GREEN SPRING TO A CONTRACT OF THE SPRING TO A CONTRACT OF

THERE'S ALWAYS ROOM FOR IMPROVEMENT



CONTENTS

Page 4 Gippsland family farm forge ahead

Page 6 New project with DairyTas -The 10 Steps

Page 8 Pre-mating tips

Page 10 Why there are no Holsteins in my Holstein herd?

Page 12 Are 2 AB Tech visits better than 1?

Page 14 Hall of Fame honour

Page 15 LIC partners with Ethiopia to improve agriculture

The Billion Dollar Scheme



Mike Rose

2021 marks 60 years of the LIC Sire Proving Scheme (SPS) in New Zealand, this is quite some achievement, and worthy of some special attention. I feel the SPS is the most complete and well-structured proving scheme in the world. Past NZ 'SPS farmer-of the year' winners and LIC staff marked this milestone with a celebration dinner at LIC's head office in Hamilton earlier this year. One could argue the cost of proving a bull at over \$40,000 each is not worth the investment, given the advances in genomic evaluation. However, despite LIC's significant and ongoing investment in genomics, the company continues to invest in proving young bulls, recognising several key benefits including:

- A daughter proven, high reliability offering compared to genomic-only bulls. In Australia, we have many farmers who prefer to use smaller bull teams, (often 3-6 sires), so consistency is important. Due to this, we continue to see strong demand for daughter proven sires and while we are bringing in more genomic sires, most farmers may use only one or two bulls among a team of proven to spread the risk.
- A great benchmark to see how genomics is progressing, as for each intake we can compare all bulls' genomic predictions against their own daughter proofs.
- Reliable, accurate and timely phenotypes to support the genomic estimations, an often overlooked, but essential, requirement for genomic evaluation. The SPS provides such information for important traits such as calving ease, conformation, type and farmer opinion.

www.licnz.com.au Freephone 1800 454 694 E admin@licaus.com.au



Follow us @LICAustralia



SPS 60th Year celebrations - last month LIC hosted about 80 SPS farmers from around the country for dinner and acknowledgement of their contribution to the dairy industry

- Increased certainty with LIC genomic sires for early expressed traits. All genomic bulls sold in Australia will have been used as part of the sire proving scheme before being marketed. This means they all have progeny on the ground, and early proofs on important traits such as gestation length and calving ease.
- LIC is one of the very few companies to still sire-prove bulls through a formal scheme and it is certainly one of the largest in the world with around 180 bulls brought into the current intake.

All farmers using LIC genetics benefit from the efforts of around 200 sire proving farmers. These SPS farmers are, in some ways, unsung champions of the herd improvement industry.

While receiving heifer rebates, parentage verification to sire and good value semen, people often do not realise the extra obligations and workload that they undertake, such as: limitations on their breeding plans and changes to milking regimes, participation in weighing and scoring for traits and requirements regarding heifer replacement numbers and milk recording events.

These above-average performing farmers bring real care, passion, and attention to detail to their work, improving the quality and reliability of our bulls' phenotypic information. They are representative of NZ farmers across a range of farm system types and geographic locations, all working to get the most accurate and unbiased bulls' proof as possible. During LIC Australia's recent move between offices in Echuca, we came across a stack of dusty books called The Billion Dollar



Scheme. The lofty title reflects the fact that at the time of publishing in 2012, LIC artificial breeding bulls (graduates of the SPS programme) have contributed around 17 billion dollars to the New Zealand dairy industry alone, not to mention the benefit accrued by our longstanding customers globally.

Produced for the 50-year anniversary of SPS, I understand we are in possession of the last dozen or so printed copies available anywhere in the world. I have always made a point for new LIC staff to read this book as while its mostly a collection of stories from farmers and staff about the LIC SPS scheme and development of herd improvement in New Zealand, it shows the improvements that have been made over time, explains how LIC as a farmer co-operative has been shaped and gives the reader a great sense of pride and passion for the industry we work in.

I have read this book several times but during this office move could not help picking up a copy to read end to end about the farmers who have contributed so much to the industry and the LIC staff who often dedicate their whole working career to improving dairy cattle performance. If you are interested in herd improvement and want to read insightful stories of farmers and LIC staff who have been involved over the 100 years or so of dairy cattle breeding this is a 'must read'. Anyone who is interested can view the online version on the LIC website (www.lic.co.nz), under publications or we would be happy to post one of the very last few copies we have on hand to the first people who request them!

