needles and syringes and ensuring correct timings and administration of vaccination will also lend to better success of the vaccines.

Hygiene and Calf Environment – Cleaning and disinfection regimes in calf sheds are often thorough, though it's always good to review! This can include making sure any disinfectants used have the right amount of contact time, or ability to properly isolate any sick calves. Also consider how the calf is transported to the calf shed. The wheelbarrow, loader bucket etc, can easily be forgotten and not as clean as it should be but they can be the first place the calves' open navel comes in to contact.

When assessing the calf environment, get in the shed at calf level, sheds can often feel airy and fresh in the feeding passage but very different at the back of pens!

Data Recording – Recording sufficient data is easily slipped from the mind, especially when things get busy. However, collecting information has two uses. Firstly, it is becoming increasingly asked for by processors, but secondly your vets can use this data to form part of your health plan. More importantly they can use the data to react to a drop in performance, identify patterns of disease and identify areas of calf management that are proving a challenge. Useful data includes any mortality, age of this and suspected cause, any illness and additionally treatments administered and response to this. Recording growth rates is also an important piece of data to help identify ways to increase feed efficiency and health in youngstock; the industry is often told to aim for >0.8kg DLWG but if this is not measured, benchmarking and improvements are harder to do.

Re-thinking Colostrum Success – Blood sampling calves 24 hours - 7 days old has become common practice to assess total protein level in the blood, which gives us an indication of the success of passive transfer. The aim is for as many antibodies (IgGs) from the dam to pass via the colostrum into the blood stream of the calf and provide immunity for the first weeks of life until the calf has developed its own immune system.

Recent research out of Cornell suggests we should rethink our targets. Typically, over 5.5g/dL on a blood sample is regarded as good passive transfer and >85% of calves achieving this is regarded as a herd level success. Are there benefits to be had for calf health and mortality for aiming higher? The data below suggests the answer is yes!

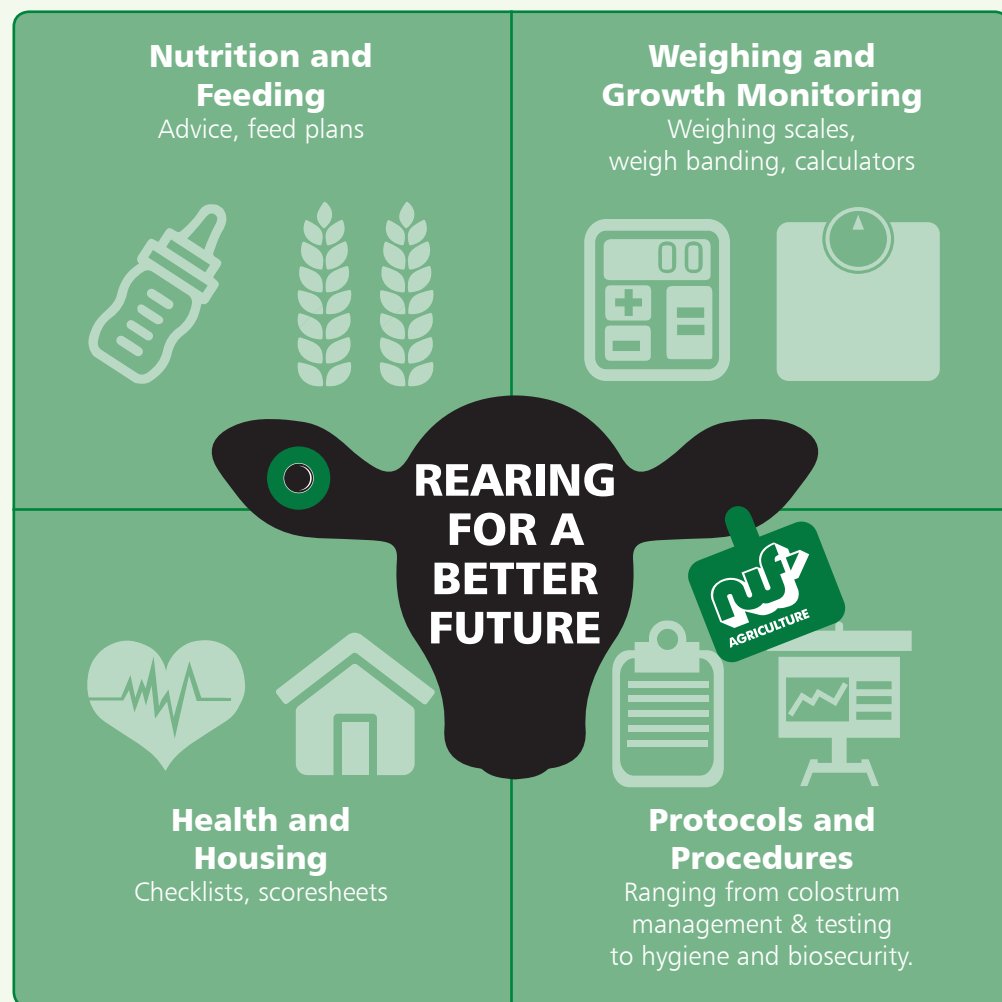
Calves were categorised according to passive transfer status, as in the table below.

