Lakeland-Scottish Feeds & Services Newsletter

Are we Missing a Trick?

Issue No 139* **April 2024**

Contents

Introduction

April Work Plan

I thought I should just let everyone know that from April 9th to April 29th I will be working mainly from home. My other half “Ange” is having a cataract removed so she will be in rest mode for a week followed by light duties for a fortnight. I must say that the idea of three weeks of DIY is probably a bit overdue but hey, it is what it is!

Whilst I am being a trainee domestic god, I thought that it would be a good idea to review our product range. Its already pretty obvious to me that there are at least three products that we should be talking about due to their current relevance and great ROI (return on investment).

It is inevitable that over time, some products go out of fashion and get replaced by new ones. The farming industry always looks forward to the next generation of products to improve profitability.

I can’t complain about that; Lakeland-Scottish and TBA have always been at the forefront of introducing new scientific progress in our ruminant feed industry.

But…….Sometimes those older products prove that they are still better than newer alternatives.

Revisiting Omega 3’s Omega 3 oils and the essential fatty acids in particular DHA and EPA. The effects on fertility are well documented, but the benefits are much greater than just optimum pregnancy rates.

Revisiting Oregano oils is another product area that is rewarding. Calf health and dairy production is the target for this low-cost treatment. More and more companies are adopting this technology in their product mix.

The article below shows why using this technology for at least the first ten days of the calf’s life is really one of the best decisions you can make. And the best bit is that it is really cheap!

Oregano has so much to offer new borne calves, but it also has multiple other applications and benefits. Its anti-bacterial properties are well known but it also works as an antioxidant and can have some great benefits in close-up dry cow diets.

Live yeast has been used ever since the late Pearce Lyons introduced **Yeasacc** to the UK back in the late 1980's. Yeasacc is still the reference benchmark by which all competitor strains are judged. Over the last forty years we have learned a lot about how to get the best results from using this great product and now we can get even better results.

The mineral analysis of the main forages for production cows has shown a much wider variation in the **DCAD** figures than we used to get. Feeding a negative DCAD of around -80 Meq/Kg is essential for close up dry cows but milking cows need a positive DCAD of around 350 Meq/Kg. There are some interesting consequences for missing this target and **most farmers have no idea what their production ration status is!**

A recent post from Premier Nutrition on Linkedin, hi lighted the pros and cons of different protein sources for poultry. The application for ruminants makes a very interesting read.

Did you know that if you have a limited business, you may well be eligible to claim thousands of pounds in tax relief for R & D and it could be a lot easier to do than you might think?

The feed markets have shown some bearish trends in the last few months but what is the outlook for feed prices going forward?

Omega 3's

I think that it will only be a matter of time before the ruminant feed industry catches on. Please remember where you heard it first and be assured that we will stay way ahead of the mass marketers when it comes to the evolution of this type of product technology.

Our interest in this product continues to grow and there are indeed many positive effects of including essential fatty acids in the diet of moderate to high output animals.
The obvious justification for doing this is simply in that word **ESSENTIAL**, for that is indeed what they appear to be.

The improvement in membrane health occurs right through the whole body, so whilst improved fertility effects are the main headline, it is becoming very obvious that some of the other benefits are of great importance and the big one of increased milk production looks very probable when we consider our experience so far and the trial featured below:

ENHANCED MAMMARY DEVELOPMENT IN DAIRY COWS USING OPTOMEGA
SUMMARY

Optomega Plus was a high quality, concentrated EPA and DHA product produced from sustainable fish oils.
When included in dairy cow rations, **Optomega Plus** could positively alter mammary gland tissue development, allowing for greater milk yields to be achieved.
Optomega Plus has now been replaced with **Optomega Algae** which contains a lot more DHA than the fish oil based **Optomega Plus**.
We have also elected to sell a **UFAC** product called **Omega 3**, our version is much more like the original **Optomega Plus** and we are more than happy to work with both products.

Omega 3

Key Features:

Contains balanced levels of DHA and EPA
Contains long-chain omega 3 fatty acids from marine oil.

Key Benefits:

Increased egg size
Higher progesterone production
Uterus development to enhance embryo implantation • Increased immune system
Enhanced calf vitality.

