AGRICULTURE

Dairy Bulletin

Edition 3

Bumper edition including Youngstock

Inside this issue

TOP TIPS for successful mobility scoring on-farm

Lameness remains one of the costliest challenges facing dairy herds, costing an average of £350 per case. However, that figure can be reduced significantly by detecting and treating it early. Prevention is always better than cure, and mobility scoring plays a critical role as it allows farmers to promptly identify cows that would benefit from treatment.

Specialist dairy vet, Owen Atkinson from Dairy Veterinary Consultancy, gives his top 5 tips to successful mobility scoring:

1) Be trained

Whether you have been farming for 50 years or are fresh out of college, you can't presume that you know how to mobility score unless you're properly trained. To prevent severe lameness cases by treating those cows who are starting to become lame in the early stages, you need to be able to confidently use the AHDB mobility scoring 0, 1, 2, 3 scale. Training provides you with a good understanding of the scale, so it can be implemented correctly.

It's common for farmers, vets, and foot trimmers to be able to identify the hopping lame cows, that are score 3, but often, there's confusion between score 2 and 3 cows, and what a score 1 case actually looks like. This differentiation is vital if you want to get on top of the issue and implement early effective treatment.

Look out for local mobility scoring training! It is advocated and encouraged that all those working with the cows take part. This allows everyone to be on the same page when it comes to identifying the level of lameness on farm.

2) Use an independent and accredited mobility scorer from time-to-time

When you are working with your cows every day, it can be difficult to notice minor changes to the level of lameness in each individual case. The use of an independent scorer from time to time offers a fresh set of eyes, and they are often more critical to detect the more mild lameness cases than you may be with your own cows.

See it as a useful refresher too, an independent person can allow you to re-calibrate your own scoring. Independent scorers should be trained and annually accredited with the Register of Mobility Scorers. See www.RoMS.org.uk for further information.

3) Allow cows to walk at their own speed

Farmers often ask about when is the best time to mobility score or say that they don't have the time to incorporate it into their weekly routine.

To accurately score, cows need to be walking at their own pace, so the best time to do so is often when they are leaving the parlour or walking back up the tracks to the fields, or to be milked. This way, the scoring can become part of the milking routine. Dedicating time to mobility scoring is important, in a similar way to how many herds treat heat detection.

4) Ensure scoring is done frequently

Mobility scoring should be done regularly. To detect any new mild cases, it is important to score every two weeks so that effective treatment can be promptly given. Aim to have an independent scorer every three to six months to monitor the whole herd so that you can review that you're capturing and monitoring all score 2 and 3 cases.

5) Treatment

It's important that you have the resources available on farm to promptly treat all lameness cases. This has been proven to reduce the number of reoccurring incidences and is known as EDPET (Early Detection, Prompt Effective Treatment), one of the four strands of the AHDB Healthy Feet Programme.

Make sure you have the facilities to be able to pick up cows' feet to treat. A good cattle crush should mean that it takes one person one minute to get one cow into the crush to safely pick up the hoof to see the root cause of the lameness.

If the case is digital dermatitis, thorough cleaning of the lesion and application of a licensed antibacterial spray without a bandage is generally the recommended treatment. Regular foot bathing is useful for control.

For claw horn lesions, such as sole bruising, sole ulcers and white line disease, research indicates that administering a course of NSAID injections, for example, ketoprofen, along with corrective trimming of the hoof and application of a hoof block, can significantly speed up recovery rates and reduce the chances of the cow becoming lame again in the future.

It's important to then record the treatment and score of each cow so that you can monitor cases to see that the treatment and your foot health measures are working.

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Grazing
learn and adapt!

By Adam Clay, NWF Head of Technical

A relatively mild winter and some dry hot weather in March have provided some healthy grazing covers, and whilst a cold snap has slowed growth, the opportunity for a good turnout will be a welcome relief for many systems.

Despite the seasonal variation, the same issues arise, and these must be managed early to drive performance at grass.

Early season pastures (previous season results to right) are often dryer than expected, which is great news for intakes, the higher proteins could drive up milk urea's, but the real concern is rumen health and milk fats.

	2021		
	Early	Mid	Late
Dry Matter (%)	21.20	19.30	17.36
Crude Protein (%)	23.17	20.54	24.24
ME MJ/kg	12.53	11.27	11.52
Sugars (% DM)	12.92	11.01	5.77
NDF (%)	36.26	45.52	50.48
ADF (%)	18.86	24.63	26.42
OIL A (%)	3.94	3.55	4.42
Rapid Carbs	214.37	180.83	122.75
Total Carbs	461.32	449.91	411.48
Rapid Protein	64.85	53.56	66.53
Total Protein	171.72	139.44	172.99
Acid Load	46.13	38.87	31.70

(Source: Trouw Nutrition)

Fresh grass is of fantastic quality and if last season's early ME levels of 12.53MJ/kg DM are repeated this year then, utilising this will be key. But ME is a prediction and can only be achieved when rumen function is optimal, and the feed is held in the rumen long enough to be broken down. Last year's sugars, rapidly degradable carbs and acid load are all high, so supplementation must reflect this, and it must be done early to prevent rather than cure.

At grass, healthy rumen function and reducing the inevitable butterfat drop are focused around 4 key areas.

1. Fibre quantity and rumen pH – Grass of course contains fibre, but additional fibre through supplementation may still be required to provide enough nutrients for rumen bacteria. Butterfat producing bacteria require fibre but they also require a higher rumen pH and time to break the nutrients down.

