



Getting Ready for the Storm!

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Introduction

Firstly, I just wanted to give our new beef nutrition section and product portfolio on our website a mention. It is a great guide to feeding beef and its now live. We will be developing the product range over the next few weeks but definitely worth checking, lakescot.co.uk/f1-yeast-for-beef

In early October I met up with my old friend Hugh Kerr for a drink to catch up on stuff and also to discuss his latest interest in the Cow Alert system by Ice Robotics. There is some great data provided by this smart sensor on Feet, Fertility, Health and Welfare, but its potentially much more exciting than just that!

We are now looking for another ten dairy farmers to get involved in a new trial. This involves checking the mobility data and is being co-ordinated by Nottingham university. Please have a look at the item below, we are talking ground-breaking new data which could benefit all dairy farmers!

Silage Ph is generally targeted at a standard of 4. This tends to be just another figure on the analysis but what does it really tell us about expectation of performance? The need to understand how Ph affects rumination underpins the management of MCP (Microbial Crude Protein) output. This is vital to a ruminant because the MCP (rumen bugs) is the fundamental nutrition for the animal.

Trouw nutrition released their latest data on the original ECM trial on October 18th in an "invite only" webinar. As expected, the results are highly significant and completely justify the investment in the system by providing unquestionable long-term benefits. I have included some of the data in this newsletter.

The perfect storm is going to hit us this month. Midnight on December 31st we will leave the EU deal or no deal, we also have COVID19 and Christmas and the New Year order deadlines!!!

Diamond V is an additive for which I have never had much interest but sometimes you have to re-assess the potential benefits of using certain products in slightly different ways. The item below may prove of interest.

Cow Alert Monitoring

Cow Alert Monitoring is becoming quite a popular tool for analysing, fertility, lameness and lying time. The current technology grant scheme makes this a great time to look at this system. This data can provide timely and very cost-effective warning of many issues for individual cows before they become much more serious.

The Cow Alert system by Ice robotics is currently being used to collect data for a trial run by Nottingham University. The trial aims to evaluate the possibility of diagnosing health conditions from the observation of cow movement.

This is a very exciting prospect, and we would like our customers who feel that they could benefit from analysis of their data as part of the trial. To get involved. If this is of interest, please get in touch and I will arrange a contact with Hugh who can explain in more detail. The two graphics below are a great summary of what the system can do.

POWERING A SUSTAINABLE DAIRY INDUSTRY

COWALERT The no. 1 alerting system for livestock fertility, lameness & welfare.

WHAT IS COWALERT ?
CowAlert provides you with practical and reliable information which helps you maximise your dairy herd's performance, whilst saving you time and money. Our goal is to help you optimise the productivity and well-being of your cows and contribute to a sustainable future for your business.

HOW IT WORKS
Fitted to the rear leg of each cow, the IceQube, uses an advanced accelerometer that measures orientation and acceleration across three axes, multiple times per second. Each cow's movement is recorded constantly, and our algorithms analyse the data collected, providing accurate alerts and information.
The captured data can be viewed on the user's personal dashboard, via a Parlour Interface, desktop, tablet or smartphone 24/7.
The CowAlert System comprises a number of modules. You can pick and choose the modules that best meet your requirements.

LAMENESS

Our unique lameness detection continuously monitors and analyses each cows' mobility enabling you to keep one step ahead of lameness issues and intervene early.

MOBILITY MONITORING

CowAlert assesses the mobility of your cows continuously and works out their daily mobility score according to national standards.

LYING TIME

Lying time insights provide an early indication of health issues, enabling you to improve animal welfare and production.

FERTILITY

Our superior heat detection has been validated through scientific studies and head-to-head comparisons with other systems.

CONTACT US TODAY FOR YOUR FREE FARM ASSESSMENT & DEMONSTRATION;
0131 541 2010
sales@icerobotics.com
www.icerobotics.com

FERTILITY FOCUS

A study across 5 farms within the UK over a 12 month period displayed the following results through our superior heat detection module.



SUBMISSION RATE

An average 16% increase in submission rates.



PREGNANCY RATE

An average 10% increase in pregnancy rates.



COWS IN CALF

A 19% increase in number of cows in calf by 100 days.



COWS CULLED

An average of 36% fall in cows culled for fertility issues over a 12 month period.



CALVING INTERVAL

Reduction in calving interval of 6 days from an average of 420 days to 414 days.



COST OF INFERTILITY

Production costs can be reduced by 1ppl over a 12-month period by using CowAlert to improve fertility alone.

"The **Lameness module** is making us look at cows we wouldn't have previously looked at. We have found cows that have had bruising that could have developed into an ulcer. It means we **pre-empt issues** before they become a problem."

