



news from
advanced nutrition
Winter 2018/19

Whatever the Weather

Welcome to the winter issue of our 360 Newsletter.

As we try and recover from one of the driest summers on record, not just in the UK but in most of Europe, we are crossing our fingers and hoping for the best this winter. Everyone's wondering just what concoction of variables will be thrown at us next?!

Unfortunately, **"the weather"** is just another one of the uncontrollable variables we're faced with, like world economics, politics and milk price - they have a massive impact on our costs but we have relatively no power over them.

Rest assured, whatever happens this coming year, we all need to be in the best position to capitalise on the opportunities and maximise our profitability going forward. The team at Advanced Nutrition have worked tirelessly with our customers to try and mitigate some of these variables to have a positive effect on their businesses.

We major on using science and innovation, and our business prides itself on maximising the potential from every farm we deal with by looking at all the key components we can influence.

Every farm situation is different, but we follow the same set of principles when carrying out initial assessments. We focus on **cow comfort, environment, forage making, feed practices and rumen optimisation.**

All of these components taken in isolation, or collectively, have the potential to save you money and give you a greater return on your investment. We have a strong team at Advanced Nutrition, with a wide range of skill sets, working closely together with each other and, in turn with our customers. We set out clear and strong objectives to help achieve business goals. This helps us add more

value to your business and lays down the foundation for longer term success.

In this winter's newsletter, we look at some of the most recent customer success stories, highlighting our best practice principles. We also provide some initial winter feeding advice and report on the recent and very successful "Robot Farm Meetings" held in Cheshire and Cumbria over the last few months.

If you feel there's an opportunity for us to help drive your business forward then please don't hesitate to get in touch.

Grant Spittal, Commercial Manager

Christmas and New Year Office Opening Times



| | |
|----------------|---------------|
| Christmas Day | CLOSED |
| Boxing Day | CLOSED |
| 27th December | 08:30 - 12:30 |
| 28th December | 08:30 - 12:30 |
| 31st December | 08:30 - 12:30 |
| New Year's Day | CLOSED |

Normal hours return

| | |
|------------------|---------------|
| 2nd January 2019 | 08:00 - 17:00 |
|------------------|---------------|



**Robot
Productivity**



**Milk
Components**



**Winter
Challenges**



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Attention to detail drives robot productivity

David Howard reports on a series of farm meetings from our Advanced Robot Programme.



“Driving visits is the key to productivity in robot systems.”

With that focus, we recently organised workshops in Cheshire and Cumbria with guest speakers - Dr Adam Geiger from the Zinpro Corporation and Dr Nick Bell who specialises in lameness prevention, as well as Eoghan Mullery and myself, Ruminant Nutritionists from our Robot Division.

On the second of these meetings we visited the Harrison family at Dundraw Farm, Wigton, Cumbria where we introduced the Advanced Robot concept which balances **robot settings, nutrition and farm management**. While no two robot systems are identical, we used the farm as a case study demonstrating clear messages about management to increase visits. On a typical system the target should be a minimum of three visits per day; robotic technology should comfortably match or exceed a three times a day milking system.

Feeding Balance

How we manage the feeding around robots can have a big impact on visits, so getting the balance between the TMR and the feed through the robot is crucial. If we set the outside diet too low, it will be difficult for high yielders to achieve adequate total daily intakes. Equally if it is too high, we can make stale cows lazy with visits dropping away. Furthermore, setting the outside ration level depends on a number of issues and this year forage quantity and quality will be major considerations.

Typically, for a herd averaging 30 litres per day, farmers should be looking to set the outside ration at 5-7 litres below this. For higher yielding herds, say over 35 litres average where a significant number of cows will be averaging 50-60 litres, a different set of parameters can be used. There is more scope to feed less in the base TMR on the condition that the robot concentrate is well balanced and visit behaviour allows for high concentrate intake. We often see the TMR set to 10-12 litres below the average and this can work successfully.

Another crucial question is where to set the initial level of concentrates fed through the robot. A major consideration is cows milked through robotic systems hit peak yields sooner than parlour milked cows at around 40 days. In our experience, many systems set the initial available feed too low. In parlour systems the starting rate is commonly 2-3kg/milking so 6kg/day, but in robots we often see a start rate of 3kg/day.

