

T
H
E **BULLETIN**



BULLISH CONFIDENCE

SPRING 2021



ENCOURAGING ALIGNMENT THAT WILL POSITIVELY IMPACT OUR SECTOR'S FUTURE



by Malcolm Ellis, LIC General Manager NZ Markets

I'll open the editorial of this edition of The Bulletin with a personal flash back to a childhood that I am particularly grateful to have experienced. We were your stock standard Kiwi rural family that was mad about sport, I recall those wet and cold winter mornings when Mum and Dad would race us three boys all over the countryside to get to those early footy kick-off times. I also recall in the 80's & 90's, as my interest and appreciation of the game grew, that there was a theory that 'when Auckland rugby is strong - All Black rugby is strong'. No one south of the Bombays ever liked to admit it, but it was true!

Today within the sector I am particularly passionate about I can draw a similar analogy within Dairy; 'When Fonterra is strong, NZ Dairy is strong'.

Now I know that the critical relationship between global supply and demand

is pivotal to our fortunes, and down on the farm getting the rub of the green with the weather can make one heck of a difference, but I maintain a strong Fonterra is in every NZ Dairy farmer's best interest.

This is a defining point in time for the country's largest company, I applaud the conviction and strength of leadership that has seen the Fonterra board bring the all-important Capital Structure conversation back to the table. When first confronted again with the subject matter earlier in the year, suppliers rightfully asked the searching questions relating to the future prospects and projections that would define the prosperity of the hardworking dedicated New Zealand farmer. The line of sight went out to 2030 and the conversation became centred on intergenerational sustainability and well-being, I am a fourth-generation dairy farmer, this is my happy place, my attention was assured.

What has been presented is a strong message relating to a continuation of the renewed focus on New Zealand milk and a realisation that total milk supply for NZ is summarised as 'likely to decline' and 'flat at best'. Forget about competition for milk for a

moment as within this editorial we are one New Zealand farmer collective, but when you open your mind to the acceleration of land use change and the imminent impact of environmental and regulatory policy change, the landscape has fewer cows, and more of the current processing stainless steel has a dry surface.

Fonterra talks of 'sustainable milk supply' and 'financial sustainability', these are astute medium- and long-term focus areas.

Just when you were about to revisit the cover of this publication to confirm whether or not this is in fact a Fonterra publication, I'll save you the time - this is proudly an LIC publication and I can draw the most critical of synergies.

This month marks my 10th year at LIC and that time seems to have just flown by. In 2016 I moved into my current role and I started talking with urgency about 'cow peak' and the likely associated reality and consequences. What became crystal clear was the focus on herd improvement was going to have to be lifted up and significantly intensified. This time period also saw the environmental and regulatory

conversation intensify. I started rolling out the line: "If you're not going to be milking more cows, you're going to need to be milking better cows". Recently I was almost feeling the need to apologise for the fact that I have been banging on about this clear message for some time now, then along came the LIC strategy refresh that absolutely put the spotlight on the core herd improvement products and services, the very essence of a herd improvement cooperative and the focus on the rate of improvement of genetic gain became entangled in talk of commitments. LIC committed the focus on the cow, the efficiency of her productivity, and the subsequent positive impact on the sustainability of a farm business and a farmer's prosperity.

Then Fonterra steps forward, identifies 2030 as a time horizon, faces all the realities of the dairy sector reset, and sets the dial on the 'future sustainability of milk'.

This is pure alignment, this is demonstrating focused shoulders to the wheel, and this is celebrating the now and being determined and focused about the future. Both cooperatives are talking about

'creating goodness for generations' (grabbed that one from you Miles) and I like that!

I will not now be apologising for the heavy focus on lifting up the value of herd improvement nor the relentless drive to demonstrate the value of efficiency of production.

When New Zealand has strong, focused and aligned cooperatives, New Zealand dairy is strong.

I wish you all well as you navigate through these all important peak months of milk production and the critical spring mating period. Enjoy this publication, the focus continues to be on you the farmer shareholder and ensuring you have the herd improvement tools and insight to be successful.

All the best,

Malcolm Ellis.

CONTENTS

- [Page 2,3](#) Herd Improvement: Southland farmer profile - Daniel Verkaik
- [Page 4, 5](#) Latest LIC Research & Development projects, an update
- [Page 6](#) Animal Evaluation - an update from Rachel Bloxham, LIC herd improvement technical manager
- [Page 7](#) The rise & rise of Sexed Semen and the new dedicated facility at LIC
- [Page 8](#) How the use of elite genetics can help solve the environmental puzzle - Greg Hamill, LIC genetics business manager
- [Page 9](#) From the Breeding Desk - Simon Worth, LIC livestock selection manager, introduces the class of '21
- [Page 10,11](#) Highlights from the Holstein-Friesian stable
- [Page 12,13](#) Highlights from the Jersey stable
- [Page 14,15](#) Highlights from the KiwiCross stable
- [Page 16,17](#) Holstein-Friesian Premier Sires teams
- [Page 18,19](#) Jersey Premier Sires teams
- [Page 20,21](#) KiwiCross Premier Sires teams
- [Page 22,25](#) Alpha Spring Bulls
- [Page 26,27](#) DNA sequencing and the milk microbiome - Christine Couldrey, LIC research leader, molecular genetics
- [Page 28,29](#) FarmWise - an update on how the flood-affected Nelson/Marlborough/West Coast is faring
- [Page 30](#) Dairy & Beef Environmental Efficiency - we're measuring it, but can we breed for it?
- [Page 31](#) Merv Brider Remembered: A tribute to a valued and popular member of LIC's bull farms staff
- [Page 32,33](#) The Final Word: Wayne McNee, LIC chief executive, signs off



Daniel Verkaik, Southland farmer

HORSES FOR COURSES

TAILORING THE RIGHT COW FOR THE RIGHT FARM

Farming among the wettest properties in Southland is the biggest challenge for Otautau dairy farmer Daniel Verkaik, but he's transforming his herd in his quest to improve pasture utilisation and battle the ever-present threat of pugging.

After successive years using overseas genetics, Daniel's recently returned to LIC bulls to help change the shape of his herd.

That's because he believes he was no longer farming "the right cow on the right land."

Although it's early days, results show his younger age groups, bred through the adjusted focus, are 'pumping out the same production with a lighter hoofprint', a reduced environmental impact, and better repro results.

A Fresh Perspective

With annual rainfall topping 1000mm, the front paddocks of the farm frequently resemble a decent-sized pond during winter months, says Morghan Dawson, LIC's local agri manager.

"Daniel's a fine farmer, and when I first visited him in 2014 I began challenging him on the size of his herd," Morghan says. "Ok, I'll admit I'm not the tallest person, but I'm telling you his cows were big - to me it was like walking through Jurassic Park."

"He was using Dutch genetics, and they clearly had a big and powerful effect. But his 240-cow herd of Friesians and Friesian-crosses were simply too heavy, and they'd become too much of a handful for Daniel in the milking shed."

"My view was that he didn't need to milk bigger cows, he needed to milk more-efficient cows, and I wanted to show him he could go for a more moderate-sized animal without compromising production."

Bringing A New Breed Through to Replace the Old Heavies

Daniel laughs at the exaggerated Jurassic Park description, but readily admits that by 2017 his dairy cows had become too cumbersome.

"Rita (Daniel's wife) and I work in the 18-aside herringbone, and we look forward to having more suitably-sized cows in the shed."

"We now have lines of R1s (rising one-year-olds), R2s, and R3s coming through. In terms of production and reproduction, I've only got the one line to compare

things to, but they've come back with a very good lactation worth - it's a nice surprise because they are the smaller heifer we were looking for.

No Compromise on Solids; Fertility a Bonus

"It's a great start, and it's made me feel quite confident with the decision I've made. All the heifers have calved, they were all pregnant."

"My herd last mating had an empty rate of 5.3 percent, and that was driven down from its normal rate of about 10 percent because there were no empties across the heifers."

"So the fertility has obviously been very good too."

Longevity, Strength, Capacity

In terms of traits he's after, Daniel's non-negotiable space is 'strength and capacity':

"Cows need to last, and if they're too narrow in the front then the breast, heart and lungs are too close and that can be trouble; I'm looking for a bull that will ensure his progeny are strong in those areas."

A traditional long-time user of LIC genetics, Daniel had tried overseas genetics for a time to boost the strength and capacity in his herd.

"I've returned to LIC because I knew they were concentrating more on longevity and strength and capacity; I could see that in some of the bulls they were marketing. Genetics is all about finding the right balance for your herd."

Daniel is careful with his bull selections and prefers to nominate all his genetics.

"The LIC bulls I'm picking look great. I like the udders, capacity, and size, and they certainly seem to have good fertility. I expect in future there will be less



Daniel with farm worker Joy and LIC agri manager Morghan Dawson

pasture impact, and I'll have better space in my barns, yard, and the cow shed. The cow will be more efficient, and the body maintenance cost will be less.