Category	Total Protein (g/dL)	Target for herd (% of calves)
Excellent	>6.2	>40
Good	5.8-6.1	~30
Fair	5.1-5.7	~20
Poor	<5.1	<10

They found that:

1. Calves in the fair category were 5% more likely to die.
2. Calves in the poor category were 10% more likely to die.
3. Calves in the excellent category were less likely to develop disease, these effects were seen through to 60 days.

With pressure mounting to maximise profitability and sustainability on farm, as well as external pressure from processors and the wider industry to reduce antibiotic use, prevention of disease is becoming more important all the time. As stated at the start, ensuring good calf health increases both productivity and profitability, but also morale! Working closely with your vet and nutritionist this can be achieved and sustained.



LifeStart Sets Life Performance.

Lifetime impact of preweaning nutrient supply in dairy calves

By Dr Laura Tennant, Ruminant Technical Advisor at Trouw Nutrition



LifeStart is a science-based platform for dairy calves that deals with the critical first months of a dairy calf's life. The latest LifeStart research by Trouw Nutrition has shown that elevating the plane of nutrition pre-weaning not only leads to higher calf growth rates and improved heifer performance but additionally demonstrates clear long-term benefits on fertility, survivability and lactation performance providing a clear return on investment.

During the pre-weaning period, calves fed a LifeStart plane of nutrition had a higher average daily gain, resulting in a weight difference at weaning. This body weight advantage remained until insemination, resulting in a statistically significant 16 day earlier pregnancy.

During the first and the second lactation, calves fed a LifeStart plane of nutrition significantly yielded more fat and protein corrected milk, consumed more forage, and maintained a lower body condition score. Moreover, the survival rate until 3rd calving was improved.

Pre-weaning nutrition can and does have a tremendous effect on gene expression profiles which, in turn, can impact metabolism.

Recent research has shown that this leads to significant changes in body weight and organ development, but also that some changes may have long-lasting effects on the metabolism, well-being and the lifetime productivity of cows. The latest research identifies long-lasting metabolic differences, these differences can potentially explain the differences observed in lactation yields and feed intakes as well as survival performance.

Considering all the above, the goals when rearing replacement heifers need to abandon the strive for the lowest cost, and instead focus on the most efficient cost with specific weight gain, development and nutrient supply targets. Kingshay costings (2020) showed raising replacements represented a significant investment, accounting for 15-20% of expenses on farm. However, reducing the age of first calving to 24 months had significant positives to the bottom line, reducing rearing costs by up to 30%. Heifers are the future of dairy operations; therefore, the goal of heifer rearing should be to develop healthy and resilient animals, that efficiently yield milk year after year in the herd.

For more information visit
www.ruminants.lifestartscience.com

NWF Ultra Milk Calf Replacers



The range of calf milk replacers from NWF Agriculture are formulated to provide outstanding nutrition using high quality, traceable ingredients. They enable fast cost effective growth and development at this critical stage in life.



NWF ULTRA LIFE - SKIM **LIFESTART** 24% Protein, 20% Oil SETS LIFE PERFORMANCE

A LifeStart accredited skim-based milk replacer containing the full additive pak. It is suitable for accelerated heifer rearing programmes.

NWF ULTRA MILK YELLOW 22% Protein, 18% Oil

A top quality, 100% milk protein skimmed milk replacer also containing the full additive pak. It is ideal for many systems, particularly those wanting something special from their youngstock.