If we need to feed to an early peak and can, best practice is to increase at 1kg/day; if you start too low you will be unable to build up quickly enough. For a 35 ltr herd average we would be working on starting cows on 4-6kg/day building to 11kg on day 14 and 13kg by day 21.

Building to a minimum of 12kg can be achieved as early as 14 days in milk or up to 21 days on milk depending on limiting factors such as cow health, particularly lameness. These totals will be similar to conventional milked herds but by being fed over more visits we can influence rumen health.

The key to success is to consider the balance between health, nutrition and robot settings to achieve your goals.



Foot Health

Irrespective of the feeding regime, cows must be able to get to the robots. Dr Adam Geiger from Zinpro explained that fundamental to maximising productivity from these systems is to minimise problems with foot health.

“Robotically milked cows have more free time. To optimise the output of robots this released time needs to be spent eating, lying down and voluntarily going to be milked, all of which will not happen if cows are lame. Cows have to spend a proportion of the day on their feet eating, walking to the robot and socially interacting but we need to reduce the unnecessary time they spend standing to reduce lameness risk, and central to this is cubicle comfort.”

Cubicles need to be the correct size for the cow with sufficient lunging room. They must want to use them - this means comfortable bedding.

The way slurry is managed can also impact on lameness. In line with labour reduction objectives, robotic units often have automatic scrapers. These systems can lead to inferior foot hygiene as deep manure pools accumulate near the scraper.

This point was picked up by Veterinary Consultant Dr Nick Bell.

“By the time a cow is visibly lame the damage has been done. The penalties for lameness in robot herds are magnified.”

He advises routine trimming and foot bathing as two major components in ensuring good foot health. He says footbath protocol and placement offer a major challenge on robotic units. A particular challenge with robotic systems is that cows can visit the bath multiple times per day of their own accord, which means you need to pay careful attention to solution concentrations. If the solution is strong and cows are using the footbath three times a day there will be a risk of formalin burn. Equally problematic, if frequent visits mean the concentration drops, the solution may not be strong enough to disinfect effectively.

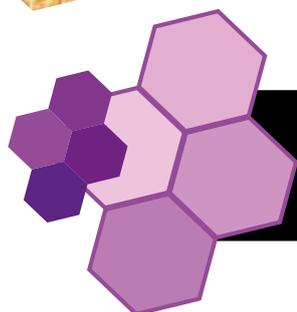


Dr Bell discussed the need to identify a location which will not impair visits, makes the bath easy to maintain, and allows a correctly sized footbath. Ideally, the footbath should be incorporated in a way that does not impair cow flow through the robot.

Prevention of lameness has its foundations before animals even enter the herd. Due to the many difficulties associated with controlling lameness in robotic herds, Dr Geiger recommends taking steps to increase hoof health and strength early, starting in growing heifers. Availa®Plus is a mineral supplement containing unique organic sources of zinc, manganese, copper, as well as high quality inorganic sources of iodine.

When fed to cattle at the recommended feeding rate Availa®Plus has been shown to reduce the incidences and severity of lameness in heifers and milking cows.

“Minimising lameness in robotically milked herds is just as critical as in other facilities, but due to the unique nature of these systems it may be more difficult. Ensuring comfortable bedding, reducing the time spent standing in slurry, regular foot bathing and the prevention of lameness in the rearing phase through the use of nutritional feed additives such as Availa®Plus will all help keep lameness at bay in robotically milked cows.”



If you'd like to find out more from the series of talks, the guest speakers' notes are available on request. Please contact
t: 015242 63139 / e: robot@arn-ltd.com

Making Successful Changes

Eoghan discusses the key considerations when preparing for robots.

Over the past ten years, Advanced Robot has seen a significant shift of customers moving from parlour systems onto robotic milking systems. We've gained lots of experience working with our clients through this period of change. Whether it's been 2 or 3 times a day milking systems, moving to retro-fit robots or building a brand new shed, the Advanced Robot team have learned a lot. We know the likely pitfalls with diets, robot access, how to increase visits etc...

