

Edition 6

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Zero Soya Feeding Solutions Cracking Colostrum





#### **NWF ULTRA LIFE ELITE** 22.5% Protein, 22.5% Oil SETS LIFE PERFORMANCE

A highly digestible LifeStart accredited skim-based milk replacer, grow healthier more robust calves with this LifeStart approved calf milk replacer which. Safe to feed at elevated litres by managing the feed curve on the way to weaning.

#### **NWF ULTRA LIFE - SKIM** 24% Protein, 20% Oil

A LifeStart accredited skim-based milk replacer containing the full additive pak. It is suitable for accelerated heifer rearing programmes.

#### **MILKIVIT ENERGIZED** CALF MILK REPLACER 22.5% Protein, 25% Oil

A LifeStart accredited skimmed milk replacer

to support optimal development, resilience to disease and longevity of calves.

### **NWF ULTRA MILK YELLOW** 22% Protein, 18% Oil

A top quality, 100% milk protein skimmed milk replacer also containing the full additive pak. It is ideal for many systems, particularly those wanting something special from their youngstock.

The NWF calf milk replacer range is formulated to provide options for every calf rearing system and budget.

### **NWF ULTRA MILK EMERALD** 21.5% Protein 18% Oil

A skimmed milk-based replacer, containing Greenguard package ensuring that early bloom and healthy calves is promoted.

#### **NWF ULTRA LIFE - WHEY** LIFE START SETS LIFE PERFORMANCE 24% Protein, 20% Oil

This is a LifeStart accredited whey-based milk replacer. It is suitable for accelerated heifer rearing programmes. This replacer contains the full additive pak.

#### **NWF ULTRA HI PRO HEIFER** 26% Protein, 17% Oil

This high protein, whey-based milk replacer is suitable for accelerated heifer rearing programmes. This replacer contains the full additive pak.

### **NWF ULTRA MILK BLUE** 22% Protein, 19% Oil

NWF's most popular milk replacer. High specification formulation on a whey powder base. A generally good all-rounder calf milk replacer.

### **NWF ULTRA MILK RUBY** 24% Protein 20% Oil

A superior quality, whey-based calf milk replacer, with elevated levels of oil and milk protein to promote accelerated growth and development at this critical stage of life. This replacer contains the Greenguard package.

#### **NWF ULTRA MILK SAPPHIRE** 22.5% Protein 18% Oil

A high-quality whey-based milk replacer, a good all-rounder replacer which has the addition of Greenquard to support digestive health and performance.

### **The Essentials** for Calf Rearing

By Abbie Norbury, NWF Sales Specialist

As we are busy preparing for winter it is important to remember how calorie intake can affect calves performance when temperatures dip. In cold weather (below 10°C) increase milk replacer intakes by 100g/calf/day.



### The 5c's of calf rearing

### Colostrum

- Timing Fed within the first six hours.
- Quantity 10% of the calves' bodyweight, for example a 40kg calf would require 4 litres.
- Quality – At least 50g IgG per 1 litre, the daily requirement is 200g. A refractometer can be used to measure this.
- Cleanliness Clean calve pen, udder and colostrum equipment must be used at • all times.
- Calves are not born with acquired immunity, newborn calves must acquire passive immunity through the consumption of colostral IgG.

### Calories

- Use a high quality, highly digestible milk replacer.
- Appropriate level of milk solids is key.
- Take advantage of a calf's superior feed conversion ratio.

#### Comfort 3

- Calves spend 17 19 hours a day lying down.
- Environment should be calm and guiet.
- Calves should have adequate space, air space and ventilation.
- Bedding should be dry and clean.
- Thermo neutral zone (typically 10-20°C).



4 & 5

of calf

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### 0800 756 2787

LIFESTART SETS LIFE PERFORMANCE

LIFESTART

LIFE START SETS LIFE PERFORMANCE

### The 5c's of calf rearing (continued)

### Cleanliness

- Clear hygiene protocols must be in place.
- Clean calving pens.
- Buckets and utensils should be cleaned in-between feeding.
- Fresh water, forage, milk replacer and starter pellets should be given daily.
- House calves away from adult animals.
- Always work from youngest to oldest.

### 5 Consistency

#### **Consistency of newborn calf**

- Calving protocol.
- Colostrum management.
- Calf identification.

Consistency of daily management routines

- Feeds.
- Temperature.
- Timing.
- Person.

Stressed calves can lead to sick calves!

#### Choosing the right calf milk replacer

When selecting your calf milk replacer, careful consideration should be taken to product type, overall digestibility of the protein and energy, as well as the appropriate feeding scheme on farm.

The balance between digestible energy and high-quality protein sources provides the nutrients required for calves to grow, develop, and achieve performance targets. When reviewing calf milk replacer specification and feed curves it is important to consider nutrient intake.

