



How to get the best from Yeast

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Introduction

We would like to extend seasons greetings to our clients and readers and best wishes for 2022.

“**Book well ahead**” is still the key message. Its something that has caught me out a couple of times recently and I keep checking our lists but if you wouldn't mind checking your stocks, it will help us to replace products before they run out. Lead times are now up to 2 months for some products due to the usual end of year festive holidays on top of everything else!

This situation is not being helped by the random decisions being taken at the main haulage hubs. Sometimes goods can be held up by as much as a week after they have been despatched by the manufacturers whilst they stretch their available driver workforce to try and cope! This is also not helped by the complete lack of communication when it comes to delays!

In fact, I think that by the end of this winter my hair will have prematurely completed its transition from dark brown to grey!

We are now taking orders for Christmas and New Year stocks. It's a good Idea to book forward at least up to the end of January 2022!

Of course, everyone is now more than aware of rising costs. The obvious one is fuel but animal feed has not been immune and certain products are now looking a bit questionable for example: Monopropylene glycol which has now more than doubled in price, and feed grade urea which is on a day-by-day quote! (Alltech's Optigen now looks really attractive in comparison).

The inevitable result of this is diet juggling and longer cash flows. The latter of which is beginning to concern us in our own business. (Yes, that is a bit of a hint!). It has occurred to me that when we sell commodity products like Sugar Beet Pulp and Maize Meal, the margins are low and the bills are large so, without prompt payment we tie up large amounts of working capital and this could prevent us from conducting some of our business.

Spend 8 Pence and Make 40 Pence!

I can almost see the eyebrows being raised and the instant disbelief at that headline.

Shall we just ignore it and go on to something else? Well, not quite, because the thing is that there are now well over 600 peer reviewed trials and published papers showing absolute proof that live yeast will on average give a benefit of 1.2 litres more milk or, in the case of growing cattle 0.2 Kg daily live weight gain!

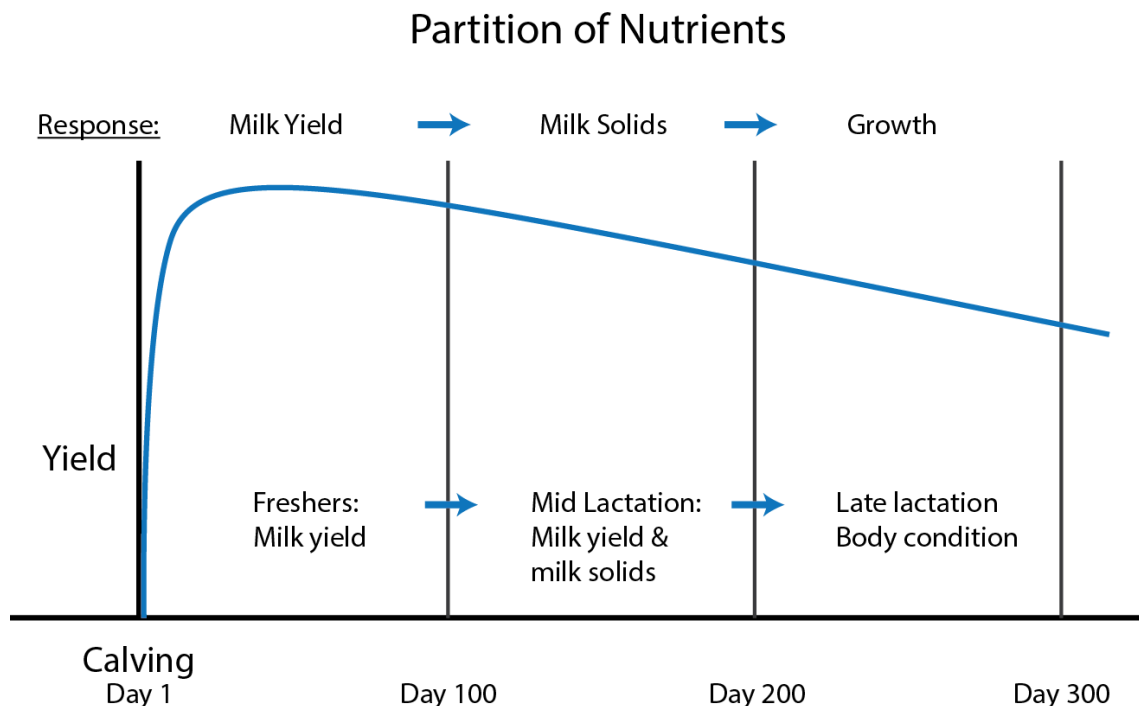
The thing is..... to get the best results you have to understand how to use it. I am afraid that even after 34 years since Yeasacc 1026 ® was first introduced to dairy cows in the UK, it is still a bit misunderstood.