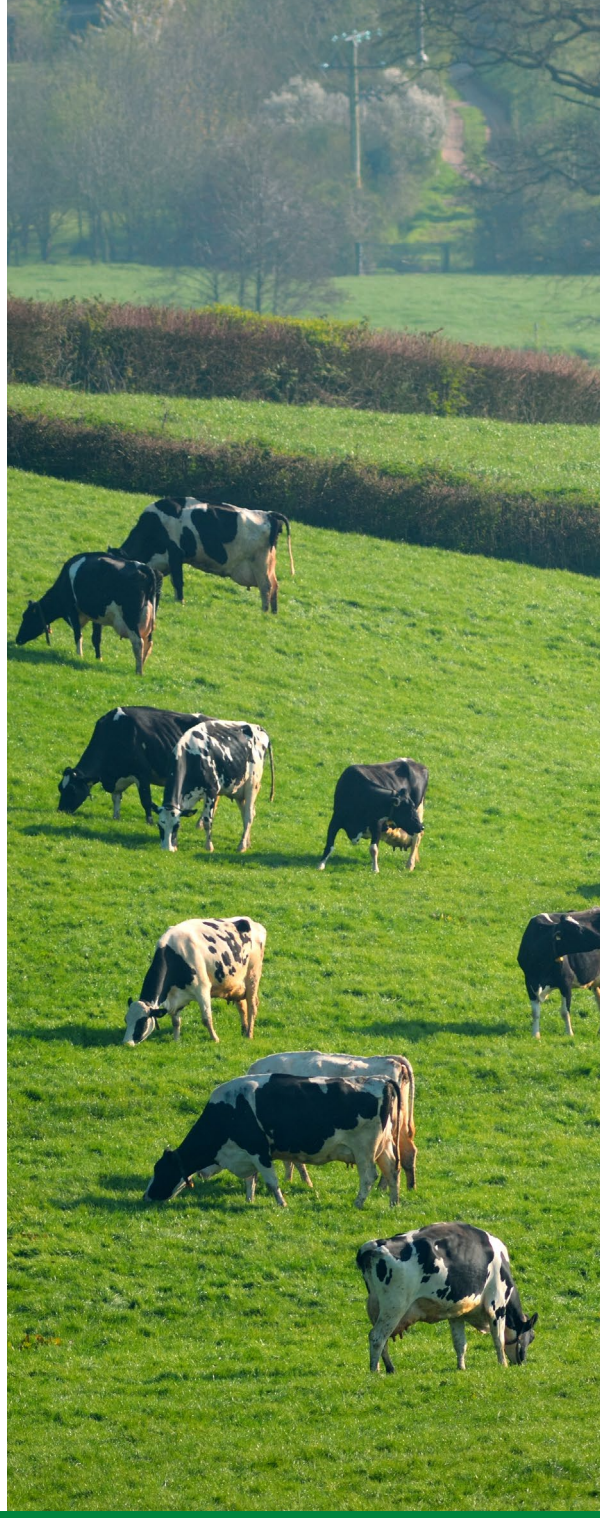
2. Rumen retention time – Similar to the note above, bacteria need enough time to digest the nutrients and create the relevant acids. Cows will often have loose dung at grass but if this gets excessively loose then butterfats and milk yield will be challenged. Again, managing fibre intake and rumen pH will be essential.

3. Oil – The type of oil supplied in the grass is high quality, good for yields and fertility but acts negatively against milk fats. There is little that can be done about this but be aware of other oil supplements or feeds high in oil that may exacerbate the problem.

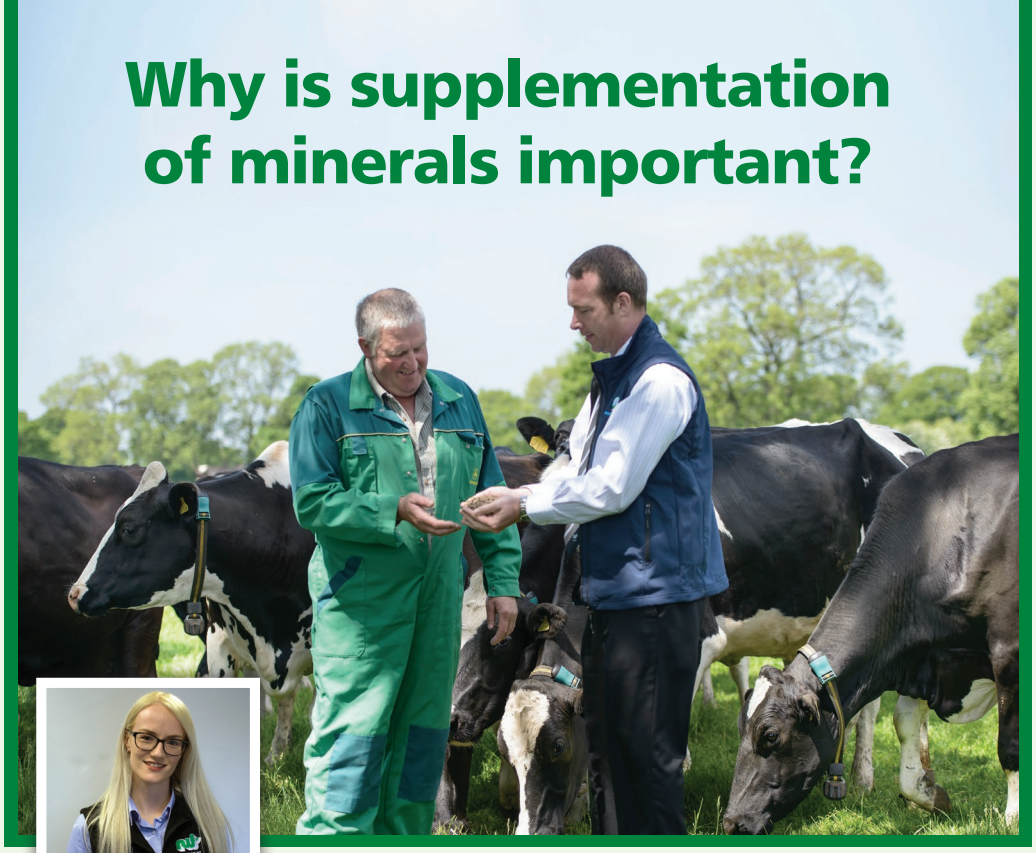
4. Heat Stress – It happens every year and has a material effect on our stock. Ensuring energy intakes remain high will help but buffering the rumen to a higher level than normal is required. This will reduce stress, but it must be applied early and now is that time.

Summary

Early season grazing can only be utilised by a healthy rumen and stress-free cow, which is achieved by balancing the diet before the event occurs. NWF Agriculture through experience and research can offer the correct solution to drive productivity this season.



Why is supplementation of minerals important?



By Abbi England, NWF Technical Manager

As dairy cows are out at grass or due to be turned out it is important to remember that grazed grass is a variable source of minerals, with levels directly dependent on the mineral content of soils. Typically, some levels will be in short supply giving rise to potential deficiencies whilst others can be present at high levels and cause issues with antagonism. A deficiency or oversupply of any mineral will potentially compromise a number of metabolic functions and reduce performance from grazing. Therefore, it is vital to ensure correct levels are fed, with consideration of the different types of supplementations and which best suits individual farms and systems.

Types of Supplementation:

Supplementation of minerals can occur in various forms.

- Free access minerals or free access mineralised buckets depend upon voluntary intake. As a result, it is important that enough minerals are provided per head of stock and intakes must be monitored.
- The supplementation of in-feed minerals requires cows to have access to forage or TMR at points during the day. With this approach it is important that ample time and adequate headspace is provided, ensuring all cows receive sufficient mineral intakes.
- When supplementing with compound feed, it is important to consider appropriate mineral inclusion for the given feed rate to meet requirements and maintain a balanced ration.

The addition of other additives such as yeasts or buffers can help reduce the risk of sub-acute ruminal acidosis and clinical ruminal acidosis on lush, high protein, low physical fibre diets. By maintaining rumen pH, the animals can better maintain dry matter intakes and consequently maintain performance throughout the grazing period. These additives can be added to farm minerals for a convenient supplementation solution to grazing animals.

Regardless of what type of supplementation is used, it is important to monitor levels provided to dairy cows to ensure requirements are met and deficiencies (for example Magnesium deficiency) and toxicities are avoided.