Typical daily feed rates

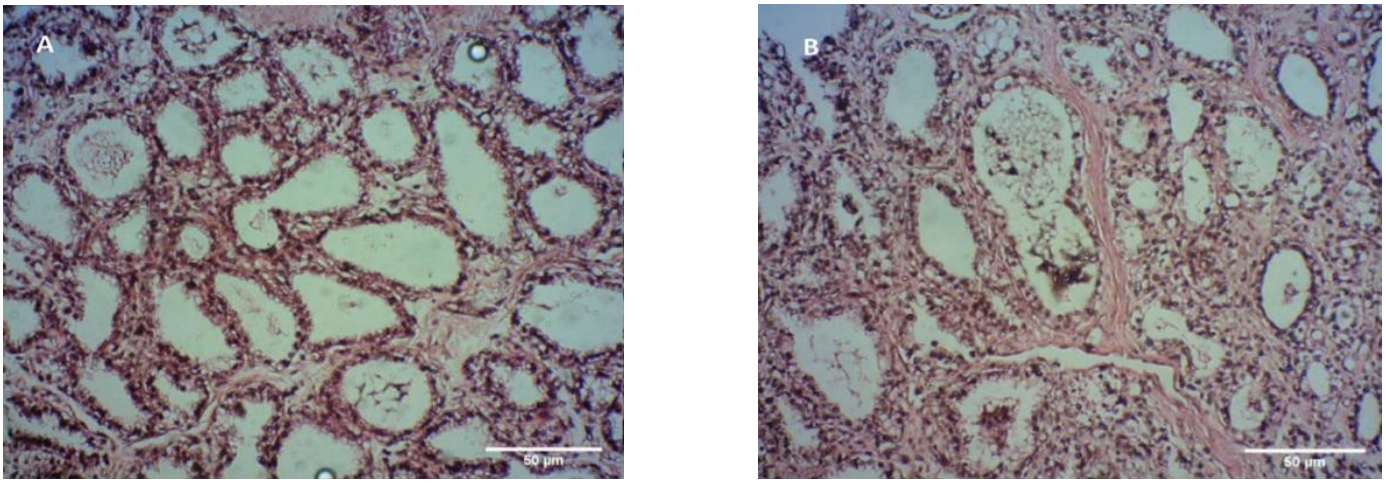
Dairy Cows 100-150grams/head/day
Sheep 10-15grams/head/day

BACKGROUND

Milk production in dairy cows is affected by many factors, with the development of the mammary gland being a key component of this.
There are two main types of tissue in the mammary tissue – epithelial and stromal cells. The latter provide structure and nutrients, whilst the former produce the alveoli that secretes milk.

TRIAL DESIGN

A trial was carried out at the University of Tehran, Iran, to assess the efficacy of **Optomega**, a source of EPA and DHA, on dairy cow mammary gland development and milk production. 10 multiparous Holstein dairy cows were randomly allocated to one of the two treatments (palm oil or fish oil supplied as Optomega) beginning 42 days prior to expected calving date, until 63 days in milk. Milk fatty acids content was determined on days 7 and 63 of lactation as well as samples of mammary tissue taken by a biopsy gun. Milk yield was measured each day and milk quality was considered weekly.



(A) (B)

Fig 1. Mammary tissue of dairy cows fed Optomega (A) or Palm oil (B) (From: Barfourooshi et al., 2018, Ann. Anim. Sci 18 (4):973)

RESULTS

Including **Optomega** in dairy rations in the place of palm oil:
Significantly increased milk yield from 6 weeks of lactation.
Elevated unsaturated fat and DHA content in the milk whilst reduced the n6:n3 ratio, providing consumer benefits.
Significantly increased the proportion of epithelial cells in the mammary tissue whilst lowering stromal number, which may help to improve milk production capacity in **Optomega** fed cows.
Increased total alveoli number with improved consistency of size, suggesting a greater capacity to secrete milk.

Therefore, including **Optomega** in the diet of dairy cows both pre- and post-calving can help increase milk yield Trials are showing highly significant improvements in pregnancy rates.

On Farm Evaluation - Scotland

Spring/Summer 2018, SW Scotland

- From 9th March through 7th June
- Cows housed all year round
- Fed TMR
- RUFAL <3.0%DMI
    - Cows Fed **120g** Optomega Plus, replacing **500g** Megalac.

