

Edition 1

NWF Youngstock Brochure



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NWF Agriculture is a national supplier of high quality dairy, beef and sheep feeds.

Whatever your farming system we can meet your needs for compound feeds, blends, straights and associated products.

All our feeds are backed by our extensive technical services to ensure livestock perform to their potential. Our sales team provide expert advice and solutions to help farm businesses.

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Louisa Lloyd: Head Office Technical Support

Louisa grew up on a dairy farm in North Wales and always had a keen interest in animal productivity and welfare, especially youngstock. This led her to complete an MSc in Animal Nutrition at the University of Nottingham where her interest in youngstock grew. Louisa is focused on improving farm sustainability through maximising efficiencies and youngstock management.



Lucy Richardson: Cheshire and Midlands

From growing up and working on her family dairy farm in Cheshire, to studying for a technical diploma in agriculture at Reaseheath College, Lucy has a passion for improving youngstock management to help farmers maximise their calf-rearing enterprises. Lucy previously worked as a calf rearer, focussing on driving DLWG and calf health to support the future milking herd.



Jessica Wakefield: Cornwall, Devon and South West

Growing up on a beef and sheep farm in Cornwall, Jess took on ownership of calf rearing from a young age. After completing a degree in Agricultural studies at Plymouth University, Jess worked as a calf rearer whilst buying and rearing her own youngstock. Alongside her role at NWF, Jess operates a beef suckler and finishing unit in Cornwall.



1 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 calf 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 colostrum IgG.

2 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.

3 Comfort

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



4 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 calf milk replacer, careful consideration should be taken to product type, overall digestibility of the protein and energy and 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.

Daily liveweight gain (DLWG) continues to be an important metric when assessing KPI's set for the calf rearing period. When set alongside other indicators related to performance it allows each unit to reach new levels of calf rearing. Set objectives for optimal development, resilience to disease and longevity. This provides insight into the next generation of productive replacements coming through into the herd whilst 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.

Nutrition and Feeding

The starting point for any successful rearing unit is a high-quality calf milk replacer (CMR), which in the first 10 weeks of life will be the primary source of energy for growing calves. Growth rates at this stage are important as they influence body weight at breeding (55-60% mature weight) and can impact the heifer's age at first calving. This has a huge economic impact as heifers calving down at 24 months will typically have a payback at the second lactation. However, calving at 30 months can delay the return on investment by an entire year. In addition, preweaning growth rates influence how much milk is produced in the first lactation; getting this growth stage correct is essential to the productivity of a mature cow.

Ensuring the starter feed is formulated to meet nutrient requirements using high quality, palatable raw materials is fundamental to health and performance. Eating solid feed is a learned response, and how it is presented will have a big influence on how quickly the calf will sample it. Buying a palatable formulation is just the first step, it has to be offered fresh every day, in clean, easy to reach troughs/buckets to encourage intakes early. From day one, calves should be exposed to starter feed, even if it is a small amount in a shallow bowl. Before weaning, calves should eat at least 2.5kg of starter per day (and over 6 weeks of age).

Developing the rumen is more than just CMR and starter feeds. The addition of straw has proven to be beneficial for several reasons: acts as a bulking agent, stretches the rumen, and also helps prevent parakeratosis (which is a hardening layer of keratin cells and presents a physical barrier along the papillae). For maximum intakes, straw should be chopped 1-2 inches in size and just like the starter feed it should be provided fresh each day. It is important forage is provided in racks off the ground to not encourage calves to eat dirty bedding.