Happy farming,

Mike Rose LIC Country Manager



Forging ahead and building the family farm in Gippsland

There are two things Rob and Carly Jennings won't compromise ever again – feeding their dairy cows and fertiliser applications.

Rob, a fourth-generation Gippsland dairy farmer says, "Previously I have stuffed around with the ration of the cows, saying 'because that was getting too expensive' but then I had health problems with the cows."

"Coming out of the drought, I've decided I'm not going to go skimping on what the cows eat because it costs me too much in late production and getting them in calf."

This season, Mother Nature has been favourable at Gormandale in Gippsland for the young farming family of Rob and Carly, and children Hollie 7, Chelsea 5 and Roy 2.

It's the second year post a tough East Gippsland drought, a period where they were feeding their herd from the back of a truck.

However, this 2020-21 season has been the first full year where they were able to make the most of their spring homegrown feed, following droughtbreaking rainfall in autumn 2020.

They have plans to grow numbers after reaping the benefits of their tighter seasonal calving pattern and an increased emphasis on cow nutrition. Introducing lead feeding prior to calving meant the herd 'hit the ground running' this season.

"This year we led-fed three weeks prior to calving and they came in and hit their milk straight away and we had so many cows calve earlier," Rob said.

"We were well ahead in production from last year. I put that down to lead feeding, bunching the cows up more and having the cows in better nick in the lead-up to joining."

During spring last year, the 270 LICbred herd was fed a 6.5kg/cow/day combination of wheat, barley, lupins and canola, this year the ration has dropped to 5kg/cow/day.



Rob and Carly with children Hollie 7 (blue shirt), Chelsea 5 and Roy 2

The spring calving herd peaked at 31 litres/cow/day or 2.4kg of milk solids/cow/day just before joining in mid-October. In early December, production for the Holstein Friesian, Jersey and KiwiCross[®] herd settled at 25 litres/cow/day.

A concentration on fertility and tightening the spring calving has delivered phenomenal in-calf rates for the Jennings family.

They hadn't pregnancy tested in early December, although the 'activity in the yards' was minimal.

The previous year they had 15 cows not in calf, out of a total of 270.

For the 2019 joining, Rob separated all the late calving cows, treated them with PG and put them with a beef bull.

The most recent joining – spring 2020 – included pre-mating heat detection. Any cow that didn't have an observed heat was immediately given PG and then the herd was split into two groups.

"It made it heaps easier picking up who was bulling," Rob said. "Making it easier on the returns that go with the bulls on that third cycle (for joining)." Artificial insemination ran for six weeks and everything – except about 10 cows which calved late – was mated in the first round of joining.

All heifers are artificially inseminated, with CIDRS used for heat synchronisation. This has been the practice for the past three years.

Each year Rob and Carly have tweaked their joining. Rob said trying different methods was the best way they could return their business to a condensed seasonal calving.

Short gestation sires over late calved cows also played a role in compressing the spring calving.

Calving runs from the end of July until mid-September.

This coming season 93 rising two-yearolds will enter the herd, following only 35 last season due to the drought.

On average 40-50 replacements are added every year.

This coming year will be the second time Rob and Carly have moved to significantly increase their herd. Additional replacements will bring numbers to 340. In 2016 Rob and Carly purchased cows to justify construction of a new 20 a side rapid release herringbone. This decision coincided with the infamous 'dairy crisis'.

The season became drier in what was the perfect storm of unfortunate events. On top of this, Rob's scepticism about purchasing cows was proven correct.

"When we bought the cows, I realised in the first few months that we might have wasted our money because they weren't (anything like) what I was milking," he said. "Then it dried out and we had to spend all that extra money on tucker. We had gone from milking 200 cows – everything was set up for 200 cows, to all of a sudden, having 300 cows. We spent all the time ripping fences up to make the paddocks big enough. It was just a whole lot of extra stress and money on top of everything. Coming into that last year of the drought we had our backs against the wall."

That was in 2018, a season where they cut only half their 'normal' 650 tonnes of silage – and spent considerable time sourcing hay.

"We were feeding cows off a truck with what hay we could get," Rob said. "We were just lucky we had a good relationship with a bloke we had been buying hay off at Avoca for years, he put some aside for his good customers and that's what got us through."

During this time a 'massive cull' of the herd revealed that out of the 60 heifers purchased in 2016, only 19 remained.

"It paints a pretty good picture of what those heifers were like," Rob said. "The big clean-out got us down to 240 from 300."