Compared to cows inseminated in the previous 3 months

- 1st-4th services

Overall 6.6% improvement in conception rate

- **Over the 1st 4 services (37.5% vs. 30.9%)**

21.5% increase in the relative risk of a cow becoming pregnant.

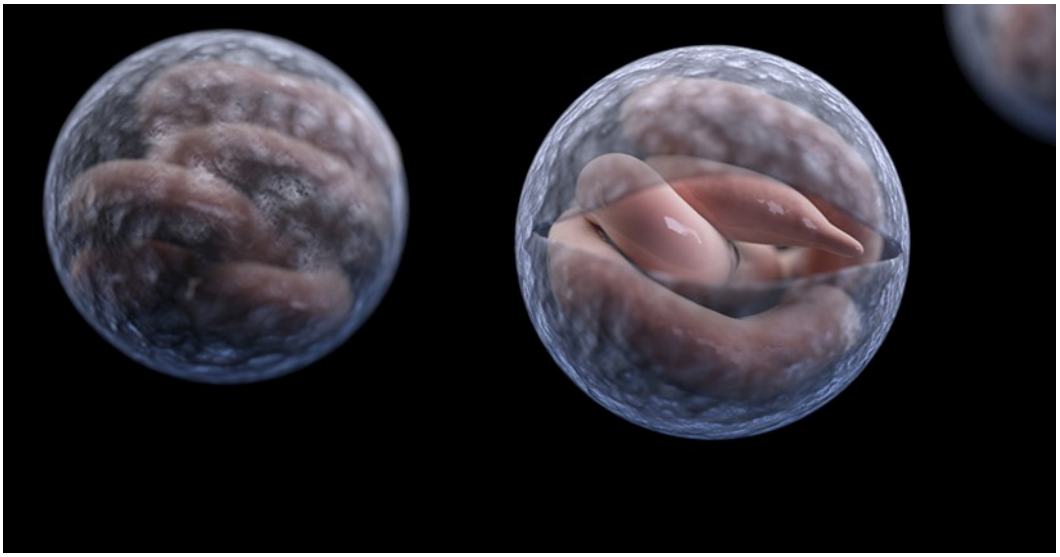
No effect on milk yield or milk quality.

The fact that the yield did not drop, lends weight to the effect that the EHA & DHA have on stimulating the mammary tissue development and the anti-inflammatory properties of the higher quality fish oil being used.

Oregano

Of all the diagnosis of calf scour 40% is put down to crypto! Many farmers will have come across it at one time or other and it is a major problem.
The article featured is a five-point plan and I am quite happy to reprise this but as a six-point plan because there is a recent proven, cheap, but effective weapon in the armoury!

1. Calving boxes and pens: -
   I suppose that most farmers would natural be paying attention to the environment in the calf shed but the first potential exposure to this parasite. Cyrpto survives in oocysts or spores which are quite hard to kill but if the environment is at all damp, this increases the chance of the spore's survival.



The first 24 hours of the calf's life is very risky, the gut lining features a more open cell structure to allow antibody absorbtion from the colostrum. This makes it easy for pathogens including crypto to infect the calf.
So, the best policy is to make sure that all surfaces that the calf is likely to encounter are clean and as dry as possible.

2. Colostrum: -
   Okay it's not directly related to Crypto but since lack of enough good quality colostrum has been judged to be responsible for over 50% of all calf mortality; it has to be included.

At birth it is essential that the calf has a good feed of colostrum essentially within the first 6 hours of its life. Colostrum is normally rich in the essential nutrients and antibodies needed to protect the young calf from the environmental disease loading on the farm into which she is born.
The calf's mother will have developed a good level of immunity to these local disease challenges and will pass the immunity on to its calf via the colostrum.

Currently the recommendation is to feed 4 to 6 litres of Colostrum in the first 6 hours after birth. At least 3 litres in the first 2 hours!

Colostrum quality is important. Its specific gravity should be measured using a colostrometer. (This tells us how rich the colostrum is). The target density should be 75mg per ml of IgG. We recommend topping up the colostrum with the **SCCL Calf's Choice Total 100** dried colostrum, to bring fresh samples up to strength. This can also be used to great benefit by replacing 75 grams of the milk replacer for the first 7 to 12 days of the calf's life.

