

Working to **secure your future**

Issue 16 2026

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LIVESTOCK IMPROVEMENT

# New genetic base cow now in effect: From 2005 to 2015

## The Role of Breeding Worth and Breeding Values

Breeding Worth (BW) and Breeding Values (BV) report an animal's genetic merit against a genetic base reference point, which is set at zero.

New Zealand has one genetic base for dairy animals against which all breeds are compared. The base reference point ('genetic base cow') is the average of a representative group of animals born in a certain year, and is updated at regular intervals, (a 'base change'). The base change ensures relevant comparisons amongst the current population can be made by reflecting genetic progress.

## What the Base Cow Update Means for Breeding Worth

In June 2025, the genetic base cow was updated from a 2005 to a 2015 born animal.

In those 10 years, significant genetic progress was made. As a result of the reset, you'll notice that Breeding Worth (BW) values for all animals have dropped.

This drop in BW does not indicate a reduction in the genetic worth of the animals - it's simply a recalibration.

On average, the cows in the 2015-born base were able to breed replacements who were \$185 more profitable than those of the 2005-born base cows, hence BW was scaled back by approximately \$185.

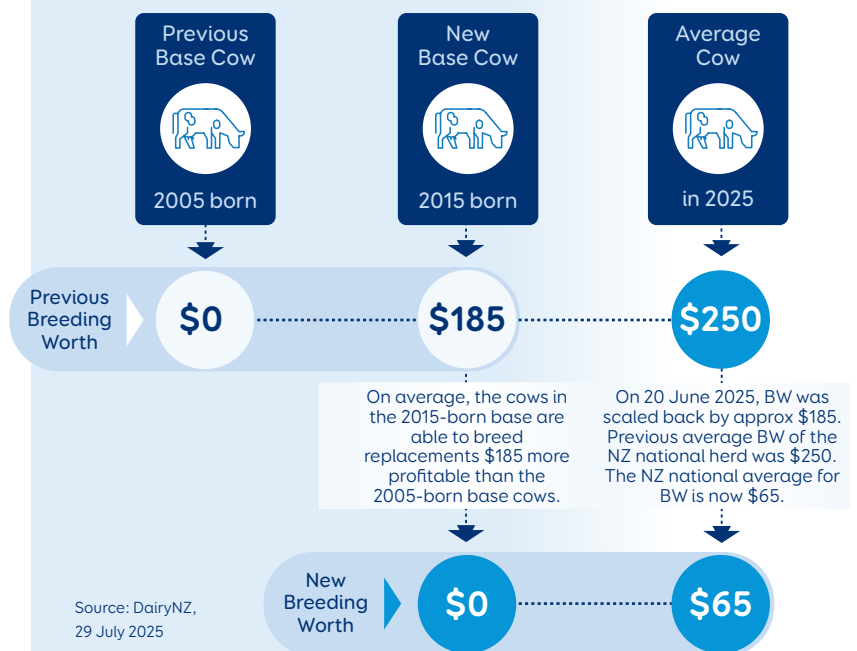
Prior to 20 June 2025, the average BW of the NZ national herd was \$250; after the base change it is \$65\*.

The new 'genetic base' group consists of approximately 100,000 well recorded cows born in 2015, with the following breed breakdown:

- Holstein-Friesian: 22.8%
- Jersey: 8.1%
- Holstein-Friesian-Jersey crossbreds: 61.8%
- Other (Ayrshire, Milking Shorthorn, other breeds and their crosses): 7.3%.

Source: Dairynz.co.nz.  
Accessed 29.07.25

## 2015 Born Genetic Base Cow: The Impact on Breeding Worth



## Four changes to note from the 2025 genetic base cow change.

- 1 Breeding Worth (BW) for all cows, bulls and heifers decreased by approximately \$185 in June 2025.
- 2 The NZ national average for BW was \$65.\*
- 3 This decrease in BW is due to a routine base cow change and does not represent a reduction in value or loss of genetic merit in dairy animals.
- 4 The drop was near identical across all animals.

For more detail visit:  
[www.dairynz.co.nz/animal/breeding-decisions/genetic-base-cow/](http://www.dairynz.co.nz/animal/breeding-decisions/genetic-base-cow/)

# South Dyke Farm: Resilience and Efficiency in Grazing

When James Tweedie's cows hit nearly 1.8 kg of milk solids per day this spring - despite severe drought conditions - it was testament to two decades of strategic breeding decisions that began with devastation.

Nestled in the Cumbrian countryside, South Dyke Farm is a shining example of both agricultural heritage and forward-thinking innovation. This family operation, dating back to 1931 and now in its third and fourth generation, has transformed adversity into opportunity through bold decisions and a willingness to challenge conventions.

## RISING FROM ADVERSITY

In 2001, South Dyke Farm faced devastation during the foot-and-mouth outbreak that wiped out their entire herd. For many farms, this might have marked the end; but for the Tweedie family, it served as a catalyst for transformation.

"The foot-and-mouth outbreak in 2001 meant we lost everything," James Tweedie reflects. "But in a way, it served as a reset button for our entire approach to dairy farming."

That reset came in 2002 when South Dyke Farm discovered LIC in the UK. Inspired by New Zealand farming systems, South Dyke transitioned from a traditional British grazing system (six months in, six months out) to an intensive grazing model with a three-week spring calving block.