#### Introducing KPI's to monitor performance

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

DLWG continues to be an important metric when assessing KPI's set for the calf rearing period. However, when this is set in place alongside other indicators used to assess each units performance it allows each individual unit to reach new levels of calf rearing. Set objectives for optimal development, resilience to disease and longevity which gives an insight into the next generation of productive replacements coming through into the herd whilst also ensuring 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.

#### 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 already achieving this figure aim for 2.25.
4 weeks post weaning weight (or 3 months)	Minimum of triple birthweight, if already achieving this figure 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.



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# The Impact of NDF on DMI



By Louisa Lloyd, NWF Technical Formulator

This year, silage samples have been high in neutral detergent fibre (NDF) meaning dry matter intakes (DMI) may be reduced. It is important to understand how DMI and production are related, and from a production perspective this relationship is one of the most important factors in optimising milk output and economic efficiency.

Maximising DMI during lactation has a significant impact on whether an animal goes on to develop metabolic disease or get in calf, because of their "bulk" excessively high-fibre diets that may cause animals to consume less dry matter overall. This results in delayed ruminal fermentation and increased ruminating time. More food cannot be given to the system until the previous food has passed through, this is because the rumen has a limited volume and little room for expansion.

NDF intake capacity ranges from 0.6% to 1.2% of bodyweight, depending on physiologic state. Late-pregnant heifers have the lowest intake capacity (0.6%), followed by late-pregnant cows (0.8%). Table 1 shows NDF intake capacities as a % of bodyweight.

DMI is especially important during the early lactation phase, during this time cows experience a reduction in intake and struggle to keep up with the energy demands of production. Diets high in fibre at this crucial time can further inhibit her ability to meet her energy requirement, thus inducing a negative energy balance, putting her at risk of developing metabolic disorders.

To drive DMI, high NDF forages should be limited and rations formulated to contain higher levels of starch. Starch increases energy supply as it increases the rate and extent of rumen fermentation. Other methods of improving intake vary in approach, increasing the palatability of the diet by including molasses and encouraging digestion and fermentation with products such as yeast are common approaches.



Table 1: NDF intake capacities as a % of bodyweight.

Forage Quality	Forage NDF %	NDF Intake Capacity (% of body weight)				
		0.6	0.8	1.0	1.2	
Excellent	38	1.58	2.11	2.63	3.16	
	42	1.43	1.90	2.38	2.86	
	44	1.36	1.82	2.27	2.73	
	46	1.30	1.74	2.17	2.61	
	50	1.20	1.60	2.0	2.40	
	54	1.11	1.48	1.85	2.22	
	58	1.03	1.38	1.72	2.07	
	62	0.97	1.29	1.61	1.94	
Poor	66	0.91	1.21	1.52	1.82	

(Source: MSD)



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### Happy Profitable Cows Eat, Sleep, Ruminate and Repeat

By Annabell More, NWF Ruminant Nutritionist



Cows ruminate for around 10 hours per day, this consists of regurgitating feed, rechewing and re-swallowing. It's important that cow's ruminate to help break down their food, this stimulates saliva production and improves rumen function by buffering the rumen. Rumination is affected by DMI, physical and social environments. Cows ruminate between 25-80 minutes per kg of roughage consumed. If rumination is reduced by between 10-20% this can lead to associated problems such as SARA, poorer digestive efficiency, milk loss, milk fat and protein output. It's important to get your ration correct to keep your cows rumen healthy. Getting your forage tested on a regular basis is also important as forage changes in the clamp throughout the season and keeps walking the cows there the ones that tell you what's going on.

Remember: Happy cows produce more milk and live longer, happy cows have less stress and tend to have fewer health issues, eat more feed and produce more milk.

This makes them the profitable cow.



At NWF we consider not only the feed we supply for dairy herds, but we also look at ways to increase profitability on farms. With the milk prices reduced in comparison to this time last year and input costs still high, we need to look at other ways to be more efficient with dairy herd and farm performance.

### Here are some considerations:

1

2

3

4

5

6

Increase cow feed push-ups to encourage Dry Matter Intake (DMI) especially if you're trying to increase forage intake. Increasing 1kg of DMI from forage can increase butterfats and milk production. Try to increase the push-ups to a minimum of six times per day and feed fresh feeds twice a day as this will help to reduce the risk of heating in the trough. Cows like to eat between 30-45 minutes at each sitting and between 8-12 times per day, so on average eating for around 6 hours a day.

Feed space is very important to maximise Dry Matter Intake (DMI) and push-ups can encourage animals back to the feed trough to eat, this especially helps heifers, lame cows and timid cows when space is limited at the feed fence. Feed space required for lactating cows is a minimum of 2ft or 60cm but preferred between 75cm -100cm.

Forage quality, chop length and mixing consistency of TMR are all areas that can cause cows to sort their feed. Sorting can cause inconsistent dung which can lead to decreased DMI, milk loss and stomach upsets. High inclusion rates of cereals which can be sorted due to mixing incorrectly can lead to sub-acute rumen acidosis (SARA). Low DM forage with high lactic acid and low pH can also be challenging to feed when not properly managed.

