GREEN TO GOLD

Spring 2022

Which herds are CREAMING IT?

LIC data reveals who's running the fastest herd improvement race.

There's always room for improvement

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LIVESTOCK IMPROVEMENT

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Looking forward and celebrating the past

Mike Rose

On behalf of the LIC Australia team I am pleased to present the spring edition of Green to Gold.

Recently returning from a series of roadshow events we held in Tasmania, we were fortunate to have two high caliber speakers join us from Livestock Improvement Corporation (LIC) head office in New Zealand. Esther Donkersloot, one of our scientists in the Research and Development team covered off the advancements LIC has been making in genomics with improved accuracy and less bias. These improvements are now being exhibited on farm, by increasing the rates of genetic gain *(for further information see article on page six).*

Joyce Voogt- LIC Technical Advisor, vet and farmer, who many of you may know from her previous visits to Australia, updated us on a large on-farm fertility trial and how some of these results have led to a re-vamp in the fertility breeding value. For those that missed these events, keep an eye out on our LIC Australia Facebook page as we are going to hold these through a webinar format soon.

In this edition we salute one of the best sires LIC has ever marketed in Australia. Having recently being inducted into the LIC hall of fame, Priests Sierra's contribution to the LIC customers in Australia and around the world cannot be understated. It shows his quality that at the ripe old age of twelve, Sierra is still in the top group of bulls being sold in Australia. While not the top genetic merit sire anymore, his high sales are based off the fact customers love milking Sierra daughters and they are outperforming their peers, so farmers want more of the same. For the people involved in breeding the bull and the AI company behind it there is no bigger compliment and pleasure to have happy customers returning for a bull that really is "one out the box".

You will find plenty of other topics covered in this edition, such as how farmers are getting on with alternative milking regimes with a focus on the popular 10 milkings in 7 days (10in7). We also hear from a young couple, Bec and Brayden Johnston in Tasmania that are totally committed to making it in the dairy industry.

Finally, it's the business end of the year with many people going into mating season and hopefully managing an abundance of spring growth. I hope you enjoy reading this edition and the team at LIC wish you all the best for the coming season.

Happy farming,

Mike Rose
Country Manager Australia

Introducing Hilary Lunn - Gippsland District Manager

We are proud to have had Hilary Lunn, Gippsland District Manager join the Australian team in March of this year, bringing with her an extensive knowledge of farming and experience with LIC.

Originating from Tauranga in the Bay of Plenty New Zealand, Hilary was first introduced to farming through her husband Darryn. This led to her passion for the industry which saw them both dairy farming for 25 years, including 10 years of farm ownership in Northland, New Zealand.

Not only were they long standing LIC customers, but Darryn worked for an incredible 39 years as an AI technician and Hilary as District Manager for LIC based in Dargaville for seven years with another two more years as Northland Regional Manager.

These experiences working within both the New Zealand and Australian markets has provided Hilary with an invaluable perspective on how herds respond in the different countries and climates.

When asked what she enjoys most about working within the herd improvement and dairy industry, Hilary says, "I really enjoy a cuppa at the kitchen table and getting to know the farmers and finding out as much as I can in order to be able to deliver the best bulls for them. So a role where I can discuss herd improvement and help provide solutions is one that I enjoy. The dairy industry is such an important part of the economy and I relish the challenge of being involved".

The adventure that preceded them both immigrating to Australia came from a desire to do something different. After selling their dairy farm, Hilary and Darryn purchased a big caravan and hit the road for three years travelling all over New Zealand doing seasonal work, including a huge AI run in Canterbury each year.

Hilary adds, "When the Gippsland role came up we decided that would be our next adventure and I was keen to get back working with farmers on a daily basis and learning about farming in Victoria."

"The first few months in my new role has been a fantastic learning experience from getting around (Google Maps has been a godsend!), meeting farmers and getting the lingo right.

"I'm really enjoying the great LIC team here In Australia - we are a small team but everybody is so welcoming, helpful and inclusive."

Interestingly, Hilary has found the farmers she has connected with so far all have a New Zealand connection.

"Many of the farmers I'm meeting have links to or have been to NZ - so they understand and appreciate LIC bulls."

"We don't sell a Premier Sires™ team over here and a lot of the farmers want me to put together a team using their criteria, so that's been an enjoyable challenge."

Her husband Darryn is also working within the Australian dairy industry.

"We are encountering some of the same farmers, and sharing our learnings about the differences over here".

Away from life at LIC, Hilary enjoys travelling and getting out in the fresh air. Having recently bought another E-bike she is enjoying the diversity of the Gippsland area and both her and Darryn have started exploring the many miles of rail trails all across Gippsland.

Gippsland farmers can contact Hilary for their LIC needs: hlunn@licaus.com.au | +61 429 944 169

Genetically gifted bull with over 150,000 daughters receives Hall of Fame honour

A 12-year-old bull with over 150,000 daughters has been inducted into an elite animal 'Hall of Fame' for his outstanding contribution to dairy herd improvement in New Zealand.