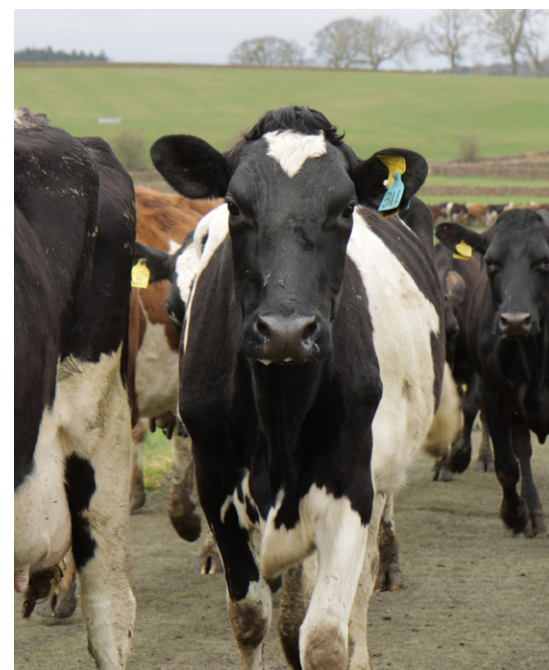
## GENETICS TAILORED FOR EFFICIENCY

South Dyke Farm's journey with New Zealand genetics began long before their transformation. "We first used NZ genetics in 1982," James explains. "We found that the NZ Friesian suited our system well."

Following the 2001 outbreak, the farm took bold steps to rebuild their operation. They purchased two distinct herds, one Jersey and one Friesian, and spent five years crossbreeding to develop cows optimised for grazing efficiency and milk solids production. Today, their herd includes genetics from sires like Kryptonite (praised for short gestation and easy calving), Jersey sire Lucca, KiwiCross® bulls Flash Gordon and Jaq, and Friesian bull, Darius who was used as a crossbreeding option for the Jerseys due to his consistently low birth weights.

James notes, "Kryptonite was heavily used in our last AI. We've been very happy with the results. Early and easy calving, high vigour of calves, and easy management."

The farm currently manages 370 calving cows and breeds 25% replacements to build their herd to desired levels, though they aim to reduce this to 18% once they reach their target numbers.



## A STRATEGIC APPROACH TO BREEDING

These carefully developed genetics come into sharp focus during the farm's intensive three-week breeding period, where precision meets simplicity.

South Dyke Farm's approach to breeding combines data-driven precision with practical simplicity. Rather than relying on complex pre-mating checks or interventions, the farm maintains a straightforward system focused on key performance indicators.

"We don't do any pre-mating checks, no wash-outs, no interventions of any kind really," James explains. "I mostly try to keep things really simple."

This simplicity, however, belies a sophisticated breeding programme designed to maximise genetic gains and operational efficiency. The farm employs a carefully structured system that prioritises their most productive animals for replacement breeding:

- **Top 10% of cows:**  
Served with sexed semen to produce heifer replacements
- **Next 20% of cows:**  
Served with conventional semen
- **Remaining cows:**  
Served for beef production

Selection criteria are firmly based on efficiency metrics, particularly the ratio of milk solids production to liveweight; a key performance indicator that aligns perfectly with their focus on creating a low-maintenance, highly productive herd.

James notes, **"We're very selective about our breeding choices. Sexed semen is used exclusively on healthy, high-fertility cows calving within the first three weeks. We don't use it if there's any doubt about them being in heat."**

Their breeding strategy involves both sexed and conventional semen, with approximately two-thirds of replacements coming from sexed semen. Their targeted approach has yielded impressive results: 70% conception rates on heifers and similar to that on cows.

## TAILORED HEAT DETECTION METHODS

The farm employs different heat detection methods based on animal age and behaviour:

- **Mature cows:** Tail paint application, checked daily in the parlour with additional paddock observations
- **Heifers:** Scratch cards, which the team finds more effective due to the heifers' more animated behaviour

"I think the heifers tend to be a bit of a different experience to the cows. They're a bit giddier, aren't they? So, it's a bit easier with scratch cards, we find," notes James.

In previous seasons, the farm has also utilised teaser bulls as an additional method of heat detection, demonstrating their adaptive approach to management.

## BODY CONDITION: PREPARATION BEGINS EARLY

Rather than focusing exclusively on body condition during the breeding period, South Dyke Farm takes a longer-term approach that begins months earlier.

"Our strategy for body condition score mainly starts in October, November," James notes. "We think that if we dry cows off at the right body condition, they'll be fine right through to now."

This forward-thinking approach, combined with their focus on breeding efficient, resilient animals, has paid dividends. As James explains:

**"If they're dried off at the right body condition, they calve down and we have close to zero problems during calving, then you're not going to have an issue now."**



## INNOVATIVE MANAGEMENT PRACTICES

South Dyke Farm demonstrates innovation across all aspects of management:

- **Calving Management:** Following a disciplined schedule, 50% of cows are calved by day eight of the calving period.
- **Calf Rearing:** Calves are separated early to ensure they receive optimal colostrum, before joining groups of 20 for cake and powdered milk feeding (500g/day). They are weaned at eight weeks with a target of reaching 60% liveweight at 15 months. When calves are first turned out to grass, they are buffer fed hay and cake to aid transition and rumen development.
- **Milking Regime:** Experimenting with variable milking schedules has improved labour efficiency without sacrificing production; especially once-a-day milking during early and late lactation. "We especially liked going to once-a-day for the first three and last six weeks of lactation. It's good for labour management and work-life balance," James reports



- **Grass Management:** Moving away from replicating international models, South Dyke Farm focuses on tailored grass management strategies using mixed swards and targeted nitrogen fertiliser applications. "We want a long growth curve for our grass with a targeted use of nitrogen fertiliser," James explains. "We have mixed swards and aim to achieve the same amount of growth and production with less inputs"
- **Embryo Transfer:** This breeding season has seen South Dyke Farm venture into new territory with the introduction of embryo transfer technology. This represents an evolution in their already sophisticated breeding strategy, allowing them to accelerate genetic progress and maximise genetic gains by producing offspring from their genetically superior animals. "We're doing it a little bit different this year because we're using some embryo transfer, which is a new thing we've done for the first time," James explains



## PROFESSIONAL PARTNERSHIPS

Central to the farm's breeding success is their relationship with skilled technicians. James has worked with their current technician, Kerry, for approximately three years, and values her experience with seasonal, block-calving herds.

