360°

news from
advanced nutrition
Winter 2015-16

Looking ahead to 2016

Welcome to our winter edition of 360. At the time of writing Northern England and Southern Scotland have just been battered with high winds and torrential rain thanks to storm Desmond with Appleby, Keswick, Kendal, Carlisle and Hawick - my home town - making the headlines as worst affected. I hope you all have survived intact and have recovered after the clean-up operation.

The other topic of conversation is inevitably the continued low milk price, or to be more accurate, the widening and continued disparity between the best and the worst milk contracts.

We at Advanced Nutrition are working hard with our customers to help mitigate some of the impact this is having. While it will be difficult to make up for the massive reduction in milk income, we can try to help in other areas where we can normally make efficiencies and maintain output while reducing costs and wastage.

As we go forward, you can rest assured that our milk buyers will keep asking us for higher and higher standards and will want to have more and more say into how we run our farms. We are better being ahead of that curve than behind it.

The articles in the following pages demonstrate that there are many areas of your business worth looking at in more depth. Hopefully, if we can start this work now, when the milk price does recover you will be much better placed to maximise your profitability going forward.

By looking at cow comfort, environment, feeding practices, rumen optimisation, forage making, calculating and managing costs we can save a valuable few pence per litre which will pay dividends going forward. If there is perhaps a silver lining to this particular black cloud it might be that it has encouraged us to look at how we manage our herds more efficiently.

Whatever happens next year, whenever the recovery comes, we need to be in the best position possible to capitalise on it and push our businesses forward.

If there is any more information you need once you have read this newsletter please don't hesitate to get in touch with us.

I would like to thank all of you for your continued support and custom. We all at Advanced Nutrition hope you had a Merry Christmas and a good New Year.

Ian Brown Managing Director

Also in this issue...

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Do you know your cost of production?

Ruminant Nutritionist, Mark Gorst, urges farmers to focus on production costs to help them understand the profitability of their business.

It's been suggested by the Royal Association of British Dairy Farmers (RABDF), that an estimated 60% of farmers don't know their cost of production. Do you really know your cost per litre? If you don't measure, how can you manage costs and understand the profitability of your business?

The RABDF have said it's vital to know what a milk buyer wants in terms of volume, profile and constituents. We also think that farmers should have a long-term plan to accurately budget income and expenditure. Figures also need to take into account family labour and the provision for retirement.

If you've not determined your costs on paper then why not introduce this five-point plan?

FIVE-POINT PLAN

- Identify what your current cost of production is.
- Set targets for your herd by variable cost grouping.
- Single out the variable costs that could be improved.
- Work with your vet and nutritionist to create a plan to improve.
- Monitor the results, make changes and monitor again.

Whilst we fully understand that each farm is unique and will have differing production costs, the following table (Figure 1), offers a rough costings guide to compare against. The figures are based on actual historical figures, which are then adjusted using changes in milk yields, concentrate usage and input prices. They are indicative of change and not aimed at giving absolute values.

Figure 1: Estimated typical rolling costs for 12 months ending June 2015
(published 25th August)

	Top 25% (ppl)	Bottom 25% (ppl)
Herd replacement costs	1.8	2.8
Total variable costs	12.5	15.0
Cash only fixed costs	8.7	12.0
Total cash cost of production	23.0	29.8
Full economic costs of production	11.7	17.7
Total full economic costs of production	26.0	35.5
% change in CoP compared with 2013/14	-6.7	-6.5

Source: ADHB

Data explained overleaf.

Note the following

The top and bottom 25% are ranked on net margin after total full economic costs of production.

Cash only fixed costs exclude unpaid family labour and depreciation. They include actual rent and finance costs.

Full economic fixed costs include value of unpaid family labour, depreciation, rental value of owner occupied land and imputed finance costs.

In the first instance, we recommend identifying which variable costs need to be brought back in line, as these could be your largest bottlenecks. If you take steps to rectify these first, they will have the biggest impact. After reviewing those costs there may be scope to improve feed efficiency, vet and medicines, which make up the lion's share of variable costs - approximately 60%.