The environment provided for cows affects lying and eating time. With winters getting milder and wetter this can affect air flow. By reducing moisture levels, pathogens, cobwebs and dust, increasing air flow improves cow health and can increase cow performance.

If cows aren't lying down, they aren't producing milk. Cows should be lying down for between 12-14 hours per day. When cows are lying down there is 30% more blood circulating through the udder compared to when she is standing. A rule of thumb is for every hour the cow is lying down she will produce 1 litre more milk.

Watch cows at different times of the day to get an idea of their behaviour. Looking to see if cows can get up and lie down in the cubicle without hitting parts of the frame. Look for any shiny parts to indicate rubbing on the cubicle frame. Are there any restrictions for her to lunge forward? Cubicles should be sized for the largest cows in the herd and remember the purpose of the neck rail is to position the cow as she enters the cubicle and prevent her from standing too far forward and dunging on her bed. Too many cow sheds have the neck rail too far back and the cow ends up standing with her front feet on the bed and back feet in the passageway on concrete and slurry. Adjusting the neck rail forward where needed can improve lying times and herd performance.

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### Negative energy balance in dairy cows, how do we combat it?



By Ryan McPherson, NWF Ruminant Nutritionist

Dairy cows typically enter a period of negative energy balance in early lactation. This is due, in part, to the milk yield having increased over the years, while their ability to consume enough food hasn't increased at the same rate.

During periods of negative energy balance, the cow uses her body fat reserves to sustain milk production, and this is reflected in a loss of body condition. Excessive negative energy balance, such as cows getting very thin, can lead to health problems and poor fertility.

Milk yields normally 'peak' around 50-80 days after calving, while intakes do not normally peak until 70-90 days after calving. However, increasing the quality and nutrient density of the diet can allow cows to have higher nutrient intakes and as such, reduce energy balance to some extent. As expected, both milk yields and intakes increase with increasing lactation numbers.

### So, what can we do on farm to help mitigate a negative energy balance?

- Good transition management will ensure optimum rumen function and dry matter intake through the dry period into early lactation. Fresh cow groups are an excellent way of making sure early lactation cows can get the energy required. This isn't always possible on a lot of farms so having a standard crude protein base diet with a high energy lower protein compound fed in the parlour or out of parlour feeders is an excellent way of targeting fresh calved cows.
- Body condition scoring cows during the dry period and in early lactation can provide valuable information about transition weight loss. Peak negative energy balance occurs typically 2 weeks post calving and cows should return to positive energy balance approximately 50-60 days post calving, loosing more than 0.5 body condition score can lead to significantly more metabolic disease.
- Feeding high energy dense feeds like Propylene Glycol, Molasses or Evolution C18 Fat can increase dietary energy density to help reduce negative energy balance in the early lactation period when dry matter intake is limited. A 400 g/d supplement of Evolution C18 typically increases energy density by 0.4 MJ/kg DM.
- Regular silage testing each month also helps so that the diets can be balanced as efficiently as possible, and ensures fresh cows are getting sufficient energy. Clamp silages do change throughout the season. Forage analysis is free to NWF account holders and results are processed within 48 hours of receipt of sample.

### 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 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

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### Zero Soya Solutions: Feeding Sustainably

By Adam Clay, Head of Technical, NWF Agriculture



Demand to demonstrate greater soya sourcing transparency (deforestationfree) or complete soya removal is growing, all with a target to reduce dairy's overall contribution to carbon footprint, a movement few could argue with. Sourcing deforestation-free soyabean meal and soya products is of course not quite so easy. Availability is not consistent and zero contamination with deforested soyabean meal would be difficult to achieve by the time the finished product reaches the farm.

What is clear is the land use change associated with soya products significantly increases its carbon footprint, making up almost 90% of its overall contribution and taking newly deforested soyabean meal has up to 5x higher carbon footprint than non-deforested soya.

Removing soya products completely may be the chosen route, however, some key areas must be addressed as soyabean meal has some excellent properties. In particular soyabean meal is simply higher in protein, at circa 48% crude protein (fresh weight), its closest alternative rapeseed meal at 33% crude protein would have to be fed at 1.4kg to provide the same level. Soyabean meal is also higher in energy, at 13.6ME (DM basis), rapeseed meal supplies circa 10% less energy. Perhaps the biggest impact though is the quality of protein. Soyabean meal supplies approximately 14% more methionine and 65% more lysine, supplying higher levels of amino acids to the intestine.

To balance this, two key options remain. Utilising protected rapeseed meal such as Ultra Pro-R, with comparable lysine levels and increased methionine, Ultra Pro-R can be a strong alternative when energy is balanced.

The other option, all be it can still be used with Ultra Pro-R, is simply energy. Balancing rumen energy and rumen protein and driving rumen fermentation can stimulate microbial protein production which can wash through 'quality' protein into the intestine.