James remarks, "**Kerry's excellent, if you look at the stats from last year, it's pretty good conception really.**"

The expertise of technicians familiar with high-volume, seasonal breeding programmes proves particularly valuable during intensive serving periods. As James notes: "With block calving as well, they're used to serving a lot of cows, and if we have 30 cows in that race, it doesn't faze them."

## MEETING SEASONAL CHALLENGES

The breeding season coincided with unusually warm weather this year, presenting potential challenges for heat detection and conception rates.

“With the heat, we are keeping a really close eye on heat detection, because I think in the heat it is a bit more of a challenge to spot everything,” James explains. The farm responded by intensifying their observation routine, conducting parlour checks in the mornings and additional paddock checks during the day.

This proactive approach helped them stay on track, with nearly 100% of heifers served and over 90% of cows served within the crucial first three weeks of the breeding period.

With unusually dry weather since the previous autumn, there was particular concern over grazing conditions during the crucial breeding period.

“It’s really dry now. Growth is probably less than 50. It’s certainly less than demand,” James reports. “Quality is poor because the grass looks quite stressed and it’s growing quite stemmy.”

To mitigate these challenges, the farm adjusted their feeding strategy, increasing concentrate supplementation to 6 kg per cow, significantly higher than their typical 0.5 kg rate for this time of year.

“Normally this time of year, we’d be feeding half a kilo just to get them in. But feeding six is like, for us, way over budget,” James acknowledges. However, the importance of maintaining nutrition during the breeding period justifies this approach: “Now’s the time of year, you can’t afford not to.”



## PRODUCTION WITH PURPOSE

Supplying milk on an Arla contract, South Dyke Farm prioritises milk solids (460–480 kg milk solids from 450 kg cows). “We aim for 9% solids, which gives us an average production of about 5,000 litres,” James explains.

Despite the grazing challenges, the farm achieved impressive early season production. Peak milk solids production reached nearly 1.8 kg per cow daily, achieved on relatively modest feeding rates of approximately 3 kg of concentrate plus grazing.

For their compact 450 kg cows, this represents excellent efficiency, reinforcing the success of their breeding strategy focused on the milk solids to liveweight ratio.

“For our little cows that are only 450 kilos, that’s pretty decent,” James notes with satisfaction.

The farm maintains 120 hectares of grazing platform supplemented by 90 hectares of support ground. Rather than focusing on expansion, their emphasis is on efficiency. “We’re not looking to grow much more”, James notes. “Liveweight and milk solid production is what’s important. We want the highest kg milk solid per kg liveweight without compromising on lameness, mastitis, fertility, and low gestation length.”

## DATA-DRIVEN DECISION MAKING

South Dyke Farm’s success is underpinned by their commitment to data-driven decision making.

James states, **“We’re confident in our milk recording information. The consultative approach of LIC has helped drive breeding efficiency over the last few years, and their tracker tool is crucial as a basis of data and liveweight efficiency.”**

Their ideal cow is described as “low maintenance, efficient, and fertile”—a clear reflection of their focus on profitability through efficiency rather than sheer volume.

## LOOKING TO THE FUTURE

What began with a forced restart has evolved into a system defined by discipline, data, and consistently high performance. South Dyke Farm stands as proof that adversity, met with bold thinking and careful planning, can forge farming systems that are both efficient and resilient, qualities that matter more than ever in an unpredictable climate.

## FARM FACTS: South Dyke Farm at a Glance

- **Established:** 1931 (family farm)
- **Herd size:** 370 calving cows
- **Calving pattern:** 3-week spring block
- **Average production:** 5,000 litres, 460–480 kg milk solids
- **Target:** 9% solids
- **Ideal cow weight:** 450 kg
- **Genetics:** Primarily LIC
- **Notable sires:** Kryptonite, Lucca, Flash Gordon, Jaq, Darius
- **Land:** 120 hectares grazing platform, 90 hectares support ground
- **Key breeding metrics:** 70% conception rates on heifers
- **Heat detection:** Tail paint for cows, scratch cards for heifers
- **Peak production:** Nearly 1.8 kg milk solids per cow daily



# Selection Intensity

## The Hidden Benefit of Sexed Semen

By Will Astley

Over the past 20 years, technology has transformed dairy farming across the UK, helping farmers make smarter, more informed decisions. Whether this be in the treatment of disease, monitoring calf health, increasing production efficiency or improving grass growth, there are now many tools that help drive efficiency and ultimately profitability. One of the biggest changes in genetics has been the adoption of sexed semen with the ability to breed heifers off your best cows and reduce the number of dairy bull calves entering the beef supply chain. This has both helped drive genetic gain whilst also improving social sustainability.

While the adoption of sexed semen has grown across the UK, uptake among grazing herds has been slower. Many farmers remain cautious, concerned about potential losses in conception rates leading to lost days in milk and ultimately revenue loss. This article will examine the financial impact of using sexed semen and show that, even with a slight drop in conception rates, the financial benefit is significant.