Considerations for change

1. Feed
Reducing the cost of feed per tonne will reduce the cost of production but does this help margins for the long term? Possibly not, since it may result in the quality of the product being compromised.

When introducing bulky feeds such as draff, and brewers grains; ask if they will deliver a cost effective alternative to concentrates and forage? Also ask if forages are in good supply and quality and what are the bulky feeds being used for?

2. Home grown forages
Look to increase production from home grown forages. As we've already mentioned, if your forages are good quality and you have more than enough to fulfil your farm's requirements, there is a strong case to utilise these more effectively.

Gradually increasing the forage portion of the diet at the expense of concentrate will reduce the cost of the concentrate portion. For example, increasing the forage portion by 10% from 51% to 61%, then the concentrate feed rate will reduce by 0.07kg/l and margin improve by 1.1ppl.

If this exercise is done gradually then milk production should not be affected. There may be changes to the hard feed portion of the diet - protein and starch levels to ensure the diet stays in balance.

Alongside this, plan for the future by introducing an appropriate reseeding programme to ensure each ley is being used to its optimum production.

3. Vet and Medicines
Improve fertility by reducing your calving index. Reducing by 30 days will result in the equivalent of one extra milk cheque per year.

Improve mobility. If your cows have good locomotion they will eat more, an increase in DMI by 1kg per day should result in at least a 1 litre increase.

Reduce mastitis. Average mastitis cases are costing £191 per case or 2.3ppl for that cow's lactation.

Too often farmers are paying bills for vet and medicines without taking a step back to look at the root causes. Reducing the impact of unhealthy cows can have a significant impact on milk production.

Once you've started to monitor the true cost of production, then you'll be able to get a handle on your herd and start to understand the true profitability and potential of your business.

Our Ruminant Nutritionists are on hand with financial models to help determine your costs. They can also offer a Free Farm Evaluation to help you figure out those bottlenecks, so we can work together to improve efficiencies on your farm.

Please contact us on 01524 263 139 if you would like further information.

Rumisaf

Optimise feed efficiency through cow comfort and supplementation with live yeast...

With low milk prices set to continue through this winter and into next spring, optimising feed efficiency within dairy herds will be crucial if producers are going to maintain a margin over feed costs.

This article investigates how housing, herd management and Rumisaf supplementation can also help dairy producers optimise their milk returns from feed.

Cow housing

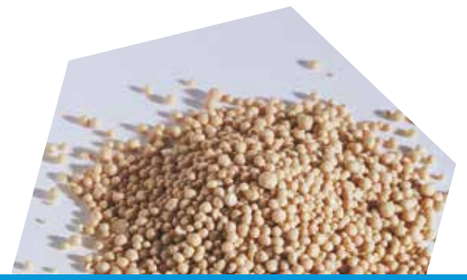
Poor cubicle comfort has a significant impact on herd performance, as cows will spend less time lying down chewing the cud. There is a clear positive correlation between longer cow lying times and milk yields as blood flow to the cow's udder increases the longer she stays lying down. Getting the length and width of cubicle beds right is therefore vital, and it will vary from breed to breed. Generally for a Holstein x Friesian, cubicles should be 2.43m long by 1.22m wide. If you have cows standing and perching with their front legs on a cubicle bed it is a good indication of poor comfort.

Overstocking is another issue, with overstocked sheds leading to bullying and stress, resulting in lower feed intakes and reduced milk yields. It is usually new members of the milking herd that suffer the most, particularly heifers. Buildings should ideally be stocked at 85 cows per 100 cubicles and each cow should be provided with at least 65cm of space at the feed barrier. A simple rule of thumb is to have 2 rows of cubicle beds per bay of head feed space.

It is important that feed barriers are set at the right height for different breeds, as barriers that are too low will deter cows from spending time at the feed barrier.