"My philosophy is to keep the cow in the herd as long as possible."

"It's in their fifth season that cows are generally hitting their peak, so longevity is very important to me as well. And LIC is doing well with that. When it comes to udders, I have a

very tidy herd on that front, so I'm expecting that to continue."

This spring Daniel and Rita are continuing with their usual mating plan of using nominated bulls for six weeks of artificial breeding.

This is being followed by two weeks of the natural-mating bull, finishing up with short gestation semen to tidy up the tail-end and bring the calving spread forward.



Daniel and Rita Verkaik and their children - their dairy farm is an all-in family effort

INTO THE GREAT WIDE OPEN

by Tracey Monehan, R&D programme manager

In agriculture, LIC is one of New Zealand's largest private investors in R&D and new product development: Last financial year the co-operative spent nearly 7% (\$17.1 million) of its revenue on R&D, well above the primary sector average of 1%.

R&D is about future farming and driving for greater efficiencies in the New Zealand dairy animal.

So what's in the pipeline, and how are LIC's farmers set to benefit?

LIC's Research and Development (R&D) team continues its focus on advancing, and applying, scientific knowledge to solve on-farm issues.

The research leads to an increased understanding of dairy animal genetics and the development of innovative products and services for LIC's farmers.

Over the past year, the R&D team has generated several new ways to add value for farmers. The team is also investigating a range of initiatives that directly impact dairy animal health or genetic improvement.

From September 2021, all farmers undertaking parentage testing

with LIC will be notified (free-of-charge) if one of their animals have two identical copies of any of the six genetic variants the science team has recently identified.

Affected animals that possess one or more of the variants can result in lower milk production, lower milk solids, smaller stature, smaller chest circumference, and lower liveweight (i.e. the six recessive traits are linked to an animal having significantly lower production potential).

How is LIC able to find the traits?

Production variants are rare; only 1 in 200 of calves born are affected, but the impact on animal health and milk production across the national herd can be significant,

resulting in up to \$10 million in lost production each year.

Identifying production variants is possible because LIC can review New Zealand's dairy genotypes using specialised genomic platforms.

These platforms allow the genetic information of each animal to be analysed at thousands of positions across the genome.

Overseas genetics companies can genotype a New Zealand dairy animal using a genotyping platform based on an international standard for cattle (beef and dairy are usually combined).

However, overseas genotyping platforms lack LIC's patented



Part of the Illumina equipment recently installed at LIC's GeneMark and Animal Health laboratory

knowledge; specifically, where the six production variants are hiding among the approximately 3 billion DNA base-pairs of a dairy animal.

In 2020 LIC invested in Illumina technology to enable LIC to undertake the genotyping and sequencing services in-house.

The Illumina technology enabled the team to integrate the production variants into the GeneMark Parentage Panel for routine screening of all animals undergoing parentage assessment.

While reviewing the parentage verification results, the farmer can decide whether to invest in raising an animal that might be genetically prone to poor performance.

Better Platform + Better Calculation = Better Evaluation & Quality Decisions

The R&D team has also developed another genotyping platform for LIC.

The platform includes the parentage and production variant data, but also includes thousands of additional positions in the genome.

The genotypes produced from this genotyping platform are already being included in LIC's Singe Step Animal Model (SSAM).

Released in February 2020, SSAM combines pedigree, genomic and production, performance, and traits-other-than-production (TOP) data to more-accurately estimate an animal's genetic merit.

In 2022 LIC is looking to utilise the new genotyping platform to offer genomic evaluation of dams and female calves.

Combining the Illumina genomic platform and the SSAM, LIC will be able to more-accurately estimate cow performance in the herd and the expected performance of offspring.

This information will enable farmers to better-decide what calves to rear through as herd replacements.

Fighting Facial Eczema

LIC's R&D teams continue to work to find new ways to try to solve old problems.

Facial eczema has been an issue on dairy farms for generations.

While the sheep industry has reduced this issue for sheep, the beef and dairy sectors still face the detrimental health effects that tiny fungal spores cause.

With no cure for facial eczema, the team is developing a milk test to give farmers more effective options to detect and mitigate the effects of facial eczema.

During the next five years the aim is to create a genomic breeding value that will allow farmers to breed cows that are more-resistant to the disease.

In The Pipeline

The list of ideas that the scientists in R&D generate is ever-growing.

In addition to the work outlined above, the *Resilient Dairy Programme** focuses on animal health and wellbeing through diagnostics and genetic improvements.

It is under this programme that (LIC research scientist) Christine Couldrey's milk microbiome work sits (see pp26,27).

Additionally, LIC's R&D teams are:

- working on using artificial intelligence for diagnostics and breeding value development;
- investigating genotype information for understanding the impact of inbreeding on our herd;
- investigating the role of the sex chromosomes in production and fertility traits, and;
- developing genetic tests for features such as small calf syndrome and Holstein haplotypes.

Grand-scale research, of course, requires a considerable investment, and LIC's significant research investment is complemented by two Government grants.

The Next Generation Genomic Selection Programme (NextGen GS) is a joint Ministry of Business, Innovation, and Employment (MBIE) programme with a \$7 million investment over five years.

**Resilient Dairy: Innovative Breeding for a Sustainable Dairy Future* is a combined LIC, Ministry for Primary Industries (MPI) and DairyNZ programme, carrying a total investment of \$25 million over seven years.



In December all dairy animals, male and female, will be re-ranked under the enhanced NZAEL index model



by Rachel Bloxham, LIC herd improvement technical manager

Numerous enhancements are being made to improve the national animal evaluation system, with the majority of these coming into effect in December 2021.

Animal indices will change following the December update, providing increased accuracy in genetic evaluations and allowing for better breeding decisions for farmers' herds.

The December updates include a major upgrade of evaluation processes, models, and genetic evaluation software.

Evaluations will be a little different for all traits, but the most significant enhancements focus on fertility and survival.

With any update to animal evaluation, all new models and processes are rigorously tested and internationally peer-reviewed before final sign-off by the New Zealand Animal Evaluation (NZAEL) Board.

More detail will be released closer to December, but of particular note are the following:

Fertility BV: The enhanced fertility index has increased emphasis on key fertility phenotypes, calving, and insemination. There will be less reliance on 'predictor traits' (traits that have a strong co-relationship with fertility).

What's next for the industry's national animal evaluation system?

The new model will utilise data from seven fertility traits recorded on first-calving cows (heifer calving) to fourth-calving cows (calving and insemination data).

The definition for fertility BV will remain as CR42 (% calving within 42 days from the planned start of calving).

The results of the National Breeding Objective survey reinforced the importance of this trait to dairy farmers.

Work is already planned beyond December 2021 to investigate and apply further enhancements to the Fertility BV, including the utilisation of pregnancy diagnosis.

Functional Survival BV: Residual Survival will be somewhat overhauled, and will be re-named 'Functional Survival'.

Like Residual Survival, it excludes culling reasons associated with fertility and milk production and is focused on other reasons why an animal leaves the herd.

The key change is the utilisation of actual phenotypic records, and knowledge of an animal surviving from one lactation to the next (a good reminder of the importance of accuracy when it comes to the recording of why an animal leaves the herd).

Given the nature of the trait, and the length of time it takes to obtain phenotypic records, (i.e. an animal surviving to fifth lactation), certain predictor traits are used to provide an early indication of functional survival. These traits include the breeding values for BCS (body

condition score), legs, udder overall, and milking speed.

The definition for this new trait is the average probability of survival from one lactation to the next (for reasons other than fertility and production): The trait BV will be reported as a percentage.

Economic Values update: Economic Values (EVs) used in the calculation of breeding worth (BW) are a key consideration in all NZAEL updates, and this year is no different. Economic weightings will be updated in December to reflect the changing economic circumstance on farm and in the global marketplace, and to generate EVs for the new fertility and functional survival BVs.

With the above changes occurring in December 2021, animal indices (both males and females) will change, and animals are likely to re-rank.

Remember, these enhancements are about improving the national animal evaluation system to provide increased accuracy in genetic evaluations - information that will allow farmers to make better breeding decisions for their herd.

To keep aligned with the changes NZAEL has been working on, LIC's Research & Development team has been working to ensure changes are replicated in its genomic evaluation system, which incorporates the Single Step Animal Model (SSAM). Re-ranking is therefore expected to be observed in the outputs of LIC's genomic evaluation system.



Semen processing in the Sexing Technologies lab at LIC's Newstead headquarters

Sexing Up AB

The number of New Zealand dairy cows mated to sexed semen has doubled this year as farmers capitalise on the technology which delivers a 90% chance of producing a female calf.

LIC will inseminate approximately 200,000 cows with fresh sexed semen this spring, up from 110,000 last spring.

Malcolm Ellis, LIC general manager NZ Markets, says the increased demand is driven by a deeper understanding and realisation among farmers that if they aren't going to be milking more cows in the future, they will need to be milking better cows.