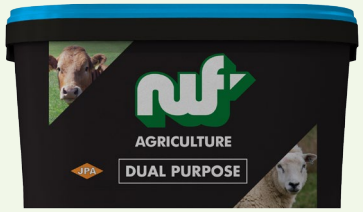
Magnesium supplementation:

Magnesium (Mg) levels at grass are one of the most important things to address at turnout, particularly in early lactation. The primary functions of magnesium are bone growth and maintenance, but also plays a significant role in nervous response and calcium metabolism. Deficiency may manifest predominantly as hypomagnesaemia (grass tetany or lactation tetany). Clinical symptoms of grass tetany progress over a period of 12 to 24 hours due to the cow's inability to store magnesium.

The following factors reduce magnesium absorption and increase the risk of grass tetany:

- High levels of Potassium (from manure or fertilisers) which is an antagonist of magnesium
- Excess nitrogen in the rumen, common with fresh grass
- Low dry matter intakes in pastures
- Flushes of grass growth and rapid changes in nutrient profiles of grass in spring and autumn

Therefore, a source of magnesium must always be available, this can be through magnesium dosing in water, supplementary feed, for example, NWF Grazemore which contains an increased level of magnesium, powdered minerals such as NWF UltraMin Cattle Hi Mag, or buckets/blocks.



Phosphorus and Pica:

Pica is an abnormal behaviour seen in ruminant species that involves licking or chewing inedible materials, such as eating stones and/or licking soil. The behaviour can have detrimental effects as it can risk the ingestion of foreign objects and potentially undesirable bacteria, both of which can damage the gut. The exact cause of Pica is not known, however, imbalances and deficiencies of phosphorus (P), sodium (Na) and cobalt (Co) have been shown to have a connection to Pica.

The phosphorus status of pastures varies widely and is influenced primarily by the phosphorus status of the soil, the stage of maturity of the plant and the climate. A reduction in phosphorus can affect the performance of animals and lead to Pica behaviour. It is also important to remember to check dry matter intakes, a drop in assumed dry matter intakes will impact the background mineral levels a cow is receiving, thus predisposing the animal to deficiencies.

Mineral analyses of feed and soil can help identify any deficiencies on farm. Once detected, NWF Agriculture have solutions available to help rectify imbalances short term with correct feed and mineral supplementation, and in the longer term for the soil and pasture itself.

Award Winning, High Performing Lancashire Herd

Fourth generation sons Chris and Matt, along with their father David Barton run a high yielding herd of just under 100 cows over 230 acres in Lancashire.


L-R - Matt Barton, Joe White (NWF), Chris Barton

This 11,600 litre herd's rolling 12-month constituents are 4.2% butterfat and 3.25% milk protein, resulting in the family being awarded the Harold Jackson Challenge Cup Champion Cow at the Lancashire Milk Records. The award is for the highest weight of fat and protein over three lactations and the cow in question, who is coming up 11 years old and well into her 8th lactation, is producing 46 litres per day at 4.27 BF, and 3% protein. She has produced 120 tonnes so far!

Youngstock

The future herd starts with the calf. Park Farm rear all their replacements, ensuring these are healthy and productive which is a no-brainer for future business performance.

To the best of their efforts, every calf gets 4 litres of colostrum within the first 4 hours of life, "*we test the colostrum and understand the importance of this to the future performance of that individual, hence why we try and give the first feed within those 4 hours*" says Chris.

Automatic feeders are installed at Park Farm, "*we get on well with them, as long as you look after them. Hygiene is a massive factor to the calf performance which is something we make a point of managing,*" Chris comments. Clear protocols are followed on the farm and to ensure continuous cleanliness, teats are changed daily. They are soaked in disinfectant, rinsed, and put on the feeder. "*If there is a calf which isn't doing too right and we miss it, the whole pen can go down like a domino effect!*" Chris comments.

The farm has a good relationship with Oakhill Farm Vets who come and weigh the calves, in addition to making sure they are up to date with vaccines. The vets also take bloods for total proteins which highlight passive immunity, helping to ensure the team at Park Farm are doing their best to promote calf immunity and therefore health.

Dry Cows

The dry period is another area where tweaks have been made to support the cows. "*We were getting incidences of ketosis and retained cleansing, which prompted a discussion with Joe White at NWF Agriculture to tweak the dry cow diet*".

Since feeding NWF's DryTime, three weeks prior to calving, the farm has seen a reduction in metabolic incidences which not only helps reduce treatment costs but also supports the following lactation. Joe White, NWF Sales Manager comments that "*this is important for any dairy farm, especially at Park Farm as they are a high yielding herd therefore this tweak has been critical in maintaining that peak and supports the overall health of the cows*".

NWF DryTime is a comprehensive dry cow ration that contains Reashure, a protected choline chloride which is key for fat transportation. Early lactation cows will always lose weight which puts pressure on the liver, choline can aid the transportation of fat away from the liver, improving liver function and fat usage.

Forage and Rumen Health

To ensure cow health and efficiencies, rumen health is critical. Park Farm produce around 3,000 tonnes of silage each year. This is not only key for the cow's health and performance but can also help with the business's bottom line. Making quality forage can ultimately save money on purchased feeds. The farm also buys lucerne and molasses to balance out and help create that optimal diet to support lactation. For the lactating cow, the ration is formulated to a 16% crude protein with higher levels of protected protein sources (NWF's Ultra Soy and Ultra Pro-R). In addition to this, the blend has NWF's Ultra Starch-W and maize to support rumen health.

Cow Environment

Recently a robotic scraper has been installed at Park Farm, the main reason being to increase the quality of the cow's environment. "*This has had a positive impact on foot health, particularly digital dermatitis. The cows are also cleaner and nicer to work with*" Chris highlights. The robot has allowed the team to have spare time, with the reduced labour required at milking by not having to multitask the milking and scraping the shed. The shed was being scraped twice a day in line with milking, now the shed is scraped 8 times a day.

Future

One of Park Farm's aims is to increase the number of cows reaching 8-10 years of age before leaving the herd, "*we want high yields, but we also want cows to last and therefore having high welfare at the centre of what we do is paramount!*" Chris comments. By working with the Oakhill Farm Vets and NWF Agriculture, and focusing on the dry period and youngstock, Park Farm can work towards this aim whilst maintaining milk yields.

NWF Agriculture would like to thank the Team at Park Farm for an insight to their farm and we wish them all the best!

Summer Dairy Diets

As we know, grass can be a very cost-effective feed. It is a good source of rumen degradable protein, highly fermentable carbohydrates and sugars, so making the most of it can not only help the bottom line but maintain animal performance.

There are some challenges when cows are at grass. Grass has high levels of oil which can "coat" the fibre in the diet, decrease acetate production and subsequently reduce butterfats. It is also low in structural fibre and high in fermentable sugars, which can result in a drop in rumen pH, increasing the risk of acidosis. Consistency is also another challenge, in both quality and intakes. Moisture, ground conditions and overall grassland management will all influence this.

What can be done?

Feeding cows is all about balance, making the most of home-grown forage by providing the correct supplements. In this case, compounds. At NWF Agriculture, there is a range of diets formulated to suit a range of systems and performance goals.

Optimising rumen conditions when cows are at grass is key to maximising performance. Having a balanced diet alongside availability of feed, feed space and buffer supplementation will all help optimise the rumen.

What is Opti-Rumen?