Therefore removal of soyabean meal can be nutritionally balanced through the use of Ultra Pro-R to supply the equivalent level of by-pass protein. Fermentable energy balance and indeed overfeeding energy can drive microbial protein production from the rumen to maintain milk yields and allow a reduction in total crude protein fed.

But will this be enough to actually drop the carbon footprint of milk production? Utilising the GFLI (Global Feed Lifecycle Analyses Institute) scale to determine CO2 equivalent, NWF Agriculture's Fusion range which contains zero soyabean meal, soya hulls and palm kernel has a 30% lower CO2 equivalent than an equivalent 'less sustainable' compound feed.

To answer the question can we balance diets without soyabean meal, the answer is yes, however, performance must be at least maintained or any reductions in CO2 equivalent are mitigated per litre of milk.

For information on zero soya feeding solutions contact your local NWF Sales Specialist or call 0800 726 2787.



### Maximising Diets with Molasses



Kim Stuart, NWF Central Regional Sales Executive

Following on from a mild winter during which grass growth didn't completely stop growing, we have faced a wet and warm summer which has delivered variable silage conditions and initial analyses results. Higher fibres however will challenge intakes, where molasses could play a key role.

#### The initial silage analysis results for early first cuts are:

- Increased levels of Lignin.
- Higher levels of NDF.
- Significantly lower levels of Sugar.
- Metabolisable Energy (ME) is lower than last year.
- Protein levels are lower than last years both crude protein and fermentable protein.

### How will silage results impact diets and how can molasses help?

Higher levels of lignin and NDF in the silage will lead to lower dry matter intakes as a result of slower rumen digestion plus reduced Rumen Fermentable Carbohydrates (RFC) and protein levels, ultimately leading to a drop in milk production. Using a molasses blend in the diet will add a source of RFC'S, in the form of sucrose (sugars) which break down in the rumen within two hours of feeding, therefore helping to balance the rumen, driving volatile fatty acid production to support higher levels of forage intake by increasing the breakdown of fibrous forages guicker and increasing palatability.

Another key point to consider is the sugar gap. A lactating cow requires 6-8% sugar in their diet, so with the significantly lower sugar levels in this years silages there is likely to be a substantial gap within the diet. Molasses, however, are an excellent source of sugar for ruminants as they are easily digestible, cost effective and are also high in 6-carbon sugars (Sucrose and Glucose).

Furthermore, given the reduced fermentable proteins in silage, consideration should be given to feeding molasses with regulated release proteins to balance the diets, with a multitude of protein levels to suit different diets there really is an option for every farm.

In summary, with the feed markets being volatile and poorer milk prices the pressure is on to find the most cost effective way to utilise forage to keep milk production strong, and despite market movements molasses remain competitively priced per unit of sugar and protein.

NWF Agriculture, in partnership with ED&F Mann, can supply bulk, mini bulk and tank options to help make molasses work for you.



### Molasses Range:

- Cane Molasses
- Economol
- Molale
- Stockmol 20
- Reumaize 65
- Regumaize 46
- Regupro 38
- Regupro 50
- Regumix 27

### Sustainable Feeding for Staffordshire Herd



James Tattersall and his family run Hundred Acre Farm in the heart of the Staffordshire countryside. Calving in July and August, the 130 head Friesian/ Jersey Cross are milked twice a day, with the herd averaging 7000 litres and milk constituent averages of 4.8% butterfat & 4% milk protein. The herd is rotationally grazed from early Spring to late Autumn to maximise efficiencies of homegrown forage. The calves are fed on NWF Calf Starter Pellets & NWF's Ultra Hi-Pro Heifer milk replacer, whilst the dry cows are supplemented with NWF's Dry Cow Mineral buckets in the lead-up to calving. Although not required to feed a soya and palm free ration by the Cheshire-based cheese manufacturer, Joseph Heler, Hundred Acre farm made the switch to the NWF Fusion to improve their farm credentials and operate more sustainably.

The NWF Agriculture Fusion Pro ration is a high-performing ration, containing high levels of NWF's protected range, Ultra Pro-R and Ultra Starch-W. This ensures that high levels of bypass protein and starch are available to support your herd. Manufactured with raw materials at the forefront of the ration, the NWF Fusion Range is free from soya, soya hulls & palm kernel, resulting in less than half the Co2 equivalent (GFLI number) of other compound feeds. NWF Fusion Pro is available in 16%, 18% and 20% protein.

"We have been working closely with NWF Regional Manager, Peter Blundell for the last six years taking a range of compounds and products from the NWF Wardle feed mill. Since making the switch in Autumn 2021 to the Fusion range, I am pleased with the increased milk yields and improved milk constituents, along with the drastic reduction in incidences of ketosis throughout the herd. I've also found that the ration is more 'gentler' on the rumen and results in fewer issues and keeps DMI high. The technical sales support from NWF Agriculture has greatly helped our herd get to where they are today, taking advantage of their state-of-the-art laboratory for grass & silage analysis".