Concentration of IgG (the main immunoglobulin) in colostrum varies according to many factors, including a cow's disease history, volume of colostrum produced, season of the year, and breed. Research has shown that IgG levels vary widely from one cow to the next and range from less than 20 to over 100 mg/ml. The difference between 20 and 100 mg/mL of IgG in colostrum can mean the difference between failure and success in passive transfer of immunity.

Colostrum containing 75 mg/ml or more of IgG is considered to be a high-quality feed for new born calves. Measurement of IgG concentrations in colostrum can be very useful in managing colostrum quality and monitoring colostrum feeding practices.
Although high quality colostrum is typically very thick and creamy, appearance alone does not reliably predict IgG content.

Volume of first milking colostrum also can be misleading and is not a recommended method for estimating colostrum IgG content. In addition, although IgG concentration can be measured very accurately in a laboratory, these tests are time consuming and not typically available to farmers.

Hydrometers and refractometers can be used on the farm to estimate colostrum IgG, separate good quality colostrum from poor quality colostrum, and improve your ability to provide calves with enough IgG to attain successful passive transfer of immunity.

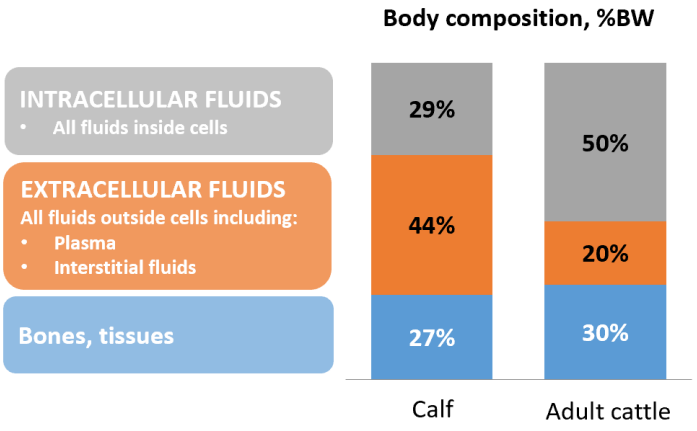
We recommend the use of a **"Brix" Refractometer** to measure colostrum quality.
The measure should target 25% and anything less than ≥21% should be rejected.
If the reading falls between 19 and 21%, the colostrum is not really good enough for the first feed but could be useful for transition feeding on day two.
When the reading is in this range between 19 and 21%, some advisors suggest that you could use a colostrum replacer to top up the strength to say a 25% target or more!
Many farms can freeze a quantity of selected clean good quality colostrum. If this is carefully reheated it makes a great first feed which can then be followed with the weaker mothers colostrum.
Remember to sterilise any tubing and containers being used.

Brix refractometers are now readily available from good veterinary suppliers or over the internet. Colostrometer floats (Hydrometers) can also be used to get a rough estimate of the quality in seconds.

3. Diagnosis of Cryptosporidium affected calves should be routine if the calves have a stiff tucked appearance with a yellow scour. Test kits can be purchased from most animal medical suppliers and vets. If you are not sure, get the vet to demonstrate the test so that you know what to look for.

4. Any calf that show symptoms of scour needs water at the very least. It has to be clean and fresh and freely available at all times, Dosing with electrolytes (we recommend **Trouw Nutrition's Osmofit** product which is the newest and most technologically advanced product that we have seen. Feeding electrolytes as a routine third midday feed has been shown to help calves thrive. **"A strong healthy calf is destined for a good life!"** **Osmofit** is available in boxes of 12 doses to be mixed at 38°C at 2 litres per calf as a "third" feed.

5. Remember …. Calves are 73 % water.



Sources: Fayet, Ann. Rech. Vét., 1968; Parker A.J., PhD thesis, 2004; Phillips et al., Ann. N.Y. Acad. Sci., 1971.

6. Reduce the environmental loading of viable Cryptosporidium spores with **Orego-Stim**. This product has become a lot more than some sort of herbalist's concoction used by some of our "off the grid population". Now the proofs are now without question and the published trials and adoption across the species is gaining pace. **Orego-Stim** is now exported all over the world and was the reason for a £5 million manufacturing site in the UK. Extensive research has shown that oregano can be used to great benefit as an immunity boosting treatment but there is also evidence to show that it will reduce Cryptosporidia spore shedding by around 60%! Using 10ml per calf per day for the first 10 days of life followed by a "holding" dose of 2ml per calf per day until weaning is recommended. The first 10 days is the key period and some farmers are reporting good results without using the holding dose! When applied over a series of batches of calves followed by routine cleaning of pens and equipment, the use of **Orego-Stim** will reduce viable spores to a minimum effectively eliminating any significant challenge provided cleaning routines are maintained. The monogastric nature of the baby calf also means that it is suitable to use whilst its rumen has not developed. There are other benefits to using **Orego-Stim**, one is improvement of appetite and that property has multiple benefits.