NWF Opti Rumen is a blend of essential oils and spices which aim to optimise rumen performance. It can be important for balancing excess rumen fermentable protein, helps to buffer the rumen, increase butterfats and can help reduce SCC and milk ureas.

High Fibre Diets

High digestible fibre diets to promote rumen function and drive butterfats:

- HDF Octane (WM, WI)
- Milkline (LT, WM, WI)
- Butterline (LT, WM, WI)

Digestible fibre feeds with good energy levels designed to balance high starch/low fibre rations:

- HDF Empire (WM, WI)
- Cream Max (WM, WI)
- Senator (LT, WM, WI)

Specific grazing diets containing Opti-Rumen to help optimise rumen conditions:

- Grazemore (WM, WI)
- Lakeland HDF (LT)

Starchy Diets

High quality starch diets to drive recovery from negative energy balance, fertility and yield:

- Octane (LT, WM, WI)
- Goldstar (WM, WI)
- Xcelerator (WM, WI)
- Performance (LT, WM, WI)

High Starch diets with good energy levels designed to balance fibrous forages:

- Target (LT, WM, WI)
- Gold Standard (LT, WM, WI)
- Gold Stellar (LT, WM)
- Empire (LT, WM, WI)

Fusion Diets

The NWF Fusion dairy feed range is formulated with provenance of raw materials in mind, in addition to not containing soya, soya hull or palm kernel. The inclusion of NWF's protected feeds (Ultra Pro-R and Ultra Starch-W) ensure that the nutritional make up is not compromised.

Fusion
Sustainability for a better future

- Fusion Pro (WM, WI)
  - Contains high by-pass protein which can help achieve an efficient cost-effective diet, particularly for early lactation and high yielding cows.
  - Rumen health is key to achieving feed utilisation, reducing the rate of "quick fizz" in the rumen can help prevent rumen pH drop.
- Dairy Fusion (LT, WM, WI)
  - High energy, with good glucogenic nutrients to support milk production. This also helps support cows in early lactation.
- HDF Fusion (LT, WM, WI)
  - High fibre compound with quality ingredients formulated to balance high starch or grazing diets. Ideal for systems requiring high milk fats.

The NWF summer diets are available from our production sites as noted by initials:
WM – Wardle Mill, Cheshire | **WI** – Wixland Mill, Devon | **LT** – Longtown Mill, Cumbria

NWF Blends - Flexibility is Key

Andrew Galling
NWF Blend Development Co-ordinator

This summer, more than ever before, it is important to question and challenge whether you are feeding the correct blend.

NWF Agriculture offers bespoke blends that are formulated using "cutting edge" formulation software to ensure blends match your specific production aims. The FAR registered sales team and the blends technical team can help ration the whole diet to meet your production criteria.

For all feeding systems this summer it is important to regularly analyse forages and grass to enable you to balance the diet accurately and economically. NWF offer a comprehensive forage and grass analysis service along with mineral profiling analysis to facilitate this.

If the challenge is maintaining or increasing milk butterfat, NWF offer blends with high levels of digestible fibre including sugar beet pulp and soya hulls. Additionally, where butterfat requirement is key, the use of C16 protected fat can be included in blends to maintain and promote butterfat production.

Blends manufactured at our production sites located across the UK can accommodate the full range of customer requirements from a simple, effective carrier for minerals and magnesium right through to the complete balancer feed on more complex feeding systems. NWF Agriculture offer the solution regardless of the complexity of your feeding regime.

With maize grain looking expensive versus wheat and barley this summer, it is worth considering using NWF Ultra Starch-W as a cost and nutritionally effective alternative. Ultra Starch-W is a high energy, high starch

feed composed of rolled wheat that has undergone precise treatment to slow the rate of rumen digestion and increase the supply of bypass starch.

Whilst it may be tempting to stay with a feed formula that has worked, it is the perfect time to optimise the diet to ensure the nutritional parameters are met using the most cost-effective raw material mix. The NWF blends team can formulate diet options that save you money. Removing expensive raw materials to reduce cost might appear an attractive option while feed prices are high. Now is the time to evaluate individual ingredients in your blend to consider their overall value, but don't be tempted to remove a raw material on price alone. More than ever before, don't overfeed minerals and vitamins as this is wasteful, expensive and unnecessary. Also, avoid underfeeding to save cost as this may be storing up a problem for a later date. Make sure that you get the balance right.

NWF Agriculture will work with you to supply the correct blend that makes your production targets in the most cost-effective way.

Fusion

Sustainability for a better future

NWF Fusion Sustainability

Although under increasing pressure, UK agriculture is 5th on the list of contributors to greenhouse emissions behind the transport, energy supply, business and residential (NFU, 2019), and is consistently improving its efficiency!

The UK Agricultural sector has decreased its emissions over the years and has an important role to play in terms of providing carbons sinks and the opportunity to produce renewable energies in conjunction with providing food for an ever-growing population.

At NWF Agriculture, we understand that removing certain raw materials is a small part of the bigger environmental picture and therefore have developed Fusion, which comprises of several pillars. These pillars span from our mills and transport to formulations and farm-level support, all advocating the larger sustainability initiative.

THE FUSION PILLARS

OPERATIONS & TRANSPORT	RAW MATERIALS	DIET & FEEDING	ON FARM SUPPORT
Mill efficiencies	Buying local/ British	Analysing forage and RMs	Feeding
Waste management	Sourcing of UK by-products	Compound and blend formulation	Animal health
Routing & the fleet	Buying procedure	Additives	Environment
OTIFs	Collaboration with suppliers	Feed advisor support	Youngstock
		Research & Development	Forage
			Soil

Muck is worth its weight in gold *(almost)*!

By Hannah Shirt, Lancrop

The past 12 months have seen fertiliser prices increase by more than 300%. This has led to many farmers looking for alternative nutrient inputs. Many weird and wonderful materials are applied to the land for their fertiliser content – composts, paper crumble, food waste, sewage sludge, seaweed and many others. But the most frequently used, and often the most freely available, is animal muck – more commonly referred to as manures and slurries.

As well as containing valuable nutrients such as nitrogen, phosphorous and potassium, slurries and manures contribute many other benefits when applied to agricultural land. Most important of all, they add to the organic matter fraction of the soil. This is vitally important as it is the organic matter (OM) that supports all the living organisms that dwell between our feet. From bacteria to fungi, millipedes to earthworms and countless others, there is a whole other ecosystem down there, and without this life, the soil would be nothing more than a weathered rock or, quite simply, a desert.

As well as plant nutrients and a food source for soil biology, applications of manures benefit soils by:

- Increasing water holding capacity.
- Reducing pollution of groundwater.
- Improving drainage.
- Reducing soil erosion.
- Making soils easier to cultivate.

All these benefits mean that analysis of slurries, manures and wastes has never been more popular.

The financial value of organic manures is determined by two key factors: -

1) The nutrient content of the material.
2) The replacement value of an equivalent application of bagged fertiliser.

Slurry and manure analysis measures the total nutrient content of the material and a clear determination of the dry matter content, which is otherwise usually visually estimated.