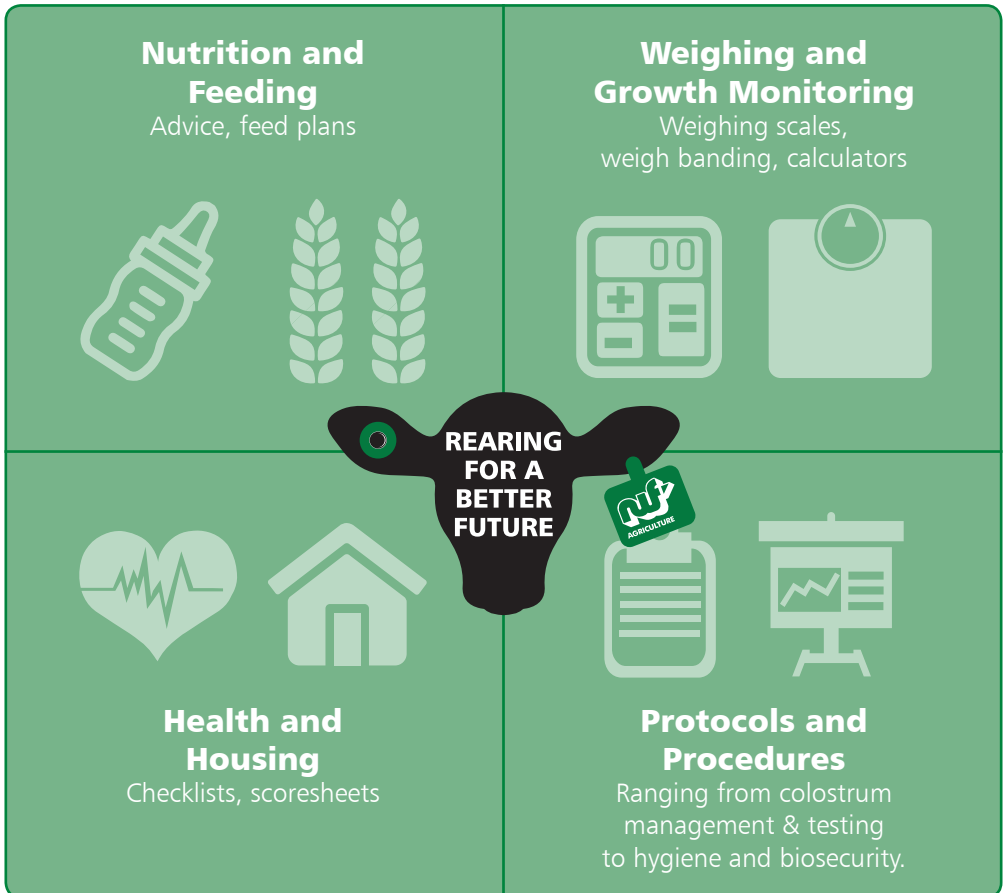


The NWF Youngstock team understand the importance of regular weighing for calf health and growth. That's why NWF Agriculture offer a free monthly weighing service. Our experienced team will track each calf's progress, providing detailed reports and personalised recommendations for optimising their care, and suggestions on how to increase their daily liveweight gain.

Weighing equipment is calibrated to ensure accurate and reliable measurements, providing precise data and a monthly report to assist with decision-making. Regularly monitoring body weight and growth can indicate potential issues in your system, and through their technical and youngstock training, the team can offer appropriate advice.

Protocols and Procedures

The NWF Youngstock team can provide advice and services ranging from testing colostrum and monitoring growth to devising protocols and staff training.



The environment where calves are housed is key to rearing healthy and productive calves. Location, wind speed, ventilation and moisture are all key components for calf housing, where calves must have sufficient space to express normal behaviour; to stretch and groom, stand up, eat, sleep and play. While there are various housing options for calves, all must be tailored to the needs of the animal, with the goal of maximising performance, optimising health and adhering to welfare standards.

The NWF Youngstock team provide advice on a range of housing elements, including airflow and lying space. Conducting simple tests such as nesting scores is a great way to assist and improve calf housing.

Temperature

Regardless of the housing system, a newborn calf will feel cold when the temperature drops below 10–15°C. The temperature felt by a calf is a combination of the ambient air temperature, airspeed and relative humidity.

When calves feel cold, they will spend more time lying down, which reduces the external body area exposed to the atmosphere, so it is important to consider lying space and bedding when designing your calf shed.

Stagnant air can be contaminated with dust, moisture, ammonia and viruses, which can cause pneumonia. Cobwebs in buildings and condensation on the underside of roofing are signs of poor ventilation. Many buildings used to accommodate calves can be improved by modifying the sidewall cladding or inlet ventilation to improve the natural airflow.



The youngstock enterprise is the future of the herd, and the way it is managed has a direct impact on the future success of the overall herd.

Key questions to improve your youngstock system:

1. What will be the maximum number of calves on milk at any one time?

- Check your calving records.
- Include a two-week post-weaning period.
- Consider the need for empty pens for effective cleaning.
- Allow for flexibility in the event that movements are restricted (e.g. adverse weather or tuberculosis restrictions).

2. What are your future plans for the business?

- Is this a stop-gap or a 10-year investment?
- Will your cow numbers increase?
- Might the system need to adapt, e.g. to different calving systems?

3. What is the preferred feeding system?

- Individual buckets, trough feeders, automatic calf feeder etc?

4. What is the likely pen size?

- Your pen size should fit your preferred feeding system and be dictated by your calf group size.