So, what are the key areas to concentrate on when moving from a parlour onto robots?

The Cow

Start to think about what the cow will be going through, what will change for her day to day routine? Cows are creatures of habit and we're about to change that habit, so anything we can do to make the transition easier will help! Think about change in stages:-

1. The Long Term

The single biggest change for a cow moving onto robots is she's no longer 'herded' into a parlour collect yard. To effectively milk 'voluntarily' she will need to be confident on her feet. If she's not, she simply won't put herself in an unfamiliar situation - meaning no visits and no milk! Digital dermatitis and/or lameness have been shown to dramatically reduce cow visits. An effective digital dermatitis control plan should be implemented pre robots, with a lower tolerance level accepted compared to a parlour herd. Consideration should also be given to mineralisation, as this is an effective way to improve foot health. Advanced Robot have worked closely with our partners at Zinpro to create a 'robot' specification mineral.

2. The Short Term

If concentrate is fed in the existing parlour, good practice would be to switch the cows onto the robot concentrate before moving.

The Shed

Creating a calm environment will help with the transition. Well lit areas, especially around the robots, helps to keep cows calm and any nervous cows will start to associate the robot area with safety, removing

some of the apprehension in approaching it. It's worth considering that too many obstructions can have a negative affect on visits. However, insufficient or 'temporary' gating can be a disaster. Cows don't always react in the way we want them to, they can be stubborn, often going in the wrong direction!

A good gating system, whether that is automatic raise and drop gates, swing over or side hung, will keep cows calm. These 'collect pens' should be easy to work and ideally be a one man operation.

The Farm Team

I've been lucky enough to be involved in many robot set ups and the single most important element to success is often not the cows, or the robots - it's the people operating them!

Simply put - calm people lead to calm cows. We tend to find that one week into a robot start up is generally when the tiredness kicks in and cows can sense when an operator's patience starts to wear thin. So, no sticks or loud voices and regular staff changes can make life easier for man and cow!

Once the robots are ready for commissioning, we start to implement the associated aspects of the Advanced Robot triangle.

Nutrition

We can help formulate a balanced ration at the trough and a rumen friendly high energy nut.

Robot Settings

In the early stages the robots are set to allow the cows to milk frequently with a fixed amount of feeding per visit - a training phase. These settings will need to be constantly monitored and reviewed.

Health & Management

It's now that we will reap the benefit from implementing the considerations above in the build-up to robot start up day.



If you're making or have made the transition onto robots, why not get in touch?
t: 015242 63139 / e: robot@arn-ltd.com

Milk Components

Bryn Davies explains the factors affecting milk components and why we need to get a handle on this crucial information.



Understanding milk component levels is an essential part of herd management. Not only are they indicators of cow health and nutrition, but component levels can directly impact farm income. It's therefore important to understand how we can maximise all milk contracts that are payment based on kilogrammes of milk solids.

Unfortunately, our predominant breed Holsteins, have the lowest fat and protein % content, currently the breed average is 8871kgs @ 630kgs milk solids, (3.92% F & 3.18% P). **Thinking strategically, maybe we need to be considering the use of the Jersey cow more?** This breed is currently producing 5962kgs @ 549kgs milk solids, (5.6%F & 3.6%P), but with more scope to increase.

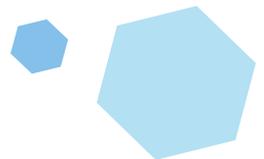
Within each dairy breed, genetics and inheritance account for 55% of the difference between cows in protein and fat content of milk. The higher the milk yield of the breed the higher the fat and protein levels are in kg. However, when milk yield increases the percentage of fat and protein levels drop. With these percentages being more heritable than yield of milk and components, we can see that the industry wide use of high yield sires has led to only a modest increase in fat and protein percentage over time.

Of all the factors affecting milk composition, nutrition and feeding practices are most likely to cause problems. Management changes can lead to quick and dramatic results of fat and protein. Milk fat depression can be alleviated within 7-21 days by changing the diet. Milk protein changes however, may take 21 – 45 days or longer if the problem has been significant and over a long period.