7. It is always worth discussing scour issues with your vet. Accurate diagnosis is usually a good call, but there is always a case for prevention being better than cure!

To support the idea of prevention I first published this data two years ago. Frankly, I don't think that research can lay out a case much better that this.

Firstly, it is worth pointing out that the Oregano used is a 100% natural product.Secondly, it is more than obvious that using **Oregostim** as an antibacterial application should help to reduce bacterial challenge to calves in their early life.

The extracted oil from the Oregano variety used is indeed very potent, and the **Oregostim** liquid product is obviously a dilution of this oil. We do this because it would be just about impossible to get the dosage right in our calves with the neat product but the antimicrobial effect is similar, just spread over a more practical volume. The best news is that this is not an expensive product to use.

BACKGROUND

- The antibacterial effect of a product can be easily compared using a zone of inhibition test. This highlights the sensitivity of a known bacteria to multiple products.
- The larger the zone of inhibition, the more effective the product is against the
- chosen bacteria. **Orego-Stim** Powder is a high quality eubiotic containing 100% natural oregano essential oil.
- This work is part of Anpario's 4R's approach (Review, Reduce and Replace antimicrobials Responsibly) which helps to maintain gut health and support healthier livestock through the use of natural products.

TRIAL DESIGN

The trial was undertaken by an independent microbiology laboratory in the UK in 2020. A variety of antibiotics and bacterial challenges were selected to account for the most common challenges and associated therapeutic treatment globally. Bacteria were suspended in 20ml of diluent, shaken and the concentration adjusted to contain between 1.5×10^8 - 5.0×10^8 cfu/ml. Plates were prepared in triplicate and incubated at 36ºC ± 1 hour for 24 hours.
The zone of inhibition was measured using calipers.

Bacteria selected for use in the trial included:

- *Salmonella typhimurium*
- *Escherichia coli* (O157)
- *Staphylococcus uberis*
- *Staphylococcus aureus*

Antibacterial efficacy of the following treatments against each bacteria were assessed:

- Lincomycin
- Amoxicillin
- Trimethopri
- Bacitracin
- Chloramphenicol
- Tetracycline
- **Orego-Stim** Powder (OSP)

RESULTS

- The antimicrobial activity of **Orego-Stim** Powder against *Salmonella typhimurium* was comparable to 3 of the 6 antibiotics and was significantly more effective than the other antibiotics tested (Figure 1).
- When testing efficacy of treatments against *E. coli*, the antimicrobial activity of **Orego-Stim** Powder was comparable to 2 of the 6 antibiotics and was significantly better than the other antibiotics tested (Figure 2).
- **Orego-Stim** Powder resulted in a zone of inhibition which was statistically better than, or comparable with, 5 of the 6 antibiotics tested for antimicrobial efficacy against *Staphylococcus aureus*, with only Amoxicillin producing a significantly larger zone of inhibition (Figure 3).
- The zones of inhibition produced by Chloramphenicol and Tetracycline when tested against *Staphylococcus uberis* were statistically comparable to that of Orego-Stim Powder. **Orego-Stim** Powder outperformed Bacitracin and Trimethoprim (Figure 4).
- The results demonstrate that **Orego-Stim** Powder provided antimicrobial action which was statistically comparable or better than several commonly used antibiotics in all 4 of the bacteria trials.