A lesson learnt, the next line of heifers Rob and Carly purchased came from similar breeding to their own and they've retained them all.

During the drought, the LIC animals 'didn't take as much feeding' and continued to produce 480-490kg of milk solids/lactation, according to Rob.

The Gormandale property has a longstanding history with herd development, with Rob's great grandparents purchasing the property as a dairy farm in 1925. Rob's 'Pop and Nana' Bill and Shirl Onley started using LIC genetics in 2002, but the farm had a long association with 'Kiwi' genetics before then.

"For as long as I can remember, Pop was putting, not quite 100 per cent Kiwi genetics in, but a fair bit," Rob said.

"In the 80s him and Nana went on a farm trip to New Zealand and up until then Pop was running a Friesian herd. They must have seen some crossbreds over in New Zealand that got him thinking about going to a crossbred herd."

Moving across to the smaller, 500-550kg liveweight crossbred animals, was the right decision for the farming terrain, volatile seasons, and unpredictable rainfall, according to Rob.

"We can have a lot of grass here in the springtime, but then we go into summer and it can turn and you are dry again," he said. "We want an animal that is quite strong and robust and can roll with it and still be quite productive."

Rob returned to the family farm in 2001 working for his mother Pat who was sharefarming for Bill and Shirl.

After two years, Rob joined his mother in a sharefarming arrangement as she started to purchase half the farm from her parents.

During this time the mother and son partnership took over the breeding decisions and financial responsibility for artificial insemination.

"It was our way of buying the herd from Nan and Pop," Rob said.

"Mum would sit down for hours going through the cows and what bulls she was going to choose, she would spend so much time on it," Rob said. "She just loved cows, it was her thing and she lived and breathed it."

In 2013 Pat was diagnosed with MND, resulting in Rob going in 'the deep-end' when it came to selecting bulls.

"It was a bit daunting because I used to see how much time Mum would spend on it," he said.

Fertility is the highest breeding priority, followed by the overall make-up of the animal.

Rob said breeding a strong animal that lasts in the herd made economic sense.

Pat passed away in 2015 and since then, Rob and Carly have run the farm independently.

They've run a large pasture renovation program in recent years due to the drought, while summer crops such as lucerne, chicory and sorghum have provided much needed dry matter during low rainfall years.

The dryland farm has expanded to a 140ha milking platform, thanks to the addition of another block.

Looking ahead, the injection of almost 100 replacements will push numbers to 340 next season.

In December last year, Rob had just started to feed silage to keep production humming through the early months of 2021.

Drought and low farmgate prices remain fresh in the minds of the young farmers, but they are clearer about what underpins their bottom line – feed and fertiliser.





Steven Clarke - Tree Alliance, Rachel Brown and Mike Rose LIC attend the launch of the project at Agfest

Breeding more efficient animals could help unlock profitability and environmental gains for Tasmanian dairy farmers, according to a new project – The 10 Steps.

This comes as consumer pressure mounts on agricultural production to improve its on-farm and supply-chain environmental credentials.

The project, led by DairyTas and supported by LIC, the Tasmanian Government Serve-Ag, and others, investigated how the Tasmanian dairy industry could reduce carbon emissions.

Central to the findings was the need to breed a cow which produces high milk solids relative to its liveweight, while lasting longer in the herd. The research suggested a milk solids target of 90 to 100 per cent of liveweight.

Former DairyTas sustainable dairying adviser, Rachel Brown, said genetics was an obvious starting point for the investigation, as cattle produce 60 to 65 per cent of the emissions from the state's industry.

"This project showed you can milk less cows, but milk better cows," she said.

"With the right animals you can focus on profitability, not production," she said. "With the right cows and the right genetics, it flows through the whole business, and you can have good people, who can run the farm well. Finding good staff is always a challenge and finding the good people to run the very large herds well, is even harder."

Information used in the project from New Zealand's Lincoln University Dairy Farm showed a 12 per cent reduction in emissions from milking fewer, higher producing cows, reducing supplement, nitrogen fertiliser inputs and improving pasture management.

The 10 Steps project was a first for the Australian dairy industry and it drew on research from across the Tasman, specifically the HoofPrint® breeding index developed by LIC.

The HoofPrint® index allows farmers to select bulls based on their predicted ability to generate daughters which produce less methane and nitrogen per kilogram of milk solids over the animal's entire life.