Well known to farmers for fathering dairy cows with high production and good fertility, Priests Sierra is the latest artificial breeding bull to enter farmer-owned co-operative LIC's prestigious Hall of Fame, which dates back to the 1950s.

The respected accolade is reserved exclusively for bulls that have had, and will continue to have, a profound influence across the New Zealand dairy industry, and are in a class of their own.

LIC Livestock Selection Manager Simon Worth says Sierra has had a significant impact in helping to improve the production efficiency of New Zealand's national dairy herd.

"Breeding the best cows faster is key to helping farmers solve the challenge of being profitable and sustainable and it's elite bulls like Sierra that are helping farmers do exactly that."

Known for his high genetic merit (Breeding Worth), Priests Sierra was part of LIC's Premier Sires™ artificial breeding bull team for eight years - a record jointly held with just one other bull.

Worth says securing a place in one of the co-op's renowned Premier Sires bull teams is no easy feat and rightly so as the bulls that make up these teams are responsible for siring up to 75 per cent of New Zealand's national dairy herd.

"There's a lot of boxes a bull needs to tick to earn a spot in one of our teams and they can be quickly superseded by the next generation of elite young bulls from our breeding programme, so for Sierra to have a place on the team for eight years on the trot is extremely impressive."

Worth says Priests Sierra has been a favourite through the breeding programme, with eight of his sons also making the cut to join LIC's Premier Sires bull team.

"The offspring Sierra generates tick many boxes for farmers including more dollars in the bank and a lower environmental footprint.

"It is fantastic to see so many of his daughters, sons and grandsons continuing his legacy and contributing to the next generation too."

"Sierra Daughters are nice cows that fit well into our farming system."

Simon Scott - Western Districts, Victoria

KiwiCross® Priests Sierra, has been inducted into LIC's Hall of Fame for his significant contribution to New Zealand's dairy industry.

The breeder behind the latest Hall of Fame bull

The exclusivity of entry into the Hall of Fame is reserved for only the most exceptional bulls, having met very demanding criteria.

What makes this an even prouder moment is that Sierra's breeder, Rowan Priest, is also an LIC employee!

Not only that, but this bull, cow family and breeder have set a new standard as the only breeder to have ever bred multiple Hall of Fame bulls.

Priests Sierra is also the only bull ever to stem from the same cow family as another Hall of Fame bull. Of the five bulls progeny tested from the breeder, three have gone on to become Premier Sires and 2 Hall of Fame inductees. An incredible achievement!

Originally from New Zealand Rowan was farming in the Waikato when Sierra was born, he's now a District Manager for LIC Australia, based in Tasmania.

"In Australia, Sierra was our top-selling bull for a number of years and the name Sierra still comes up for me on a daily basis. He is also extremely popular in other international markets, namely UK and Ireland. I am so proud of all of his achievements and success."

Internationally the figures speak for themselves, with Sierra holding the highest spot for sales across all breeds for an outstanding 3 years from 2017 to 2021 with a minor adjustment to 2nd place in 2020.

Sold as conventional and/or sexed, Sierra was exported to markets in Latin America, Germany, Portugal, South Africa, UK, USA, Ireland and of course here in Australia.

Having a bull enter the Hall of Fame is an outstanding achievement but Rowan has managed to trump this by being the first ever breeder to have two bulls enter the Hall of Fame, with Priests Solaris receiving the honour in 2018.

"Having another bull enter the Hall of Fame is a real highlight. I would like to thank Sierra for giving me this opportunity again."

Rowan's family has an extensive history with LIC as his Mum, Sue Priest, worked here for 17 years as a Senior Accountant.

"My mother always said LIC was extremely good to her and that was the main contributor to her longevity in the role.

Sierra's breeder - Rowan Priest, District Manager Tasmania

As a family we have had a long farming association with LIC originating in Stratford, Taranaki where my grandfather started dairying by establishing and showing Pedigree Jersey cows, and eventually our story ended up in the Waikato, the family farm was sold in 2018, and the new story starts again in Tasmania!"

A huge congratulations on this milestone Rowan!