"Using sexed semen helps farmers accelerate the rate of genetic gain by effectively guaranteeing female offspring - their next generation of replacements - from their highest genetic merit cows," he said.

It is pleasing to see more focus on the offspring of superior cows, at the same time avoiding the trap of retaining female replacements from the tail-end cows; this is a critical aspect of the herd improvement.

Farmers didn't need to leave the gender of their calves to chance, Ellis said.

"By knowing sufficient replacements will be generated from their best cows, farmers are able to consider alternative beef AB options for their poorer-performing animals, enabling them to significantly reduce the number of bobby calves leaving the farm."

Otorohanga farmer Marian Numan used sexed semen for the first time last season to help reduce the number of bobby calves the herd produced.

"It was always disappointing to see some of our lovely crossbred bulls going on the bobby truck," she said. "Using sexed semen across our top-tier cows has allowed us to produce roughly 30 heifer calves that would have otherwise been bobbies.

"It's a win-win - we can retain more of our good genetics with less waste overall."

Jared Clarke, a mid-Canterbury sharemilker agreed, and said the product offered flexibility and options across his herd.

"We were keen to breed heifers from our better cows and maximise our valuable beef pregnancies. It's very nice picking up heifers out of good cows.

"The value of sexed is that it allows more alternative pregnancies and increases your selection pressure."

LIC had supplied sexed semen to farmers for more than a decade, but interest in the product had grown significantly in the past two years, Ellis said.

"With farmers proactively looking at ways to mitigate consumer, environmental, and animal welfare concerns, sexed semen is a useful tool for them to have in their toolbox," Ellis said.

NEW FACILITY AT NEWSTEAD:

To meet the increasing demand, LIC has repurposed an area within its Hamilton headquarters to accommodate a new laboratory facility solely for the production of sexed semen.

The state-of-the-art lab sits alongside LIC's bull farm and semen processing lab and is the world's biggest fresh sexed semen sorting facility.

The lab hosts Sexing Technologies, a US-based company which is contracted to sex-sort semen from LIC's top dairy and beef artificial breeding bulls.

LIC is the only provider of fresh sexed semen in New Zealand, which delivers a noticeably better chance of getting a cow pregnant than the frozen alternative.

Ellis said combining LIC's long last liquid semen processing technology with Sexing Technologies' expertise produced a sexed semen product with a near-normal conception rate (i.e. compared to the use of conventional semen).

Having Sexing Technologies on-site also meant LIC's fresh sexed semen was available to more farmers.

"We no longer need to transport semen offsite to be sex-sorted, so have significantly reduced the downtime between collection and the sorting process, enabling longer use in the field which ultimately gives more farmers the opportunity to tap into its value," Ellis said.

The new sexed semen lab was open in time for the peak spring 2021 mating season, which will see LIC artificial breeding technicians carry out approximately 4.5 million inseminations throughout New Zealand between September and December.



by Greg Hamill, LIC genetics business manager

A focus on herd improvement through use of premium genetic choices is a key piece in solving the environmental footprint puzzle

What's Good For Your Herd Can Also Be Good For The Environment

essentially means farmers will be calculating net greenhouse gas emissions and be incentivised to act on climate change.

In 2019, the Climate Change Response Amendment Act set into law a domestic 2050 target: Net-zero emissions of all greenhouse gases (other than biogenic methane) by 2050.

There is also an increased awareness of animal welfare issues centred on bobby calves, polled, and heat-resistant genes.

While there is a tremendous amount of research going on to enable farmers to achieve the future goals that focus on environment and animal welfare, there doesn't appear to be many tools in the toolbox in the here-and-now.

However, an often-overlooked tool that has a big impact is the fundamental principle of genetic improvement.

Not only does this have a positive effect on farm profitability, but it contributes greatly to a better environmental footprint. Breeding from your best animals is easy to do and it's available in the here-and-now.

As reported in LIC's recent inaugural sustainability report, 30

years of breeding by dairy farmers using LIC genetics has netted a 13% drop in methane emissions and 16% less urinary nitrogen per kilogram of milksolids produced.

High genetic merit animals are more environmentally efficient because they partition a greater proportion of their feed eaten into milksolids and less into waste.

The report also states that for each additional \$10BW advantage, an animal typically has 2g less enteric methane and 1.7g less urinary nitrogen per kilogram of milksolid production.

So, while the environmental pathway may look daunting or even insurmountable at present, we can all focus on the first step and chunk it down into what we can do now.

For example, with LIC's Premier Sires Forward Pack teams having a breeding worth advantage over its traditional Daughter Proven contemporaries of between \$18BW and \$30BW, if you were to elect Forward Pack you'd be committing to making environmental improvement through the genetics that you'd retain in your herd.

And more and more farmers are doing just that.

Good for their herd, good for the environment.



LIC's Innovation Homebrew featured at this year's Breeders Day



by Simon Worth, LIC livestock selection manager

From the Breeding Desk: WOW. Just WOW!

This time last year I began with 'Wow, what a start!'

A year on and I repeat - Wow, what a start!

As this *Bulletin* goes to print LIC's new graduates have yet again taken top honours.

In fact, we're witnessing a new number one for each of the breeds.

Most encouraging, however, is that all three of the respective number-one bulls have previously been marketed based on their genomic predictions.

The theme you'll pick up on over the next few pages is one of confidence.

And without doubt genomics is assisting in that confidence.

Incremental improvements through the methodology, increased reference populations, and excellent technology resources are driving the accuracy of genomic predictions.

Worldwide, we're witnessing a dramatic uptake of young bulls by farmers and breeding programmes, and here in New Zealand we see this same momentum.

The majority of this momentum comes on the back of your cooperative's significant investment in a robust genomics programme.

The confidence in genomics begins 'in-house' and is reflected in the LIC breeding scheme.

Consistently we're witnessing bulls that have ranked high on their genomic predictions ultimately becoming, on average, the same bulls at the top of the actual daughter performance list.

As a result, confidence builds - this is demonstrated in the influence that young bulls now have as sires of sons within LIC's breeding scheme.

Much of the confidence stems from quality information we receive from LIC's reputable Sire Proving Scheme (SPS).

Put simply, the scheme 'validates' LIC's genomic predictions.

On average, we already see (across the three breed categories) more than 80 daughters per bull

contributing herd test information, together with more than 30 daughters for the all-important conformation and liveweight data. All of these daughters have been parentage tested to confirm their true sire.

Based on this SPS data, the bull teams are geared up to be set alight with new blood.

There are some phenomenal additions this year, and, as the dust settles and we look forward, it seems certain there will be a changing of the guard.

Over the next few pages LIC's sire selection team take you through many of the highlights, sharing in the excitement of the new graduates.

On the topic of team work, we welcome LIC's newest sire analyst to the bull acquisition team, Michele van der Aa.

Previously an Agri Manager with LIC, Michele has certainly found her niche within a very focused and passionate breeding team.

There are plenty of highlights this year including the wide range of 'sires of sons' utilised, the coming of age of Priest Sierra, and the simply extraordinary contributions of Glanton Desi Banff, Werders Premonition, and Waimata Ransom.

One of the new boys that Adrian Young highlights is LIC's own 518061 Innovation Homebrew - born and bred at LIC's Innovation Farm and now to be released into the 2021 Forward Pack.

Homebrew has always been surrounded by confidence. Not only did he result from a mating to Arrieta Branson-ET (a young genomic bull we had faith in utilising as a sire of sons), Homebrew has already provided nearly 60,000 inseminations to the industry based on his genomic prediction.

Confidence is indeed riding high!

OH, OH, THE POWER & THE PASSION: HOLSTEIN FRIESIANS HOLD FIRM

by Michele van der Aa, LIC sire analyst

Here, Michele highlights some of this year's black & whites that have caught her eye.

118001 Waimata SB Ransom-ET S2F: Coming in at a hot 322 gBW, Ransom continues to climb the ladder, increasing a massive 49gBW points since August.

The result of a genomic mating from Spring Tralee Bass-ET S2F, this guy is all work and no play!



118001 Waimata SB Ransom - ET S2F

Oozing production with a combined milksolids gBV of 118kgs and 1550 milk gBV, further adding to the appeal is Ransom's F16 and A2A2 status. Strong production comes through from the maternal side with the great-grand dam boasting 337 PW and the grand dam even better at 432 PW, it seems things simply get better each generation.

Bred in the Waikato by Aidan & Sarah Stevenson, Ransom has been a solid contributor to the Forward Pack team.

118023 Tronnoco Inca Shakir S3F: A complete package.



118023 Tronnoco Inca Shakir - S3F

It's unlikely to get more well-balanced than 118023 Tronnoco Inca Shakir S3F, who offers both production (including positive fertility) and well-rounded TOPs.

Coming from the well-bred S family of Tony & Keri O'Connor's Tronnoco stud in Timaru, Shakir's great grandam is the grand dam of the successful Samba.