Dr Brown said tapping into the New Zealand dairy industry not only provided access to world-leading research, but this science was also applicable for Tasmania because of climate and farm system similarities.

Breeding for environmental and business gains requires a focus on the production and longevity of individual cows, according to New Zealand-based LIC Environment and Welfare Manager, Tony Fransen. "It's the right cow producing the right levels, driving overall efficiency," he said. "Then there's lifetime efficiency, is the cow getting in calf every year? Nice and early in the season? Does she have the health and confirmation traits that means farmers keep her around longer?"

The next step to improving the environmental credentials and profitability of every generation, would be using sexed semen to breed from the best animals in each herd, Mr Fransen said.

"Year-on-year your replacement stock are getting better and you are phasing-out lower genetic merit animals," Mr Fransen said.

Dairy's environmental footprint is front and centre of consumer's minds according to Fonterra Australia Environment Manager, Colleen Gates.

"Customers and consumers want to know our bigger story – they want to know that we are taking our responsibility for the environment seriously and they want to know what we're doing about it," she said.

Dairy farmers can find the project's '10-step guide' on the Dairy Australia website – https://www.dairyaustralia.com.au/ dairytas-10steps Steps

Reducing the carbon footprint of **Tasmanian dairy**

Know where emissions come from

Methane & nitrous oxide are main greenhouse gases from dairy farms. There are carbon calculators and rules of thumb to estimate emissions. Cape Grim, Tasmania is a global baseline greenhouse gas monitoring station. capegrim.csiro.au

Make every cow count

Cow performance = genetics + environment. Aim for optimum genetic gain in each generation of replacements. Use high HoofPrint[®] rated sires in your breeding program. In calf, on time, every time for profitable herds with lower emissions intensity.

Efficient cows are key - breed for energy use over cow size

Breed for the type of cow that fits within your farm system. Consider what production is your "sweet spot" and target a cow producing at 90-100% of liveweight. e.g. cow producing 450 kg MS should be no heavier than 500 kg.

Enduring Cows

-00

Increase lifetime animal profit with longer lasting, efficient producing cows. Increasing average number of lactations from 4 to 5 for the herd = dropping replacement rate from 25% to 20%, leading to net decrease in emissions for the herd. Milk less cows, milk better cows.



Home grown goodness

Maximise % home grown feed in diet. NZ Lincoln University Dairy Farm achieved 12% decrease in emissions by 1) fewer, higher producing cows; 2) reducing supplement feed & nitrogen fertiliser inputs; 3) improving pasture management.

www.dairyaustralia.com.au/dairytas-10steps

Keep cows comfortable and plant trees

Any cow compromised by lameness, mastitis, heat/cold stress or poor feeding will compromise emissions efficiency & farm profitability. Trees on dairy farms = multiple benefits.

Farming carbon – rivers, soils and trees

Whole farm planning and good farming practices to store carbon in shelterbelts, woodlots, riparian buffers and soils have multiple benefits.

Keep learning – New Technologies and potential solutions

Research is underway in feed additives (seaweed, 3-NOP), methane vaccines and breeding/genetic modification for feeds and animals. There is growing investment in alternative protein sources.





Smarter Energy Use

Do maintenance, get efficient and invest in renewables. Make energy efficient decisions for irrigation upgrades. Do energy audits and benchmark energy use.

Be Fert\$mart

Å

Strategic use of N fertiliser, good effluent management/using effluent as a fertiliser, minimising build up of manures, managing wet areas and good soil management will reduce nitrous oxide emissions.







Co2





Pre-mating tips

LIC's Mike Rose talks about how we can ensure a successful mating period and increase our chances of getting cows in calf.

So, what is pre-mating?

When we talk about pre-mating with farmers it is often greeted with a mixed reaction.

Pre-mating heat detection is the period of time in lead up to the planned start of mating date (PSM). It's used to identify which cows in the herd are cycling as expected, and those that are not.

The thought of adding additional weeks of heat detection to a long mating period can seem daunting to some, and perhaps of little value, but there are benefits to be had as a result... benefits that can save you money.

In addition to the production cost shown, there's the flow on cost of having a cow calving later than expected, leading to less time to recover and get in-calf early the following season.



Know the value of heat detection

Poor heat detection can be very costly to your farming business. The cost of a missed heat can be calculated with the following equation:

Additional days in milk (days in oestrous cycle – 21 on average)

Production (kgMS)

X

Payout (\$)

X



Studies have shown there's a large area for enhancement in herd improvement on farm, with the 2019 median 6 weeks incalf rate for seasonal herds sitting at 52%.