In terms of the future, James states, "We don't have any plans for the near future for expansion or diversification. Our focus here at Hundred Acre Farm is to continue improving practices and efficiencies of the herd and livestock business through effective usage of feed, forage, technical support and herd environment".

NWF Agriculture would like to thank James Tattersall & family for their continued support and business.



### Winter Feeding Dairy Herds



By Paul Mardell, NWF Technical Development Management

The 2023 grass season has been very good in most regions with plenty of quality grass covers. This time of year is always a challenge when it comes to feeding dairy cows at grass. This Autumn has seen fantastic grass growth and on paper reasonable quality. With grass covers and grass still growing there will be a temptation to continue to graze grass as if it was summer. Grazing in the Autumn should be treated with caution ensuring not too much is expected from grazed grass and in most regions one should be expecting milk from grazing as a negative value.

	Scotland	North West	Wales & West	N East & Yorkshire	East	Last Week Average	This Week Average
Potential Grass DMI Kg/day	N/A	7.8	4.6	5.8	N/A	7.6	5.6
Milk from Grazing M+litres/ day	N/A	2.7	-5.7	-1.8	N/A	1.8	-3.0
NFEPB Milk Loss Litres/day	N/A	0.59	0.09	0.6	N/A	0.33	0.29
Milk Urea %	N/A	0.03	0.02	0.03	N/A	0.03	0.03

Source: Trouw Nutrition

This year's forage seems to be in plentiful supply although quality is a concern on some farms. Over the last three years, there has been an increase in both NDF levels and Lignin levels but a reduction in protein levels as well as DyNE. This silage will promote rumen health and rumen function but this less digestible forage will need careful balancing. This higher NDF silage will result in slower rumen throughput which will reduce overall feed intake and therefore performance. To help combat this, increasing levels of both rapid and slowly fermentable carbohydrates and proteins will help to balance the rumen driving production and rumen throughput. 2023 silage samples are very variable with a full range of results which has highlighted the need to continue sampling throughout the winter. This regular silage sampling will allow careful monitoring of the diet, using a specialist on farm rationing program such as NutriOpt to ensure herd performance is maximised.



Once on farm forages have been analysed you can start to build up a picture of what feeds and compounds you require to balance your particular silage and set performance targets for your cows.

### Set realistic targets for cows depending on:

- Forage quality
- Milk yield
- Milk composition
- Type and size of the cow
- Stage of lactation

#### **Ration Formulation**

Condition score

- Fertility status
- Calving pattern
- Milk purchaser contract requirements
- Once a realistic target has been set then look at requirements for energy, protein and minerals that the cow needs and predicted dry matter intake. When considering ration formulation always remember that two systems are being dealt with, the cow and the rumen. Feeding the rumen and rumen bugs is the number one priority. It is only when the rumen microbial bug's requirements are fully met that the rumen can function optimally so that the cow can make the best use of the feeds offered.

### Winter Feeding Dairy Herds (continued)

### Successful diet formulation requires:

- Adequate supply of nutrients and minerals for maintenance and production needs
- A balance of feeds to optimise rumen function, digestion and feed utilisation
- A palatable diet which is readily eaten ensures maximum dry matter intakes
- Practical approach in terms of equipment used, feeding system and facilities available
- Ensuring optimum use of forage and home produced feed
- As cost effective diet as possible (It's not just about price - look at overall performance)

### Dry matter intake

The total amount of feed eaten in a day is influenced mainly by bodyweight and milk yield. A dairy cow, as a rule, can eat on average around 3% of its total bodyweight each day as dry matter, this could reach 3.5 to 4 % of bodyweight for higher yielding cow`s. Getting sufficient dry matter intake into cows is the key driver for production and can be a problem, especially in early lactation when appetite is low but the energy demands are at their highest.

There are also other influences on dry matter intake which need to be considered including -

- Method of feeding
- Presentation of feed
- Trough space and barrier design
- Time allowed feeding
- Dry matter content of the diet
- Forage quality
- Condition score
- Lameness status
- Stage of lactation
- Water availability
- Environment

### **Diet specification**

The type and quality of forages you have available will largely influence the final diet composition, as forage should make up more than half of the diet. Always check that feeds being offered will complement your homegrown forages; are value for money; and will achieve the diet composition you require, taking into account their dry matter, energy and protein as well as storage and feeding constraints.

To achieve levels of performance required, in addition to energy, protein and fibre the diet must also provide adequate levels of minerals and trace elements.

#### **Monitor performance**

The performance of the cows should be monitored closely to ensure that the diet being fed is producing the desired results not just in terms of milk yield but also milk composition, condition score and fertility.

### If you feel you are not getting the results check

- Take a forage sample and check the analysis
- Is the diet balanced?
- Are diet forage intakes as expected?
- Check rumen fill
- Check weigh scales and feeding equipment
- Do cows have sufficient access to feed, is there enough trough space?
- Is silage/feed deteriorating in the trough?
- Do cows have access to adequate clean water?
- Check milk quality is it what you expect?
- Check for signs of acidosis and ketosis
- How are the cows grouped?