The values found in the RB209 are an average across a wide range of samples but there is often quite a variation between results. Studying the long-term Lancrop dataset of analysis reveals that this variation can be significant. Whilst overall average values agree well with RB209, when looking at the average of the highest and lowest nutrient content the potential for a large difference becomes apparent.

Efficiency plays a key role when optimising nutrient availability following manure applications. Timing and application method have a huge impact on how much can be utilised by the following crop or grass. For example, for a 6% DM cattle slurry RB209 states that 10% of the total nitrogen applied will become available to the following crop when surface applied in autumn. However, if band spread in the spring this availability increases to 35%. (*Source: AHDB RB209 Book 2 Organic Manures - Table 2.9*)

By considering all of the above, it is possible to calculate the equivalent fertiliser value of the manure and the economic impact of application timing and method. To maximise the agronomic and financial value of organic materials it is not just the nutrient content that needs to be taken into account but also how and when the material is used.

Organic manures should only be applied to a crop when the crop can use the nutrients, in accordance with The Farming Rules for Water. Find out your crop need by using the free software program MANNER-NPK.

Organic manures (including digestates) should not be applied when:

- The soil is waterlogged, flooded, frozen or snow-covered.
- There's a significant risk of run-off to surface water, leaching to groundwater and run-through beyond crop use.
- During a closed period.

Lancrop Laboratories

For further information, please contact your NWF Sales Specialist or contact Hannah or Olly at Lancrop Laboratories.

01759 305116
www.lancrop.com

This is the summer to get the basics right!

By Erin Wray,
NWF Technical Co-Ordinator

Making quality silage is always a key component to quality nutrition and managing overall feed costs. Rarely however, has it been more important to ensure forage qualities and quantities are sufficient to ensure additional costs are mitigated as much as possible this year.

Last years seasonal grass silage averages (shown right) are typical of what was broadly speaking a good forage growing season. Volumes were strong and energy levels whilst not setting any records, were ok. Protein on the other hand was very low, particularly in the earlier cuts which challenged milk yields and increased supplement costs.

Nutrient	South	Central	North
DRY MATTER	33.7	33.5	34.2
PROTEIN	12.5	13.1	13.6
D VALUE	67.2	67.3	68.5
ME	10.7	10.7	10.9
SUGAR	2.3	2.2	2.4
NDF	47.7	47.3	45.9
ADF	28.5	28.3	27.4
LIGNIN	37.1	38.1	35.8
ASH	7.3	7.5	7.7
LACTIC ACID	67.5	69.2	73.4
PH	4.2	4.2	4.2
VFA	22.6	22.7	22.1
Rapid Carbs	198.5	196.2	201.3
Total Carbs	437.4	429.8	433.9
Rapid Protein	77.9	81.4	85.2
Total Protein	87.3	91.5	95.8
ACID LOAD	46.9	47.1	48.6
GLUCOGENIC	119.5	119.9	123.3
NDIP	56.1	56.4	59.6

**Silage averages tested in the NWF Agriculture laboratory.*

SO WHAT CAN WE LEARN FOR THIS SEASON?

1. Dry Matter

A higher dry matter (32% – 35% DM) should help intakes and rumen health which is key to achieving a high milk from forage, the risk is cows sorting for concentrates and clamp stability. Using SilaGuard 50 silage inoculant will help achieve a good front end fermentation and back-end stability along with thorough rolling and sealing. Regularly pushing the mix up will help reduce ration sorting and improve feed consistency and rumen health.

2. Energy

This will create a dilemma for many farmers this season, quantity or quality! Fibre is negatively correlated with energy, therefore the longer you leave to cut, you may get more quantity but will reduce energy and due to high fertiliser prices, many farmers will be looking for a large first cut to dilute the costs. Be careful, full clamps will be essential this winter, but getting a quality first cut in the bank will help make the most of a higher milk price.

3. Protein

Lower protein diets are beneficial to the cow, the environment and the bank balance, but low protein silages may force farmers into increasing supplementation costs if they can't supplement a large proportion of their rumen protein requirement through forage. Closely monitor nutrient applications this season to ensure silages have every chance to delivery higher protein levels and mitigate supplement costs.

Summary

Quality silage protocols apply now more than ever, cut early (but not too early !!), quick wilt with a wide swath, thin layers in the clamp and roll well, ensure a good seal, and use SilaGuard 50 to help retain as many nutrients as possible.

Many farmers will be looking at using less fertiliser this season, at current market prices, 1% decrease in silage protein could cost 5 pence/head/day. Reducing silage intake by 1kg dry matter could cost over 30 pence/head/day to make up with purchased feeds. Cost management is of course key, but be careful of cutting too much this summer, as it may cost even more when winter comes!

MicroZyme R
SLURRY IMPROVER

SLURRY TREATMENT TO BUST THE CRUST

Make the most of your slurry. MicroZyme R is a biological product for use in the reduction of solids, odour control and nitrogen retention in stored liquid ruminant manure. The advanced slurry treatment protects the nutrient value and makes it easier to manage.

- ✓ Reduces solids, crust and odour
- ✓ Lowers ammonia emissions from slurry
- ✓ Less separation after mixing and a more consistent slurry
- ✓ Faster pump outs and easier to handle
- ✓ Preserves nitrogen content, optimising value as fertiliser
- ✓ Improves plant uptake, suitable for multi-cut systems

Technical Services
to support your dairy business

NWF Agriculture provide a comprehensive portfolio of services for your dairy farm.

Rationing and Diet Formulation

Through precise rationing using modern formulation models, NWF can fine-tune feeding strategies with greater accuracy whilst keeping animal health and rumen stability in mind. Using NutriOpt, NWF can formulate nutritionally balanced, bespoke blends and utilising a wide range of compounds to complement home grown forages.

Forage & Feed Analysis

The NWF accredited laboratory analyses over 8,000 silage samples each year operating a two day turnaround to help livestock ensure diets are balanced accurately. In addition, raw materials and finished products are regularly analysed to ensure the highest level of quality control is achieved.

Costings and Milk Production Forecasting

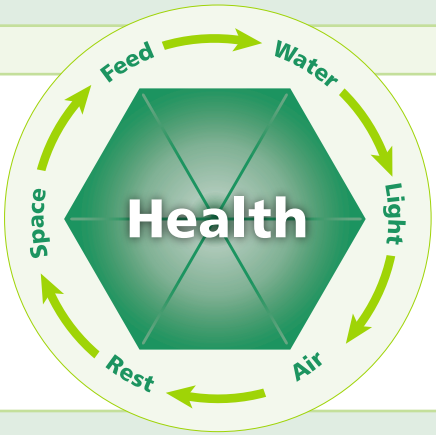
Farm costings can play an important role in profitability, enabling attention and actions to be focused on the areas in most need. NWF works with Kingshay Dairy Manager to ensure accurate data is collated and reported.

Dung & Diet Sieving

Rumen health is closely linked to fibre and feed utilisation, both of which are key to ensuring optimum milk yield from forage is achieved. The NWF sales team are fully trained in using dung sieves to help determine fibre utilisation and Penn State Separators which can show how physical diet composition can affect rumen dynamics.