### THE VALUE OF A DAY IN MILK

Days in milk has long been a key focus in block calving systems, maximising days in milk by driving fertility improvement to increase revenue. Table 1 shows the current value of a lost day in milk, based on the current 5 year rolling average milk price from October 2025

Table 1-Value of a day in milk

5 Year Rolling Milk Price-Oct 2025	39.55ppl
Average Production Per Cow	22.67 Litres
Value of Milk (1 Day)	£8.97

The value per cow per day is calculated using average yields from the top 53% of animals across 123 herds in the LIC UK database, with an average lactation yield of 5,858 litres. This figure reflects a true value, since the loss of milk would be seen on those served to sexed semen which requires the top 53% of a herd. A day in milk holds significant value for any dairy business, making fertility a critical performance driver - yet this is only half of the story.





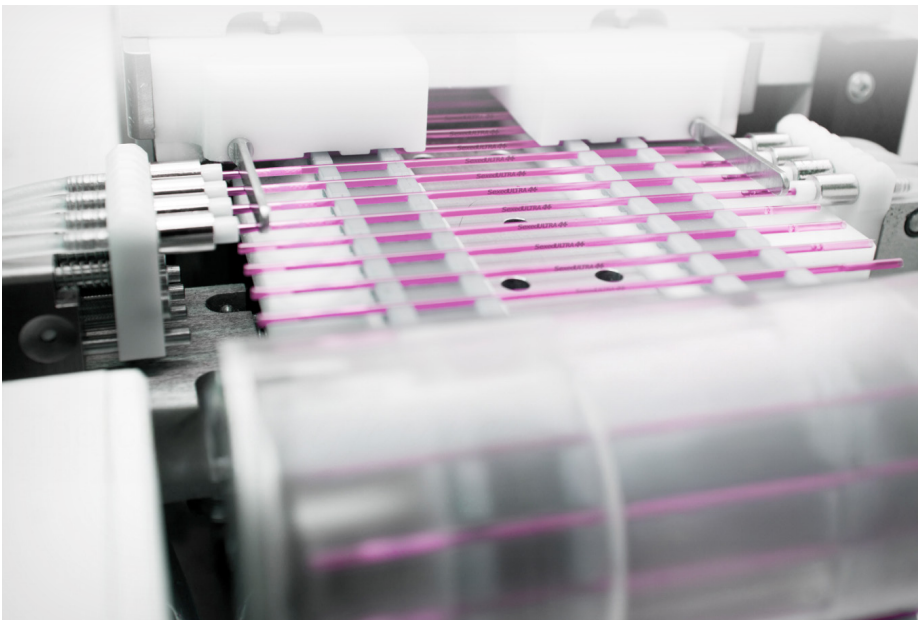
## VALUE OF SELECTION INTENSITY

The other half of the story lies in the value of selection intensity, which is one of the key advantages of using sexed semen. This benefit comes from enabling farmers to breed from the best animals in their herd. With sexed semen, selecting the top 53% of a herd typically provides enough dairy replacements in a given year. In contrast, using conventional semen would require selecting the top 90% to achieve the same result, assuming all dairy semen is used during the first three weeks of the service period.

Exploring the performance gap between the top 53% and top 90% of the herd is critical. By using the data from the herds mentioned previously, the average difference in production between the top 53% and top 90% is 51.4 kg milk solids. Based on BV's (Breeding Values) we can assume animals pass on half of this advantage, giving a benefit of 25.7 kg milk solids. Table 2 shows the value of this benefit per heifer born.

**Table 2-Sexed Semen Milk Solids Value**

Difference in Milk Solids	25.7 kg
Average % Milk Solids	8.2
Additional Litres	304.3 Litres
Value of Additional Milk	£120.35



## THE COMPARISON

Block farmers' reservations about sexed semen often stem from concerns over reduced conception rates. However, several studies have examined the differences. One of the most relevant and current pieces of research was conducted by Teagasc in 2018, showing an average conception rate difference of 10.5%. However, within this there was no pre-selection of cows, even though younger animals generally have a higher chance of conceiving with sexed semen. Other trials have reported smaller differences of 5% shown in a meta-analysis conducted by ICBF in 2022, whilst a German trial conducted by Lenz et.al. (2016) showed no difference in conception rates.

Applying this to a herd setting, if we take a 400-cow herd moving from conventional to sexed semen, we can calculate the days in milk lost due to the use of sexed across the herd. Table 3 compares sexed vs conventional semen, based on expected usage in both scenarios. The calculation assumes service from week 1 to week 12 of a 12-week block, without the use of stock bulls with all dairy semen, used within the first 3 weeks to generate the required replacements.

Table 3-Sexed Vs Conventional

	Sexed	Conv-3 Week
Herd Size	400	400
Heifers Required	100	100
Dairy Pregnancies Required	105	210
Dairy Semen Conception Rate	55%	65%
Dairy Semen Required	191	323
Beef Semen Conception Rate	65%	65%
Beef Semen Required	419	261
Semen Cost	£9045	£5864.50
Lost Days in Milk	0.81 Days Per Cow	
Total cost of lost days in milk	£3248.49	
Total Additional Costs	£6,428.99	

There is no doubt that using sexed semen comes with an additional cost. However, it also brings extra gains through improved selection intensity. We know the value per heifer is £138, but what does this look like when applied to an entire herd. Table 4 shows this value when applied to the same 400 cow herd as referenced in Table 3.