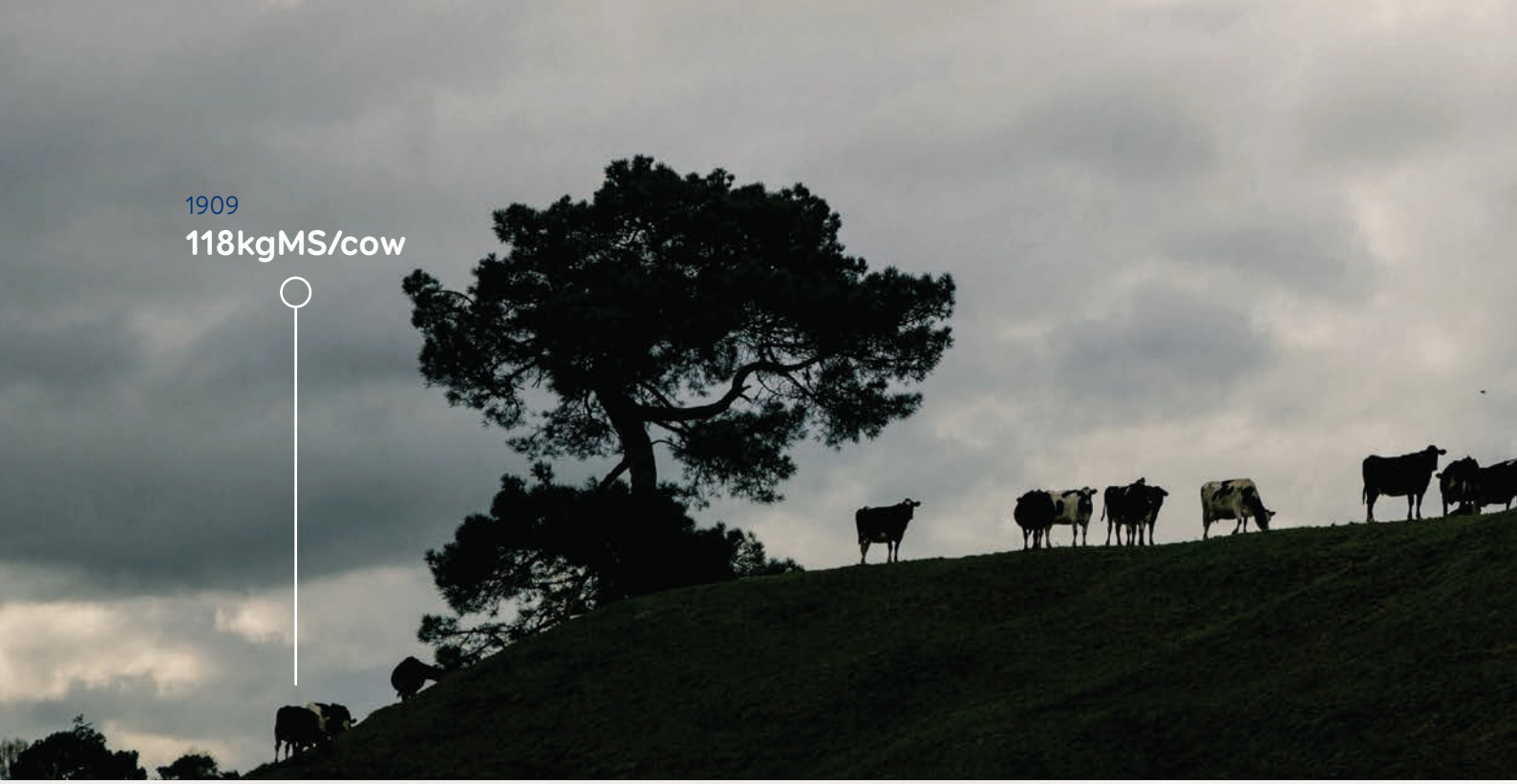
About Priests Sierra

- Born in 2010.
- Debuted in LIC's Premier Sires bull team in 2011 and spent eight years in the team, a record held jointly with only one other bull.
- 797,207 inseminations.
- 151,937 daughters.
- 8 sons in LIC's Premier Sires bull team.
- gBW = 319 / AE BW = 337.
- 59th inductee into the Hall of Fame.

"We have up to 600 daughters in our herd of Priests Sierra. We used him almost exclusively for a couple of seasons as he was that far ahead of the pack and well proven. He was an obvious choice for us really, as Sierra reflected the type of cow we were aiming to breed for - high fertility, moderate sized cows with solid production and sound type. We are now milking them and are really pleased as they are quiet, have sound enough udders and are nice cows to work with."

Brian Lawrence, Tasmania

Tasmanian dairy farmers Brian and Michele Lawrence with sons Brad and Joe



New LIC data puts the spotlight who's leading the herd improvement race...

CREAMING IT:

Concentrate on breeding the right cows, right here, right now

In this new era of reduced cow numbers and changing environmental and regulatory considerations, it seems more important than ever for farmers to sharpen their focus on herd improvement and look to breed better, more efficient cows.

This article discusses LIC research that reveals some interesting insights about breeding worth and genetic gain; the data identifies a segment of farmers who are making the best strides in the quest for more-profitable, environmentally sound, outcomes.

As part of LIC's commitment to faster genetic gain, its science team recently investigated the full spectrum of MINDA herds in search of the 'best cows', which included whether a clear correlation existed between breeding worth (BW) and production efficiency (in today's typical herd).

The research re-affirmed high BW cows were more efficient milk producers than low BW cows, and that long-term users of LIC genetics continued to achieve faster rates of genetic gain than other farmers.