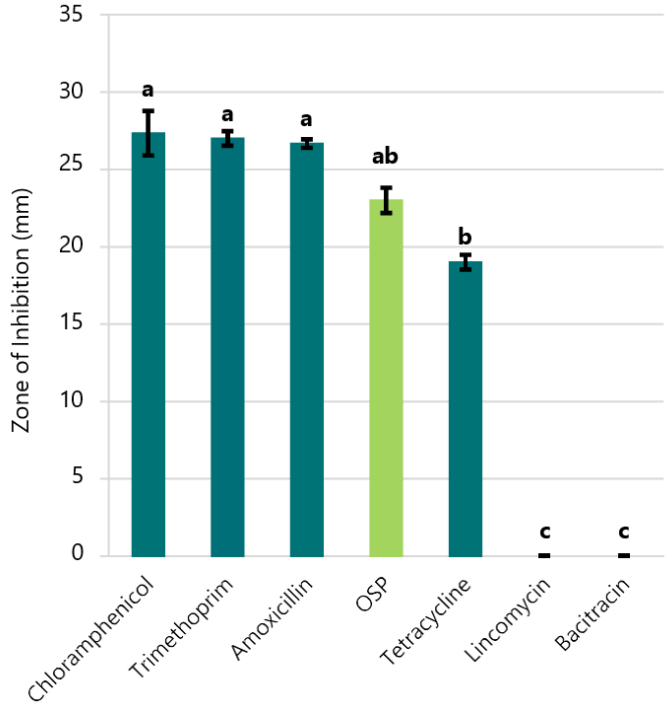


Figure 1. Antibacterial efficacy of treatments against *S. typhimurium*, measured by zone of inhibition (mm).

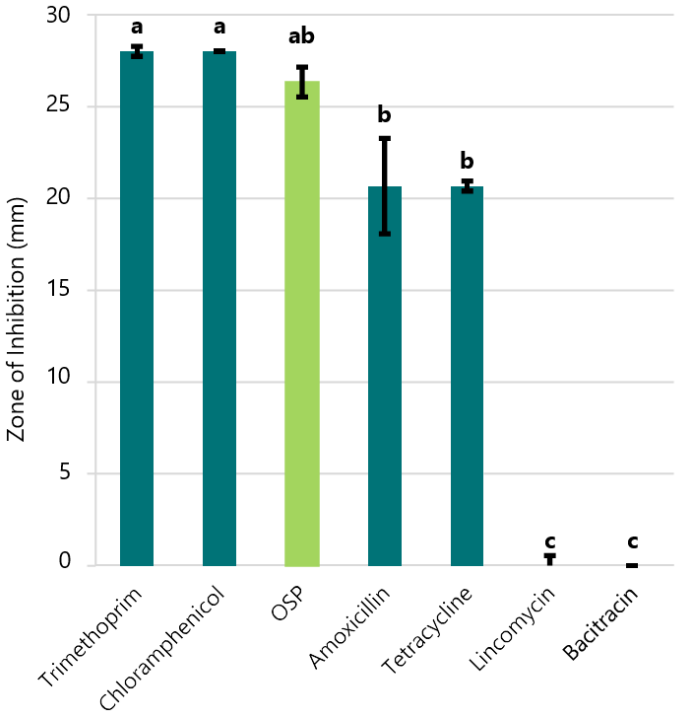


Figure 2. Antibacterial efficacy of treatments against *E. coli*, measured by zone of inhibition (mm).

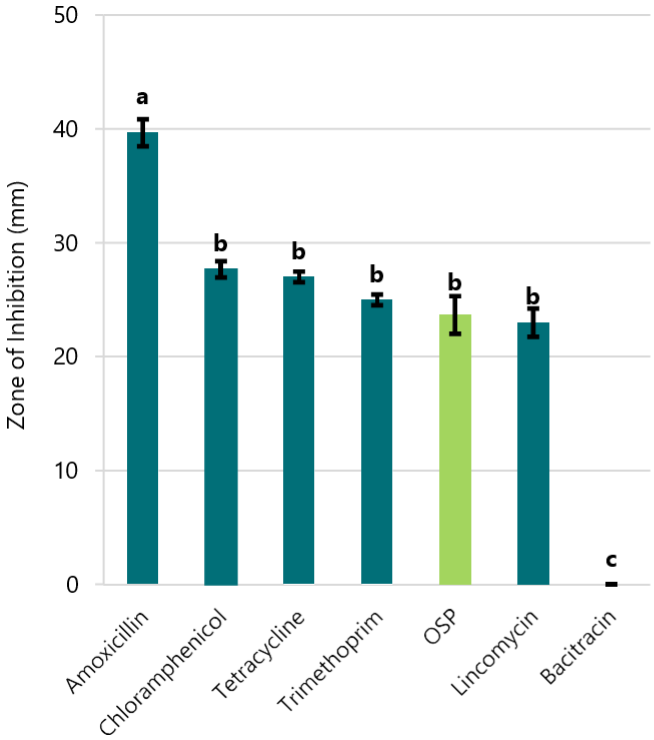


Figure 3. Antibacterial efficacy of treatments against *S. aureus*, measured by zone of inhibition (mm).