East Logan Farm, Dumfriesshire

FERTILITY

Our superior heat detection module understands that each farm is different and so, you can optimize the settings for your farm and define your own AI window. In addition to clear alerts, you can also view the full historic data for each cow providing valuable insights into the fertility cycles of your individual cows.

LAMENESS

Early detection is extremely important, and our customizable lameness detection module gives you the information required to help you reduce the number, severity and duration of lameness cases.



(Bach et al, 2008)

1 HOUR

One hour additional lying time provides 5% additional milk in the tank each day!



(Wiltshire & Bell, 2009)

£320 PER COW

Average cost of lameness case, £320 per cow.



(Huxley, 2013)

270 - 857KG

Lameness reduces milk production by between 270 - 857kg per lactation.



(Blackie et al., 2011)

8 LITRES LESS

A lame cow on average produces 8 litres of milk less per day compared with non-lame cows.

Acid Load Buffering

Have you ever wondered how putting silage with a pH of between 3.9 and 4 and loaded with lactic acid is consistent with maintain an ideal rumen pH of 6.3 to 5.8?

The rumen is an amazing environment which contains everything the animal swallows plus a liquid water-based soup of billions of rumen microbes and fungi which feed on the food that enters the rumen.

They effectively live and reproduce by using the nutrients that they can release from the various different degradable foods ingested.

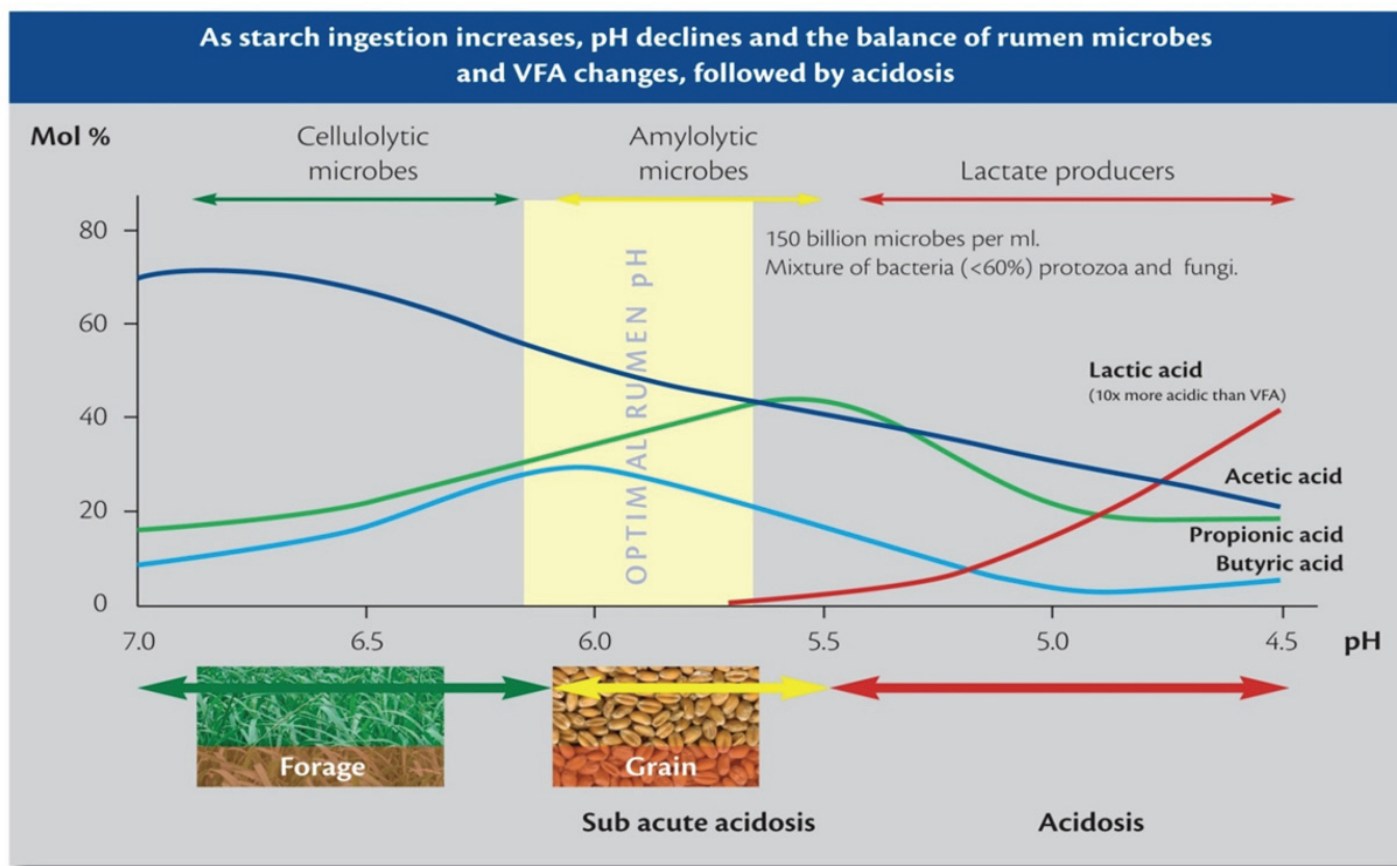
They need sugars, starches, protein (nitrogen) and minerals in order to thrive.