A recent addition to the Forward Pack as a spring bull, this Inca son offers a 234 gBW, is F16, and is A2A2! Complementing this is a capacity gBV of 0.47 and an udder overall gBV of 0.33.

118056 Lightburn MG Relic S2F & 118057 Lightburn AK Manor-ET S1F: John and Wendy Allen of the Lightburn Stud in Palmerston North have delivered 118056 Lightburn MG Relic S2F. He's a capacious bull (0.80 gBV) with high fertility (5.0 gBV), and he's a welcome addition to the Forward Pack this season at 237 gBW.

Not to be outdone, the Allens have also provided 118057 Lightburn AK Manor-ET S2F to join Relic in the team. Manor comes from a solid-producing maternal line and is no stranger to providing sires, with his grand dam giving LIC farmers Malbec in 2016. At 251 gBW, he's the only A1A2 Friesian bull to be profiled here. Manor is balanced in both TOPs and delivers a 482 milk gBV from a liveweight gBV of 33.2. He also delivers positive fertility and residual survival.

118042 Dicksons MH Mason-ET S2F: No stranger to producing credible sons (9 so far!), the illustrious Dicksons CP Margy S1F has produced yet another in 118042 Dicksons MH Mason-ET S2F.

Joining the ranks alongside his half-brothers Mandate, Myth, and Mr Poll, Mason has already been utilised as a sire of sons. He's also very familiar to the Premier Sires teams, having already completed a stint in the Forward Pack as a

genomic bull in 2019, and more-recently in the Sexed Semen winter team.

It's a delight to welcome back Mason as a Spring bull in the Forward Pack.

Mason brings with him strong production and udders that will handle it (with an udder overall gBV of 0.62).



118042 Dicksons MH Mason - ET S2F

118053 Greenwell GR Governor S1F: It's especially exciting to see 18-code bulls coming in so strong when they have been the result of a genomic mating, and Governor is no exception!

Hailing from the Greenwell stud of Alan & Ann, and Paul Looney in Opotiki, Governor is the son of Galatea MGH Regiment S1F.

A specialist in efficiency with a 33kg liveweight gBV, 597 milk gBV, and a combined milksolids gBV of 80kg, you wonder what is going to give! It certainly won't be his fertility at a 3.0 gBV!

To help back this up are his udder strengths, with an udder overall gBV of 0.48.



Governor's dam CPR-13-1

THE IMPACT OF GENOMICS ON THE SIRE OF SONS



Utilising genomics in LIC's sire of sons programme reduces the five-year generation interval by three years



by Michele van der Aa, LIC sire analyst

The early 1990s saw LIC take its first steps on its genomic journey with the intention of increased rates of genetic gain within the national herd.

Fast-forward to February 2020, with more than \$78 million invested during the past 20 years in genomic science alone, and the Single Step Animal Model (SSAM) was introduced.

The new methodology and calculation saw the adoption of a more efficient way of utilising animal information – combining genomic, phenotypic, and ancestry information all in to one step.

Today the impact genomics is having on LIC's sire of sons is incredibly encouraging, further confirming that big strides are indeed being taken in the right direction.

The use of genomic sires has grown significantly since 2017, where 57% of the bulls utilised as sires-of-sons within the breeding programme were genetic bulls.

This has increased rapidly for the 2021 season, hitting a staggering 81%!

The knock-on effects of this are year-on-year increases in total bulls (sired by genomics) purchased from our farmers.

What started out as only small numbers with approximately 14% of genomically sired bulls purchased in 2017, now sits at a touch under 64% across all three breeds today.

Utilising genomics within the breeding programme through sires-of-sons is enabling LIC's sire selection team to reduce the five-year generation interval (to sire the next generation of bulls), all the while delivering increased production and enhanced health traits to our shareholders sooner.

You only have to look at the Friesian 18-code bulls to see this in play.

The top-3 bulls for gBW were all sired by genomic bulls themselves.

118070 Tafts Gr Supervisor S1F and 118053 Greenwell GR Governor S1F were both sired by the now very-well-proven 116016 Galatea MGH Regiment S1F.

Meanwhile, 118001 Waimata SB Ransom-ET S2F was sired by 116122 Spring Tralee Bass-ET S2F.

Had we waited for Regiment and Bass to have had their daughter proof before being utilised as sires, it would have delayed the on-farm benefit to our shareholders by a further three years (shareholders are

instead milking the bulls' two-year-old daughters today!).

The same methodology of 'genomics as sire of sons' is being demonstrated in LIC's embryo transfer (ET) programmes.

An estimated 700 calves will hit the ground next spring as the result of ET work.

Considering 97 (from 211) of the 21-code bull calves purchased by LIC were the result of ET, there is significant investment happening in this space.

It could be said LIC is doubling-down on the use of genomics in ET, considering that 157 of 161 females used in the GeneRate ET programme this year have been yearlings, with the advantage of ET being the use of recipient cows to calve down the progeny, and reducing the risk of calving difficulty.

It's certainly reassuring to see the genomics investment coming to fruition and delivering to our farmers across the country at an increased rate.

The cumulative effect is exciting and we wait with great anticipation at what the next era will bring for genomics, farmers, and New Zealand's dairy industry in general.

JERSEY \$UCCE\$\$!!

by Danie Swart, LIC bull acquisition manager

October is an exciting time for both the Livestock Selection Team and for dairy farmers in general, with many bulls receiving their first daughter proofs based on herd test information, and with traits-other-than-production inspections (TOP) done by independent TOP inspectors.

It's also the time when some older bulls add a large number of reproof daughters. These daughters have been herd tested after farmers used each bull's semen following an initial daughter proven graduation a few years earlier. A good example is Monopoly from the Crescent stud who stood the test of time with very positive farmer feedback.

Below I've highlighted some of the top-ranked 18-code bulls who received their first daughter information flowing into their proof in October and continue adding more daughter information every month. They're all now available in LIC Premier Sires teams.

FURTHER BULLS TO KEEP AN EYE ON

LIC is spoiled for choice this season with more great bulls to consider, as outlined in the table below. Specifically, the table includes two more bulls (Lamar and Laredo) from the Glenui L family, and Lotto's full brother, Lunar.

AB Code	Name	gBW	Fat gBV	Prot gBV	Milk gBV	Lwt gBV	Fert gBV	ST gBV	CA gBV	UO gBV	DC gBV	SIRE
318015	GLENUI SUPER LAMAR	346	46	6	-148	-44	0.6	-0.76	0.53	0.87	0.54	PUKETA-WAAD SUPER-STITION
318029	GLENUI BC LAREDO ET S3J	337	35	22	59	-36	4.9	-0.64	0.35	0.67	0.40	BELLS CM CONRAD S2J
318034	SHELBY BC LUNAR ET S3J	327	33	19	-47	-17	5.2	-0.52	0.69	0.21	0.51	BELLS CM CONRAD S2J



Dam of Banff - Glanton Tana Blysse ET

318021 Glanton Desi Banff: This exciting bull from the Glanton stud of Rob and Alison Thwaites has previously been one of the highest-ranked young genomic bulls.

To date he's the highest-ranked bull, across all daughter proven and young bulls, at an astonishing gBW of 420. Sired by Arrieta Terrific Desi ET, he is out of the well-proven B cow family, a half-brother of Baltic and is also related to Bastille. Noticeable is the super production of this cow family, with his dam Glanton Tana Blysse ET having a PW of 562 and multiple LWs exceeding 600. His grand dam, the matriarch Glanton Mans Blanche, was a super production cow with a highest LW of 717.

No surprise then that Banff is a production specialist as well, with a

combined milksolid gBV pushing the 60kg mark, good size, and excellent somatic cell count. Banff is already a sire of sons, and will be available in Premier Sires Forward Pack.

318035 Shelby BC Lotto ET S3J: From the stable of Troy Hughes and the Shelby Stud, Lotto is sired by Bells CM Conrad S2J, and is out of a high production Degree cow with four sons graduating this spring (all four above 320 gBW). This sire of sons is a production champion with fat gBV at 47kgs and protein at 26kgs. Positive fertility and good size are further attributes of this bull, and he's available in the Premier Sires Forward Pack team.



Dam of Lotto - Shelby 13-3

318009 Tironui Superman ET: Bred by Murray and Janet Gibb, Superman is a production machine with a whopping gBV of 54kg fat and 22kg protein. Adding to his production he's likely to add good udders, with an udder overall gBV of 0.76. This boy is out of an outstanding cow family with Tironui Integ Meg as his dam: she's a well-proven cow with exceptional production and with multiple sons in the Sire Proving Scheme. Superman is a sire of sons and in the Premier Sires Forward Pack team.

318063 Glenui Pepper Shaker: In Tony and Lesley Lander's Glenui herd there are two prominent successful cow families, the S and L family. Both cow families consistently produce exciting high-ranked bulls, and Shaker is one of them. Shaker is a product of LIC and JerseyNZ's *Jersey Future* joint programme, and is a bull with extremely high production and positive fertility. He's backed by a solid cow family with regular PW's and LW's of above 500, and he's featuring in the Premier Sires Forward Pack team.