Other Services

- ✓ Youngstock Tools and Training
- ✓ Interherd Plus
- ✓ Body Condition Scoring
- ✓ Mobility Scoring
- ✓ Cow and Calf Signals
- ✓ Mineral Analysis
- ✓ Soil Testing
- ✓ On Farm NIR



Things to consider when feeding Whole Milk…

With farm inputs increasing, feeding whole milk to calves may seem favourable; reducing expenditure and it can be convenient, after all it is already mixed and warm. However, if switching from milk replacer to whole milk there are several things which need to be considered, and the switch should not be done so lightly!

By Beth Howells, NWF Technical Advisor

1 The calf should be fed saleable whole milk, not waste milk. The arguments against the use of raw waste milk are four-fold: contamination, management, economics and resistance. Which all can lead to lower weight gain, higher mortality and more days in which they are affected with scours and respiratory issues.

2 The route to calf. How is the milk going from the parlour to the calf? Making sure everything is squeaky clean is paramount in addition to time management! Milk which is left for a period of time will decrease in quality, the bacteria proliferate, and palatability will start to reduce. If the milk is in a dirty vessel, this is heightened, in addition to the risks it presents to calves. Are you able to pasteurise the milk to reduce the microbial loading? Remember pasteurisation does not kill Johnes.

3 Consistency is key and calves crave this. Is your butterfat and protein texts from your milk processor the same every week? It is likely that it fluctuates which mean every milk feed offered to calves will be different. If using whole milk, it is recommended for it to be tested, using a brix refractometer before feeding out. Whole milk also lacks certain vitamins and minerals, which should also be considered if thinking about switching.

4 Is it economically viable? Feeding whole milk instead of a calf milk replacer (CMR) will cut the initial costs, but if you are getting a good milk price from your processor, is it worth it? If you are getting 38ppl, feeding 8L p/h/d to each calf costs £3.04p/h/d. This equates to paying £2,550/T for milk replacer when feeding 8L/h/d mixed at 150g/L. However, with many milk processors announcing further rises for May and milk volumes set to remain lower than prior year it does raise a question as to how high we may see the milk price go over the summer.

Remember the calves are the future of the herd, if you do not invest now, you are ultimately costing the business in the future!

Calf Milk Replacer Market Outlook

Dairy commodity markets continue to be volatile with some ingredients, such as skimmed milk powder and sweet whey powder, reaching historically high levels. This coupled with increasing vegetable oil prices means that the cost of calf milk replacer (CMR) has continued to rise.

Feeding strategies are being reviewed to try and manage costs, however, it is important to consider the risk versus the reward in every situation. The balance between digestible energy and high-quality protein sources provides the nutrients required for calves to achieve performance targets. When reviewing calf milk replacer specification and feed curves it is important to consider nutrient intake alongside associated costs.

Although challenging in the current climate, it is important to assess the cost associated with preweaning nutrition alongside other costs encountered during the calf and heifer rearing period; for example, the impact, consequences and associated costs of health incidences such as scour, or the financial implications of missed growth targets for insemination or calving down.

Monitoring and managing key performance indicators (KPIs) is essential and understanding current performance allows for changes that may offer opportunities for efficiencies.

Overview of Calf Key Performance Indicators	
Average Daily Liveweight Gain (DLWG)	>800g, maximising early life growth rates has shown multiple benefits
Weaning weight	Minimum of double birthweight, if being achieved aim for 2.25
4 weeks post weaning weight (or 3 months)	Minimum of triple birthweight, if being achieved aim for 3.25
Starter feed intakes at weaning	>1.5kg/calf/day for three consecutive days before starting the weaning process, >2.5kg/calf/day for three consecutive days at the end of the weaning process
Health incidences/treatment rates	Analyse morbidity and mortality rates in conjunction with your vet to produce a fit for purpose calf health plan
Heifer development	55-60% of mature body weight* for insemination, 85-90% of mature body weight* for first calving
Age at first calving	22-24 months

**Mature weight for your farm should be based on the average body weight of a 3rd lactation cow*

The calf rearing period offers a unique opportunity to capture the potential of enhanced feed conversion efficiency whilst also exploiting the genetic potential of the animal. DLWG continues to be an important metric, however widening the scope with regards to objectives for optimal development, resilience to disease and longevity allows calf rearing to be taken to the next level.

Ensure short term cost savings are not prioritised at the expense of calf health and performance. All calf rearing units are unique therefore make informed decisions so that the overall objectives of the unit are met.

6 Pointers to Summer Success

Elysha Chell, NWF Youngstock Specialist

The effects of heat stress and warm weather in calves are not as well documented and can often be overlooked compared to their dairy cow counterpart, due to having no obvious production loss. Although calves have an upper critical limit of 25°C, they can start to feel the effects of heat stress at 21°C. Above 20°C the calf will use additional energy to maintain a normal body temperature, shifting vital energy away from growth. Similar to when it's cold, calves require more energy to keep warm. When it is hot, calves require energy to keep cool.

1

MILK FEED: Prolonged exposure to temperatures above 20°C can lead to a significant drop in daily live weight gain. A calf uses an extra 20-30% more energy to keep cool, so feeding more milk or milk replacer during hot weather is essential to maintain growth rates and a healthy immune system. It is suggested that for every 5°C increase above 20°C, calves should be given an extra 1.5-2 litres of CMR or milk.

2

WATER: Calves should have access to clean water from day 1 as it is a vital nutrient and critical to both daily liveweight gain and rehydration. Also, during warm weather, water is critical to allow the calf to keep cool. Heat is transported out of the body during urination, the more water the calf can drink the better they can manage their temperature. Never underestimate the importance of easy access to fresh water!

3

STARTER INTAKE: A calf suffering from heat stress is much more likely to have reduced starter feed intakes, so ensure feed is fresh to encourage intakes. This also highlights the importance of the milk feed, to bridge this gap. However, this increase in milk or milk replacer can make the weaning process more difficult.

4

VENTILATION: Air flow and movement help keep calves cool. For sheds with poor ventilation, where it is impractical to change the shed design, adding fans to pull air through the shed can help. The fans should be used to move the air above the calves and to remove stale air, but not to create a draft at ground level. Reducing stocking density is another element that can help calf comfort during high temperature periods; the more space a calf has away from others the easier it will be for them to regulate their body temperature.

5

REHYDRATION AND HYDRATION: Where temperatures are high and calves could be at risk of dehydration, regularly offering calves an electrolyte feed in the middle of the day can be beneficial. A calf has twice the amount of extracellular fluid (fluid outside of cells) compared with an adult cow, and dehydration is caused when this fluid is lost and why we can see signs such as sunken eyes. Sodium is an important element needed to restore this lost extracellular fluid, whereas potassium is a key nutrient for cow rehydration (to replenish their intracellular fluids - the fluid inside of cells). Electrolytes should contain between 10-30mM/L of potassium and between 40-80mM/L of chloride, generally, most products on the market will contain these, the key ingredient is glycine (acetate or glucose) to help with sodium absorption. Glycine can be expensive so is not always included, but as a transport aid, it must be included to allow sodium absorption, it is essential in correcting water deficit. Look at the electrolyte, ask the questions and make sure it is fit for purpose!