Most of these rumen microbes are anaerobic and rely on aerobic microbes and yeasts to use any oxygen in the rumen because oxygen kills anaerobic bacteria. There isn't much oxygen in the rumen, by volume its only about 0.6% but it still needs to be eliminated.

At a neutral pH, between 6.7 and 6.2 there is an optimum level of activity with fibre and degradable protein being efficiently digested. As this happens the rumen microbes start to produce organic acids acetates, butyrates and propionates (VFA's), all of which support production of milk and growth.

As the acid level increases towards a rumen pH of about 5.7 Lactic acid producing bugs start to get involved when this happens the cellulolytic and amylolytic microbes start to go dormant or die off because they can't tolerate the increasing acid load

This is a big problem because lactic acid is ten times more acidic than the other VFA's that it dominates.



When we start to feed cows with acidic silage it is mainly lactic acid which has been produced to preserve the silage, so this will add to the lactic acid that is already being produced by the lactic acid producing rumen microbes.

All of this promotes Acidosis which if left to spiral into even more acid loading will become clinical.

Acidosis occurs when the pH of the rumen falls to 5.5 or lower.

The fall in pH has two effects.

- Firstly, the rumen stops moving, becoming atonic. This depresses appetite and production.
- Secondly, the change in acidity alters the rumen microbe populations with lactic acid-producing bacteria taking over. They produce more acid, making the acidosis much worse. The increased acid is then absorbed through the rumen wall, causing metabolic acidosis, which in severe cases can lead to shock and death.

Cause

The main cause of acidosis is feeding a high level of rapidly digestible carbohydrate, such as cereals like barley or wheat especially when they are finely processed.

Acute acidosis, often resulting in death, is most commonly seen in 'barley beef' animals where cattle have gorged on too much cereal feed and not enough fibre.

In dairy cattle, a milder form, sub-acute acidosis, is seen as a result of feeding increased concentrates compared to forage. Sorting can also lead to some cows becoming acidotic.

Symptoms

Acute acidosis often results in death, usually symptoms show before death Typically those for sub-acute acidosis and liver abscesses may also develop. Cattle may become depressed, go off feed, have an elevated heart rate or diarrhoea.

Sub-acute:

- Reduced feed intake
- Poor body condition and weight loss
- Unexplained diarrhoea often bubbly
- Increased temperature
- Pulse rate and respiratory rate may increase.
- Lethargy

Treatment

Subacute ruminal acidosis is often not detected but the inclusion of dietary buffers and structural fibre to promote the cudging activity and saliva production should be built into any diet where high levels of cereals and bakery by-products are being used.

Prevention

The key to prevention is good ration balancing to account for the quantity, type and presentation of the carbohydrates and the presentation of the mix balanced with the correct amount of structural and digestible fibre.

We also need good cow comfort with plenty of lying space to encourage cudging. Feed trough management plenty of trough space with a full or semi-TMR diet to encourage several feeds per day. We also need to ensure that there is plenty of clean water.

Feeding excessive quantities of concentrate and insufficient forage results in a fibre-deficient ration likely to cause sub-acute ruminal acidosis.