In 2018 the portion of Jersey bulls, sired by young genomic sires, entering LIC's SPS programme was 26%; by 2021 the portion had increased to 49%. Meanwhile, the portion of genomically-selected KiwiCross bulls today entering the SPS sits at 68%, while the Holstein Friesian portion sits at 84%.

ESTABLISHED CONFIDENCE IN GENOMICS

combined with genomic information).

When a bull is genomically screened, LIC's genetics and sire selection teams look at thousands of markers for different traits, and compare these to proven bulls/cows in the population (known as our reference population) to identify where the animal's DNA/genomic data sits; this allows us to better-predict what we expect that animal's true merit to be.

With our increased confidence in genomics, we're using more young bulls as sire-of-sons in our ET and contract mating scheme, and subsequently purchasing more genomically-sired bulls year after year - which ultimately enter the Sire Proving Scheme (as the table below indicates):

% genomically-sired bulls entering LIC's Sire Proving Scheme				
BREED	2018	2019	2020	2021
HF	35%	32%	57%	84%
JER	26%	30%	42%	49%
KX	49%	46%	58%	68%

Why We Have Confidence In Genomics

LIC has invested millions of dollars to get to a point where we can trust the

information, but, like all farmers, for total peace of mind we want to see the 'proof in the pudding'.

As highlighted in the table below, in the August 2020 column we see LIC's gBW of all 17-code bulls and how they ranked in quartiles of gBW (ranked from highest to lowest).

In the next column, May 2021, is the percentage of genomic bulls (from the August column) that remained in the top quartile.

	Top gBW Quartile Aug-20	Top LIC gBW Quartile May-21
Jersey	100%	70%
HF	100%	75%
KX	100%	79%

With similar trends across all three breeds in the cohorts, this provides LIC with all the confidence it needs to use genomic young sires to speed up genetic gain.

Individual sires do change on gBW, but as a group the highest- and lowest-ranked sires were more or less in the same quartile once their proof came in (compared to when they started the proof year).

Early indications are that the 18-code new graduates are tracking at similar co-relations.



by Danie Swart, LIC bull acquisition manager

Worldwide, AB companies are using genomic information in their breeding programmes, particularly when it comes to selecting sires of sons.

By the time a bull is proven there are already potentially multiple-sons of his on offer.

Genomics increases the reliability and the accuracy of the bull's breeding values and gives LIC's sire selection team the opportunity, and the confidence, to use younger bulls as sire of sons, therefore shortening the generation interval.

Reliability of the individual unproven young sire's genetic merit increases from approximately 20-35% (ancestry information only) to 50-60% (ancestry information

KiwiCross - Graduation Time

by Adrian Young, senior sire analyst

The past two Animal Evaluation runs have been extremely satisfying for LIC's livestock selection team.

In the KiwiCross space, we've seen some great performances in the daughters of our bulls.

Of the top 20 crossbred graduates on BW, 18 have come from the LIC stable.

Outlined in the table below are a selection of outstanding graduates; farmers will have already had access to some of these bulls in Premier Sires Forward Pack and Sexed teams for the past two years.

Using the Forward Pack and Sexed teams is an excellent opportunity to access the bulls, which are especially chosen based on their genomic potential.

Now that we have daughter proofs this simply reinforces the extra BW points that are on offer through these teams.

518038 Werders Premonition: Topping the RAS List, and bred by Thomas & Courtney Werder of Patea, this bull was profiled in the last edition of *the Bulletin*, and it appears he's come good on his potential! Now with 118 herd tested daughters and 28 TOP (traits other than production) daughter inspections done, Premonition has



The dam of 518038 Werders Premonition

an udder overall gBV of 0.79 and capacity gBV of 0.67.

Sitting at 377gBW, Premonition is part of the KiwiCross Forward Pack and KiwiCross yearling-friendly team.

A Priests Sierra son, he looks set for a considerable stint on the RAS list, with rock-solid cows in his back pedigree.



Innovation Homebrew's dam Moonshine

518061 Innovation Homebrew: A particular highlight, more information on Homebrew can be found on the adjacent page, p15.

Homebrew now has 87 daughters herd tested and 24 TOP tested daughters.

At 64kgs of milksolids, he provides an excellent return and this helps usher Homebrew into the Premier Sires Forward Pack Team.

518016 Horizon Ascott: Another bull that's got the LIC teams excited is from the Horizon stable of Mark and Patricia Scott. Ascott is part of the KiwiCross Forward Pack team as well as the KiwiCross yearling-friendly team.

Boasting an impressive 1.1 gBV for udder overall and with 126 Herd Tested daughters and 41 TOP-inspected daughters, he does justice to being a Burmeisters Bandana son. Ascott offers a different pedigree with no Mint Edition throughout.



518016 Horizon Ascott

He's bred from a really nice Kraakmans Jaydie cow, who is now in her fifth lactation and is still looking really good. Sitting at 285gBW, he possesses some excellent balance in his gBV's; for example, the udder gBV of 1.1 is backed up with a fertility gBV of 3.2. Ascott will have a big influence on the KiwiCross scheme, with his daughters looking strong and durable.

All these bulls will feature on our Sires of Sons list going forward to create more elite animals for the KiwiCross scheme, and will leave their marks through inclusion in teams, together with their elite daughters being used in contract matings.

AB code	Breed 16ths	Name	gBW	Fat gBV	Prot gBV	Milk gBV	Lwt gBV	Fert gBV	UO gBV	DC gBV	Sire Name
518038	F8J8	WERDERS PREMONITION	377	59	26	97	17	3.6	0.80	0.77	PRIESTS SIERRA
518015	F9J7	SMITHS HERALD	334	36	28	182	-24	4.3	0.90	0.70	ARKANS BOUNTY
518061	F9J7	INNOVATION HOMEBREW	330	40	25	-87	16	3.8	0.59	0.48	ARRIETA BRANSON-ET
518001	F8J8	ARKANS BALMORAL	322	57	30	553	6	2.3	0.16	0.49	PRIESTS SIERRA
518072	J9F7	DEANS PROFESSIONAL	310	40	20	223	6	4.3	0.06	0.70	TIRONUI LT BESIEGE ET
518016	F9J7	HORIZON ASCOTT	285	28	24	7	-6	3.2	1.01	0.64	BURMEISTERS BANDANA



518061 Innovation Homebrew

Flavour-of-the-Month: Innovation Homebrew



by Adrian Young, senior sire analyst

Innovation Homebrew was the first 'home-brewed' bull to make a Premier Sires team at LIC, having been bred at LIC's commercial dairy farm at Ngahinapouri (near Hamilton).

In 2019 he was part of the A2A2 KiwiCross team and in 2020 he was in the KiwiCross Forward Pack. With his daughter proof having fully emerged, in 2021 he's again in the Forward Pack team. In mid-October he received his first daughter proof and the LIC teams could not be happier with how he's worked out. Based on the 8 October Animal Evaluation run, Homebrew received a gBW of 330.

Homebrew's journey started back in 2015, when his dam was born. Named Moonshine, she was a standout heifer at LIC's Innovation Farm. An Arkans Beaut daughter, Moonshine was DNA sampled and the results were indeed promising.

Innovation Farm was offered a contract to mate the heifer to Arrieta Branson-ET, Moonshine was subsequently artificially inseminated, and on 17 July 2017 Homebrew was born. In her first lactation Moonshine was herd tested a whopping 37 times, and further 32 times in her second lactation. She has a Production Worth (PW) of 457.

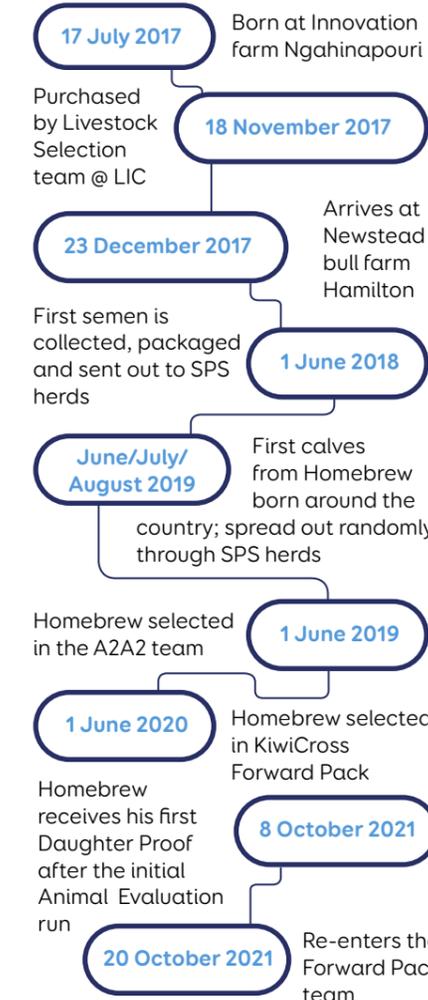
Given the intensity of the research work carried out at Innovation Farm, Moonshine oozes consistency. She's now in her fifth lactation and during that time her Lactation Worth (LW) has not dipped below 420. She remains a contract mate cow and has two daughters who are also contracted for 2021. There have been great expectations of Moonshine and Homebrew, and they've never disappointed. Homebrew's genomic evaluations back-up his pedigree, and it was an easy decision for LIC's livestock selection to purchase the bull and use him as part of the KiwiCross Sire Proving Scheme.