Table 4-Herd value of genetic gain

	Sexed	Conventional
Herd Size	400	400
Heifers Produced	100	100
Additional Milk Solids per Heifer	25.7 kg	
Additional Revenue per Heifer	£120.35	
Herd Replacement Rate	25%	25%
Value of Revenue per Cow	£30.09	
<b>Total Additional Revenue</b>	<b>£12,035</b>	



NET GAIN  
THROUGH USE  
OF SEXED SEMEN  
**£5,606.01**

## WHAT IF WE MATED CONVENTIONAL FOR 6 WEEKS

Many farmers choose to use conventional for longer than stated above, but for accurate comparison, it's important to compare like for like. If using conventional for six weeks versus sexed semen for three, you would need to select the top 63% of the herd to achieve the same number of heifers. This equates to a 13.9 kg difference in Milk

Solids. There is also an added benefit in reducing the length of time heifer calves are born from six weeks to three. This makes heifer management easier and results in better-matured heifers at service the following year, improving liveweight-to-age performance and likely boosting heifer fertility. A study by UNL<sup>1</sup> found heifers born in the first

21 days of a block system had greater weaning, pre-breeding and pre-calving bodyweights, with a greater percentage cycling prior to breeding and a higher number of pregnant heifers. There are also efficiency gains seen in management with routine vaccinations, and tasks like dehorning and weaning becoming easier.



### ADDITIONAL BEEF CALF VALUE

The final factor to consider is the value of additional beef calves born. While this is a secondary consideration, it remains important. Current market prices show average beef calves (Continental/ Native) selling for £335, compared to an average £161 for dairy bull calves - a difference in value of £174 per calf born. With 105 additional beef calves expected under a sexed semen strategy, this equates to £18,270 in additional calf crop revenue, on top of the genetic progress benefits already discussed.

### CONCLUSIONS

Despite the potential drop in conception rates with sexed semen, the benefits of selection intensity and breeding replacements from a more elite group of cows far outweigh this. When focusing on fertility, it's easy to prioritise short-term gains through additional days in milk, but we often overlook the long-term cost of compromising herd progress.

The long-term gains from sexed semen not only outweigh lost days in milk but are cumulative, meaning this effect will only multiply over the years of using sexed semen. We've already seen this in herds that have narrowed the gap between top and bottom performers, driving additional revenue through improved milk sales.

1) <https://livestock.extension.wisc.edu/articles/calves-born-early-in-the-calving-season-have-more-value/>

# A Career in Dairy Farming

## The Success of Kieran & Gaynor Wellwood

**In 1985, Kieran Wellwood left college and travelled to New Zealand, where he was exposed to rotational grazing - a grass management system which had gone out of favour in the UK around the 1960's. Coming from a non-farming family, Kieran had been told he would be a herd manager in the UK at best, but was struck by the opportunity to move up through the industry to farm ownership whilst travelling in New Zealand.**

Gaynor Wellwood was brought up on a grass focused dairy farm in Cheshire. Following her agricultural course at Reaseheath, she met Kieran. It quickly became evident that they were going to farm in their own right, so they looked at a sharemilking opportunity in Cornwall.

In 1997, after three years of saving, Kieran and Gaynor were in the market for their first county council farm, located near Plymouth. The farm covered 37 acres and was used to calve 11 purchased mature

cows alongside 20 home-reared in-calf heifers. It served as a starter farm, with the expectation of moving on to a bigger holding in the near future.

Within a year they relocated to a new farm at Broadhempston, doubling their acreage - a move financed through borrowings. After 5 to 6 years, they nearly doubled their farm size again when they moved to a new council farm 3 miles away. At the time, the milk quota system was financially restrictive.

With the final council farm, they had a 10-year contract and once that was over, they would have timed out of council holdings. With this in mind they looked at joint ventures, contract milking agreements and other tenancies to remain in farming. Through their research they came across the tenancy at Saltby farm in Leicestershire which took them to 342 acres and 330 cows.

With an eye on growing the business and banking a nest egg, profitability was the main focus. Cost control whilst optimising output from grazed grass was important, as this helped shape the system and cows that were milked. In the beginning the herd was made up of Brown Swiss, Swedish Red and Holstein Friesian in a 3-way cross, producing around 6,000 litres with 4%





fat and 3.25-3.3% protein. They were using a small amount of LIC genetics but didn't go exclusive until 2008.

The move to using LIC genetics exclusively was driven by wanting a truly grass based cow, one that was slightly smaller than what they had, targeting 530 kg liveweight. Being a block calving farm, fertility was particularly important and the longer gestation length of the Brown Swiss was impacting the block. When assessing options from around the

world, New Zealand stood out at the time with close to 100 years of breeding cows for the system they were running, so it just made sense. In 2012, Gaynor joined a LIC study tour of New Zealand and saw consistently high-performing herds, confirming they had made the right decision.

As tenant farmers, their cows were their greatest asset, so maximising profit while improving herd value was key. For this to happen, the aim was to have a herd of cows that delivered it all; great

milk solids, high fertility, good health and confirmation, qualities delivered by LIC bulls.

Physical performance of the mature herd was 6,338 kg based on 294 days in milk, with milk solids of 4.74% fat & 3.79% protein from an average of 700 kg of concentrates. Also, the stocking rate worked out to be 2.8LSU/Ha. A keen focus on rearing great quality heifers meant all those that ranked highly on the LIC tracker tool were AI'd to dairy. This helped drive the performance of the herd forward. Surplus heifers and breeding cows managed to get sold each year due to their great fertility; a 6-week in-calf rate of 91%.