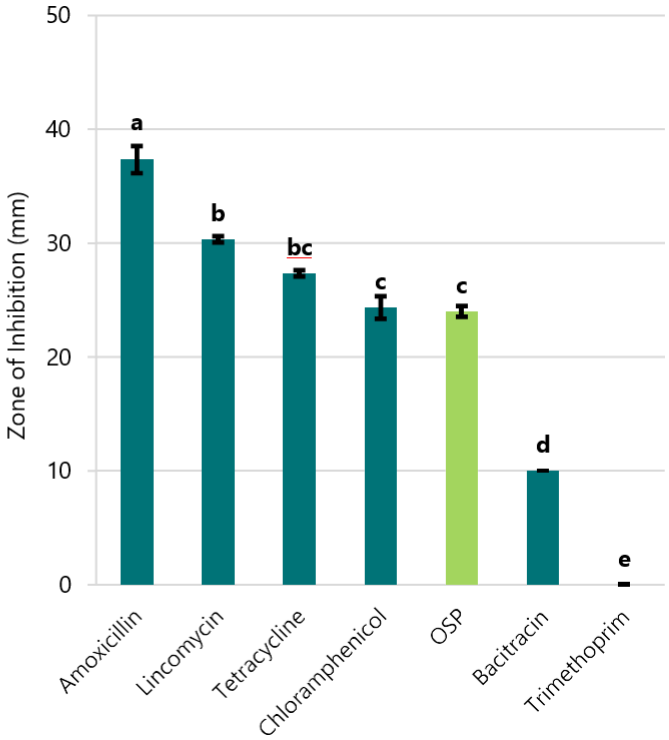


Figure 4. Antibacterial efficacy of treatments against *S. uberis* measured by zone of inhibition (mm).

✓ **Differing letters denote significant differences between treatments ($p<0.0001$).**

The protocols for calves

We are currently adding products to calf milk replacers that will provide many of the health benefits described so far, we know that the most vulnerable time for exposure to environmental challenges fir baby calves is in the first two weeks of life.

As a result, we recommend that 10 ml of Oregostim liquid be added to the CMR for the first 10 to 14 days, after which the doses in the CMR should be able to offer a good level of benefit.

Those first few days are really critical and the cost of around £2.50p per calf for a 10 day course is well worth the investment even when money is tight!

We are also seeing early signs that it is quite an effective coccidiostat. At this stage we only have one trial for this in sheep. That should not put anyone off because (off the record) we are more than confident that it will be a very effective and natural way of controlling this problem.

So far, the case for using this product is really compulsive but there is also growing trial evidence showing that Oregostim can also significantly reduce methane emissions when added to the diets of dairy cows!

I guess whilst this may well be an attractive feature of the product, there has to be a payback on the investment. This is not obvious, but improved resistance to environmental bacterial challenges may well generate a milk response because there is always an energy cost to maintaining the immune system.

F 1 Yeast Again! New Protocol.

I know that sometimes I sound like a broken record when it comes to **F 1 Yeast**, but it has been a passion of mine for nearly 35 years!

It has taken this long to realise that the best way to use it has to acknowledge that the rumen biome is a constantly adjusting environment which will be unique for each animal!

Okay, most animals will be about the same but the range within a herd or a flock will be quite wide.

This dynamic is driven by selective feeding habits and can often be seen when animals are sorting feed in the trough.

The daily variation in individual intakes can also be quite surprising. The choice of feed will depend on the variation within the silage pits and the accuracy of the mix.

We all know by now that the best way to introduce a live yeast into the diet is to double or even triple dose it for the first ten days. This will effectively introduce a very positive rumen stabilising effect that will stimulate the cellulolytic bacteria in favour of the less efficient and more acid tolerating strains.

The net result is more output of microbial crude protein and increased dry matter intakes. Ultimately, more milk, milk solids, and, or growth (beef & lamb grower & finisher diets).

But…….. After a few days of standard dosing the rumen starts to adjust to this new norm and the effect starts to wear off. The slight reduction in performance will never slip back to the first introduction of the yeast but we can test the response by giving the animal a bit of a nudge!