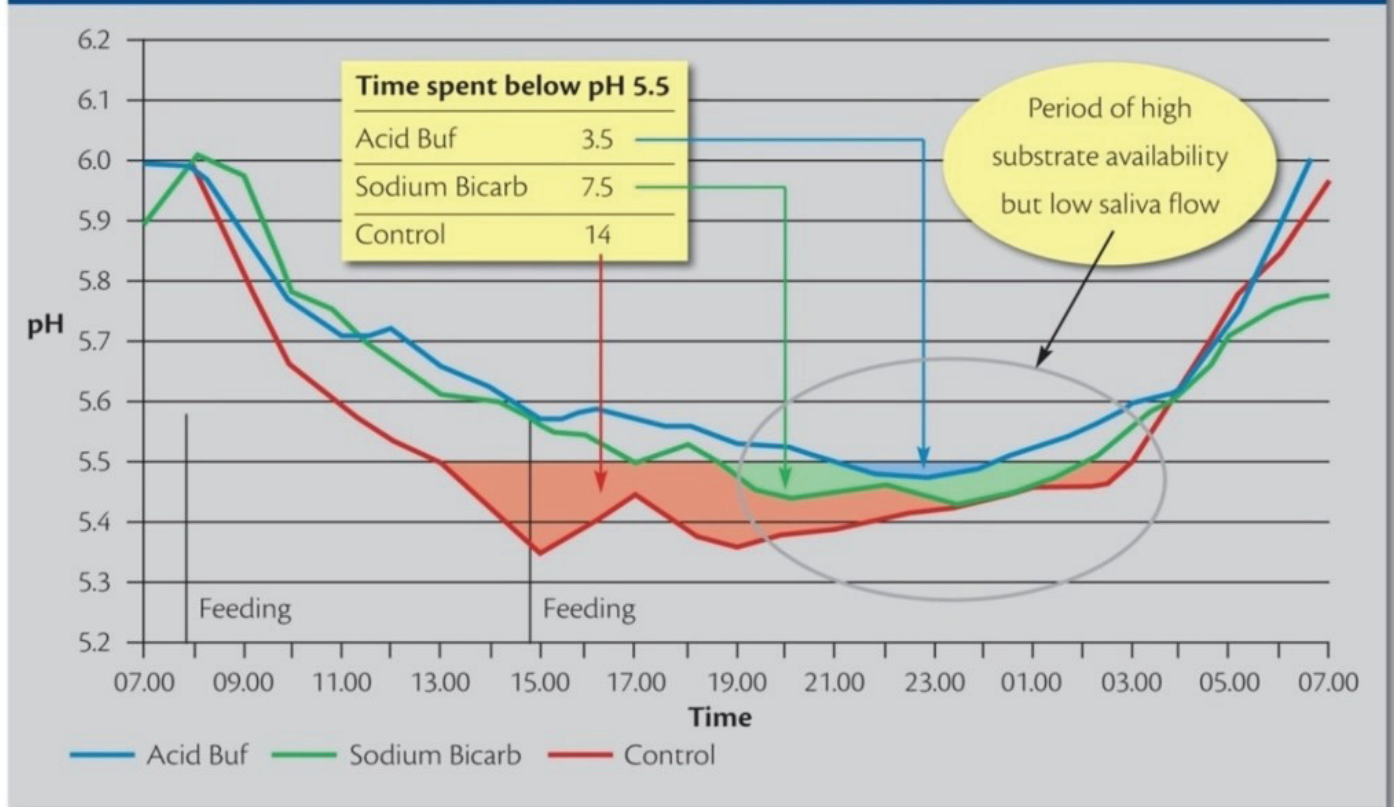
It is worth remembering that as a rule of thumb a forage to concentrate ratio of less than 50:50 is the start of most of the problems!

Structural 2cm to 3cm long fibre in the diet reduces the risk of subacute ruminal acidosis by promoting saliva production during cudging and by increasing rumination after feeding. If the fibre is sorted out a good technique is to mix it with molasses in the feeder wagon.

Ruminant diets should also be formulated to provide adequate buffering. This can be helped by the addition of dietary buffers such as sodium bicarbonate but complex buffers like **AcidBuf** (see below) are stronger and more cost effective.



The importance of pH 5.5
University of Stellenbosch - South Africa (2006)



Once the control of rumen pH has been re-established from the sub-acute acidosis stage it is worth maintaining the rumen function at optimum pH in order to maintain production levels.

Silages with pH's of less than 3.8 will need **first** to be buffered chemically because cudging activity alone will rarely be able to maintain a stable rumen at the optimum pH. I think live yeast cultures struggle to work well in these situations. Once the chemical buffer has been added for say 2 weeks, supplementing the diet with yeast cultures that enhance the growth of lactate utilising microbes in the rumen will reduce the risk of subacute ruminal acidosis.

F1 Yeast and **Diamond V** have good data supporting this function.