NWF forage samples are analysed at the accredited laboratory at the Wardle head office site in Cheshire and results supplied within 48 hours of samples received.



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### Why Ultra Pro-R could be your answer to more sustainable farming.



by Abbey Firman, NWF Northern Technical Specialist



NWF Agriculture has been manufacturing high quality protected feeds for over 10 years, with the 'Ultra' brand trusted and supplied to dairy and beef units across the UK. The manufacturing process is a precise treatment to produce high quality proteins that deliver an increased MPB value (metabolisable protein) to ruminants, as well as being rich in essential amino acids.

#### So why is this beneficial?

Firstly, by providing a higher MPB to dairy cows, you can achieve overall lower protein diets. Did you know that if **you're feeding 1kg of Rapeseed Meal on farm you can replace it with 0.7kg of Ultra Pro-R and offer the same level of available protein.** This 0.3kg of available rumen space we just freed up can now be filled with on farm forage or cereals to balance energy.

In addition, amino acid supply is vital to our early lactation cows. Firstly, for muscle regeneration and repair after she has just calved and secondly for peak milk production and milk proteins. By supplying these essential amino acids, we are reducing her workload by providing her with balance and supply to perform and re-build her condition.

#### Now, how does this affect how you feed on farm?

With the surrounding conversation about 'Soya Free' diets, it begs a question of 'Can my cows still perform as well if we do remove soya?'. In short, yes. Let's look at soya directly against Ultra Pro-R and see how they compare.

	Soyabean Meal	Ultra Pro R	Rapeseed Meal	
Bypass supply	38% (179g/kg)	76% (259g/kg)	30.3% (103g/kg)	
% Protein	48%	33%	33%	
Cost per tonne	£438	£330	£310	
Accepted on Arla Points?	NO	YES	YES	

Considering the bypass values of each of these feeds, we can see that **Ultra Pro-R offers the highest bypass level of protein to dairy diets**, even compared to soya. Comparing the two on a crude protein level you will also see that whilst Ultra Pro-R **replaced rapeseed at 70% inclusion, we could also replace 1kg of soya completely with 1.3kg of Ultra Pro R** to provide an attractively enhanced level of MPB to the herd.

Part of the NWF research completed looked at the cost per 1kg of MPB supplied in dairy diets. Here we compared Ultra Pro-R against conventional rapeseed, soya and two other well-known brands of 'protected' rape on the market today. You will see from the chart on page 24 that **Ultra Pro-R was the most cost-effective way to feed MPB**, even against soya.



### Cost of including 1kg of by-pass protein (MPB)



NWF customer Newcastle University was looking to maintain or improve milk yields whilst removing soya completely from their diets. In partnership with NWF they have achieved great results. The University Farm milks 240 Holstein Friesian cows in a spring block calving system, at Nafferton Farm in Stamfordham and supply milk to Arla – they are a soya and GM Free system.

#### Dairy Manager, Gareth Hancock had this to say on Ultra Pro-R:

"We had a seamless transition from soya onto Ultra Pro-R four years ago and we haven't looked back since. The product is easy to store and does exactly what we need it to within our cows. One of the major benefits to us was the 70% feed rate of conventional rape. It has always made the product very competitive and profitable to our business." As the push to 'Soya Free' diets increases and particularly the introduction of the new Arla Point scheme this year, it pays to look at alternatives to soya with some background on how that can benefit **you as a business**.

### Let's break it down...

### Take a farm milking 200 cows and feeding 0.5kg/h/d of straight soya in his diet. He is averaging 32 litres per day and purchasing Soya as a straight @ £438/tonne.

If we replace Soya on a 1:1.3 ratio with Ultra Pro R @ £330/tonne, we can increase the supply of bypass protein provided to his herd, and have a feed cost saving of £27 per month. (0.65kg x200 cows = 130kg per day x 30 days x £108/tonne saving on Pro R).

However, this farm is also an Arla customer, so by removing the soya from his diet he has gained an additional 11 points on his sustainability points system, equating to 0.44ppl increase on his milk cheque.

For a 200-cow herd, averaging 32L per day, this small increase in ppl equated to a massive **£873 per month**. Add in feed savings and we are saving **£900 per month**!

As pressure increases to be more sustainable, NWF can provide the expertise to supply alternative feeds that improve milk production, cow health and financial savings. The 'Ultra' range of protected feeds are proven to benefit dairy business and retailers, by offering more sustainable products to the public.

For advice and ration review to look at options for zero soya diets, particular using Ultra Pro-R, contact your local NWF Sales Specialist or call 0800 726 2787.