When Homebrew arrived at LIC's Newstead headquarters (from Ngahinapouri) in December 2017, he was put in a mob of bulls and settled down easily. After rigorous health testing and monitoring to ensure he kept hitting his targets, Homebrew was trained first to be led, and subsequently trained to have semen collected from him. In June 2018 his first semen was

collected for use in sire proving herds. Sire proving herds are used to create, on average, 70 milking daughters for each bull, with all young cows herd tested and TOP (Traits Other than Production) evaluated to create a daughter proof. Homebrew's first mob of daughters are entering the national herd this year.

Following the 8 October Animal Evaluation run, Homebrew had seen 76 daughters herd tested and 24 daughters TOP-scored, and more are expected as the season continues, bolstering the reliability of Homebrew's proof.

He remains grouped together with the same mob of bulls he entered Newstead with in 2017. In May of 2020, Innovation Homebrew was recognised at Breeders Day for his contribution to the industry as part of the 2019 and 2020 Premier Sires teams.



2021 Spring Holstein-Friesian Daughter Proven Team

Sire	gBW/Rel%	Sire	gBW/Rel%		
117068	MEANDER SB ARROW-ET S2F	285/85	117033	MCKENZIE SB MIGHTYMAC S2F	205/83
117038	TANGLEWOOD GL HARDY	262/83	115062	PAALVASTS MT CYCLONE S2F	204/88
117051	BUSY/BROOK SB FORTUNE S2F	255/87	115046	TRALEE GB RESONATE-ET S3F	200/88
115021	GORDONS AM LANCELOT S3F	229/96	114007	BUSY BROOK WTP VECTOR S3F	194/91
118103	WOODCOTE BG VICTORY S1F	227/77	117090	TRONNOCO MH SAMBA-ET S3F	188/83
116015	PAYNES BG ARCHIE S1F	227/87	116108	BUSY BROOK MGH MORDOR S2F	185/88
115077	TAFTS WM TRANQUIL-ET	221/91	113120	BOTHWELL WT MAXIMA S2F	180/99
116122	SPRING TRALEE BASS-ET S2F	218/93			
115107	LIGHTBURN BLADE GUSTO	211/87			

WEIGHTED AVERAGES OF PREMIER SIRESM - \$219/99%

Management	-0.5	0	0.5	1	gBW/Rel%	\$ 219/99
Adapts to Milking	0.36			quickly	Milkfat	38 kgs
Shed Temperament	0.37			placid	Protein	35 kgs
Milking Speed	0.19			fast	Milk	668 Litres
Overall Opinion	0.46			desirable	Liveweight	45 kgs
Conformation						
Stature	0.53			tall	Total Longevity	460 days
Capacity	0.47			capacious	Milkfat %	4.9%
Rump Angle	0.02			sloping	Protein %	4.0%
Rump Width	0.40			wide	Heifer Calving Dif	2.0%
Legs	0.00			curved	Cow Calving Dif	0.9%
Udder Support	0.45			strong	Fertility	1.7%
Front Udder	0.44			strong	SCC	0.08
Rear Udder	0.31			high	BCS	0.10
FrontTeat Placement	0.16			close	NB: the reliability of a team of bulls is always higher than using just one bull	
Rear Teat Placement	0.26			close	Date 15/10/2021	
Udder Overall	0.45			desirable		
Dairy Conformation	0.51			desirable		



2021 Spring Holstein-Friesian A2A2 Team

Sire	gBW/Rel%	Sire	gBW/Rel%		
120002	MILL-RIDGE TS FLEX-ET S1F	320/53	119065	MEANDER TD AZURE-ET S1F	229/65
120035	MAH SUPER STARDUST S1F	309/55	120045	WOODCOTE VHR LUCID-ET S1F	211/62
120040	MAKERS BUDDYBOY S2F	256/54	118058	LIGHTBURN BG GUARD-ET S2F	206/79
120080	TRONNOCO M SAQUOON-ET S3F	253/55	119081	BUSY BROOK CONVICT-ET S1F	201/62
118071	GLENMEAD SB TRAPEZE S1F	248/75	119033	LIGHTBURN FREE RANGE-ET	194/63
120041	MAKERS MONEYMOON S2F	242/56			
120055	DICKSONS VR MERGER-ET S1F	241/62			
120088	BALDRICKS WD INTEL-ET S2F	237/60			
120056	GARDNER BM GUARDIAN S2F	230/61			

WEIGHTED AVERAGES OF PREMIER SIRESM - \$241/97%

Management	-0.5	0	0.5	1	gBW/Rel%	\$ 241/97
Adapts to Milking	0.37			quickly	Milkfat	44 kgs
Shed Temperament	0.38			placid	Protein	36 kgs
Milking Speed	0.21			fast	Milk	584 Litres
Overall Opinion	0.49			desirable	Liveweight	54 kgs
Conformation						
Stature	0.73			tall	Total Longevity	523 days
Capacity	0.42			capacious	Milkfat %	5.1%
Rump Angle	-0.10			sloping	Protein %	4.0%
Rump Width	0.42			wide	Heifer Calving Dif	2.0%
Legs	0.02			curved	Cow Calving Dif	0.7%
Udder Support	0.46			strong	Fertility	1.5%
Front Udder	0.45			strong	SCC	0.09
Rear Udder	0.26			high	BCS	0.05
FrontTeat Placement	0.16			close	NB: the reliability of a team of bulls is always higher than using just one bull	
Rear Teat Placement	0.28			close	Date 15/10/2021	
Udder Overall	0.44			desirable		
Dairy Conformation	0.50			desirable		



2021 Spring Holstein-Friesian Forward Pack Team

Sire	gBW/Rel%	Sire	gBW/Rel%		
117068	MEANDER SB ARROW-ET S2F	285/85	118023	TRONNOCO INCA SHAKIR S3F	234/78
117038	TANGLEWOOD GL HARDY	262/83	120001	MILL-RIDGE TS FINN-ET S1F	342/53
117051	BUSY/BROOK SB FORTUNE S2F	255/87	120070	MEANDER TD AERO-ET S1F	264/61
116015	PAYNES BG ARCHIE S1F	227/87	119014	BUELIN BM EQUATOR S2F	254/62
118001	WAIMATA SB RANSOM-ET S2F	322/76	119003	BELLAMYS AB GALAXY S2F	251/62
118042	DICKSONS MH MASON-ET S2F	276/79	120083	SPRING RIVER MH BERT S1F	250/55
118068	BAGWORTH GI ORIGINAL S3F	255/77	120038	IONIC DM CATAPULT S2F	247/55
118057	LIGHTBURN AK MANOR-ET S1F	251/78	120053	DICKSONS MR POLL-P-ETS2F	244/55
118056	LIGHTBURN MG RELIC S2F	237/77	120021	MCKAY BM BAKERBOY-ET S2F	237/61

WEIGHTED AVERAGES OF PREMIER SIRESM - \$262/98%

Management	-0.5	0	0.5	1	gBW/Rel%	\$ 262/98
Adapts to Milking	0.32			quickly	Milkfat	44 kgs
Shed Temperament	0.32			placid	Protein	35 kgs
Milking Speed	0.21			fast	Milk	569 Litres
Overall Opinion	0.45			desirable	Liveweight	43 kgs
Conformation						
Stature	0.57			tall	Total Longevity	553 days
Capacity	0.34			capacious	Milkfat %	5.1%
Rump Angle	-0.08			sloping	Protein %	4.1%
Rump Width	0.43			wide	Heifer Calving Dif	1.6%
Legs	-0.01			curved	Cow Calving Dif	0.5%
Udder Support	0.39			strong	Fertility	2.3%
Front Udder	0.31			strong	SCC	0.07
Rear Udder	0.30			high	BCS	0.06
FrontTeat Placement	0.05			close	NB: the reliability of a team of bulls is always higher than using just one bull	
Rear Teat Placement	0.20			close	Date 15/10/2021	
Udder Overall	0.35			desirable		
Dairy Conformation	0.43			desirable		