Close to 1 million cows, from current MINDA and Herd Tested herds aged between 4 -8 years-old, were split into quartiles based on BW: The average (per-cow) milk production, liveweight, and fertility breeding value (BV) from each quartile was calculated.

Results showed a staggering variation in milk production and efficiency between the 'top-quartile' and 'bottom-quartile' of the cows (when split on BW), at 65kg of milksolids, per cow, per season.

The top quartile, high-BW, cows also had a lower liveweight BV, and a better fertility BV, compared to their lower BW herd mates.

David Chin, LIC chief executive said the data showed the progress the dairy industry had made since turning its focus to improving cow quality on-farm.

And there was plenty of opportunity that was still there for the taking, Chin said.

"This data shows that high-producing, climate-friendly cows aren't just a hope for the future. They exist in the national herd today; we simply need more of them.

"If we're going to meet our sector's goals, we must breed more of those highly efficient cows that sit at the top, and fewer that sit at the bottom. "We've got the tools and the data to show further improvements in production efficiency are well within reach for every dairy farmer - and some herds are already doing it."

Research shows high BW cows:

- ✓ Produce more milksolids;
- ✓ With less liveweight; and
- ✓ Are more fertile

Average milksolid per cow production across the national dairy herd (DairyNZ industry statistics)

LIC Research reaffirmed high BW cows were more efficient milk producers than low BW cows.

BW Quartile	Animal Count	Avg BW	Avg KGMS	Avg LWGT BV	Avg FERT BV
Q1	216,413	201	502	2	1
Q2	216,413	145	473	5	0
Q3	216,413	103	458	8	0
Q4	216,411	39	437	12	-1

Note the difference between average milksolid output of quartile 1 cows versus quartile 4 cows.

502kgMS - 437kgMS
= 65kgMS

Long-term users of LIC genetics are breeding these better cows, faster

The research also took a closer look at the rates of genetic gain that long-term users of LIC genetics were achieving.

To calculate the 'rate of genetic gain', the difference in gBW between one year of replacements versus the following year was compared.

Between 2017 and 2021, LIC 'long-term users' (herds with more than 80% progeny sired by an LIC bull over the last 10 years), had achieved almost double the rate of genetic gain per year, compared to herds with less than 20% progeny sired by an LIC bull (19 gBW vs. 10 gBW).

Chin said the findings confirmed the kind of gains that could be made with a strong focus on herd improvement and consistent use of high-BW bull teams.

"It's really encouraging to see that farmers that have predominantly been using LIC bulls are achieving markedly higher rates of genetic gain in their herds. The bigger jumps in BW between each year of replacements, the faster you're moving towards milking more efficient cows that emit less."

Alongside farmers' herd management decisions, genomics had played a key role in the increases, Chin said.

"It's no coincidence that the increased utilisation of genomics in our breeding programme and increased farmer uptake for young, genomically selected sires has gone hand-in-hand with higher rates of genetic gain in farmers' herds.

David Chin
LIC chief executive

"By drawing on information from a bull's DNA, we're able to more-accurately identify high genetic merit sires at a young age and make these elite genetics available to farmers to breed from as early as possible."

If the industry's average rate of genetic gain increased to match herds that are long-term users of LIC genetics, it would go a long way to counteract declining cow numbers and overall milk production.

"There are a number of factors influencing a farm's productivity and environmental efficiency, but the contribution made by genetic gain cannot be underestimated," Chin said.

"Our data shows there are already herds in New Zealand that are achieving substantial gains in genetic merit which are delivering noticeable value to these farms in the form of increased production efficiency and improved environmental efficiency.

"The genetics and technology to help farmers breed better cows, faster, is here now and we're proud of the role we play in helping farmers achieve just that."

Contact your District Manager for a personalised discussion on how LIC can help you reach your herd improvement goals.

Bek and Brayden Johnston and two-year-old son Walt

Showcasing Young Farmers

Young farmers are the future of our industry, they are forward-thinkers and are never afraid to push boundaries to make things happen.

That's why LIC is set to showcase some of the best of the industry's next generation as part of an ongoing Q&A series.

Farm Facts

Farm Structure	Family owned and operated
Location	Meander, Tasmania
Farm Size	105 hectares
Production 2020/2021	131,421 kg/ms total 525 kg/ms/cow
Cows Milked	250
Feed supplements per year	1.5 tonne grain and grass silage
Calving Pattern	August spring-calving herd

Bek Johnston grew up in Meander surrounded by dairy farming. Her grandparents owned a dairy farm where she gained valuable experience and developed her enthusiasm for the farming lifestyle.

In 2017, when looking to diversify from dry stock and cropping, her husband Brayden's parents bought a dairy farm, along with the existing herd, and employed Brayden and Bek to manage it.

The young couple were pleased to discover that their new herd was bred from top-quality LIC genetics.

They have spent the past five years since developing the cows and improving the property.