Myth

1

Calves should only be fed up to 2 litres per meal

As the calf's rumen develops it becomes less desirable for the milk to enter as it can change the pH and microbiota, causing digestive problems and potentially reducing growth. Many farmers assume the capacity of the abomasum is around 2 litres and that feeding more risks abomasal overload with liquid feed entering the rumen. However, science does not back this up; higher feeding rates can be achieved even if only feeding twice a day.

Data from Ellingsen et al. (2016) showed three-week-old calves will voluntarily consume up to 6.8 litres in one meal without milk entering the rumen or any indications of abdominal pain or discomfort.

Other data confirms that the abomasum can accommodate more than 2 litres of fluid. Calves slow down the rate of abomasal emptying to control blood glucose, so exaggerated rises in blood glucose and associations with insulin resistance are not a problem when feeding larger meals.

Myth

2

Feeding more milk solids costs more

Feeding more milk solids costs more than starter feeds, but the return on investment needs to be considered when evaluating overall cost-effectiveness. Feed conversion efficiency is much higher during the first weeks of life than at any other point in the growth cycle. This economic benefit is largely due to the link between improved growth and the associated benefits of reproductive and lactation performance.

Professor Àlex Bach showed that every 100g of average daily gain in the first two months of life, gives approximately 250kg of extra milk in the first lactation. Reproductive performance improves as faster maturing heifers can be bred earlier. Increased longevity means cows produce more milk and are more resilient to disease, staying in the herd longer and reducing your cull rate.

Myth

3

Cow's metabolism cannot be permanently changed

Variations in metabolism mean some cows produce more milk whilst others are more prone to disease, but it is a misconception that these variations are only determined by genetics.

Metabolic programming means external factors can alter gene expression over time without affecting the gene sequence. This underpins the LifeStart heifer rearing approach, which optimises calf nutrition in the first 60 days to maximise genetic capacity later in life and achieve greater performance.

The first two months of life is the optimal time to programme the metabolism. Research shows a high plane of nutrition improves calf growth rates and organ development and has a long-term influence on many of the metabolic pathways that underlie productive processes as well as the development of the immune system and the gut microbiome.

Myth

4

Elevated planes of nutrition have no effect on health post-weaning

It seems logical that if you feed calves more, they will grow more. But what is the effect on their health?

Nutrition can influence the development of the gastrointestinal tract and its immunity, both vital for short term health and longer-term resilience to disease. In one study Holstein calves fed a higher plane of nutrition of milk solids had better hydration and faecal score improvement following *Cryptosporidium parvum* challenge at three days of life. (Ollivett et al., 2012)

Another study looking at effects on post-weaning health; cows previously fed a low plane of nutrition pre-weaning had a decreased ability to kill *E.coli* a month after weaning, compared to those fed a high plane (Ballou, 2012). Similarly, Ballou et al (2015) showed that calves fed higher levels of milk solids before weaning had improved resistance when challenged with *Salmonella* one month after weaning.

The data suggest that feeding a high plane of nutrition pre-weaning can improve immune development and the health of calves before and after weaning if implemented correctly.

Myth

5

Feeding elevated planes of nutrition gives calves scour

Many farmers are reluctant to feed a higher plane of nutrition believing that the increased milk solids cause scouring.

However, studies show that loose faeces when feeding more milk solids do not usually mean a calf has a disease. Liang et al. (2016) showed although calves fed a higher plane of nutrition had higher faecal scores than those fed a restricted diet, there was no difference in the faecal dry matter content. There was no difference in energy digestion and protein digestion and retention were higher in those calves fed more milk solids.

The benefits of a high plane of nutrition for average growth, development, resilience to disease and lactation performance are well documented. Nutritional diarrhoea may occur if certain nutrients like lactose are oversupplied so it is vital to focus on the quality and formulation of the milk replacer to ensure it is suitable to feed at high levels.



Youngstock Feeds

NWF Agriculture manufactures a comprehensive range of high-quality youngstock compounds and blends, specifically formulated to improve calf growth rates and calf health. All NWF feeds are manufactured at our UFAS approved production sites located in Cheshire, Cumbria and Devon, with feeds delivered direct to farm or available for collection.

| | |
|--------------------------|---|
| NWF Calf Pellets | A high-quality starter pellet that is suitable from birth until weaning. A high energy, palatable feed formulated to promote early intakes and rumen development. |
| NWF Vital Rearer | A specialist diet to complement a grass silage-based diet. Available in a range of proteins. |
| NWF Super Rearer | A specialist diet to complement a grass silage-based diet. Available in a range of proteins. |
| NWF Deluxe Rearer | A specialist diet with elevated protein levels to suit straw systems. |
| NWF Fusion Rearer | A specialist rearer diet to complement grass silage and grass-based diets. As part of NWF's Fusion range, Fusion Rearer is soya and palm kernel free. |

Available in a range of proteins.