A contributor to this was the relatively low median 3 week submission rate which was sitting at 58% in 2019.

Reference: National Herd Reproductive Performance Report 1997 to 2019 John Morton

Pre-Mating heat detection

Start early, at least 35 days prior to PSM.

The most common method is to apply tail paint and observe the rub marks to determine pre-mating heats.



Record your pre-mating heats. This doesn't have to be an onerous task. A simple wall chart or diary with the cow numbers that have cycled each day will help.

When you have new staff or staff on farm that aren't as skilled at heat detection as others, I recommend using the pre-mating period to upskill them, while they gather the pre-mating on heat dates for you.

These recorded dates provide you with a reference to check back to during mating.

This can help you:

- reduce the number of 'if in doubt, put her up' short returns
- reduce the number of straws used on cows that are not in heat

Remember, a New Zealand Friesian cow comes on heat every 18-24 days on average, a Holstein every 19-22 days.

As pre-mating progresses, you can use the information to understand the proportion of your cows that are not cycling and consider your treatment options.

What to do with non-cycling cows

Have a plan in place for how you manage them.

Options can include:

- Vet checks
- Using two forms of heat detection from PSM to help identify these cows more easily
- Running them as a separate herd
- Providing preferential feeding
- Moving them to once-a-day milking to give them a greater chance of cycling before mating

When you have a high proportion of non-cycling cows, talk to your vet about a management plan.

Whatever your plan is, you'll have identified which cows to keep a closer eye on during the mating period.





In summary

Pre-mating is the perfect time to:

- check that your cows are cycling correctly before your PSM
- identify non-cycling cows for early treatment
- fine tune yourself and upskill your staff's heat detection skills
- train any new staff in heat detection
- confirm on-farm mating and short return policies
- ensure all staff involved are on the same page and ready for the mating season.



Why there are no Holsteins in my Holstein herd?

This opinion piece was written by Janet Auchterlonie, Dumbalk, Gippsland.

Recently, the highest BPI cow in Australia was a crossbred cow. Not long afterwards I was at a meeting and the derisive comment was made, "She may have the highest BPI, but who is her sister?"

My answer is, I don't know. The sister may be good, she may be bad, although being bad is less likely.

In any cow family, purebred or crossbred, a great cow may not have equally great sisters. There are clear benefits in the diversity of genetics that crossbreeding gives, but the variation in the parent bloodlines means that, along with hybrid vigour benefits, there is more variation seen in the offspring.

My response to the above question is another question; "I had a beautiful cow in my herd whose Holstein sire has ABVs of 108 and 110 for daughter fertility and survival respectively. She hasn't lasted 2 lactations because of infertility. Who is her sister?"

This is a question that I can answer because out of the 9 half-sisters in my herd who have similar genetic merit, 7 haven't made it to a third lactation either. It seems they are peas in a pod.

I understand the philosophy of breeding along bloodlines. If you can narrow the genetic variation of the parents, you can be confident that most progeny will be similar to each other. This is great if the characteristics you want in your herd are the characteristics that are being bred for. It is also good if the characteristics we need in the future are not currently, or have been, bred out of the gene pool.

Why are there no Holsteins in my Holstein herd? Because of natural selection, they are culling themselves out. My husband and I have refused to change our system to suit the cow, the cow we milk has to suit our system. The North American Holstein was never designed to walk out to a paddock, eat grass and have a calf every 12 months, yet it has been and continues to be used widespread in the Australian dairy industry.

Broadly speaking, most dairy farms in Australia can be put into two camps. The herd profile of one system is based on type, size, breeding, lactation production (usually expressed in litres rather than milk solids) and has carryover cows. These cows require higher inputs and more exacting managerial skills. This system is a frequent user of the pure Holstein, particularly North American bloodlines and is challenged when milk prices are low.

Unless you have top level management skills and the reasonable security of good future milk prices, you are much better off with a different type of cow. So why are so many Australian farmers using the TMR cow for a pasture based system? One of the biggest drivers is the presentation of data and how farmers are encouraged to measure success. Litres are routinely confused with profitability. Per cow lactation production is promoted, over lifetime production, poor reproduction and survival has become culturally acceptable, a cow's value is based on her colour and export potential not ability to generate profit.