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### University of Nottingham dissertation insight



By Louisa Lloyd, NWF Technical Formulator

In September NWF Agriculture welcomed Louisa Lloyd to the Technical team following her graduation from the University of Nottingham. As part of Louisa's studies she undertook a dissertation which also won the Best Animal Nutrition Poster whilst presenting her MSc dissertation poster at the University of Nottingham's PGT Research Poster Symposium. Louisa shares a summary from her dissertation.

### The dissertation is titled "The effect of increasing the milk yield and feed efficiency of dairy cows on fertility and the subsequent carbon footprint of milk production."

Milk and meat production from dairy farms currently contributes 4% to all global greenhouse gas emissions, however, this is expected to double over the next decade. This is due to a predicted 1.4% annual increase in demand for dairy protein and a concurrent increase in milk yield and feed efficiency of dairy cows, which may affect the resumption of ovarian activity.

This study was conducted using data collected at the University of Nottingham's Centre of Dairy Science and Innovation (CDSI) between 2009 and 2013. 228 Holstein-Friesian dairy cattle were used to assess the effect of milk yield on the postpartum interval to return of ovarian activity and subsequent calving interval, feed efficiency, replacement rate and carbon equivalent (CO2-eq.) footprint of milk production.

The postpartum interval to return of ovarian activity was assessed using the postpartum interval to first progesterone rise. Cows that exhibited their first significant progesterone rise after day 44 postpartum were considered to be experiencing delayed ovulation.

Cows that exhibited delays in the postpartum interval to the resumption of ovarian activity (P<0.001) had a longer postpartum interval to conception (P<0.001), and lower conception rate to first service (P<0.001) compared with cows that had a typical postpartum interval to return of ovarian activity. Cows that had a delay in the postpartum interval to return of ovarian activity increased the CO2-eq. associated with herd replacements (P<0.001) and infertility related to a calving interval longer than 365 and 375 days (P<0.001) (Table 1).

In conclusion, cows producing more milk had a tendency to be delayed in the return to ovarian activity post calving. They also experienced delays in the postpartum interval to the resumption of ovarian activity extended the calving interval and increased herd replacement rates, which substantially increased the CO2-eq. of dairy herds.



Table 1: Mean  $(\pm SE)$  parity, postpartum interval (PPI) to conception, conception and pregnancy rate, and calving interval of dairy cows that exhibited delayed and typical postpartum interval to the resumption of ovarian activity

	Postpartur ovarian		
	Delayed	Delayed Typical	
Observations, No. cows	71	157	-
Parity, No.	3.2 (±0.25)	2.7 (±0.12)	0.032
Interval to first P4 rise, d pp	37.7 (±2.61)	27.6 (±0.80)	<0.001
PPI to first insemination, d	77.7 (±3.11)	66.2 (±1.71)	<0.001
Conception to first insemination, %	24 (±0.2)	38 (±0.4)	0.034
PPI to conception, d	129 (±14.0)	92 (±5.4)	<0.001
Pregnancy rate, %	78 (±0.9)	89 (±0.9)	0.121
Calving interval, d <sup>1</sup>	412 (±40.6)	375 (±22.3)	< 0.001

1 – Calculated from the postpartum interval to conception, plus a gestation of 283 d for all pregnant animals

## **Cracking Colostrum**

Jenny Bellini, LLM Farm Vets





An increasing amount of time and resources are being invested in calves, as farmers recognise their importance in future-proofing their dairy herds. Colostrum plays a vital role in lifetime health and performance: a golden bullet to prevent problems before they begin! There have been huge improvements in how and when colostrum is fed, but are we doing enough to improve the value of the colostrum itself?

Vets often get asked about factors causing low colostrum yield and quality, both of which can be frustrating problems to deal with. A study published by Cornell University in 2021 followed 18,000 dairy cows to calving and monitored a range of factors which could affect their colostrum quality and/or volume. The key findings are discussed below, relating to the cow, her environment, and her diet during the dry period.

### **Cow Factors**

- **Parity.** Colostrum quality (Brix %) was higher in older cows. However, heifers still produced high quality colostrum, 76% produced colostrum with Brix value greater than 22%. Second lactation cows produced the greatest colostrum volume.
- **Calf viability.** Cows delivering live calves had an increased colostrum yield.
- **Calf sex/twinning.** Cows that had either a male calf or twins had greater colostrum yield.
- Dry period length. Cows with longer dry periods (60 days versus 30-40 days)

had an increased colostrum yield, but no difference in quality. A dry period greater than 67 days was associated with increased quality, and 0 days saw a significant drop in quality.



### **Environmental Factors**

- **Season.** Cows which calved in the summer months (May/June/July) had an increased colostrum yield, but slightly lower quality.
- **Temperature Humidity Index (THI).** An increased THI was associated with an increased yield and reduced quality in this study, a similar pattern to the seasonality.
- **Stocking density.** A higher stocking density was associated with reduced quality, but not a reduced yield.
- **Time to harvest.** Colostrum which was collected more than seven hours after calving showed a significant yield and quality reduction.
- **Light.** Increased light intensity was associated with increased colostrum yield in multiparous cows.