Rumen function has a major part to play in supplying adequate energy, protein and balanced amounts of rapidly fermentable carbohydrate and effective fibre; all of which are vital in maintaining optimum levels of milk components. The challenge in feeding for milk components is that high energy, low fibre diets that increase milk protein are likely to reduce fat levels!

On top of this there are many other factors that will contribute to affecting milk components:

- Feed Management
- Cow Condition
- Energy Intake/Density
- Deficiency of Crude Protein
- Concentrate Intake
- Forage Level and Physical Form
- Added Fat



Feeding a balanced ration that meets the chemical and physical needs of the cow is underpinned by key management practices. These include regular forage tests for energy, minerals and protein, as well as TMR audits which help to evaluate forage and TMR particle size. Milk recordings to track component yields and problems, along with body condition scoring to evaluate the success of nutritional programmes are also commonly used.

The team at Advanced Nutrition can help evaluate your milk recordings to add value to your output.



For more information, please contact Bryn Davies on:
t: 015242 63139 / e: office@arn-ltd.com

Jobs for the Winter

As autumn comes to a close and the days get shorter, we look ahead to the winter to provide you with some hints and tips to maximise the health of your herd.

1. Do you have adequate lighting?

- Why not download a lux light meter app for your smart phone to establish levels of lighting in your buildings?
- Cows need 16 hours of at least 200 lux and about 8 hours of <50 lux.
- Make sure feeding areas, water troughs and lanes are well lit and that lighting doesn't produce shadowy areas or light reflective surfaces.
- Timing lights to come on prior to stockmen arriving can aid heat detection with cows being up and active.



2. Have you done a forage analysis?

- Forage analysis will change throughout winter as clamps continue to ferment and different fields and cuts are reached.
- Analyse forage when any sign of change is detected.



3. Do you need to repair damaged grassland?

- Check for compacted soils after prolonged rain as these soils make it difficult for plant roots to access oxygen.
- Check for leaching of key soil nutrients by taking soil samples.
- Soils should be between a pH6 – 6.5 for grass and clover ley.

4. How's your heifer rearing?

- If you feel cold, then your calves are feeling cold too! Calf jackets keep calves warm so they have more energy for growth and to fight infection.
- Provide plenty of fresh clean bedding for effective insulation to reduce body heat loss.
- On very cold days, mix milk slightly warmer than 38°C to allow for cooling before the milk is fed.

For more hints and tips throughout the winter, follow us on Twitter [@arn_home](#) [#ARNWinterJobs](#)

Visit our new mobile friendly website at www.arn-ltd.com You can also sign up to our email newsletters at the footer of our homepage.



Challenges Coming into Winter 2018/19

Mark Gorst, Ruminant Nutritionist.

2018 has been an interesting year for the dairy sector. Spring saw an opportunity for early cropping of grass, followed by the drought period which challenged not just the growth of grass, but also stressed the cereal and maize crops.

The later summer rain was a benefit for some, with an abundance of grass in mid to late August. For other areas the prolonged dry period added further complications to the quality and quantity of forage that has been grown and subsequently harvested.

Forage has not been the only challenge this summer, heat stress has also been an issue and has knock on effects coming into winter.

What are the feeding challenges we face this winter?

The key component in all dairy diets is forage. As I have already eluded, quality and quantity across all forage types has been a challenge this summer. A consistent quality source of grass silage is an essential part to any base diet I would put together.

Dry and lower energy second and some third cut grass silages have put a spoke in the wheel in achieving a high ME forage base for the diets.

A second forage has been a benefit to some farms. Maize was early this year and crop quantities in most areas have been reasonable. This additional forage, in some cases has helped bring the energy density of the diet to an acceptable level to encourage an increase in milk.

Due to the drought this summer, as you know, feed raw material prices have increased significantly. Coupled with a shortage of lower energy forage, some farm blends may have seen an increased level of higher energy products to assist in making up the energy shortfall.

The oil levels of these type of products need to be taken into account. If this type of raw material is added at a much higher rate than normal this may impact on milk quality by depressing the fat level.

Feed Challenges this Winter

- Forage – quality and quantity
- Raw materials – ensuring +ve impact on yields
- Managing the energy density of the diet

There are other challenges that we come across that can affect the performance of a milking herd this winter. The weather has, and in some areas, is still acceptable for cows to be outside.