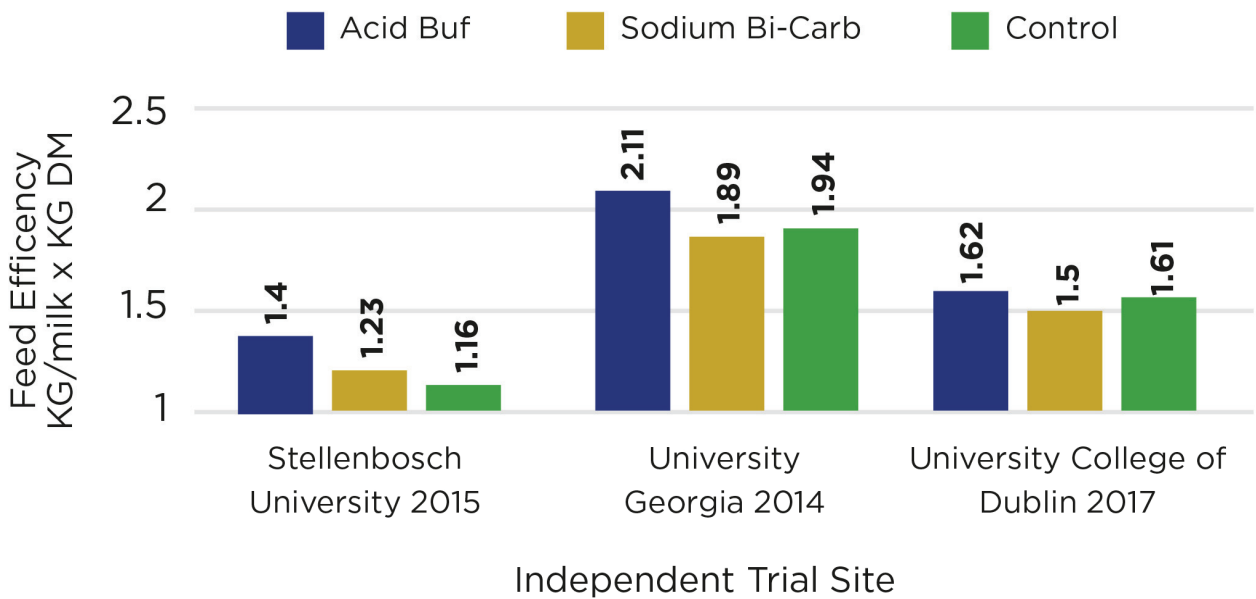
I think that a staged approach is best. It is worth taking steps to gradually build up the Yeast elements when introducing these products for the first time. This can be followed by a short period of say 14 days when the animal can be double dosed to re-establish a better base population of Cellulolytic and Amylolytic microbes.

When you have to feed low pH silages:

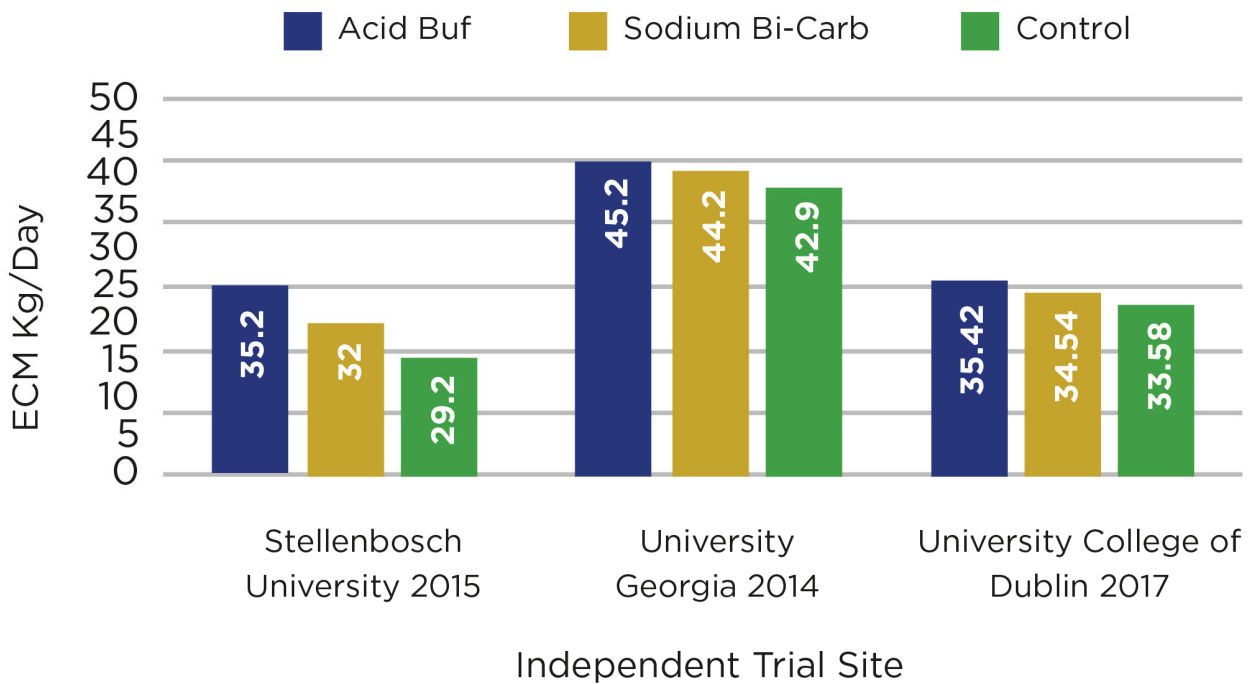
- Can you feed less of the silage and mix with other less acidic forages.
- Is the mixer wagon providing a good open physical mix in the trough?
- Have the cows got enough trough space?
- Have you done anything to eliminate or reduce sorting?
- Is the water supply clean and plentiful?
- Are the cows offered enough comfortable cudging space?
- Are they being bullied?
- Are they lame?
- Feed a good chemical complex buffer (Sodium Bicarbonate is relatively weak)
- Feed yeast after you have chemically buffered the rumen..