Why?

Live yeast has often been mis-sold because it has been used in situations where its efficiency was always going to be reduced.

- **What are the average days in milk and are the cows managed in different groups?**

The graph below shows how cows and sheep prioritise the use of their nutrient intakes.



Firstly, the needs for maintenance are met, then the lactating animal prioritises milk production. As the lactation progresses the priority starts to change so that by the end of the lactation, she is concentrating on recovering any weight loss she might have incurred in the earlier part of her lactation.

This progression gives us a clue as to how she is going to respond to the addition of the yeast. In early lactation we get more milk, and this response gradually merges into better quality milk and then more growth.

So now you can target the addition of the yeast according to the average days in milk.

- **Concentration of the yeast.**

The choice of live yeast products that are available can be quite difficult to fathom! One of the key differences is how many colony forming units (CFU's) are contained in the recommended dose. Many companies prescribe 10^{10} or 10^9 the difference being ten times more or less! This difference does not tell you the difference in the virility of the yeast. For example, the one quoted at 10^9 may be 10 times or even 20 times more active than the one quoted at 10^{10} ! The EFSA product approval scheme underpins the proof of efficacy of each product. This means that the CFU level quoted is the right amount for the product based on the trials submitted to EFSA for approval. So, you can be confident that even when the product is quoted at 10^9 it will work! The numbers game really doesn't tell you how good the product is even if you feel more confident with greater CFU concentrations.

- **What is the acid loading like on the rumen?**

Anyone who has ever made wine knows two things for certain. When the natural sugar of the fruit and any added sugar, is fermented, the yeast stops working and either dies or goes dormant. Yeast is aerobic so we always seal the fermentation vessel because if there is enough oxygen the yeast will start converting the alcohol into acetic acid or vinegar which eventually becomes too acidic for the yeast to survive, and we end up with wine vinegar! This tells us that if there is a really low pH in the rumen because of very low pH silages or acidosis brought about by rapid lactic fermentation of starches and sugars; The yeast can't cope. In this situation we need to buffer the acidity before the yeast will work and the beneficial rumen bugs can re-establish and bring the average pH above 6.3 or ideally 6.7.

- **Are there any health issues?**

Clinical diseases and conditions will always have an effect on cow performance but there are lots of sub-clinical conditions. The obvious ones are acidosis and ketosis but mycotoxins, ventilation and breathing issues, poor locomotion due to lameness will also affect performance.

- **How are you going to add the yeast to the diet? Compounds, blends, mineral supplements, or farm packs?**

This is to my mind a key issue so what I am stating is a personal view.

The addition of live yeast to a compound regardless of the degree of protection will inevitably be subject to excess heat when the mix is cubed. The moist heat will kill much of the yeast. High speed mixers used in mineral manufacture and the chemicals used will also kill the yeast. Adding live yeast to blend via a conventional mixer is more gentle and works better but longer storage times will see the yeast start to fail.

All of this has been shown up by live colony (CFU) recovery rate tests that I have arranged or seen over the years.

The conclusion is that the farm pack is by far the best way to source and use the yeast. This will be a key factor in achieving the expected payback that you are looking for.

- **Are you adding enough?**

Sounds obvious but you would be surprised how many times we find that the dosage is too low. Payback levels were found to be better as the dosage rates increased by double or even treble the manufactures recommendations. There have been quite a few trials clearly demonstrating this. I know that it must sound a bit scary to spend that amount extra but I

reckon that a three-week double rate feeding strategy will always give an extra return of around 3 to 1 on the cost.

- **What is the dispersal like in the mixer or top dressing?**

Some mixers don't handle small quantities of supplements very well so if they are premixed with other meals before addition we tend to get a more even application to the animals.

- **Are there other key feeding issues that are limiting performance?**

Stocking density, cow comfort, water cleanliness and temperature, heat stress, even shouting and staff movements can all upset cow performance.