Leaving cows at grass too long can have a negative impact on performance. Lower energy grass results in less overall energy being consumed. This results in less milk being produced and in some cases body condition loss.

Dry Cows are often forgotten especially in late summer and when they calve they're expected to get on and produce the milk, as well as get back in calf. I think it is worth investing in this group as they provide the cornerstone of the winter milking herd. If managed correctly they will give the reward throughout the winter months.

Lameness - Simply if a cow is struggling to walk effectively there will be no motivation for her to make it to the trough to feed. Reduced intake means less yield and possibly a deterioration in her body condition. I'd suggest reviewing the foot trimming and foot bathing policy to reduce lameness incidence across the herd.

Shed Design - Housing for the herd is important, cows respond to having enough air, water and light. A lower than acceptable feed rail has an impact on intake and therefore performance.

We have to remember that each farm and herd is unique, they all have their own bottlenecks, some are easily resolved, others require compromising to manage them. The points I have highlighted are only a few that will have an effect on herd performance this winter.

If you would like your herd reviewing please get in touch. Our aim at Advanced Nutrition is to optimise the performance of the herds we work with.



**For more information, please contact Mark Gorst on:
m: 07880 794004 / e: mark@arn-ltd.com**

TRANSITION ENERGY

Power through the dry period to enhance performance for a lifetime.



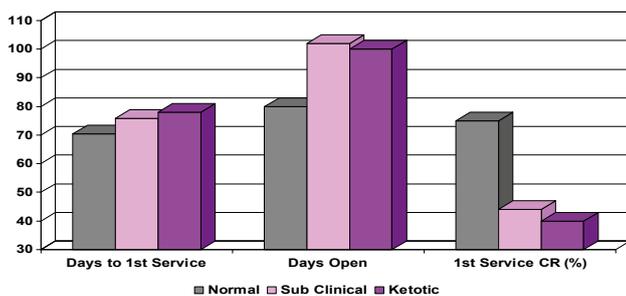
Satisfying the nutritional requirements of the high producing dairy cow can be a major challenge, particularly around calving. Immediately prior to calving and throughout the first few weeks of lactation, dry matter intakes often decrease. As a result feed intake, in early lactation is typically insufficient to match the increasing energy demands, and the high producing dairy cow comes in to negative energy balance. In an attempt to correct this imbalance the cow starts to mobilise body fat reserves, turning them into glucose via the liver.

This can result in fatty liver syndrome and ketosis. Furthermore, negative energy balance is the primary cause of declining fertility and reproductive performance in the UK dairy herd.

Transition Energy - A high energy liquid blend for close-up dry cows and fresh calvers

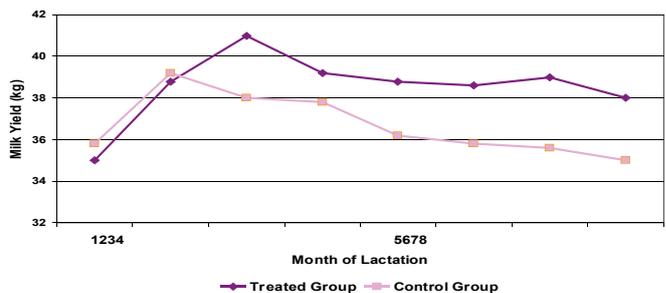
- Contains glucose precursors
- Helps prevent negative energy balance
- Reduces risk of fatty liver and ketosis
- Improves fertility responses in early lactation

Effect of negative energy balance on fertility



The graph above shows the effect of ketosis both clinical and sub clinical on fertility. Days to first service, days open and 1st service conception rate are greatly affected.

Effect of supplementing propylene glycol on milk yield



Milk yield on the trial displayed above was greater than 2.5KG on average per day greater than the control or 488KG over the lactation.



Feeding

Suitable for top dressing TMRs or out of parlour feeds, Transition Energy can also be added to drinking water at 0.5 - 1% inclusion.

- Close up dry cows: 300ml/cow per day
- Post calving (up to 28 days): 250ml/cow per day