2021 Spring Holstein-Friesian Sexed Team (A2)

Sire	gBW/Rel%	Sire	gBW/Rel%		
120031	BELLAMYS GG GURU-ET S1F	304/56	119049	WITTENHAM MG ALPINE S2F	206/61
118053	GREENWELL GR GOVERNOR S1F	296/77	120042	LOCHHAVEN FORTUNE DEW S2F	205/58
120005	CULGLEN BF ILLUSION S2F	290/57	120077	CRANIEF MAXIMA MAGE S1F	201/60
119002	BELLAMYS DM GALANT-ET S1F	238/61	120015	ASHDALE GE HIGHRISE S2F	198/61
119048	RIVERBANK BBL STATION S1F	234/57	120063	MATTAJUDE VR BRUTE-ET S1F	196/62
120026	BELLAMYS DM GLIDER-ET S2F	234/55	119008	POTO GR CHOICE S1F	193/60
120051	DICKSONS BM METEOR-ET S2F	224/61			
120065	CAVALIER SS RIVAL-ET S2F	213/57			
120071	MEANDER TD ASTUTE-ET S1F	213/61			

WEIGHTED AVERAGES OF PREMIER SIRESM - \$231/97%

Management	-0.5	0	0.5	1	gBW/Rel%	\$ 231/97
Adapts to Milking	0.38			quickly	Milkfat	37 kgs
Shed Temperament	0.39			placid	Protein	31 kgs
Milking Speed	0.13			fast	Milk	505 Litres
Overall Opinion	0.46			desirable	Liveweight	35 kgs
Conformation						
Stature	0.49			tall	Total Longevity	488 days
Capacity	0.26			capacious	Milkfat %	5.0%
Rump Angle	0.00			sloping	Protein %	4.0%
Rump Width	0.43			wide	Heifer Calving Dif	1.5%
Legs	-0.03			curved	Cow Calving Dif	0.3%
Udder Support	0.46			strong	Fertility	1.3%
Front Udder	0.40			strong	SCC	-0.20
Rear Udder	0.35			high	BCS	0.03
FrontTeat Placement	0.22			close	NB: the reliability of a team of bulls is always higher than using just one bull	
Rear Teat Placement	0.39			close	Date 15/10/2021	
Udder Overall	0.47			desirable		
Dairy Conformation	0.36			desirable		



2021 Spring Jersey Daughter Proven Team

Sire	gBW/Rel%	Sire	gBW/Rel%
316039	ULMARRA TT GALLIVANT 334/88	317006	WILLIAMS PCG TENOR 282/84
316036	FOXTON PG COYOTE ET 331/88	314039	FOXTON MANZ CLAYTON 282/93
315045	GLENUJ DEGREE HOSS ET 322/89		
316009	TIRONUI LT BESIEGE ET 320/89		
317052	LOCKHART OI JOEL JC15 313/84		
317060	PASPALUM OI LIMELIGHT 311/82		
318038	CLUAIN KING JAMBOREE 305/76		
317061	LITTLE RIVER TRIDENT S3J 301/80		
317049	SHELBY SS LORENZO S3J 300/86		
317041	FLAXMILL PCG GALAXIE 291/84		

WEIGHTED AVERAGES OF PREMIER SIRES - \$308/99%

Management	-0.5	0	0.5	1	gBW/Rel%	308/99
Adapts to Milking	0.33			quickly	Milkfat	29 kgs
Shed Temperament	0.34			placid	Protein	12 kgs
Milking Speed	0.13			fast	Milk	-267 Litres
Overall Opinion	0.37			desirable	Liveweight	-47 kgs
Conformation	-0.5	0	0.5	1	Total Longevity	419 days
Stature	-0.84			tall	Milkfat %	5.7%
Capacity	0.53			capacious	Protein %	4.3%
Rump Angle	-0.13			sloping	Heifer Calving Dif	-2.1%
Rump Width	-0.08			wide	Cow Calving Dif	-1.2%
Legs	0.10			curved	Fertility	2.6%
Udder Support	0.33			strong	SCC	-0.17
Front Udder	0.43			strong	BCS	0.17
Rear Udder	0.63			high		
Front Teat Placement	0.12			close		
Rear Teat Placement	-0.05			close		
Udder Overall	0.52			desirable		
Dairy Conformation	0.47			desirable		

NB: the reliability of a team of bulls is always higher than using just one bull.

Date 15/10/2021

HOOFPRINT®

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2021 Jersey Forward Pack Team (A2)

Sire	gBW/Rel%	Sire	gBW/Rel%
316036	FOXTON PG COYOTE ET 331/88	320036	CHARTERIS COJACK MAKKA 360/54
315045	GLENUJ DEGREE HOSS ET 322/89	320027	CHARLTONS MISTY MAGNIFY 359/60
316009	TIRONUI LT BESIEGE ET 320/89	319009	ARKAN BT ZAMBEZI S3J 342/62
318021	GLANTON DESI BANFF 424/79	320030	GLENUJ CM LAZARO 329/61
318035	SHELBY BC LOTTO ET S3J 397/77	319005	BRAEDENE FAV TRANSPIRE 326/61
318009	TIRONUI SUPERMAN ET 388/79	320200	THORNLEA MISTY TOPSHOT ET 312/60
318063	GLENUJ PEPPER SHAKER 354/76		
318015	GLENUJ SUPER LAMAR 346/79		
318034	SHELBY BC LUNAR ET S3J 327/78		
320011	KAIMATARAU FLINT POPEYE 372/59		

WEIGHTED AVERAGES OF PREMIER SIRES - \$349/98%

Management	-0.5	0	0.5	1	gBW/Rel%	\$ 349/98
Adapts to Milking	0.28			quickly	Milkfat	37 kgs
Shed Temperament	0.28			placid	Protein	13 kgs
Milking Speed	0.20			fast	Milk	-350 Litres
Overall Opinion	0.34			desirable	Liveweight	-39 kgs
Conformation	-0.5	0	0.5	1	Total Longevity	475 days
Stature	-0.71			tall	Milkfat %	6.0%
Capacity	0.50			capacious	Protein %	4.4%
Rump Angle	-0.13			sloping	Heifer Calving Dif	-2.0%
Rump Width	0.04			wide	Cow Calving Dif	-0.7%
Legs	0.11			curved	Fertility	3.5%
Udder Support	0.26			strong	SCC	-0.16
Front Udder	0.35			strong	BCS	0.18
Rear Udder	0.47			high		
Front Teat Placement	0.13			close		
Rear Teat Placement	-0.11			close		
Udder Overall	0.43			desirable		
Dairy Conformation	0.45			desirable		

NB: the reliability of a team of bulls is always higher than using just one bull.

Date 15/10/2021

Shaded bulls include daughter information

HOOFPRINT®

Methane Efficiency
Nitrogen Efficiency



2021 Jersey Sexed Team (A2)

Sire	gBW/Rel%	Sire	gBW/Rel%
320029	ROCKLAND LQ BERKLY 383/54	318036	MCCALLUM BERN VERACITYS3J 300/77
320020	THORNWOOD BANFF TITUS 380/56	320031	GLENUJ WALKER LEBRON ET 291/60
318029	GLENUJ BC LAREDO ET S3J 337/78		
319066	TIRONUI GB MONTAGE-ET 335/59		
320035	SHELBY HOSS LATITUDE 333/59		
319018	GLENUJ GB LANDIS-ET 322/59		
320002	CAREYS CM LATTITUDE 320/61		
320014	EVLEEN GL LIGHTHOUSE 316/55		
319008	ARKAN BT ASTEROID-ET S3J 308/63		
319003	BAILEY LW DETECTIVE -ET 307/62		

WEIGHTED AVERAGES OF PREMIER SIRES - \$326/96%

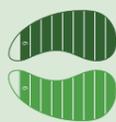
Management	-0.5	0	0.5	1	gBW/Rel%	\$ 326/96
Adapts to Milking	0.28			quickly	Milkfat	32 kgs
Shed Temperament	0.28			placid	Protein	11 kgs
Milking Speed	0.17			fast	Milk	-404 Litres
Overall Opinion	0.37			desirable	Liveweight	-37 kgs
Conformation	-0.5	0	0.5	1	Total Longevity	510 days
Stature	-0.67			tall	Milkfat %	6.0%
Capacity	0.47			capacious	Protein %	4.4%
Rump Angle	-0.21			sloping	Heifer Calving Dif	-2.4%
Rump Width	-0.02			wide	Cow Calving Dif	-0.6%
Legs	0.12			curved	Fertility	2.7%
Udder Support	0.44			strong	SCC	-0.16
Front Udder	0.48			strong	BCS	0.17
Rear Udder	0.67			high		
Front Teat Placement	0.18			close		
Rear Teat Placement	0.05			close		
Udder Overall	0.61			desirable		
Dairy Conformation	0.47			desirable		

NB: the reliability of a team of bulls is always higher than using just one bull.