NWF ULTRA LIFE - WHEY **LIFESTART** 24% Protein, 20% Oil SETS LIFE PERFORMANCE

This is a LifeStart accredited whey-based milk replacer. It is suitable for accelerated heifer rearing programmes. This replacer contains the full additive pak.

NWF ULTRA HI PRO HEIFER 26% Protein, 17% Oil

This high protein, whey-based milk replacer is suitable for accelerated heifer rearing programmes. This replacer contains the full additive pak.

NWF ULTRA MILK BLUE 22% Protein, 19% Oil

NWF's most popular milk replacer. High specification formulation on a whey powder base. A generally good all-rounder calf milk replacer.

ULTRA MILK GOLD 22% Protein 19% Oil

A superior quality, highly digestible skim milk replacer which has high levels of milk proteins. This replacer contains the Greenguard package.

ULTRA MILK EMERALD 21.5% Protein 18% Oil

A skimmed milk-based replacer, containing Greenguard package ensuring that early bloom and healthy calves is promoted.

ULTRA MILK RUBY 24% Protein 20% Oil

A superior quality, whey-based calf milk replacer, with elevated levels of oil and milk protein to promote accelerated growth and development at this critical stage of life. This replacer contains the Greenguard package.

ULTRA MILK SAPPHIRE 22.5% Protein 18% Oil

A high-quality whey-based milk replacer, a good all-rounder replacer which has the addition of Greenguard to support digestive health and performance.



Keeping your calves warm this winter

By Erin Wray, NWF Technical Co-Ordinator and Youngstock Specialist



A calf is born with limited body energy reserves and only a modest amount of insulation coming from hair and a low level of subcutaneous fat. In addition, lipid stores in newborn calves are extremely low; sufficient for a maximum of 15 hours of survival without feed.

The thermoneutral zone is the temperature range in which calves are able to maintain their core body temperature. In very young calves, less than 3 weeks of age, the thermoneutral zone is between 15 and 25°C.

When the environmental temperature drops below 15 °C, which is referred to as the lower critical temperature, the calf must utilise energy to support vital bodily functions and to maintain its body temperature.

Older calves, more than 3 weeks of age, generate more heat by rumination and they have a lower surface area to weight ratio so lose less heat. For these reasons older calves have a lower critical temperature of 10 °C.

From October to April, the average monthly temperatures fall below 15 °C, it is therefore important to consider implementing a cold calf strategy to ensure performance is supported. If the increased energy requirement is not met, we risk decreased growth rates as well as the potential for a compromised immune system which can lead to secondary problems such as scour and pneumonia.

Colostrum

Feeding calves with adequate volumes of quality colostrum during the first hours of life promotes optimum growth, reduces vet and medicine costs and increases lifetime lactation performance.

Keeping your calves warm this winter *(continued)*

In addition to its role in passive immunity transfer and nutrient supply, colostrum feeding also helps to increase the tolerance to cold exposure. The amount of colostrum fed is positively correlated to heat production and body temperature due to the heat production represented by the energy cost associated with digestion, absorption, and metabolism of nutrients.

Following the 4 Q's (Quality, Quantity, Quickly, and Quietly) of colostrum management can help support the best start in life.

Milk Feeding Strategy

By providing more energy to calves via the milk feed, the negative effects of cold stress can be balanced, and the calf will not be energy deficient.

The best way to meet the increased energy requirements is to increase the volume of milk or milk replacer fed. Increasing the number of litres fed, or the number of feeds, will provide the extra energy needed while minimising digestive upsets. Gradually adjusting the volume of milk offered, whilst also ensuring the quality, can help to reduce the risk of scouring.

Increasing concentration rates is not recommended and should be avoided if possible, as it can increase the overall osmolality of the mixed milk which has been shown to negatively impact gut integrity and may cause nutritional scour. If volume intake is limited due to the feeding system, increase concentrations carefully. Increase feeding rates by no more than 100g over 6-8 litres/day, whilst keeping an eye on calf performance.

Do not forget to provide a fresh palatable starter feed from birth, this will encourage energy intakes. Water, an often-forgotten nutrient, is also key to promoting intakes and therefore supporting calf performance.

Calf Jackets

Another way to help mitigate the cooler weather is calf jackets. When temperatures fall below 15°C, calf jackets can be an extremely useful strategy to help keep calves warm and dry. Calves must be dry before adding a jacket as wet hair cannot insulate the calf.