Not afraid of trying something new, Bek and Brayden used sexed semen for the first time to breed their heifers this past season.

Wanting to reduce bobby calf numbers, Bek also views sexed semen as an opportunity to rapidly improve the business's genetics.

They have also employed a herd nutritionist and not only have they seen the difference in the cow's health and diets, they've also learnt a lot about feeding cows.

Recent property development has included replacing most of the lateral irrigators with two centre pivots. This means most of the milking platform is now irrigated via centre pivot.

Bek and Brayden are also building a new dairy. The 44-stand rotary will replace a 14-a-side double-up.

Their long-term goal is to buy into the business, and they see their herd as the key to making this happen.

Bek said they want to make sure they have the best cows possible to maximise milk production.

What are the biggest challenges you have on farm?

First and foremost, it's balancing a toddler with farm life. The challenge I'm sure every young farming family faces.

An upcoming challenge is to transition the cows across to the new rotary.

Outside of that, we want to increase the quality of our pasture so we can milk up to 350 cows.

We will do this by improving the soil nutrition and obviously work-up paddocks and put new pasture down. Thanks to the installation of our second pivot, on the other side of the road, we now have extra ground under irrigation for the milking platform.

What is your breeding strategy?

The previous owner used LIC bulls, and we've continued down that path. We want to breed cows that are easy to manage. I like quiet, well-tempered cows and the LIC cows are just that. I have worked on a farm with bigger Holstein cows, and they were work, because of calving issues and lameness, and overall, they were not easy to manage.

The traits we breed for include, fertility, temperament, production and easy calving. I like the look of the Holstein Friesians. Obviously, it's what they produce that's the most important, but my grandparents milked Holstein Friesians – it's a family thing – so I'd like to continue the tradition.

We've found the LIC Holstein Friesians more docile. They don't weigh as much, and we've found them to be efficient animals - ours average about 550kg. We also have a dairy-beef business and the black and whites are well-suited to breed animals for this market.

We use Hereford, Speckle Park and Murray Grey beef bulls as mop-ups and keep the dairy-beef heifers for our dry stock farm. The dairy-beef heifers are used for breeders, and we sell the steers at about 18 months-old. The last group of steers were sold on the online marketplace AuctionsPlus.

What does your joining season look like?

We do six weeks of artificial insemination (AI). Our local service provider, Matt Haberle, does a wonderful job. Following AI, we use beef bulls for up to four weeks. We also use sexed Holstein Friesian semen to breed the heifers and mop up with Jersey bulls.

Are there any specific bulls you have used that stand out? Why?

All the cows have been good so far.

The first year we used Maxima, Beamer, Jubilant and Fire-up.

The Jubilant daughters are real standouts. They have a lovely temperament, big capacity, excellent dairy conformation and lovely Holstein Friesian type.

We are now using Hothouse and Vector for some new bloodlines. They look like fantastic bulls, so we are excited to see how their daughters turn out.

What do you love about farming?

Some days it's tough but overall, I enjoy the challenge. It's rewarding when you see progress and achieve your goals.

You're also always learning. I did a study tour to New Zealand with the Young Dairy Network in 2017. We visited commercial dairy farms and LIC's head office and bull farm. It helped me better understand the detailed process of proving bulls, and the demanding work that goes into sending out a straw of semen.

Getting ready for the mating season is key to getting good results

Success with Inseminations

This is a three-part process involving:

- The farmer (heat detection)
- The technician (semen placement)
- The cow (cycling correctly/on heat).

Many factors help set up a cow for strong heats and mating success once in the milking herd. Early calving cows have more time to resume cycling post-calving and those meeting body condition score targets at calving have higher three-week submission rate and 6-week pregnancy rate.

Efficient heat detection

High levels of heat detection efficiency lead to better conception rates. The more cows you identify on heat and successfully mate, the higher the pregnancy rate will be. Taking time to train your team really pays off.

Two types of heat detection errors occur:

- Heats can be missed
- Heats can be falsely identified ie 'invented'.

The missed heat is the more costly error to the farmer as it results in 21 lost days in milk next season, later-born calves and less recovery time for the cow before the following mating period commences.

Cows with weak heats can be tricky to detect and heat detection aids can be a big help with finding these girls. Invented heats are less costly with no chance of conception, wasted semen, and as mating progresses, the risk of lost pregnancies when pregnant cows are remated. If you are unsure, look for additional signs of heat and at past mating dates. Either way, maintaining accurate heat detection throughout the whole mating period is important.

AI Loading and Insemination

The success of your AI mating season starts at your AI tank. Correct semen handling procedures from tank to cow are critical for good conception rates. Your cows will never get in-calf if you compromise the semen, no matter how good your heat detection or insemination skills may be.

Remember insemination is a two-stage process:

- Guiding the AI gun to the entrance of the cervix
- Gently manipulating the cervix onto the AI Gun. Executing the insemination process efficiently reaps the rewards of all your hard work in getting the cow to that point.