My husband and I fall into the other less intensive system which focuses on fertility, longevity, lifetime production (expressed in milk solids) and has no carryover cows. This system usually requires lower inputs, is more forgiving with management styles and tends to be more resilient when milk prices are low. However, while our system is less intensive in terms of feed inputs and management, we are producing higher than the Victorian average for production per cow and so while we may be low input we don't feel we are low output.

This is the system that dominates in Ireland, Tasmania and New Zealand and the cows in these systems tend to be smaller, often crossbreeds that are more fertile and convert higher levels of feed into milk solids. It is also pertinent to point out that opposed to mainland Australia whose dairy industry is in decline, the dairy industries in New Zealand, Ireland and Tasmania have expanded in recent times. In New Zealand and Ireland, comparative to Australia, it is being done on very expensive real estate.

It is certainly working for the Irish, a recent analysis^{*} found that Ireland's dairy system was the most profitable of the EU countries that were studied, despite Irish farmers being paid the lowest milk price. Even with a low milk price, the low production costs of using a seasonal farming system gave the Irish the greatest profit margin per litre of the countries analysed, 43% higher than the next most profitable country, Britain. It is also worth noting that the price that was paid to Ireland's farmers was only marginally higher than what was being paid in New Zealand.

My husband and I only ever intended to dabble with a three-way cross, for the most part we planned to keep milking Holsteins. 2 years ago, there was only 20% of the herd that were pure Holstein, today there is only 7.5% and more than half of which are aged cows. Even though we didn't choose to have a crossbred herd, it does seem that a crossbred herd has chosen us.

According to Dairy Farm Monitor for 19/20, the average milk solids (MS) per cow for Victoria was 525kg, for Gippsland it was 486kg MS per cow and even though we have a predominately grass based system with 1.5 tonne of grain feed for our Gippsland farm, we managed 600kg MS cow (50kg more than usual due to favourable season). The liveweight of our cows is 550kg. The 6 week in calf rate for last joining is 70%, which is down from the usual 75%, and the empty rate after 10 weeks is 9%. The average yearly mortality rate for the last 5 years of our adult cows is 1.5%. The last time we've had a calving paralysis case was 9 years ago.

Do these figures indicate that my husband and I are very good managers? No, what they do indicate is that by milking a cow that suits our system, we have a herd that is very easy to manage and anybody can do it.

*An Analysis of the Irish Dairy Sector Post Quota. Laurence Shalloo et al. October 2020.





Are 2 AB Tech visits better than 1?

Last spring LIC undertook what's believed to be New Zealand's first robust trial to determine whether a twice-daily AB tech service would improve conception rate, getting more cows in-calf.

Scientific results showed there is no case for increasing daily visits by AB Technicians.

In other words, there was statistically no significant difference between the twice-a-day and once-a-day groups in conception rate, either within, or across, herds (see table 1, below).

The 8000-cow trial took place across four separate farms on Rakaia Island in Canterbury.

Cows were split into two groups:

- Cows with even-numbered tags were visited by an AB technician twice-a-day (AM and PM)
- Cows with odd-numbered tags were visited by an AB technician once-a-day (AM only)

All inseminations followed oestrus that was initially picked up using collar technology as the heat detection device.

More than 9100 inseminations were completed during the six-week trial.

Although both groups of cows were inseminated once-a-day, the cows that were serviced by an AB technician in a twice daily visit were inseminated within a 12 hour window of oestrus alert (which some industry players believe may improve conception rate).

The research was headed by ZhenZhong Xu, LIC scientist and research leader (reproduction), who was supported in the field by Dave Hale, LIC national artificial breeding manager, and Garth Stearn, LIC's upper South Island territory manager.

Dave Hale said the outcome of the controlled trial has reaffirmed the value that a once-a-day AB tech service delivers.

"From the data we can see that cows have the best chance of getting in-calf when they're inseminated within the optimal breeding window (4-19 hours), which a once-a-day AB tech service achieves."



David Hale, LIC national AB manager

Time of insemination relative to oestrus alert

The frequency distribution in the time of insemination relative to oestrus alert is shown in **Figure 2** for cows in the two trial groups.