Using the LIC tracker tool enabled greater focus across the entire herd, not just the top end, but also the bottom end. As a result, the production gap between the top and bottom 3-8 lactation cows narrowed to 164 kg, and the average production of the herd increased. Interestingly, when they analysed the top 10% of the herd, no single bull dominated, it was a mix of genetics, confirming their bull selection strategy was working. Sires included





in the top 10% of performers in the herd were Sierra, Boy Jaks, Renegade, Grandeur, Prelude and Easyrider.

This attention to detail with their breeding paid off over the years. When the time came to finally sell the herd in March 2025, the known value of their herd brought farmers from far and wide to the sale.

The catalyst for looking at retirement was their tenancy coming up for renewal in 2025. Renewing the tenancy would mean farming for at least another 10 years, but the limited size of the farm and rules of tenancy prohibited the ability to take on a manager and step back from the day-to-day work. By this stage both of their children had moved abroad, with Rory dairy farming in Tasmania, and Angharad working as a dairy vet in New Zealand. With travel restricted to the dry period, seeing their kids and grandkids was limited, so returning in January 2024 from a visit, the decision to retire felt right.

The tenancy required 12 months' notice to end, but before finalising this decision, they needed to carry out due diligence. First, they spoke with their children to share their retirement plans and confirm neither of them

intended to return home to take over the business. Both were very supportive of their decision to retire.

Discussions then took place with their accountant and financial advisor. The sale of cows and machinery came with tax implications. Talking this through with the accountant let them know how best to conduct the sale of these assets. While building their pension pot has been a priority through their

farming career, ensuring adequate funds were available for lifestyle goals post-retirement from dairy farming was a key priority. Along with this, it was important to know what options were available to invest the proceeds from the sale.

Now retired from farming, Gaynor continues with her consultancy work, which she greatly enjoys, along with the farmers she supports. Kieran offers help to other farmers but without any fixed commitments, giving him time to take up water colour painting again. The biggest impact they have noticed is the reduction in stress. Farming brings many little stressful events that farmers deal with daily, but you don't necessarily notice them until they are removed, Kieran noted. Looking ahead, they plan to spend more time with family, likely spending a month or two in each country.

Kieran and Gaynor remain positive about dairy farming and offer the following advice to new entrants, **“Join a discussion group, this enables you to network and benchmark your farm. Research your chosen system to understand the key profit drivers and keep learning. Have goals and a plan, this will help you navigate year-to-year but also make the big decisions easier to make.”**



# Building Your Future Herd

## Effective Youngstock Management

**One of the most important aspects of any dairy operation is the management of youngstock. Properly rearing heifers goes beyond good animal husbandry - it lays the foundation for achieving superior breeding outcomes and ensures your herd's genetic potential is fully realised.**

These animals are the future of the farm, and many consider them the most important members of the herd. Yet, they are often given sub-optimal care, which can lead to reduced growth rates and poorer lifetime performance. A well reared heifer can achieve up to 85% of her mature production in the first lactation, making proper management highly profitable. In this article, we will explore the stages of life for dairy youngstock - from calf to calved heifer - and look at strategies to maximise growth, and reduce the risk of underperforming heifers which ultimately will reduce milk solids and therefore revenue for the business.



## BIRTH TO WEANING

This is potentially the most critical stage in a youngstock's life. At this point, the calf is exceptionally efficient at converting input into output, meaning the feed we put in will translate into quicker growth rates and ultimately a better weaning weight. This stage is also vital for reducing mortality as providing calves with strong immunity in early life can be the difference between a successful and a failed rearing process.

We can break the early stage of life into the 5 C's, with the 3 Q's forming the foundation for creating the optimum environment for a calf's early life. This model is widely accepted across the globe. **The first critical C is Colostrum**, which is where the 3 Q's come into play:

**Quickly** - Colostrum should ideally be fed within 2 hours of birth and no later than 6 hours after birth. Colostrum fed during the first 2 hours has a higher level of absorption and better passive transfer.

**Quality** - Colostrum should be a minimum of 22% on a Brix Refractometer or 150mg/ml on a colostrometer when fed to the calf. Any lower risks reduced passive transfer, compromising the calf's immune system.

**Quantity** - Aim to feed a minimum of 10% of the calf's body weight in colostrum within the first 2 hours. A study carried out by Teagasc conducted by Connelly et.al. over a 10-week period, found that calves fed 8.5% of body weight achieved the highest passive transfer rates of all the colostrum feeding regimes.

Feeding transition milk after the first colostrum feed will not boost IgG levels. However, it does have positive effects on other health scoring, as shown by the same study, with reduced incidence of poor eye, ear and nasal health scores.

**The next C is Calories.** It is critical to provide calves with enough energy from their feed to support high levels of growth. The amount required can be influenced by environmental factors. The AHDB recommends that calves be fed between 15 and 20% of their body weight in milk or milk replacer. For a 40 kg calf, this equates to a minimum of 6 litres, although 8 litres should be the target. This calorie intake ensures a calf receives enough energy to maintain their body weight with additional energy to place into growth. As the calf approaches weaning, the focus should shift to maximising concentrate intake, with 2 kg of concentrate per day as the target by weaning. A gradual

weaning process helps increase concentrate intake, with calves not weaned until they reach 2 kg per day and have achieved at least double their birth weight or are around 10 weeks old. Following a weaning curve will ensure less of a check on growth rates. Throughout early life, it is also critical that calves have access to both water and dry forage. This benefits growth rates and promotes healthy rumen development.