Jackets must be of good quality, breathable and clean. Maintaining the hygiene of jackets is important. Washing them between calves is critically important to calf health, reducing the risk of any cross-contamination.

UK Climate Averages (Midlands)

	Maximum Temperature (°C)	Minimum Temperature (°C)
January	6.71	1.04
February	7.05	0.79
March	9.74	2.44
April	12.48	3.69
December	6.9	1.28

Source: Met Office



Bedding and Ventilation

Alongside calf jackets, increasing available bedding material for nesting, and eliminating draughts can help to maintain a desirable environment. Do not mistake drafts for ventilation, good ventilation and adequate stocking density rates are also important to successful winter housing conditions.

Bedding can be effective if sufficiently deep, allowing calves to nest to reduce heat loss. Straw bedding provides the best insulation for calves. It should be at least 8cm deep, dry, and clean. If you can see the calf's legs when it is lying down, the bedding is not deep enough and will not insulate the calf properly.

Every calf rearing system is different, however having a clear cold calf protocol moving into the winter months can help support calf performance and health.

Feeding Heifers This Winter



By Abbi England, NWF Technical Manager and Head of Youngstock



KEY POINTS

- **Frequent analysis** is key to understanding your forage so you can confidently supplement at the correct level to support heifer performance.
- On average this year's silages are low in protein; therefore, we must consider the **best source of supplementation** to support continuing growth rates.
- **NDF levels and digestibility** must be considered to ensure optimal dry matter intakes and best source of supplementation to balance the rumen as rumen efficiency is key to profitability.
- It is also important to **monitor changes** in the heifers to help inform any required dietary tweaks; muck, rumination and growth rates are key indicators to consider.

Research has demonstrated that investing in the heifer rearing period can provide long term benefits in terms of fertility, survivability and lactation performance - all of which provide a clear return on investment. Capturing and building on the success and momentum of the calf rearing period is vital to develop strong and robust heifers that can continue to be productive and resilient cows.

The key, post weaning, is to achieve a steady state of growth to support overall heifer development in order to meet targets for insemination and calving. To ensure we are meeting nutrient requirements to support the required growth rates, it is important that we regularly review heifer rations and monitor, where possible, dry matter intakes.

Forage forms the basis of many heifer rations. Frequent analysis is key to understanding your forage so you can confidently supplement at the correct level to support performance – under supplementation will lead to reduced growth and performance, over supplementation could lead to excess rearing costs and over conditioned animals.

Recent favourable growing conditions mean grass silage stocks are now plentiful for the majority of farmers. However, due to the unsettled weather at the start of the season many had to delay silaging and therefore quality is very variable. Heifers will often receive silage from the stocks that are under the least amount of pressure – this is often later cuts or baled forages.

Silages are generally low in crude protein this year, even early first cut high quality silage, with the majority of samples being higher in NDF and of a lower digestibility.

Given this variation in nutrients, it will be important to ensure individual diets are balanced accordingly especially considering volatility in prices and availability of key ingredients. This may mean rethinking your heifer compound and the amount you feed;



ensuring you feed the optimal compound to compliment your silage.





Understanding mineral supply from the whole diet, including forage and compound, is important to ensure diets are balanced correctly to optimise health and performance.

Average copper levels have reduced this year to 6.25mg/kg DM, a 0.66mg/kg DM decrease from last year's average. It is important to monitor antagonist levels in forages, average iron levels are higher this year but other antagonists to watch out for are molybdenum and sulphur which can compete for copper absorption sites. High antagonists can cause problems if not correctly balanced due to the role copper plays in growth and reproduction.

However, a straight increase in supply can add cost, lower performance and in some cases can be deadly. Recent studies have shown that although high copper levels do not affect growth rates, they can negatively impact expression of oestrus and number of inseminations in youngstock. This can also have detrimental effects further into lactation as copper accumulates and is stored in the liver, which can prove fatal if released all at once under stressful situations.

Understanding the complete ration mineral balance, alongside any current or past health issues of the herd, enables optimal and cost-effective supplementation of minerals while supporting heifer health, welfare and performance in a sustainable manner.