Remember that adding a good rumen buffer to cereal beef finishing diets can be a very productive exercise. The kinder rumen environment helps to optimise propionate production which is an essential step in the synthesis of tissue growth in beef cattle.

Feed Efficiency: Acid Buf compared with Sodium Bi-Carb



Energy Corrected Milk: Acid Buf compared with Sodium Bi-Carb



“Britannia” update

Two years on and we can look at the consequences of those early feeding trials since many of the heifer calves are only now joining the herd.

The original trial calves from Boxmere in the Netherlands have now completed their second lactations and are well into their third. There were two matched groups of calves, one fed ECM and the other a traditional Trouw 23% CP 18% Oil product.

The differences in performance are profound and have now been published.

I raided some of the presentation slides which summarise the reason why we believe that Britannia is currently the best calf milk replacer you can use.

This slide shows that feeding a high plane of nutrition to calves from day one can improve long term outcomes. This early management gives an advantage to the animal for the rest of its life!

The metabolism can be programmed

LIFESTART
SETS LIFE PERFORMANCE



Onset of puberty⁴
Survival until 1st calving⁶
Reduced age at 1st calving^{1,3}
Increased milk production^{1,2,3,4,5}

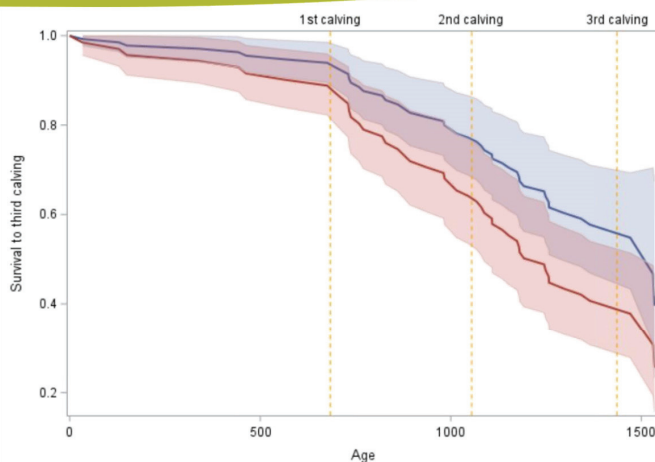
¹Bar-Peled et al. 1998; ²Drackley et al. 2007; ³Raeth-Knight et al. 2009
⁴Davis-Rincker et al. 2011; ⁵Soberon et al. 2012; ⁶Van de Stroet et al. 2016

trouw nutrition
a Nutreco company

This slide shows the long-term benefit to survival rates with 53% vs. 37% the difference to 3rd calving! The extra profit generated by this alone more than justifies the investment in Britannia.

Survival data until 3rd calving

LIFESTART
SETS LIFE PERFORMANCE



Item	Treatment		P-value
	ENH	CON	
Total animal enrolled	43	43	-
Survival until 1st calving			
Number of calving	40	38	-
% of total	93.0	88.4	0.362
Survival until 2nd calving			
Number of calving	33	28	-
% of total	76.7	65.1	0.067
Survival until 3rd calving			
Number of calving	23	16	-
% of total	53.5	37.2	0.051

TN R&D, Leal et al., unpublished, 2020

trouw nutrition
a Nutreco company

At the risk of some repetition I thought I would show the bullet points for Britannia versus all of the other CMR's.

I am aware that our competitors all have very credible features and benefits for their products too but regardless of how good their products are (and there are some perfectly good ones out there), we know that Britannia and ECM is definitely unique. (and best)!

Britannia really is **very** different to the many look-alike products that were released after we brought it to the marketplace. Many of these products were of course cheaper and farmers have been tempted to use them but, like most things that difference in price will be more than made up for by both the long and short term benefits provided by the unique nature of Britannia as already shown.

The Key Features of Britannia

Britannia Energized Milk Replacer features many innovations to separate it from other calf milk replacers:

- New formula is closer to natural whole milk
- High energy levels
- Low osmolality (salt concentration)
- Unique homogenised skim process for instant mixing and solubility
- Re-balanced mineral and vitamin pack to reduce nutritional scouring
- Includes the exclusive '**Patriot**' performance pack
- Patriot includes a live yeast culture
- Patriot includes a MOS (mannan oligosaccharide)
- Available in 25Kg bags as a dry powder
- Easily mixed with a bucket and whisk or milk mixer

The Benefits of Feeding Britannia

Feeding Britannia to calves in their very early life yields many benefits:

- Osmolality of 350 mOsm/Kg is close to natural milk's 330 mOsm/Kg
- Lower osmolality means better feed efficiency and less scour and abomasal bloat instances
- More metabolisable energy means calves have more energy and a healthier appearance
- The included MOS binds to pathogens in the gut, neutralising detrimental bacteria
- Live Yeast scavenges oxygen in the gut, allowing beneficial microflora to thrive
- More energy and healthier gut mean better early life development
- Early life gene sequencing upscaling to improve adult animal potential
- Higher ADG (average daily gain) rates and mammary tissue development means higher yields in later life

These features and benefits are no idle boast and have all been substantiated by customer experience and trial data.