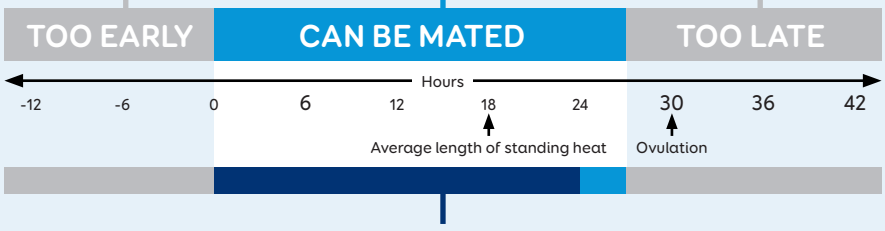
Records Monitoring and Review

Record keeping throughout this season's mating will be key to accurately assessing your mating results and your ability to identify effective strategies and potential improvements for next season.

Accurately record all AI and natural mating details against each cow as soon as possible after mating, noting all the details on each semen straw including bull name, bull code and batch number.

LIC is always working on how it can help farmers make small improvements day in, day out, and we are always striving to deliver improvements on farm.

Cow behaviour and heat detection



COMING ON
Will last 6 to 10 hours

- Will not stand to be ridden
- Smells other cows
- Attempts to ride other cows
- Vulva moist, red, and slightly swollen
- Restless and bellows

STANDING HEAT
Will usually last 6 to 24 hours

- Stands to be ridden
- Nervous and exciwtable
- Rides other cows
- Heat mount detector activated
- May hold milk
- Vulva moist and red
- Clear mucus discharge

AFTER HEAT

- Will not stand to be ridden
- Smells other cows
- Clear mucus discharge from vulva

Inseminate at first available time after standing heat observation

The DairyNZ KPI for 6 week in calf rates is 78%. Cows in a block calving herd are in a race against time to calve, resume cycling and get back in calf again within the first six weeks of mating, to remain a profitable animal within the herd. The question is, how do we best achieve this?

On the surface, pre-mating heat checks may seem an arduous task, with added cost to your repro budget, but the benefits of pre-mating heat checks far outweigh any disadvantages associated with labour and expense.

Someone once told me it was easy to tell if a cow is bulling without the need of heat detection aids. In part, this is true, however my question to that person was how do you easily tell if the animal has not been bulling?

This is one of the biggest advantages of pre-mating heat checks, easily highlighting animals that have not resumed cycling post-partum. Identifying these animals after the first 3 weeks of mating, means they are far less likely to get in calf within the first six weeks. However, identifying these animals before the planned start of mating means you have time to get them cycling and be served within the first six weeks of mating.

Now let's say it's day 10 of mating, cow number 125 comes into the dairy and a member of your staff is unsure of her heat. If her pre-mating heats are recorded, you can reference this in deciding whether to mate her or not (whether she falls within the 18- 24 day cycling window). This can be particularly helpful in spring calving herds experiencing inclement weather during mating where activity within the herd is reduced. Thus ensuring cows with weaker heats are detected and reducing semen wastage on cows not in heat.

Identifying cows that have cycled more than once prior to mating is useful in selecting appropriate candidates for sexed semen, to achieve better non- return rates.

Pre-mating detection gets staff into the right headspace for mating. It's an opportunity to train new staff in heat detection and insemination and reinforces mating protocols for your team. Come mating time, your staff's heat detection will be on-point, with heats and the associated 21 days in milk less likely to be missed.

It can be as easy as painting up all the cows to identify those that don't cycle. Put early energy into getting these cows on track - particularly with any intervention - and complete it early to reap the financial rewards and focus your staff ready for mating.

Pre-Mating best practice

Start early, at least 35 days (5 weeks) or more, prior to planned start of mating. Apply a tail paint and/or Scratch Patch/ Heat Patch Plus and observe heats. Repaint cows that have cycled with a secondary colour and note down her date seen in heat.

You can use different colours representing each week within the cycle to easily see if you are on target for 3-week submission rates. Use your on-farm software or a Whatsapp/ Messenger group to record heats.

Additional days in milk (days in oestrous cycle - 21 on average)	X	Production (kgMS)	X	Payout ($)

Using a mating chart is also an excellent tool as a pre-mating resource to record pre-mating heats. By recording premating heats through these tools it allows more accurate heat detection further into mating by having a point of reference to confirm a true or a false heat.

Talk to your local District Manager to find out more.

Identify the cows that have not cycled (still have the first coloured tail paint) 10 days prior to planned start of mating and implement your usual protocols for non- cycling cows, to get them mated early. If you have any concerns about not hitting submission rate targets, speak to your vet for advice and support on what you can do.

Alternative Milking Regimes

New milking regimes with reduced hours can make dairying a more attractive career option

by Brent Boyce, FarmWise consultant

The last four seasons have seen a significant uptake in farmers making changes to the frequency with which they're milking their cows.