### The third C is Cleanliness.

While this may seem obvious, maintaining a clean environment and equipment is essential for reducing health challenges. Bedding needs to be kept clean and fresh, and all feeding equipment should be thoroughly cleaned after each use to prevent any residue that could harbour harmful bacteria. One of the biggest health challenges is Pneumonia. Both clinical and low level sub-clinical cases can have a huge impact. Vaccination is an option, but proactive measures like maintaining cleanliness and comfort, can reduce the risk. **This links nicely with the fourth C, Comfort** where providing a clean, dry, draft-free environment with adequate space is critical to maintaining homeostasis and minimising stress during a calf's early life. To achieve this, nesting scores should be regularly checked with a score of 3 being the target where the calves legs are covered by clean, fresh bedding.

### The final C is Consistency.

Routine is important for all animals, but it is especially vital for young calves. Automatic feeders help support natural feeding patterns, but even without them, maintaining a consistent schedule is essential. Feeding should occur at the same time each day, and the same feeding regime should be followed consistently - for example, carefully weighing out milk powder for each feed.

These factors directly influence future milk production and reproductive performance, allowing genetic potential to be fully expressed.





## WEANING & POST WEANING

As mentioned above, weaning should be carried out gradually to reduce the growth rate check. This phase is also important for mammary gland development, as most growth of the mammary gland occurs between 3 months and 15 months of age. Another key factor during this stage is maintaining a positive protein-to-energy balance to support skeletal

development and preventing excessive fat deposits during mammary gland development.

For many grazing systems, the next step after weaning is getting calves out into the grazing rotation. However, this should not be rushed as holding calves for an extra 1-2 weeks after weaning helps ensure they experience no more

than one stress event per week. At turnout, careful management is critical to maintain growth rates and support effective rumen development. This will ultimately result in better DMI in later life, along with increased productivity and longevity within the herd. At weaning, grass can be at its most potent, with high levels of protein and ME levels making it an excellent feed but it does have reduced levels of NDF.

At initial turnout, feeding concentrate should continue. This will not only aid rumen development but help to provide a more balanced, complete diet for the calf. Ideally this should be fed in a trough rather than on the floor, as feeding on the floor in the same place daily can increase contamination and raise the risk of pathogen exposure. Along with feeding concentrate, calves should have access to a forage with higher fibre levels, such as straw or hay, or receive increased fibre intake through feeding supplementary feeds like NIS (Nutritionally Improved Straw). Calves will self-regulate their intake of this forage, which not only optimises rumen development but also supports good health and maximises growth rates.



## GRAZING MANAGEMENT

Spring born calves should be turned out into higher covers of 2500-2800 kgDM but avoid paddocks which have had recent nitrogen applications or very lush grass as this can upset their digestive systems (summer scour). Autumn born calves who have had more time for their rumen to develop, can still be susceptible to summer scour and so should be monitored. Altering the paddock that calves are turned out into each year stops the build-up of pathogens.

First-year calves should not be pushed to graze out paddocks fully. Utilising a leader-follower system will help maintain quality and reduce worm burden within the paddocks. The calves should be kept around 2 weeks in front of the R2 heifers otherwise they will reject the grass. Calves should be moved every 1 to 2 days to keep them on clean pasture. After 1 year of age, heifers can be pushed to achieve residuals, which will help prepare them for efficient grazing as mature cows.

Where possible keep the calves and heifers away from the milking platform and where your dairy cows have grazed. This will help to reduce the risk of the calves contracting Johne's Disease.

## SERVICE & CALVING TARGETS

By following the steps above, heifers should easily reach their weight targets for both service and calving. It is also important to continue monitoring growth rates throughout the heifer rearing process, ideally weighing monthly. This will allow you to identify any animals that fall below target and address the issue before they reach the breeding period. The target liveweight for service is 65% of mature weight. For a 500 kg mature cow this equates to 325 kg, while for a 550 kg mature cow, the target is 357.5 kg at the start of the service period. If calves are born at an average of 38 kg for a 550 kg cow, this means a growth rate average of just over 700 g per day.

By calving, heifers should reach around 90% of their mature liveweight, with their frame fully developed and the remaining 10% made up through weight gain. Heifers that



consistently meet weight targets are more likely to conceive on time and calve at 2 years of age. This is associated with improved longevity and overall performance, ensuring that elite genetics remain productive for longer. This should allow heifers to comfortably achieve 85% of a mature lactation.

## CONCLUSION

Growing heifers successfully and placing close attention to the rearing process is critical for ensuring high levels of performance. Effective rearing not only improves productivity of the heifer crop but also leads to reduced replacement costs and improved fertility outcomes for both the maiden heifer and during her first lactation, ensuring she remains a productive

part of the dairy herd for longer. Heifers that fall below target weights often experience delayed puberty, lower conception rates, a reduced number of lactations and lower overall lifetime yields. This is why heifer rearing must remain a key focus, not only to ensure greater performance, but most importantly, to ensure the full expression of genetic potential. Every AI straw or genomic selection represents an investment in herd improvement. By prioritising growth, health, and consistency throughout the rearing process, farmers safeguard their genetic progress and accelerate overall herd improvement. Together we can make the best breeding decisions for your herd and ensure the elite genetics selected within each herd achieve their true potential.





# Breeding for Tomorrow: Faster, Smarter, Sustainable

Thank you for reading this copy of GrassRoots, so far!