- **How are you introducing the yeast?**

We have found that adding a double dose for the first 14 to 21 days achieves a new rumen stability much faster than adding a standard dose. It can take up to 5 months to achieve optimum rumen function when adding a standard dose. I guess that this is the main reason why farmers are not sure about using live yeast.

This is also reflected when yeast is removed from the diet because it can take around 3 weeks for the rumen to revert to a natural fermentation.

For **F 1 Yeast** we continually review the product to make sure that it is the best we can present to the market. Our current version contains a full dose of yeast and an activator which accelerates the action of the yeast and enhances the rumen environment for the beneficial microbes.

The best results rely on continuous topping up and will give a full 5 to 1 return when all of the above factors have been considered.

“Hot Topic” update

Following on from the “Hot Topic” item in the last newsletter, the **Farmers Weekly** decided to run an article featuring both Hefin Richards and Lakeland-Scottish, discussing how forage quality both physically and chemically affect the relative pH state of the rumen.

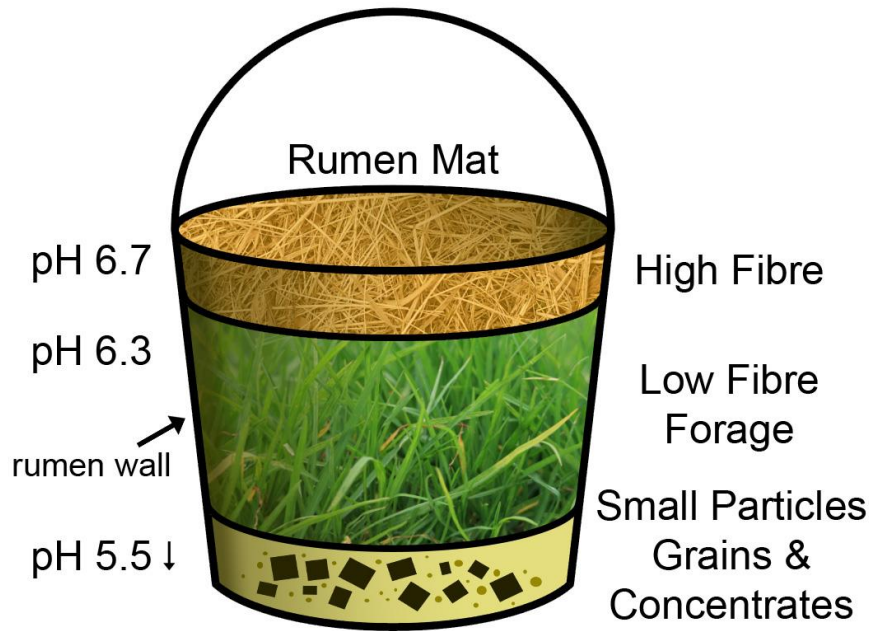
When cows start to suffer from acidosis they start to eat less. They usually go and lie down and start chewing their cuds. Occasionally they will spit them out and these can often be found lying at the front of the cubicle beds.

When they chew cuds, they produce a lot of saliva which is very alkaline and contains sodium bicarbonate. Gradually as they swallow more and more cuds the pH in the rumen starts to recover and the acidity begins to drop. This takes time and whilst it is happening the intake potential drops and the milk yields begin to suffer.

The bucket analogy shown on the next page highlights how the forages and the concentrates in the rumen are fermented by different pH tolerant rumen bacteria.

The rumen will produce around 2 Kilos of rumen bacteria (MCP) in a day. It will produce most efficiently when the Rumen pH is between 6.3 and 6.7. So, rather than have the pH zones shown

on the graphic below it works much better if the scratch reflex is good and the rumen can “Churn” a bit like a front-loading washing machine only slower and mix all the zone pH’s together!



The treatment will range from adding some scratchy fibre like good brittle and clean wheat straw, to adding a chemical buffer like Sodium Bicarbonate or something stronger like Acidbuf. Live Yeast has been shown to be a great buffer in most situations although it doesn't like extreme acidity.

Check out our website for rumen buffers for more on dealing with acidosis, www.lakescot.co.uk/rumen-buffers/ The dividends for good buffering are always better rumen function and better milk and milk quality output.

Urea, is it still cost effective?

Urea is a source of non-protein nitrogen that has a protein equivalent of 281%

Current price of Urea is very variable at around £1200 per tonne but it is hard to get hold of and fluctuates in price a great deal.