### **Nutritional Factors**

- **Days on close-up dry cow diet.** This study found no association with colostrum yield or quality. However, previous work found a reduction in yield when cows were on close-up diets for 10 days compared to 21 days.
- **Energy density.** Increasing the energy density of the diet to 150% in the four weeks pre-calving reduced colostrum quality.
- Crude Protein. Diets with 13.6-15.5% protein were optimal for colostrum yield.

This was one of the largest studies ever done looking at factors affecting colostrum volume and yield, and by looking closer at some of the factors above on your farm you could improve your colostrum harvest.

### Measuring colostrum success

0800 756 2787

Once you've cracked the above and maximised colostrum quality and volume, the success of your colostrum protocols can be assessed by blood sampling calves to measure serum total protein. The aim is for as many antibodies from the dam to pass from the colostrum into the bloodstream of the calf, which protects the calf against disease until the calf has developed its own immune system. Many factors affect this transfer, including colostrum cleanliness, method of feeding and timing of feeding, but we'll have to save those for another time!

Targets for serum total proteins are shown in the table below. The 2021 Cornell study found that calves in the fair and poor category were 5% and 10% more likely to die. Calves in the excellent category were less likely to develop disease.

Category	Total Protein (g/dL)	Target for herd (% of calves)
Excellent	>6.2	>40
Good	5.8-6.1	~30
Fair	5.1-5.7	~20
Poor	<5.1	<10

Prevention of disease is becoming increasingly important to help maximise profitability and sustainability of your herd. There could be some easy wins with your calves by looking at your colostrum in a bit more detail.

### Slowdown in GB milk production expected for 2023/24



By Susie Stannard, Lead analyst: Dairy at AHDB

### GB milk production for the 2023/24 season is forecast to reach 12.32 bn litres, 0.5% less than the previous milk year, according to AHDB's September forecast update.

The milk year so far has run ahead of last year's production being driven by the higher prices seen at the end of 2022/beginning of 2023. This led to higher than expected yields and a slowdown in the rate of cows leaving the herd. In addition, favourably wet weather through the majority of the summer led to exceptionally high levels of forage availability keeping production ahead of last year.

However, the expectations are now that with a much lower milk price and still eye-wateringly expensive input costs, many farmers could be facing a winter crisis in cash flows. This will be further exacerbated by rising interest rates meaning the cost of borrowing and overdrafts are much higher. In addition to that many will be hit with a bumper tax bill following the last year of high milk cheques.

The milk-to-feed-price-ratio (MFPR) has now reached 1.05, a level which would normally indicate that milk supplies will contract. Historically when this ratio gets around 1.15 we would expect milk production to fall. This is before we take any account of increases in other input costs such as fuel, energy and fertiliser which may have eased off a little in recent months but are still well above their more "normal" values.

There will be little incentive for farmers to push cows and herd reductions could be made to boost cash flows later in the Autumn/Winter. AHDB have factored in a reduction in cow retention rates in the herd to account for these difficulties. Up to this point slaughter numbers have been variable. Culling levels were ahead of the 5-year average in March, May and June to take advantage of high cull cow values. However, levels were below average in April and in July and August culling rates were very low to take advantage of the bounty of grass meaning that overall the reduction in herd size has been at the lowest rate in 5 years. This can't continue for long based on on current costs of production and AHDB estimate further culling going into the Autumn. Therefore, AHDB expect that milk flows will begin to dwindle, steadily in the short term, with potential for some bigger reductions in the early part of 2024.

There is a risk that some farmers may elect to keep their foot on the production pedal to keep their overall milk cheques at a reasonable level. However, bearing in mind current costs of production, chasing marginal litres for a headline milk cheque could be damaging for on-farm profit margins but also contribute further towards the current over-supply issues.



#### **GB milk production (Sep-23 forecast)**



### **GB milk production forecast - September 2023**

m litres	2021/22	2022/23	2022/23	2022/23	2023/24	2023/24
	Actuals	Actuals	Forecast	Yr-on-yr	Forecast	Yr-on-yr
Apr	1,094	1,098		0.4%	1,095	-0.3%
Мау	1,135	1,141		0.6%	1,140	-0.1%
Jun	1,041	1,045		0.4%	1,040	-0.5%
Jul	1,019	1,028		0.8%	1,020	-0.8%
Aug	989	997		0.8%	990	-0.7%
Sep	976		970	0.6%	965	-1.1%
Oct	1,033		1,025	0.8%		
Nov	1,006		995	1.0%		
Dec	1,025		1,010	1.5%		
Jan	1,031		1,015	1.6%		
Feb	950		925	2.6%		
Mar	1,088		1,070	1.7%		
Year	12,386		12,319	0.5%	6,250	-0.1%

Source: AHDB. Note: Figures in italics are forecasts. A 28-day equivalent is used for Feb-24.

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