In the case of milking cows, double dosing again for about 4 to 5 days in monthly intervals, will restore the initial response at a slightly higher level of production each time it is done.

Several long-term trials point to an optimum response after about six months. In order to maintain that optimum response, we would still advocate the monthly nudge.

Naturally **F 1 Yeast** would be the best choice of live yeast in our view and we still have **F1 Prosecure** (still working on a de-dusted version).

Its got to be worth a shot, the average response to **F 1 Yeast** over hundreds of trials is currently 1.6 litres worth typically £0.55p at a cost of @ say between 8 and 10 pence per day. That's a return of 6 to 1 which in any reckoning is a good bet!

Raw Material Markets

The markets seem to still be dropping steadily at the moment but the daily fluctuation in both spot and future prices means that anything that gets published here will probably be a bit different should you decide to order. Its worth remembering that some products that would normally be shipped through the Suez Canal are likely to be incurring delay and extra shipping charges.

Soya prices still set the trend for most of the other protein straight feeds. Current expectations for the summer and early winter would be around £360's to £370's for full loads. Rapeseed meal is normally around ⅔of the protein and should b e a bit less than ⅔of the price because it is also much lower in energy, current futures are around £280.s to £290's which is about ¾ of the price of HiPro Soya so not that good really!

Cereal futures are getting very interesting. May London wheat futures were at £170 per tonne (April 3rd) for May and £192 ish for November with longer positions slightly firmer.

This would indicate a degree of uncertainty creeping in because of current UK weather patterns in the east of the UK beginning to be detrimental.

All in all the markets are quite fluid but I can't help thinking that taking cover on the key commodities won't look like folly in the long run. But markets can be fickle at the best of times and most of my contacts are very cautious about the future.

I have decided to stick to the commodities that are a bit more reliable for me to supply and negotiate contractable pricing.

This is my list of the following products: -

- Molasses and Molasses Blends
- Pea and Bean Meal (still great value at the moment)!

- High Starch Maize meal in totes or bulk mainly SW French (summer prices have probably bottomed out now).
- Sugar Beet Pulp (normally just in season but still some available spot).
- Trident Distillers Grains in bulk and Prairie Meal in Totes.

- **F1 Yeast** The existing **F1 Yeast** and **F1 Prosecure 1 and 2** are all available now so if you check out our web site you will get all of the fine detail. The web link is as follows: - www.lakescot.co.uk/f1-yeast/

- **Britannia.** Our new **Patriot Gold**  performance pack is another reason to try this product. This product is now starting to outsell its competitors in Northern Ireland through our trading partners at Farmgate Nutrition. If you haven't tried it, now is a good time because the prices have just dropped!

  The **Patriot Gold**  performance pack sets **Britannia** a long way ahead of its competitors. There are some unique extra additions which are research backed, proven products designed to make the calves early life more productive and resistant to immunity challenges.

- It the last newsletter we posted this bullet point but felt that it was worth the repetition. The revised protocols advising phased feeding between day one and day 10 of transition milk and or fortification with colostrum (natural or dried) should be adopted.
  Dairy heifers will benefit enormously and because **whey protein does not clot**, skim-based calf milk replacers like **Britannia** should definitely be fed for the first four weeks and preferably right though to weaning.
  Pasteurised cow's milk will generally be first choice but be aware that it can vary and may not always give the best results.

- **Mawerlac Gold** is a great substitute for most other refined fats. It is a 100% fat product (no carrier) and at 38MJ/KG DM it's still even better value for money than just about all of the others at the moment! **Now worth contracting to the end of June** because prices are rising due to extra shipping costs avoiding the Suez Canal.

- **Feed grade Urea** is around £600 per tonne and still dropping which looks great on paper but bear in mind that although it is much lower in price than **Optigen** it's volatility means that is only viable for around 2 hours in a typical farm mix and after that it has disappeared into the atmosphere as ammonia gas!
  Optigen will last all day and only get slowly released after it gets into the rumen and its protection is released by body heat.

- For more information on any of the items mentioned in this newsletter please get in touch with Jerry (best on his mobile). Our phone numbers are always available during normal working hours. You can also email Jerry or visit the Lakeland-Scottish website.**Telephone 01768 899513 Mobile 07711 034141**

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