Youngstock Compound & Blends

	Compounds	Blends
 <p>PRE-WEANING</p>	<p>Calf Pellets High quality starter pellet, suitable from birth until weaning.</p>	<p>NWF Sweetstart Premium starter mix, excellent for promoting early intake.</p> <p>NWF Coarse Calf High-quality calf starter ration available as a 16% or 18% protein mix. Contains high levels of hipro soya, sugar beet pulp & micronized flakes.</p>
  <p>POST-WEANING & HEIFER DEVELOPMENT</p>	<p>Super Rearer Specialist diets, to complement a grass silage-based diet, available as 16% and 18%.</p> <p>Vital Rearer Cost effective diet, to complement grass or silage-based diet, available as a 16% and 18%.</p> <p>Deluxe Rearer Specialist diet with elevated protein levels to suit straw systems.</p>	<p>NWF Coarse Calf High-quality calf starter ration available as a 16% or 18% protein mix. Contains high levels of hipro soya, sugar beet pulp & micronized flakes.</p>
 <p>HEIFER DRY COWS</p>	<p>Drytime* A comprehensive dry cow ration fit for first calving heifers. Feed something that contains Reashure (protected choline chloride) to help with colostrum quality and post calving health.</p> <p><i>*Available as nut, nuggets and blend.</i></p>	

For more information on NWF Youngstock feeds, contact the NWF Youngstock Team on 0800 756 2787.



Capewell Family from Bank Top Farm, Staffordshire

Winning herd using NWF Ultra Life

Winners of the Staffordshire and Birmingham Agricultural Society, Best Homebred Dairy Youngstock (Small Herd, Uttoxeter Division); Capewell and Sons of Bank Top Farm have been successfully using NWF's Ultra Life Whey milk replacer for nearly three years.

The calves are managed on an individual basis, where any sign of ill-health is acted upon immediately! "We have started using NWF's Renova and Hydratabs to help mitigate and overcome scour incidences, which are super easy to use and effective!" Simon commented. "We also use NWF's Super Rearer Nuts, which are given from 3 days old, to help support the calf's requirements and also to promote that all important rumen development" he further explains.

Bank Top Farm also use NWF's Drytime Nuts during the close-up dry period. They have seen a significant improvement in the metabolic status of the close to calving heifers and cows, which not only helps her ability to produce quality colostrum but also helps set them up for the next lactation, whilst reducing metabolic incidences.

What have the NWF Youngstock Team been up to?

Not only have the team been supporting NWF sales specialists and customers, they have also visited Nottingham University's High Health Calf Rearing unit, where calf health, nutrition and research was all discussed!

Thank you to the team at Trouw and Nottingham University for hosting NWF, we can't wait to see the outcome to some of the research!



TechMix Range for Calves

Calf Renova™

An easy-to-use capsule containing a source of natural ingredients. The bolus includes a botanical extract, naturally occurring microorganisms (DFMs), and yeast fermentation products. Calf Renova provides intestinal support through beneficial bacteria and plant extracts as an effective intervention for scours.



Features & Benefits:

- Contains a specifically selected hind gut DFMS (probiotic).
- Essential oil as a natural antioxidant.
- Offers a natural antimicrobial effect.

When to use:

- At first sign of scouring/diarrhoea as a preventative.
- Upon receipt of incoming calves.
- To help ease the transition from colostrum to whole milk or milk replacer.
- During periods of digestive problems or immediately after.

Directions: Administer 1 bolus capsule per calf from 3 days of age. Repeat if needed after 24 hours.

Bluelite® C Hydratabs

An electrolyte with multiple energy sources that can help rehydrate calves and to promote a healthy digestive environment.



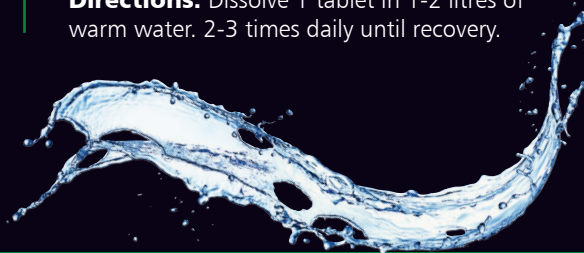
Features & Benefits:

- Scientifically formulated for optimal osmolarity, tonicity, acidification and immediate energy.
- Effervescent and single serving packages, no mixing or measuring required.
- Flavour designed for calves, proving a highly palatable product to encourage calf intakes.

When to use:

- Mildly scouring calves.
- Transporting calves.
- Dehydrated calves.
- During environment change.

Directions: Dissolve 1 tablet in 1-2 litres of warm water. 2-3 times daily until recovery.



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