**The past nine months since joining LIC has flown by, as I've met with customers and collaborated with the team to explore how we can become even more relevant to farmers maximising and optimising their milk from grass. It's great to see how our genetics are making a difference on farm. Time and again, herd data shows a clear advantage for LIC pasture-based dairy genetics in efficiency metrics of kg milk solids per kg liveweight and per hectare.**

I grew up on a tenanted farm in the Midlands of UK, milking Friesians in a pasture system where clay soil stuck to your boots and was impossible to remove without a power washer. My previous company represented LIC for a number of years in the 1990s and my role at that time involved selecting LIC bulls such as Judds Admiral (in the background of current bulls such as Paynes Stamina) and Dawson's Belvedere (ancestor of Scotts BV Darius) for the UK market.

Over the past 15 years, I've spent the majority of my time travelling to farms, meeting customers and distributors of genetics in over 35 countries across Europe, Africa and Asia. Throughout this time, I was consistently drawn to the cow that produces more from less - typically a smaller animal utilising cheaper

and usually more abundant resources to produce nutrient rich food.

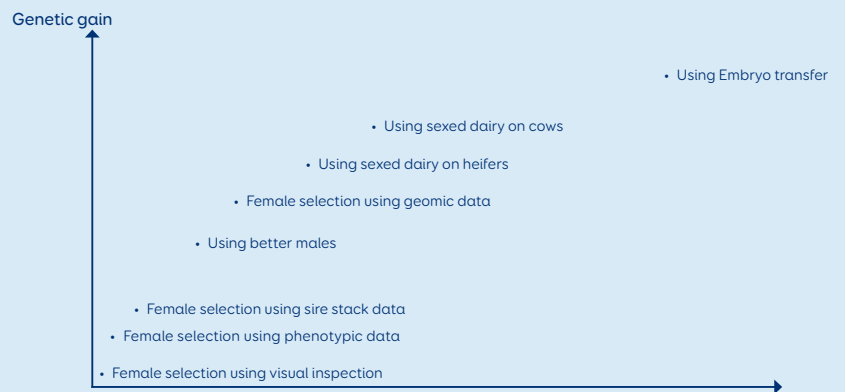
I've always admired the pioneers - some of them family and friends - who chose the milk-from-grass path to weather the turbulence of milk prices from the 1990s onwards. This approach allowed them to minimise losses during tough times while retaining the flexibility to feed concentrate when the milk-to-feed price ratio was stronger. Today, as consumer focus shifts to carbon footprint, the advantage of grazed grass is becoming even more apparent thanks to the work from Moorepark and others.

From a genetic planning perspective, the fundamentals remain the same:

1. **What do you want to change about your cows?**
2. **How much do you want to change it?**
3. **How fast do you want to make that change?**

The speed of change you aim for involves a trade-off, both with fertility (an opportunity cost) and the cash cost unique to your situation. That's why it is crucial that all the information and tools are available to determine the right approach for your herd. We hope this provides the right balance of information and clarity. If not, please let us know so we can work on improving this. The diagram below illustrates some of the ways to go faster while highlighting the cost.

## Target Semen Products Across Herd



Each accelerator has an expected ROI unique to the farm and can be validated

We too are exploring options in the genomic female selection space. We have observed this as a tool that can help rapidly accelerate genetic progress while breeding from the top 40% of the herd (median cow is No. 20 out of every 100 ranked, as opposed to No. 50 without any female ranking).

Moving to male selection, if you look back at the 2022 directory and compare the six highest genomic bulls with the six highest daughter proven bulls, the results are striking. Today, the average proof of the top six daughter-proven bulls is \$216 BW, while the top six genomic bulls average \$245 BW, showing how genomics accelerates genetic improvement.

It's important to spread risk and balance this against practical constraints. My favourite definition of a team is a group of people with complementary strengths and trust, working together towards a common goal - a principle I aspire to in all aspects of business, sport, and life. In genetics and specifically sire selection, this concept also applies: there is a formula for team reliability.

**Group reliability =  
100% - (100% - average  
group reliability) ÷  
number of bulls selected**

**This means 4 x 60%  
reliability bulls  
= 1 x 90% reliability bull.**

This is something worth optimising for your situation.

The cow herself can show us which animal best suits the system. Every farm is unique, and when heifers walk into the parlour, it's an excellent opportunity to see if we are on track, before validating the genetic plan with performance data and seeing who thrives and who merely survives.

We believe KiwiCross® bulls deliver more than the sum of its parts. By combining the ferocious grazing appetite of Jersey genetics - achieving higher dry matter intake per kilogram of bodyweight and outstanding milk quality - with the proven production capability of the Holstein Friesian, we create a powerful combination on farm



in the UK, Ireland, New Zealand and many other countries.

Collaborating with Cogent in the UK allows us to combine our expertise and leverage each other's strengths. By combining LIC's expertise in grassland genetics and systems with the operational excellence in sales, service and support capability of Cogent, we can deliver even greater value. With Cogent's parent company, ST Genetics consistently providing the reproductive quality of our sexed semen and working closely with LIC colleagues at the EU centre in Awahuri, this collaboration enables both organisations to focus on their strengths - working together seamlessly across Northern and Southern Hemispheres.

### **What does this mean for you as a customer or potential customer of LIC?**

It reflects our unwavering commitment to accelerating genetic improvement in your herd, tailored to your needs. For those focused on maximising milk solids per hectare within low-cost, pasture-based systems, this means enhancing productivity without compromising fertility. For operations optimising concentrate feeding and managing slightly higher fixed costs, it translates into driving greater volume per cow.

Good luck and health to you and your family in 2026!

**James Simpson**  
General Manager, LIC Europe



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