No other companies have the exact technology used to produce this product included in their calf milk replacers. This means that the copy-cat products may have similar declarations, but they are most definitely not the same!!

Investment in the calf at this stage is to some extent an act of faith because the payback will not occur until the heifer calves, or the bull is sold.

There is some short-term payback however, lower disease and less scour incidence will be more than enough recompense on many units to justify the investment.

I will qualify that statement by re-iterating the need for the management factors outside the realm of nutrition to be good in all respects.

Diamond V XP for Beef is worth a second look.

With over 400 field studies and many peer reviewed trials, it's hard to ignore the fact that **Diamond V XP works!** The graphic below shows the typical improvements that we should expect from using this but like F1 Yeast, whilst the benefits are reliable there are plenty of "other" (epigenetic) factors that will affect performance.

That word "epigenetic" seems to be a current trendy way of saying; "If it doesn't work it's not our fault!"

That being said, I don't think its usually a good enough excuse to not try and improve performance by using either Diamond V XP or F1 Yeast or both.

This is one of those rare cases where the two products complement each other really very well indeed and 1 + 1 usually = 3! In any case it's definitely worth using at least one of them.

Until the end of November, every new customer for Diamond V XP will be supplied with some Cargill and Diamond V branded overalls... snazzy I know! (so will need to know rough sizes of overalls when ordering) The on-farm price is usually £1600/tonne

Overalls offer available until November 30th

Feed growing cattle 28 grams costing 4.5 p per day & finishers 14 to 20 grams costing 2.24 to 3.2p per day. That's great value for 100 grams of growth worth 20 pence!

What is XP™?

A unique, yeast concentrate, fermentation product which produces a range of important metabolites and bioactive compounds. These have a positive effect on the rumen microorganisms, the rumen environment and the intestine to support better cattle health and performance. The product is **evidence based** and **performance tested** with over 400 field studies and peer reviewed studies globally.

Diamond V[®] products can be used across a range of different beef production systems; they can also be included in different feeding systems; manufactured feeds, mineral premixes or direct on farm inclusion.

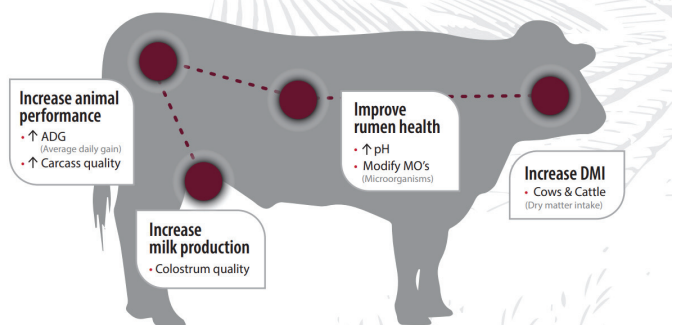


Mode of action:

- 1. Rumen Microorganisms**
 - Increase fibre digesting bacteria
 - Increase lactate utilising bacteria
 - Increase rumen fungi
 - Modify rumen protozoa (+ve and -ve)
- 2. Rumen environment**
 - Stabilise rumen pH
 - Increase feed digestibility
 - Increase VFA output (Volatile fatty acid)
 - Increase microbial protein output

Key benefits:

Four key health and performance benefits for beef cows and cattle when using Diamond V[®] XP™



Trial information:

Comprehensive peer review studies show consistent animal performance benefits at all stages.

Suckler Cows	Rearing Calves	Finishing Cattle
Colostrum quality +16% Ig levels Milk yield +28% in daily yield Calf weaning weight +4% in weaning weight	DLWG: +75 g/d FCR: +10% ↑ Feed intake ↑ Rumen girth	DLWG: +100 g/d FCR: +2.8% ↑ Feed intake ↓ Days to finish ↑ Margin over feed

DLWG: Daily liveweight gain
FCR: Feed conversion ratio
Ig: Immunoglobulin



The Perfect Storm is Coming!!

Current thinking is that it will be worth quietly getting stocked up on most things before the Brexit deadline of January 1st

No one will put their shirt on any forward pricing beyond the end of the year because unless we get that EU deal signed, we are in unknown territory and the adjustment period on either an EU deal or a hard Brexit looks choppy to say the least.