6

MANAGEMENT: Any handling such as weighing, and vaccinating should be done early in the morning whilst temperatures are at their lowest to avoid stressing the calves later in the day when temperatures are higher.

The NWF Youngstock team are available to visit youngstock units to provide advice on all elements related to rearing healthy calves.

Gain Efficiencies with Automation

Automatic calf feeders are a great tool with a number of efficiencies, a key one is labour. The increased flexibility around calf management are often the main reasons for the purchase of computer-controlled calf feeders.

There are many advantages in addition to labour saving and flexibility to having automatic feeders. Unlike manual feeding in buckets or bottles twice a day, automatic calf feeders prepare multiple portions throughout the day and calves can come whenever they feel hungry. This allows very gentle digestion and can reduce stress for the calves, whilst avoiding overfeeding and can control consumption.

Automatic feeders are powerful when you want to feed larger amounts of milk to support the growth and development of your calves. Feeding more than 6-8L per day can be difficult on buckets but very easy on auto feeders. Even 10 – 15L per day can easily be fed in 4 – 6 visits to young calves without any restrictions.

Weaning
The nutritional demands of young animals change over the weeks, particularly when getting to weaning age, where a step-down weaning approach is best practice to maintain digestive health. It is important to transition from a milk source to solid feed gradually to ensure health and performance is not compromised. When set up correctly and in line with farm performance goals, automatic feeders can be programmed to feed the volume according to a feeding curve, with automatic weaning over a period, allowing for a gradual, slow transition.

Cleanliness
Although the machine will keep itself clean and sanitised by automatic cleaning programs, and on some models, the teats are cleaned after each contact, you will only have great success if you check your machine status. The machine should be set up, so it is cleaned a minimum of twice a day. If necessary, correct the cleaning parameter or do a manual wash. Changing the teats should be done during the day to increase the biosecurity (wash, disinfect, and rinse) and replace worn teats. Do not wait until they are completely damaged/ripped before changing.

Data Collection
Automatic feeders also collect a lot of data. Every visit of the calf is recorded, the computer analyses their activity via their individual drinking speed, frequency of visits and consumed milk amount.

A very useful add-on are weighing scales in the drinking station. Since the weight is measured several times per day, the individual growth of each calf is monitored very precisely. This gives perfect information on the development of each calf and helps to control the health status. It can also allow weaning according to their individual body development, which can save feed costs on the fast-growing calves and allows the slow ones to stay on milk a little longer.

All this data can be viewed and managed on the feeder as well remotely via Apps on mobile phones or office PCs. That makes automatic feeders a "must-have" on every modern dairy farm!

Find more information on:
www.holm-laue.link/calfexpert-nwf

Getting the best start

Large flying herd in Devon, uses NWF's UltraLife Skim milk replacer to ensure the calves are off to the best start for their local customer base!

Jack and the team at Willes Farming Ltd run a large flying herd of high genetic Holsteins, which are bought as heifers from Germany. Due to the nature of the herd, they do not need to rear their own replacement heifers and instead the calves are all beef.

Willes Farming Ltd have built up a local customer base which allows for transparency of what the buyers are demanding and what the dairy herd can provide. The beef calves are on the dairy farm for 2-3 weeks before going to a buyer. They are mainly British Blues, the main reason being the end product, meat. The British Blue is a good, strong calf which are fast growing and give a nice carcass.

"*We work with local buyers to ensure we can produce a calf which will ultimately be good on the hook, the British Blue fits this well*" Jack comments.

They have been using NWF's UltraLife Skim, a 24% protein, 20% oil, 50% skim milk replacer, for past 12 months. "*Since the switch the calves shine! We have trialled other products but had our best results on this milk replacer!*" Jack highlights.

At birth calves get 4 litres of tested colostrum. "*We use a refractometer to ensure colostrum quality, getting readings of over 25% most of the time*". Calves are then moved onto milk replacer and fed 5 litres per day, in 2 feeds of 2.5 litres, from a milk bar for 2-3 weeks. "*We have good relations with our vets ensuring protocols and vaccine programme are fit for purpose, which again ensure our calves are off to the best start keeping in mind our buyers*" Jack comments.

Colostrum intake and correct pre-weaned nutrition is fundamental in any calf rearing enterprise. Beef calves should not be treated differently, ensuring quality colostrum intake alongside clear protocols and nutrition will ultimately ensure desired performance and weaned weights which will have continued positive knock-on effect throughout the rearing and finishing phases.

For dairy farmers, customer relationship with buyers is key, ensuring a quality calf is supplied so repeat business is generated. There is an increasing opportunity within the dairy-beef supply change where developing trust and providing quality beef calves will be key to dairy businesses, especially with the AHDB's Calf Strategy and Red Tractor requirements, where no routine euthanasia of calves is implemented.

NWF would like to thank Jack for giving us an insight into their business, we wish you all the best!

Selko Lactibute: A novel solution to hindgut health in dairy cows

Why is poor hindgut health a problem?

Leaky gut is the inability of the gut barrier to prevent unwanted toxins and pathogens from leaking into the bloodstream. In dairy cattle, leaky gut can occur due to numerous stress situations:

- Transition period
- Feed restrictions
- Psychological stress
- High starch diets
- Inflammation elsewhere in the animal (injury, disease)

As a result, an immune response occurs which diverts energy (glucose) away from production leading to reduced yields alongside higher costs per litre. Due to less energy now available, a leaky gut may also be the hidden cause of many typical and costly on-farm problems. While difficult to diagnose, leaky gut often results in drops in yield, butterfat and milk protein, as well as reduced fertility, heat stress, and loose muck.

- **Immune response requires 1kg glucose**
- **40kg milk requires 3kg glucose**
- **2kg glucose gives 26kg milk**

The Solution: Selko Lactibute

Lactibute is a patented novel prebiotic that works to reduce the effects of leaky gut, improve energy partitioning within dairy cows and ultimately support milk production and performance. As an encapsulated calcium gluconate, Lactibute will reach the hindgut to:

- Work to support and alter the gut microbe population
- Increase short-chain fatty acid (SCFA) utilising bacteria
- Promote butyrate production:
  - o Butyrate is an essential volatile fatty acid (VFA) that acts as an energy source
  - o Reduce inflammation in the hindgut
  - o Stop pathogenic bacteria
  - o Strengthen gut barrier