Traditionally, most herds have been milked twice a day (2AD), although once-a-day (OAD) milking, as an all-season regime, has seen continued uptake during the past few decades.

In November 2001, the first foray into an alternative regime was undertaken in Murchison, with a milking regime of 14-, 16-, and 18-hourly splits. This was essentially three milkings over two days (3in2).

Consequently, as more farmers realised that (when transferring from 2AD to 3in2), production after 4-5 months' lactation wouldn't fall, the popularity of 3in2 quickly grew.

With this, some farmers realised that hours could change-up even more, to 12-18-18, or to 10-19-19 splits, for example.

The biggest limitation of 3in2 is that weekends vary: There is a single milking one Saturday, but the next Saturday there is a double milking. This is not conducive to modern lifestyles, with rosters, family life, and staff planning now high on the priority list.

In 2019, I had a light bulb moment after re-writing my findings on initiating and implementing 3in2 milking since 2002.

With input from Steve Davis, LIC senior scientist, I visualised and implemented 10in7 (and similar regimes) on several of local Tasman farms. Following this, I published my thinking and findings on these new regimes, and effectively introduced variable milking frequency to the dairy farming public, with the new regimes adopted both domestically and internationally.

10in7 is basically 3 days a week at 2AD; and 4 days a week at OAD (10 milkings/week); see Table 1 opposite for an illustration of how the roster works.

10in7 has meant farmers can now become weekend centric; sleep-ins are possible four days a week, including both days in the weekend. Other regimes, such as 9in7 and 11in7 have also become popular, as they are similarly weekend centric.

Production can be maintained, and at times increased, by undertaking alternative milking frequencies, especially after 4-5 months' lactation.

Table 1: Milking Frequency Options

Milking Frequency Options (times indicative)									
Day	2AD	13in7	12in7	11in7	3in2 Milking		10in7	9in7	OAD
					Week 1	Week 2			
Mon	5am-3pm	5am-3pm	5am-3pm	5am-3pm	5am-3pm	10am	5am-3pm	5am-3pm	6am
Tue	5am-3pm	5am-3pm	5am-3pm	5am-3pm	10am	5am-3pm	10am	10am	6am
Wed	5am-3pm	5am-3pm	5am-3pm	10am	5am-3pm	10am	5am-3pm	10am	6am
Thu	5am-3pm	5am-3pm	10am	5am-3pm	10am	5am-3pm	10am	5am-3pm	6am
Fri	5am-3pm	5am-3pm	5am-3pm	5am-3pm	5am-3pm	10am	5am-3pm	10am	6am
Sat	5am-3pm	5am-3pm	5am-3pm	10am	10am	5am-3pm	10am	10am	6am
Sun	5am-3pm	10am	10am	10am	5am-3pm	10am	8am	10am	6am
Milkings week	14	13	12	12	10.5		10	9	7

Fewer milkings also mean use of resources and associated costs are also reduced, improving farm profitability.

It is now becoming widespread for farmers to do 10in7 or 9in7 all season.

Some farmers are however doing a mix of several regimes; for example, 2AD at the start of the season, 10in7 at Christmas time, and finishing up with OAD from April.

Undertaking a mix of regimes can mean no loss in production at all, while significant time and cost savings occur. The sustainability of the business is enhanced; and the reduced hours (and well managed weekends) makes a career in dairying considerably more attractive for staff.

The uptake of these new regimes has considerable impact on how farmers are milking their cows.

Changes to milking regimes require changes to other farm management areas, which also need to align with service providers.

For herd testing, it's important the farm can adjust to help fit herd testing dates. Often testing laboratories are fully scheduled, and cannot change dates easily. For a 10in7 regime, with a OAD milking on the Thursday at 10am, it would be best to do a 2AD milking that day too (same as Wednesday and Friday).

Alternative milking regimes have many advantages but can throw up significant challenges during AB mating, and these need to planned for ahead of the AB Technician visit.

The benefits are two-fold: Better data, and avoiding the hassle of trying to change the herd test date.

The artificial breeding (AB) period throws up similar challenges. While farmers and their consultants try hard to manage mating according to the 10in7 regime (hours and timing), the different schedules cause considerable issues for AB Technicians.

Last season, FarmWise consultants and their clients found that by keeping all the morning milkings at the same time (say, at 5am), and simply adding in the three afternoon milkings (Mon/Wed/Fri, at say, 3pm), production was maintained without significant losses.

At the end of the AB period, it was simply a case of reverting to the later morning milkings of 10in7 (at say, 10am on Tue/Thu/Sat/Sun).

As with all milking regimes in a pasture-based farming system, the best animal for alternative milking regimes is a high quality, high breeding worth (BW) animal.

Lincoln University Dairy Farm (LUDF) in Canterbury is currently undertaking its first entire season of 10in7. During the season significant information is being collected, and the farm will publish outcomes in the coming months and years.