But let's compare it to Hi Pro Soya at 48% true crude protein and say £390.00 delivered.

The cost per % of Crude Protein and its equivalent is £0.43pence for the Urea and £0.81pence for the Soya. But if 75% of the Urea is wasted it's costing £1.28 per % CP!

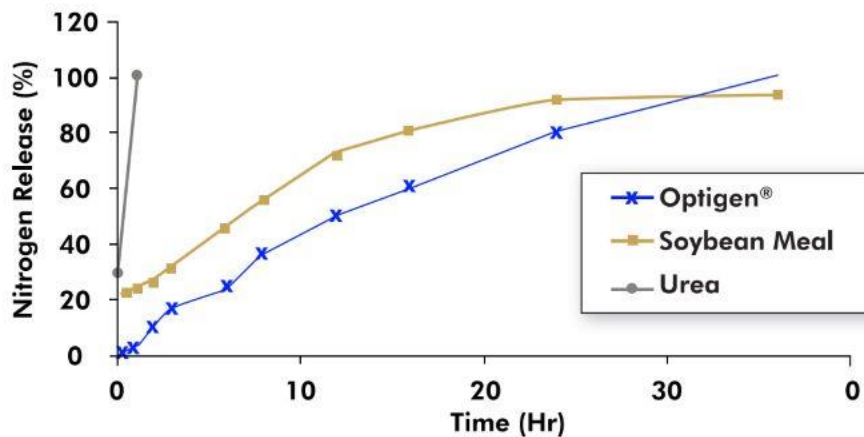
Why would 75% of the urea be wasted?

Urea is very unstable and is hygroscopic so the true protein equivalent really depends on how much of the urea nitrogen is captured by the rumen bugs and turned in to protein and the answer to that is “not much”!

You can see from this graph below that when feed grade urea crystals are encapsulated in a protected fat (**Optigen**), the release is very slow and similar to the degradation rate of soya meal .

This allows the rumen microbes to use the ammonia to **create more rumen bacteria** (Microbial Crude protein or MCP for short).

Rate of Nitrogen Release of Optigen compared to Soyabean meal and Feed Grade Urea.



When feed grade urea is used, the urea that gets into the rumen continues to very rapidly break down to form ammonia, and this gas has two destinations:-

1. It is grabbed by some passing rumen bugs and used to make protein chains. This is ultimately what we were hoping for but only a very small proportion of the feed grade urea achieves this objective.
2. It is missed by the rumen bugs and gets absorbed through the rumen wall and into the blood stream where it also has two paths. It is excreted as urea, or it hangs around in the fallopian tubes turning everything alkali, killing sperm, and reducing fertility!

The really great thing about MCP is that it contains much more of the essential amino acids than any other vegetable protein source including soya and rapeseed meals. This means that it works much better than you might expect.

Also, the extra MCP created includes a greater proportion of cellulolytic bacteria, so more nutrients are released from the fibre and the dairy response includes an increase in butterfat percentage. So, at current prices perhaps soya is a better buy.

Optigen is upwards of £2000 per tonne and costs about £0.88pence per % protein equivalent but the essential amino acid supply could be 40% better than hi-pro soya so Optigen is currently certainly worth a try!

Swap 800 grams of Hipro Soya with 100 grams of Optigen and 700 grams of TMR, stand back and notice the digestion is better the muck looks better and we should have a little bit more milk.

If the diet is already too low in essential amino acid supply add the 100 grams of Optigen wait a few days and watch the yields increase significantly.

I could have written a lot more but we have enclosed a nice product summary which will fill in the gaps.

Calf rearing update.

Calf rearing has been increasingly the object of attention by the media and the manufacturers of calf milk replacers (CMRs) and calf starter creep feeds.

There has been quite a discussion about the best way to design the ideal calf rearing system.

I have spent some time trawling the media looking at the variety of products and the advice on offer and I have to say that any farmer who has looked at these articles will be truly conflicted!

There are, however, two key points on which everyone now agrees.

- At least 4 litres of good quality Colostrum in the first 6 hours is vital.
- Keep the calves on the same creep feed right through weaning to around 16 weeks of age.

The rest of the system is hotly contested!