Many contracts expire at the end of December because of the uncertainty of the 2021 market pricing. Most feedstuffs, especially supplements and calf milk replacers should be checked. **F 1 Super Fat** is incredible value for money until the end of December at more than £125 per tonne below the spot price! They will not allow me to carry unsold contract stock forwards so take a large load if you can.

It will all be further complicated by two more highly significant factors

1. The effect of the dreaded **COVID 19** so I think current thinking is more or less that, "A bird in the hand is going to be worth more than the two in the bush"!
2. This is probably true for most things. The biggest worry is that the inevitable panic buying will be even further complicated by the **Christmas** and **New Year** holidays. Its almost like a perfect storm of the supply, demand, administration, and haulage factors all being stressed at the same moment.

Don't be caught out.

Plan ahead and get your orders in really early because you can be sure that the last three weeks of December will be bonkers! (I may be tempted to hide until it's all over!)

Mineral Markets

Minerals prices are only fixed until December 31st and whilst this market price will be more stable than some it is probably worth taking enough to cover into January at least! No big panic though, our mineral supplement manufacturer is well bought.

Most mineral and vitamin sources dropped in price in quarter 3, we have been able to reduce most of our prices since the first of October.

- **Di-calcium Phosphate.** Currency sensitive. Up by £15 to £20/t partly on slightly higher phosphoric acid prices but there is also a supply issue with Yara unable to supply any MCP until Q1 2021.
- **Magnesium** Steady
High Potassium grass and silage this autumn will increase the need for extra magnesium. No change to prices despite some disruption to supply early in the COVID lockdown when the demand for the dead burnt material dried up.
- **Limestone Flour** Steady
Late lactation cows will almost always be under fed. You can feed dry cows until 3 weeks before calving! Growing and finishing beef have been shown to increase liveweight gain when deficiencies are corrected. Great supplement and pretty cheap really!

Most bespoke minerals can now have the extra limestone, magnesium, mycotoxin absorbent and even sodium bi-carbonate added, meaning less bags to handle, let us know

if you would like us to do this, it doesn't cost any more to do and sometimes can save money.

- **Sodium Bi-carbonate** Flat prices
- **Salt** Quiet. Himalayan Red rock salt is a still a very good buy
- **Zinc** Zinc Oxide variable mainly due to exchange rates.
- **Manganese** Currency sensitive
- **Cobalt** Demand for electric car batteries and currency sensitive.
- **Chelates** No change into Q4. Beware the cheap substitutes.
- **Vitamin E** Relatively stable at the moment but it can be volatile
- **Iodine** Currency sensitive
- **Copper Sulphate** Firm due to high demand, especially in China.
- **Biotin** Much better and slowly dropping after a huge increase in the spring.

Raw Material Markets

The UK 2020 wheat crop is the lowest harvest yield for more than 40 years at 10.13 Million Metric Tonnes this is just 76% of last year's harvest. Here in the UK we are experiencing firm prices through to 2021 harvest.

The European maize harvest is advanced this year, but the Ukraine harvest is expected to be less than 2019 and the southern European crops less than expectation.

The US maize harvest is also well ahead of last year, the US is still set to reach a production figure of 378.47 million tonnes, the largest since 2016. The Safrinha corn crop planting (Second crop) in Brazil may be affected by the soya plantings for the 2021 harvest and it's too early to see how this will affect market prices.

China the world's second-largest corn consumer sets an annual tariff-rate quota (TRQ) of 7.2 million tonnes for corn imports each year but has never previously used all of the quota. This year It has already imported 6.7 million tonnes of the grain against its prior record of just 5.2 million tonnes in 2012. Beijing is expected to issue more import quotas and buy additional corn in the new crop marketing year. The surge in corn prices has also driven a jump in China's imports of other feed grains with 6.06 million tonnes of wheat imported in first 9 months of 2020. Chinese demand and dryness in Brazil continue to drive the expectations in the Soya markets. (It rained on October 27th and UK Hi Pro soya dropped £8.00 per tonne!) Brazilian farmers are expecting to harvest around 132 million tonnes of beans this season which will be an all-time record. Much of this crop is already sold recent data suggests that Brazilian farmers have sold 53% (Oct 27th) of the 20/21 crop against an historical average of 25.4%. This has been stimulated by high prices which suggests that there will be no rapid fall in the world price of soya meal.

Good buys include Pea & Bean meal, and probably molasses, which looked fairly pricey until everything else caught up and overtook it.

For more information on any of the items mentioned in this newsletter please get in touch with Jerry or Richard.

Our phone numbers are always available during normal working hours.

You can also email Jerry or visit the Lakeland-Scottish website.

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Email jerry@lakelandscottish.co.uk **NEW** website www.lakescot.co.uk