Adequate lighting of at least 200 lux for 16 hours of the day has been shown to aid dry matter intake and give milk yield responses. Good ventilation is also important to create a healthy housing environment. Shed design should ensure that fresh air is drawn in from the ventilated sides of the building and pushed up and out through an open ridge in the roof. This ensures that fresh air is constantly circulating through the building, reducing levels of condensation, increasing cow comfort and minimising the risk of pneumonia.

Keeping stressful activities to a minimum in the milking herd also contributes to optimal feed efficiency, as stress diverts energy away from milk production.



Monitor what your cows are telling you

Cows should be closely monitored to ensure that herd management is delivering the desired results, and creating an environment in which cows are producing the maximum amount of milk from feed intakes.

If you see cows lying down in their cubicles, chewing the cud, with strong, vigorous jaw movements for more than 10 hours per day then that is a good indication that diet and housing environment are correct. At any one point in time more than 60 per cent of the herd should be lying down ruminating in a cubicle bed, with all other cows eating or drinking water.

Monitoring dung consistency and composition will also help assess rumen performance. Undigested fibres and grains are indicative of inadequate rumen function, potential acidosis or poor cereal processing, all of which mean cows aren't getting the most from their feed.

Rumen fill can also be assessed by viewing the triangular area behind the last rib on the left hand side of a cow. When viewed from behind, this area should appear full, three to four hours after milking. Assume that if it is not, environmental factors or feed need to change to encourage better feed intakes.

Abrasions on a cow's hocks and legs can indicate poor cubicle design. Bald patches on the neck can signify a feed barrier that is too low and likely to be restricting feed intakes.

Rumisaf live yeast

Feeding for marginal litres is unlikely to provide a return on investment this winter, with the milk price to feed ratio being too close. However, supplementing feed with Rumisaf yeast will provide a good return on investment, with peer-reviewed research demonstrating that Rumisaf consistently improves feed intakes; stabilises rumen pH; and aids the prevention of acidosis - all of which will help improve feed efficiency.

Rumisaf has been proven to deliver up to three litres of extra milk in early lactation cows, and even if it were to provide only one extra litre, supplementation would still provide a 3:1 return on investment, based on current milk prices.

The rumen of a modern cow contains oxygen that is highly toxic to rumen microbes, particularly those that digest fibre. Rumisaf lowers the oxygen level in the rumen, allowing rumen microbes to grow and digest more fibre at a faster rate, aiding energy production.

Rumisaf stimulates these microbes to work harder and faster. This is beneficial for high yielding cows with high feed intakes, as rumen microbes do not normally have the time required to digest large intakes of feed properly.

Live yeast also helps to neutralise rumen acidity and maintain a stable rumen pH, thereby preventing acidosis. This rumen stability also aids feed transition, particularly when cows are initially housed off grass or changing between clamps of forage and other dietary ingredients. Feed efficiency is a complex subject that is influenced by a large range of interrelated factors.

Feed composition and consistency; good cow management; and careful observation are key management factors that will help to ensure that a herd maximises feed efficiency this winter. It is also worth feeding Rumisaf live yeast to maximise fibre digestion from forages, and promote a stable rumen environment, both of which are essential if optimal feed efficiency is to be attained.

Top five management tips to improve feed efficiency...

1. Have your forage analysed and balance the diet accordingly.
2. Don't overstock sheds and ensure adequate ventilation.
3. Ensure a minimum of 65cm of barrier feed space / cow.
4. Gradually introduce new feeds/clamps of forage - ideally over a 2 week period to minimise disruption.
5. Maintain consistency in the diet formulation and how it is mixed and fed.

When bad things happen to good cows

Mark, Debby, Richard, Derek and Eoghan hosted a series of thought-provoking meetings in Scotland and Cumbria with Dr Dana Tomlinson, Research Nutritionist from Zinpro.

We had over 80 farmers in attendance and everyone went away with a new outlook on problems affecting productivity. More importantly they left with practical action points to solve them!

For those unable to attend, Richard Bainbridge gives us an overview of the Cumbria meeting.

Farm Meeting

Thank you to M & K Chippendale who hosted the Farm Meeting during the day in Cumbria. It wasn't the best of weather but we had a good turn out!