As you will know, we advocate a high level of nutrients with plenty of energy right from the start. There are lots of very good reasons to support this protocol. The Britannia system is highlighted and explained in full on our website - www.lakescot.co.uk/britannia/

That protocol weans calves at around 8 to 10 weeks. This is where many farmers have said that the growth rates check and they feel that the advantage of feeding lots of expensive calf milk replacer is lost!

With calf milk replacer prices being so high, early weaning looks more attractive and the calf creep manufacturers are extolling the abilities of their products to take up the slack and let the calves wean at say 6 weeks with no check in growth and a much lower cost.

Do you *really* believe that?

When we look at the objective of producing the optimum heifer replacement, we know that the key foundations are set in the first three weeks of life for potential and in the first 16 weeks of life for health and longevity.

The low levels of CMR and high levels of dry starter creep feeds will keep the calf growing but **not** give such a good foundation as the Britannia high level of CMR approach!

So, when you look at the extra costs of a better start to life as part of the whole life bigger picture, the extra investment at this stage pales into insignificance over the long term.

I am not saying that we should take that extra cost lightly because we need confidence that there really is a better payback for getting it right.

At this point I could list a whole lot of proofs and published peer reviewed trials to prove the case for the Britannia protocol as the optimum system. Next year we hope to release the next stage development of a new calf starter creep feed that has been specifically re-designed to help avoid any checks and strengthen the foundation nutrition and development of the young calf.

Raw Material Markets

Current Soya prices are hovering around £368 ex-port spot to £355 for Feb - April 22. It was £389 and £378 ex-port a year ago! Current Maize prices are also hovering around £252 ex-port spot to April 22. It was £205 ex-port a year ago! Current London Wheat Futures are around £231.50 ex store spot and £295.50 March 22 It was £192.25 and £191.50 ex store a year ago. Wheat futures have firmed considerably since June due to lower-than-expected harvest returns on the world markets although in the UK after some crop failure of winter wheat due to the wet autumn in 2020, we have generally seen a good harvest with spring cereals doing very well indeed.

Current Crude Protein Cost Comparisons of some Protein Sources Ex Port

	Price £	Dry Matter	Cost per	Energy	£ Cost per MJ	Protein	£ Cost per % CP	Average £ cost per	
	Per Tonne	%	Tonne DM	Mj/Kg DM	Per tonne D M	% DM	Per tonne D M	MJ & %CP /T DM	
De Hulled (Hipro) Soya Ext Meal	296	89	413.48	13.8	29.96	52.53	7.01	25.84	Late Nov
Argentinian Soya Ext Meal	220	89	0.00	13	0.00	42.4	0.00	0.00	
Lo Pro Soya Ext Meal	215	89	0.00	13	0.00	44	0.00	0.00	
Soypass	235	90	616.67	13.6	45.34	48	11.56	40.59	
NovaPro	155	88.5	431.64	13.1	32.95	34.83	10.97	33.47	delivered
Rapeseed Ext Meal	295	91	328.57	11.8	27.85	37	8.08	26.45	
Rapeseed Exp Meal	293	89	332.58	13.2	25.20	35.4	8.36	25.56	
Optigen	2000	99	2020.20	13.2	18.52	275	7.35	27.21	
Dry Wheat Grains	990	90	1100.00	13.5	81.48	34	9.64	55.68	
Dry Maize Grains	1050	90	1166.67	12.7	91.86	28	11.63	63.95	

Excludes @ £20 for delivered on farm prices give or take! Prices on 6th December 2021

Bullet Points

- **Early warning.** The milk powder markets continue to firm and we are seeing some farmers switching to whole milk for calves. All we would say is beware of the many pitfalls and that if you are thinking of changing your milk replacer, give us a call first because we may be able to help with the choice of product.

With the Britannia range, early ordering is advisable!

- **Silage additives**
Now is a good time to book next year's additive. You won't have to pay for it until after its delivered but if you book it now the price will effectively be frozen until late next year. Our own range of additives offer well proven products like the comprehensive multiple bacteria and multiple enzyme **F1 Evo** or the simple but effective **F1 Sprint** which works well in less challenging conditions.
- **F1 Yeast** has some more EFSA proofs to show its superiority to other strains. We will also be promoting **F1 Yeast** over the next few weeks because the approval now places this product as the top choice of any yeast supplement in the UK as we go to press. The web link is as follows: - www.lakescot.co.uk/f1-yeast/

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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