The large peak for OAD cows at 4 hours reflected the fact that a high proportion of cows had oestrus alerts between 2 and 6 AM and most morning inseminations were carried out between 6 and 10 AM.

| Herd Name | Once-A-Day | | | Twice-A-Day | | | Total | | |
|-----------|------------|----------|--------|-------------|----------|--------|--------|----------|--------|
| | Insems | Pregnant | C.R.,% | Insems | Pregnant | C.R.,% | Insems | Pregnant | C.R.,% |
| Harakeke | 818 | 411 | 50.2 | 862 | 416 | 48.3 | 1680 | 827 | 49.2 |
| Tussock | 1499 | 794 | 53.0 | 1502 | 836 | 55.7 | 3001 | 1630 | 54.3 |
| WestEnd | 1556 | 828 | 53.2 | 1528 | 828 | 54.2 | 3084 | 1656 | 53.7 |
| Willow | 709 | 393 | 55.4 | 713 | 390 | 54.7 | 1422 | 783 | 55.1 |
| Total | 4582 | 2426 | 52.9 | 4605 | 2468 | 53.6 | 9187 | 4896 | 53.3 |



Figure 2 shows there was a clear shift in time of insemination to the right for cows in the TAD group; inseminations between 0 and 4 hours were reduced, and inseminations between 8 and 16 hours were increased. There were no obvious differences between trial groups in distribution of inseminations after 16 hours.

The conception rate of inseminations at different times after oestrus alert is shown in **Figure 3**.

Inseminations in both trial groups are combined to increase insemination number at each time point.

The graph shows there was a wide time period, between 4 and 19 hours, when a high conception rate (around 55%) was achieved. Inseminations between 0 and 3 also achieved a conception rate above 50%.

Conception rates decreased rapidly after 25 hours.

Results in **Figure 2** and **Figure 3** help explain why twice-daily AB tech visits did not improve conception rates.

Results in **Figure 2** show that having two opportunities in a day to inseminate cows shifted most inseminations from the period between 0 and 4 hours to between 8 and 14 hours, when conception rate did not differ greatly. However, twice-daily AB tech visits did not reduce the proportion of inseminations carried out after 20 hours, when conception rate was reduced.

Based on results in this trial, twice-aday visits by the AB technician did not significantly improve conception rates for lactating dairy cows grazing on pasture.



Figure 2. Frequency distribution in time of insemination relative to oestrus alert for cows in once-a-day (OAD) and twice-a-day (TAD) groups.



Figure 3. Conception rate of insemination at different times after oestrus alert.

The current practice of submitting cows for insemination at the first opportunity after oestrus detection applies to all animals on heat, whether alerted by a collar system, a heat detection aid, or farmer observation.

Hall of Fame honour for 'millionaire' Beamer by Simon Worth, LIC livestock selection manager

Holstein-Friesian bull, San Ray FM Beamer-ET S2F, or 'Beamer', was inducted into the elite animal 'Hall of Fame' by farmer-owned cooperative LIC.

The honour is shared with Beamer's breeders, Ray and Sandra Hocking of Carterton, New Zealand who supplied the bull to LIC as a calf after he was selected as a contender for the co-op's elite teams of artificial breeding bulls based on his high genetic merit.

Ray Hocking said they have been proud to follow Beamer's success, seeing him selected for the LIC bull team and then be so popular with farmers, for his high genetic merit, overall conformation traits and ability to breed capacious daughters with good udders.

"As breeders we are very proud of his achievements. We know he has delivered a lot of value to a lot of farmers around New Zealand."

The story of Beamer is intriguing. His dam, SRB Keredene Skelton Bust, was contracted for an embryo transfer (ET) programme with owners Stewart and Kathryn Anderson.

They saw the great potential in this animal, who went on to calve no less than 12 times and classify Excellent (conformation score).

It was the ET flush mating to the incredible (LIC Hall of Fame inductee) Fairmont Mint-Edition that was subsequently purchased by Ray and Sandra Hocking.



Malcolm Ellis (LIC), Ray and Sandra Hocking, Simon Worth (LIC) at LIC's Breeders' Day event



Ray and Sandra Hocking with LIC's Simon Worth celebrating Beamer's historic milestone

The initial motivation for the Hocking's was the generation of heifer calves.

But when only bulls were born, and the Anderson's extended the kind offer to take the young bulls back, Ray recalls thinking: 'Knowing my luck, if I leave them behind one of them will be a hit'.

He decided it would be best to take one of the three full brothers, but which one?

The bull in the middle of course, Ray says (the logic being that in his early days Ray had enjoyed the middle of the scrum).

All three bull calves went on to make an impact through Premier Sires (Buster with more than 640,000 inseminations). At one time all three bulls were within the top-10 Holstein Friesian bulls on DairyNZ's Ranking of Active Sires list.