The meeting highlighted the relationship between immune function and cattle lameness. However, before we even talked about lame cows, Dr Tomlinson took us on a journey to show how the causes of lameness can be linked back to a series of events in the cow's life. He demonstrated how a cow that was born "good", could very quickly turn into a poor milk producer through a series of small events compounding problems, resulting in lameness and low productivity.

Dr Tomlinson talked about the importance of taking the time to observe your cows and we spent a couple of hours assessing the cow's environment, highlighting what can affect a cow's behaviour and the resultant impact on productivity. The cow's environment and cow comfort is just part of the picture but there's plenty that can be done to help the herd for little or no cost. Here's just a handful of tips we gathered:-

Lighting

A dairy cow will be most efficient in terms of feed intake and bulling activity when given 16 hours of day light a day. So, where possible, replace old sky lights or add artificial lighting to the cowshed.

Ventilation

The two cheapest things you can give a cow are air and light so use them to your advantage! Open up buildings to allow free airflow. Consider putting fans in the close up dry cow pen. Research has shown this will increase production in the coming lactation. This is most likely due to increased DMI and / or cow comfort.

Evening Meeting

At the evening meeting Dr Tomlinson talked about the importance of supporting a healthy immune system, not just through the cow's environment but also nutrition. We've highlighted some of the key points below:-

- Trace minerals may seem insignificant but they are key to making metabolic systems run effectively.
- Performance response begins at the lining of the gut, so keeping this as healthy as possible will positively impact on efficiency and profitability.
- Try looking at a bespoke mineral on farm, so you're not over or underfeeding costly minerals and vitamins.
- Look at the importance of some key elements to see if they are related to any issues on your farm

1. Zinc is important for skin integrity including mammary tissue, hoof quality, foot lesions, reproduction and lungs.
2. Manganese-Macrophage has a killing ability to aid immunity and lower SCC.
3. Cobalt helps vitamin B12 production to improve the cow's energy levels.
4. Selenium helps with cellular immunity and cell production.

If you'd like to discuss any of these nutritional tips or find out more about the prevention of lameness, please contact the office.

Are you optimising your TMR?

Joe Adams, on placement with us from Harper Adams University, discusses how a TMR audit could benefit your herd's productivity.

Everyone knows cows like routine for milking and feeding times, so why should the ration you put in front of them be any different? The aim of the total mixed ration is for every mouthful to include the correct balance of nutrients, calculated by your nutritionist. If this is unbalanced in any way it means your cows will not be reaching their full potential. To ensure your cows are getting the same mouthful every time we carry out a TMR audit.

How can the TMR audit benefit you?

There are 3 main benefits to the farmer by looking closer at their TMR presentation:-

1. **Increased intakes**
   - Increasing intakes will improve milk produced from forage and overall yield.
2. **Reduced risk of Sub Acute Ruminal Acidosis (SARA)**
   - Minimising sorting and making every mouthful the same for the cow means the diet formulated should maintain the rumen pH.
   - By manipulating the fibre length we can still keep the 'scratch factor' for buffering the rumen pH.
   - Alterations to the presentation of the TMR for no extra cost could save you the cost of SARA at £300/cow.
3. **Milk solids**
   - As more milk contracts are becoming orientated around milk solids, increasing fat % in milk has become a focus for many.
   - Why add a poor ME straw or hay to the diet to increase fat when you could keep a higher ME grass silage in the diet and still increase fat %?

The TMR audit looks at everything involved in feeding from clamp face management, loading the wagon through to assessing the particle size of the diet.