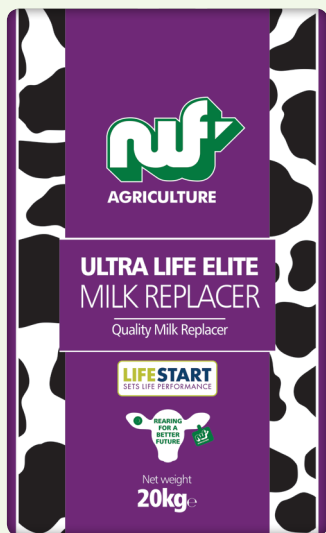
The use of blends in youngstock systems can offer significant benefits when looking to feed calves a nutritionally balanced, cost-effective diet, whilst reducing overall feed costs. NWF Agriculture manufacture a range of standard and bespoke blends, using a wide range of high-quality raw materials.

| | |
|--------------------------|---|
| NWF Sweetstart | A premium starter mix, excellent for promoting early intake. |
| NWF Coarse Calf | A high-quality calf starter ration available as a 16% or 18% protein mix. Contains high levels of hipro soya, sugar beet pulp and micronized flakes. |
| NWF Heifer Max | An excellent second stage 18% protein follow on diet from Sweetstart or Coarse Calf diets. Formulated to ensure weaned calves maintain excellent growth rates through to calving. |
| NWF Progress Plus | In addition to the essential vitamins and minerals, Progress Plus has high binding properties which limit the colonisation of harmful bacteria in the intestine. At the same time as supporting the microflora by favouring the development of beneficial microbes. This helps maintain feed utilisation and growth performance when the calf's health is challenged. |

Speak to your NWF Youngstock specialist about our comprehensive range of compounds and blends for youngstock, dairy and beef.



Milk Replacers



NWF ULTRA LIFE ELITE **22.5% Protein, 22.5% Oil**

LIFESTART
SETS LIFE PERFORMANCE

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

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

LIFESTART
SETS LIFE PERFORMANCE

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

NWF ULTRA LIFE - WHEY **24% Protein, 20% Oil**

LIFESTART
SETS LIFE PERFORMANCE

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

MILKIVIT ENERGIZED **CALF MILK REPLACER**

LIFESTART
SETS LIFE PERFORMANCE

22.5% Protein, 25% Oil

A LifeStart accredited skimmed milk replacer to support optimal development, resilience to disease and longevity of calves.

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

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.

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 HI PRO HEIFER **26% Protein, 17% Oil**

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

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

NWF's most popular milk replacer. A 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 milk 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 Greenguard to support digestive health and performance.

Minerals and vitamins are essential components of all livestock diets. The NWF Youngstock team can review current feed rations and analyse forage to match appropriate minerals.

| | |
|--------------------------------|---|
| NWF Ultramin Youngstock | A robust youngstock mineral, specifically designed to support growing cattle. |
| NWF Cattle GP | General purpose mineral bucket specifically designed for dairy cows, suckler cows, youngstock and store cattle. Available in 20kg or 80kg buckets. |
| Calf Renova | Calf Renova is an easy-to-use bolus containing a source of natural ingredients. When calves are susceptible to scouring or at first signs of diarrhoea, helping them recover their hydration status and appetite for continued growth is the top priority. |
| BlueLite® C Hydratabs | BlueLite® C Hydratabs is a highly palatable electrolyte supplement providing oral hydration support to pre-weaned calves. BlueLite® C Hydratabs can be administered with milk, milk replacer or water to enhance digestion, and has been proven to be an effective and easy way to calves maintain hydration. |

For the cow

| | |
|-------------------------|---|
| Fresh Cow YMCP | A total fresh cow solution providing rehydration and essential nutrients for optimum peak yields. |
| Rumen Yeast Caps | A source of yeast a vitamins in an easy-to-use to be used at off-feed events. |
| Bovine BlueLite® | An easy-to administer electrolyte, Bovine BlueLite® is very palatable, buffered, and provides added energy sources and vitamins necessary to help recover from dehydration. |

INTERACTIVE SALES MAP



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Specialist



More than feed...

NWF Agriculture supplies a comprehensive range of associated products for dairy, beef and sheep, ranging from minerals and molasses, to milk replacers and silage additives, and everything in-between.



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