LIC livestock selection manager, Simon Worth, says Beamer is the 58th bull to be inducted into the co-op's

About Beamer

- Born in New Zealand in 2010, as a result of an embryo transfer
- Sired by Fairmont Mint-Edition

 105038 (a 2015 Hall of Fame inductee)
- Debuted in the Premier Sires teams in 2015

Hall of Fame, an honour which is strictly reserved for animals that have delivered a significant contribution to the dairy industry, dating back to 1954.

"Beamer well and truly meets that criteria. Not only has he fathered more than 170,000 daughters for New Zealand's dairy herd but he has also sired more than 92 sons and 54 grandsons who are now following in his footsteps and achieving tremendous success."

Beamer is also one of only four bulls in New Zealand's 70-year history of AB to surpass more than one million straws of semen for artificial insemination.

"Beamer is an outstanding bull and his contribution will have a prolonged effect on New Zealand farms for many years to come.

It's very likely, given the emergence of the genomic era, that Beamer will be the last New Zealand bull to reach the magic million milestone.

- 734,073 liquid inseminations (PS & SPS) and over 1 million straws
- 170,000 daughters
- 92 sons and 54 grandsons for the artificial breeding (AB) industry
- BW 216/98 as of 24 April 2021
- 58th inductee, 26th Holstein Friesian bull inductee



LIC enabling agricultural improvements in Ethiopia

New Zealand's dairy herd improvement cooperative, LIC, is enabling agricultural improvements in a country more renowned for coffee than cows with the support of the Bill and Melinda Gates Foundation.

Ethiopia has around 60 million cattle, one of the largest bovine populations in Africa. Its combined herd produces about 90 percent of the country's milk with additional supply coming from camels, goats and sheep. With a population of more than 110 million people, Ethiopia has a growing demand for animal products including dairy, meat and hides but this is currently limited by a lack of decision making tools and the ability to provide insights from the livestock sector.

The collaborative initiative, Project aLIVE (a Livestock Information Vision for Ethiopia), is funded by the Bill & Melinda Gates Foundation and aims to provide timely insights intended to increase production on farms in Ethiopia and decision making at a government level.

The primary focus is developing a roadmap for livestock data and information management that improves agricultural productivity in Ethiopia. Other components include strengthening the National Livestock Market Information System (NLMIS) and designing a working prototype for the National Animal Genetic Improvement Institute (NAGII) to improve the quality of data captured in the sector. LIC Chief Executive Wayne McNee says the intention is to provide the Ethiopian Ministry of Agriculture, another important partner in the project, with a fit-for-purpose roadmap for a data and information management system during 2021 that meets the requirements of the Ministry.

"The goal is to deliver a system that provides access to more accurate information enabling more sustainable growth, export opportunities and improves the wealth of farmers and the country. In order to achieve this we have a dedicated team pulling data from a range of agencies and sources including Ministry of Agriculture directorates, research institutions and industry bodies. By the end of this year we should be able to capture a complete set of data that will provide an accurate view of Ethiopia's livestock population."

Ethiopia's Minister of Agriculture Mr Oumer Hussein says, "We've seen the impact that well-organised data systems can have in countries like New Zealand, and we're excited by the opportunity this presents for our livestock sector." McNee says LIC's experience in improving New Zealand's dairy herd puts it in good stead to deliver on what is both an exciting and rewarding project. "Ethiopia has one of the world's fastest growing economies and its agricultural sector is made up of 74% pastoral farming. The local government has set ambitious growth targets for the country's milk, meat, and poultry production, however the current situation of fragmented data and slow uptake on livestock traceability and genetics must be improved to make these targets achievable. We're excited to be supporting this worthwhile and tangible goal. And while it's significant, the Project takes no resources away from LIC's core purpose of empowering livestock farmers through the delivery of superior genetics and technology."

The initiative is LIC's first major international project of this type. If successful, McNee says there could be other opportunities across Africa to adapt existing LIC tools and services to assist with improving agricultural productivity.





Improve your footprint with HoofPrint®

Selecting bulls for your future progeny has always been about herd efficiency, sustainability and improvement. Now we're making the sustainability part a little easier.

LIC's new HoofPrint[®] index assigns bulls a score based on their progeny's estimated methane and nitrogen efficiency. The higher the score, the greater the opportunity to improve your herds environmental efficiency. And that could give you a greener footprint.

Talk to your District Manager about the HoofPrint[®] index today.

1800 454 694 I admin@licaus.com.au I licnz.com.au



There's always room for improvement