Lactibute on farm

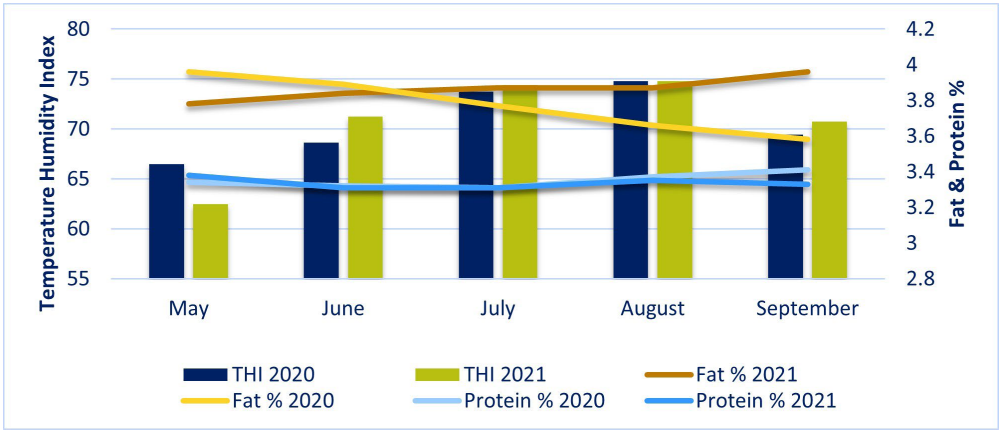
A healthy intestine is more efficient at absorbing nutrients. Results from trials and studies with 4,715 lactating dairy cows have shown that this, in combination with less energy being diverted to inflammation, meaning cows fed Lactibute have higher levels of milk constituents and energy corrected milk (Table 1);

Table 1: Energy Corrected Milk and Milk Constituents from 4715 Dairy Cows Fed Lactibute

Milk Parameter	Unit	Average	Range
Energy Corrected Milk	Kg/day	0.86	0.5-1.2
Milk Fat	g/day	36	11-42
Milk Protein	g/day	27	21-50

Heat stress also promotes a leaky guy, and in the run-up to summer, strategies to mitigate the costs of heat stress should be implemented proactively to prepare the cow. Trouw Nutrition conducted a trial in Italy where 70% of milk produced is destined for cheese production, meaning milk contracts are heavily focused on constituents. The results (Figure 1) show that Lactibute maintained milk constituents and also milk yield. Of note is that milk fat remained above 3.7% in 2021 whereas in 2020 it fell throughout the hot periods when temperature humidity indexes were highest.

Figure 1: Lactibute Effect on Milk Constituents in Heat Stressed Cows



A study trialled by NWF showed Lactibute improved other performance indicators within the herd, despite cows being identified as under high stress due to dietary and management changes throughout the trial period. Overall, Lactibute supported the cows in times of stress, indicating better energy partitioning and availability of energy for reproductive functions alongside reaching higher peak yields quicker (Table 2 overleaf).

Table 2: Lactibute Effects on Reproduction and Lactation Curves on an NWF Farm

	No Lactibute	Lactibute
Reproduction Parameters		
Served, %	59.7	67.3
Conception Rate, %	35.3	36.3
Pregnancy Rate, %	21.7	24.3
Lactation Curve Parameters		
Average Peak Yield, L	48.8	51.1
Average Days to Peak	78.6	71.1

Lactibute:

1. Aids in gut health and cost of immune response
2. Supports the animal in times of stress
3. Improved milk production and milk constituents

How to feed Lactibute

Lactibute should be fed at a rate of 16g/h/d to milking cows throughout the whole lactation and may be fed as a straight, included in farm minerals or in the form of the new NWF Gut Health Packs (Table 3 below).

Table 3: Available NWF Gut Health Packs and USPs

		NWF Gut Health Pack Extra + Mycosorb A+	NWF Gut Health Pack Extra	NWF Gut Health Pack
Feed rate	Recommended feed rate to supply required levels of products and support results	150g/h/d	150g/h/d	50g/h/d
Lactibute	Hindgut health for energy partitioning and support of overall performance	✓	✓	✓
Acid Buf	Rumen health and reduced risk of acidosis	✓	✓	
Oleobiotec	Essential oils and spices for rumen function	✓	✓	
Magnesium Oxide	Meet requirements at times of high risk to aid in reducing milk fevers and grass staggers	✓	✓	
Mycosorb A+	Contributes to managing the impact of mycotoxins and reduces mycotoxin absorption	✓		

To discuss inclusion of Lactibute within your dairy ration please contact your local NWF Sales Specialist.

Protected Feeds from NWF

NWF Agriculture manufacturers a unique and high quality range of protected feeds that are being used effectively to replace conventional protein and energy sources. Protected feeds deliver nutritional and financial benefits, achieving a balanced diet in terms of protein and energy supply, with adjusted feeding rates to ensure a total balanced diet.

Ultra Pro-R – Protected Rapeseed Meal

A high quality rapeseed meal, manufactured to significantly increase the level of digestible by-pass protein (MPB). Ultra Pro-R's unique treatment process protects more protein from rumen breakdown than any other protected rapeseed meal, delivering more nutrients to the intestine allowing for greater ration efficiency.

Ultra Soy – Protected Soyabean Meal

Using the same unique treatment process as Ultra Pro-R, Ultra Soy offers even more by-pass protein (MPB) than standard soyabean meal. Through accurate rationing, farmers and nutritionists can achieve cost effective rations and maximum yields.

Ultra Starch-W – Protected Wheat

Rumen protected wheat, this unique treatment process allows higher rates of rolled wheat to be fed whilst reducing rumen 'fizz' and the risk of SARA.

Reasons to incorporate Protected Feeds into a dairy ration:

1. Improved performance – UK diets based on grass silages and home grown cereals tend to be higher in rumen degradable nutrients. By-pass energy and protein is then required to supply the nutrients above and beyond what is capable from rumen bacteria. A lack of by-pass nutrients can often be seen in cows not achieving their peak yields.

2. Rumen available nutrients – grass silages this season have been analysing very well. Oversupplying nutrients to the rumen can create a challenging environment for bacteria, therefore supplying by-pass nutrients is not only more efficient, but essential for rumen health.

3. Environmental responsibilities – feeding excessive protein can be detrimental to both the cows health (due to negative energy balance) and the environment due to higher urea nitrogen levels. Feeding by-pass protein can enable farmers to reach metabolizable protein requirements whilst feeding less overall crude protein and therefore reducing waste and cost.

Farmer Meetings

In March, NWF Agriculture held two 'Optimise 2022' dairy farmer meetings in the Midlands.

We were joined by guest speakers, Hannah Shirt & Oliver Walton from Lancrop Laboratories and Roger Bacon from Barenbrug. NWF would like to thank the Capewell & Shirt families for hosting the meetings on the 24th and 25th March 2022. Don't worry if you didn't make it, we are already planning more events for the rest of 2022 across the North West, Central and South West regions!

Meet the NWF team at:

Staffordshire County Show on Wednesday 1st and Thursday 2nd June
Royal Cornwall Show on Thursday 9th, Friday 10th and Saturday 11th June
Great Eccleston Show on Saturday 16th July and Sunday 17th July
North Devon Show on Wednesday 3rd August
Dumfries Show on Saturday 6th August
Holsworthy Show on Thursday 25th August
Westmorland Show on Thursday 8th September
UK Dairy Day on Wednesday 14th September
Cheshire Ploughing Match on Wednesday 28th September
The Dairy Show on Wednesday 5th October
Brailsford Ploughing Match on Wednesday 5th October
AgriScot on Wednesday 16th November

Enquiries: **0800 756 2787** | Orders: **0800 262397**
E Mail: **nbteam@nwfagriculture.co.uk**

www.nwfagriculture.co.uk

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