There are hundreds of farmers who are operating under alternative milking regimes, and most do it very well. The case studies on the right of this page are two examples of farmers that have achieved good results in the last 3-4 seasons. Of note are improved production, mating results, management and efficiency - achieved with considerably less work.

Case Study - Paddy and Zoey Berry (Dunsandel)

Season	17/18	18/19	19/20	20/21
Milking Routine	TAD till Jan lights OAD from Jan All cows OAD May	TAD till 21/2 3in2 till 7/5 OAD till end May	TAD till 27/12 10in7 till 14/4 9in7 till end May	3in2 till 25/12 10in7 till end May
SCC Avg	68,000	74,000	67,000	72,000
MS	275,000	305,000	317,929	312,900
Cows at Peak	596	636	616	615
kgMs/cow	461	480	516	509
kgMs/ha	1647	1826	1904	1874
Stocking rate	3.6	3.8	3.7	3.7
Avg BCS & PSC	4.9	5.1	5.1	5.1
Avg BCS Mar/Apr	4.3	4.3	4.3	4.7
6 weeks incalf	74%	71%	73%	71%
Not in Calf Rate	13%	13%	10%	13%
Mating	5.5wks AI 3wks Bulls, 2wks SGL	10wks all AI No Bulls	10wks all AI No Bulls, Collars	10wks all AI No Bulls, Collars
Bought in feed	553 t	630 t	701 t	490 t
Milkings/year	537	516	464	441
MS/Milking	0.86	0.93	1.11	1.15

Case Study - Jason and Beth Macbeth (Tasman)

Season	17/18 Baigents	18/19 Baigents	19/20 Baigents
Milking Routine	TAD till 13/12 3in2 till 3/2 OAD till 31/5	TAD till 21/2 3 in2 till 7/5 OAD till 31/5	TAD 1/8 till 23/10 10in7 24/10 till 2/12 OAD 3/12 till 31/5
SCC Avg			
MS	172, 282	187,449	200,545
Cows at Peak	425	410	423
kgMs/cow	419	457	474
kgMs/ha	1393	1464	1567
Stocking rate	3.3	3.2	3.3
Avg BCS & PSC	5.0	5.0	5.0
Avg BCS Mar/Apr	4.5	4.5	4.5
6 weeks incalf	81%	80%	86%
Not in Calf Rate	10%	12%	6%
Mating	10.5wks, 6 AI, 4.5 with bulls	Reduced from 10.5 down to 9weeks	9 weeks, 6 AI, 3 with bulls
Bought in feed		419 t	371 t
Milkings/year	466	446	404
MS/Milking	0.90	1.03	1.17

As the data sets grow and we learn more, farmers are set gain more confidence in the changes, and the use of alternative milking regimes will continue to spread both here and overseas - improving profitability and lifestyles.

Work smarter, not harder

Spencer Rendell speaking at a 10-in-7 field day held on his farm

When Spencer Rendell saw a webinar on the 10-in-7 days milking in July 2021 he jumped right in and implemented the system the very next day.

Originally moving to northern Victoria from New Zealand in 1999, Spencer and Rachael, along with their children Charlie and Lawson and parents Geoff and Glenys, moved to their new farm at Tandarook in 2019. They still own a cropping farm near Echuca.

With industry-wide staff replacement issues, Spencer started to look at other options to the traditional twice-a-day milking currently used on the new farm.

"As farmers we've got to work smarter, not harder. With 10-in-7 milking farmers can re-energise and it makes it a lot more attractive when looking for staff."

Mike Waite from LIC shared a podcast on the 10-in-7 milking with Spencer and he said it was a no-brainer.

"There's a lot of research in New Zealand on the system, and there's so much flexibility".

With the new system they milk on Monday, Wednesday and Friday at 5.30am and 2.30pm, whereas on Tuesday, Thursday, Saturday and Sunday they start at 9.30am.

"We had been milking year-round so now we are able to plan for a break, you can do whatever you want with the system to make it suit your lifestyle." "People can make the system suit them - don't let the cows rule your life."

This year after calving down in February they milked once-a-day for three weeks and then milked 10-in-7 the rest of the season. Milking 300 cows on the 240 hectare farm, they changed to seasonal supply to adjust to the new system. 200 beef cattle are also reared on the farm.

"For the first two weeks after introducing 10-in-7 production dropped by 10 per cent, but the weather wasn't good. After that it improved and has now actually increased."

"You do have to be on your pasture management though and feed them like you're milking twice a day."

Spencer adds the cows have enjoyed the change with improved overall health, along with easing pressure on their feet over winter with the cows doing 33 per cent less walking. It's a no-brainer you get the lifestyle benefits of once-a-day milking without the big pay cut. "We are doing around 480kg MS and expect to maintain in-calf rates of 93 per sent over a nine week period.

Spencer says it's time for farmers to be more innovative, balancing lifestyle and profit.

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