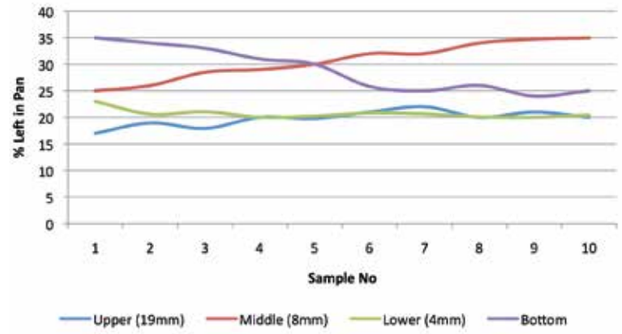
The particle size of the diet is a major factor in the performance of a cow; by feeding smaller particle sizes we put the cow at risk of acidosis. On the other hand, having the particles too big reduces intakes and increases the risk of sorting, again leading to inconsistent dung and risk of acidosis. Both of these scenarios end in reduced yield and unhealthy cows, so lets look for a happy medium where the cows get the fibre to increase cudding with 'scratch factor', but small enough particles to allow a higher rate of passage and increased intakes. This will drive yields.

From the results of the TMR audit, recommendations may include changes to the loading order, mixing time and load size. The report may advise parts to be replaced in the wagon for more effective mixing. Another suggestion could be as simple as how centrally the feeder is loaded. The graph (Figure 1), shows the effect of filling concentrate too far towards the front. The lines on the graph for the bottom pan and middle sieve cross over showing the first half of the trough has smaller particles compared to the second half - meaning half the cows will get more concentrate than the others.

The idea of increasing your margins by making small changes to your daily routine is very appealing, why wouldn't it be? A TMR audit is a cheap way to get more milk and healthier cows. If you feel your TMR presentation isn't as good as it could be please get in contact with us.

Figure 1

Consistancy of % left in pan thoughout trough length



Get out what we put in

Advanced Fusion is a new concept in blended micro ingredients, consistently delivering the correct balance of nutrients to every cow in your herd.

Our blended micro ingredients makes sure **every one** of your cows is getting the right balance of feed - maximising intakes, increasing yields and reducing labour costs!

James Pattinson, from Walby Farm in Cumbria, uses Advanced Fusion to provide the right nutrition to his 400 milking cows.

"Before using Advanced Fusion, we were adding fats, minerals and mycotoxin binders from small bags to our mix and putting them into a bucket by hand. We'd then need to mix and measure out, which took a lot of time in the morning. So, the biggest benefit of using Fusion has been the time saving. We're simply not having to mix on a daily basis - it's worked for us which saves on labour costs too. Using the large tote bags means we've no rubbish left to get rid of. Fusion provides us with a consistent mix and we can change ingredients as we need, to improve milk quality. We've been able to use a cheaper fat and and our fertility has improved as we've introduced Novatan to the mix."

Silage Additives

As the year comes to an end and all the silage is in, I took the opportunity to look at Advanced Nutrition's grass silage analysis results over 2015, focussing on the impacts of using a silage additive. On average dry matter, energy, protein and digestibility were all higher when using Sil-All^{4X4+} compared to average results as shown in Table 1.

Table 1	Average Result	Sil-All^{4X4+} Treated
DM (%)	30.62	31.82
ME (MJ/Kg DM)	10.85	10.98
Protein (%)	14.42	15.05
D Value (%)	67.85	68.68
pH	4.10	4.05

Table 1. Average analysis results over all Advanced Nutrition silages compared to average Sil-All^{4X4+} results.

These may look like small differences but by looking at the economics we see a huge benefit by using an additive like Sil-All^{4X4+} to increase the potential of silage.

By using Sil-All^{4X4+} on a 1000 tonne clamp, it will save an additional 12 tonnes of dry matter (DM) and have higher nutritional values. Focussing on the DM and energy, the clamp will have an extra 171,566 MJ of energy equating to 32,993 litres of milk, which, based on a 24ppl milk price and subtracting the additive treatment cost will make £6,600 more than if Sil-All^{4X4+} had not been used. This also doesn't take into consideration the benefits of the additional protein, digestibility, the lower pH value of the silage, or the reduction in dry matter losses during fermentation.

There's a lot of time and effort put into the silage making process to improve quality. This can be enhanced even more by the use of a silage additive which has proven to increase production and efficiency, leading to higher margins.

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