Date 15/10/2021

HOOFPRINT®

Methane Efficiency
Nitrogen Efficiency



2021 Spring KiwiCross® Daughter Proven Team F9J7

Sire	gBW/Rel%	Sire	gBW/Rel%
517043	GLEN KORU PROCLAIMER-ET 343/87	517069	BROOKSTEAD CADENCE 260/85
515025	SPEAKES SLIPSTREAM ET 333/87	515068	WOODWARDS SPOTON 251/86
516066	WALTON INFERNO 310/88		
518053	PAYNES PROMINENCE-ET 301/77		
517042	LUCK-AT-LAST INSPIRED-ET 288/87		
518016	HORIZON ASCOTT 285/78		
517001	ARKANS PATRIARCH-ET 277/88		
516074	CROSSANS CRITICAL-ET 269/93		
517026	HOWSES SPRINGFIELD 268/86		
517003	ARKANS BATTLESHIP 267/86		

WEIGHTED AVERAGES OF PREMIER SIRES - \$292/99%

Management	-0.5	0	0.5	1	gBW/Rel%	\$ 292/99
Adapts to Milking	0.28			quickly	Milkfat	37 kgs
Shed Temperament	0.28			placid	Protein	27 kgs
Milking Speed	0.14			fast	Milk	253 Litres
Overall Opinion	0.37			desirable	Liveweight	3 kgs
Conformation	-0.5	0	0.5	1	Total Longevity	532 days
Stature	-0.17			tall	Milkfat %	5.3%
Capacity	0.65			capacious	Protein %	4.1%
Rump Angle	0.08			sloping	Heifer Calving Dif	0.2%
Rump Width	0.08			wide	Cow Calving Dif	-0.3%
Legs	0.07			curved	Fertility	2.8%
Udder Support	0.58			strong	SCC	-0.14
Front Udder	0.52			strong	BCS	0.13
Rear Udder	0.56			high		
Front Teat Placement	0.18			close		
Rear Teat Placement	0.44			close		
Udder Overall	0.59			desirable		
Dairy Conformation	0.56			desirable		

NB: the reliability of a team of bulls is always higher than using just one bull.

Date 15/10/2021



PREMIER SIRES

2021 Spring KiwiCross® Forward Pack Team (A2) F8J8

Sire	gBW/Rel%	Sire	gBW/Rel%
517043	GLEN KORU PROCLAIMER-ET 343/87	520011	AUAHI BUSTLE 357/60
515025	SPEAKES SLIPSTREAM ET 333/87	520044	WICKLOW HIGH CHAPARRAL 356/54
516066	WALTON INFERNO 310/88	520064	HURWORTH HOT TODDY 332/54
517042	LUCK-AT-LAST INSPIRED-ET 288/87	520083	GASKELLS SWAGGER-ET 320/60
516074	CROSSANS CRITICAL-ET 269/93	520038	GREENWELL BACKGAMMON 314/63
517026	HOWSES SPRINGFIELD 268/86	520034	CROSSANS CHANCELLOR-ET 310/57
518038	WERDERS PREMONITION 377/78	520078	SPRING RIVER JORDY 307/59
518061	INNOVATION HOMEBREW 330/76	520037	GLENMEAD MARVELLOUS-ET 305/60
518080	ERVINES REMBRANT 314/77	520047	SPRING RIVER KOBE-ET 301/61
518017	HORIZON BARNSTORMER-ET 303/78	520089	BALDRICKS SIGNIFICANT 300/61

WEIGHTED AVERAGES OF PREMIER SIRES - \$317/98%

Management	-0.5	0	0.5	1	gBW/Rel%	\$ 317/98
Adapts to Milking	0.33			quickly	Milkfat	41 kgs
Shed Temperament	0.33			placid	Protein	25 kgs
Milking Speed	0.15			fast	Milk	123 Litres
Overall Opinion	0.39			desirable	Liveweight	3 kgs
Conformation	-0.5	0	0.5	1	Total Longevity	530 days
Stature	-0.15			tall	Milkfat %	5.5%
Capacity	0.56			capacious	Protein %	4.2%
Rump Angle	-0.02			sloping	Heifer Calving Dif	0.1%
Rump Width	0.07			wide	Cow Calving Dif	-0.2%
Legs	0.07			curved	Fertility	3.3%
Udder Support	0.40			strong	SCC	-0.14
Front Udder	0.44			strong	BCS	0.13
Rear Udder	0.37			high		
Front Teat Placement	0.14			close		
Rear Teat Placement	0.30			close		
Udder Overall	0.43			desirable		
Dairy Conformation	0.48			desirable		

NB: the reliability of a team of bulls is always higher than using just one bull.

Date 15/10/2021

Shaded bulls include daughter information



2021 Spring KiwiCross® Sexed Team (A2) F8J8

Sire	gBW/Rel%	Sire	gBW/Rel%
520008	JULIAN MULTIPLIER-ET 332/59	520057	BELLS PIERCE 282/54
520033	DOWSON HONENUI-ET 325/54	520063	SANSONS EMERALD-ET 279/59
518072	DEANS PROFESSIONAL 310/76	520069	WIFFENS GOLDLOCH 278/54
519078	BURGESS PRESTIGE-ET 308/62	520002	TENNANT JURASSIC 275/53
520090	CAWDOR POUNAMU 306/61	520080	JACKSONS JIMMY HOPPER 263/55
520020	ARKANS PROSPECT-ET 306/57		
520045	ETTRICK HIGH REGARD 306/54		
520086	PENRITHS SIR STRATHMORE 305/59		
520016	AUAHI FIXER 296/59		
520060	VAN STRAALENS SUPREME-ET 291/58		

WEIGHTED AVERAGES OF PREMIER SIRES - \$299/97%

Management	-0.5	0	0.5	1	gBW/Rel%	\$ 299/97
Adapts to Milking	0.26			quickly	Milkfat	36 kgs
Shed Temperament	0.26			placid	Protein	26 kgs
Milking Speed	0.09			fast	Milk	80 Litres
Overall Opinion	0.33			desirable	Liveweight	1 kgs
Conformation	-0.5	0	0.5	1	Total Longevity	568 days
Stature	-0.17			tall	Milkfat %	5.5%
Capacity	0.51			capacious	Protein %	4.3%
Rump Angle	-0.08			sloping	Heifer Calving Dif	-0.1%
Rump Width	0.09			wide	Cow Calving Dif	-0.3%
Legs	0.06			curved	Fertility	2.9%
Udder Support	0.40			strong	SCC	-0.03
Front Udder	0.42			strong	BCS	0.11
Rear Udder	0.46			high		
Front Teat Placement	0.02			close		
Rear Teat Placement	0.17			close		
Udder Overall	0.42			desirable		
Dairy Conformation	0.48			desirable		

NB: the reliability of a team of bulls is always higher than using just one bull.

Date 15/10/2021



118001 Waimata SB Ransom-ET S2F



Breeding Details			
Breeder	A & S Stevenson	Dam	Waimata 13-14 S1F
Sire	Spring Tralee Bass-ET S2F	MGS	Farside M Illustrious S3F

Production gBVs				
Protein	Milkfat	Milk	Liveweight	Fertility
63 kg	55 kg	1550 l	57 kg	-0.5 %
3.9%	4.5%			

Total Longevity	Somatic Cell Count	Heifer Calving Difficulty	Cow Calving Difficulty	Body Condition
680 days	-0.42	1.2 / 35%	0.0 / 92%	0.18

INDIVIDUAL PRICE **\$31.95** +GST SPRING PACK FROM **\$23.58*** +GST

*If 10% InvestaMate discount applies

gBW/Rel \$322/76%

TOP Traits		92 Daughters 34 Herds			
Management	gBV	-0.5	0	0.5	1.0
Adapts to Milking	0.48				
Shed Temperament	0.49				
Milking Speed	0.02				
Overall Opinion	0.57				
Stature	0.68				
Capacity	0.69				
Rump Angle	-0.04				
Rump Width	0.72				
Legs	-0.14				
Udder Support	0.26				
Front Udder	0.12				
Rear Udder	0.26				
Front Teat Placement	0.26				
Rear Teat Placement	0.16				
Udder Overall	0.33				
Dairy Conformation	0.73				

A2 Protein	A2A2	TOP Daughters	34
Gestation Length	-8.1 Days	OAD	1350

Holstein-Friesian F16
Registered Pedigree (Supplementary)

Evaluation Date: 15/10/2021

118042 Dicksons MH Mason-ET S2F



Breeding Details			
Breeder	M & J Dickson	Dam	Dicksons CP Margy S1F
Sire	Mourne Grove Hothouse S2F	MGS	Carsons Mecca Pulse S1F

Production gBVs				
Protein	Milkfat	Milk	Liveweight	Fertility
38 kg	45 kg	955 l	32 kg	3.9 %
3.8%	4.7%			

Total Longevity	Somatic Cell Count	Heifer Calving Difficulty	Cow Calving Difficulty	Body Condition
649 days	0.04	-0.8 / 55%	-0.5 / 90%	0.12

INDIVIDUAL PRICE **\$31.95** +GST SPRING PACK FROM **\$23.58*** +GST

*If 10% InvestaMate discount applies

gBW/Rel \$276/79%

TOP Traits		136 Daughters 62 Herds			
Management	gBV	-0.5	0	0.5	1.0
Adapts to Milking	0.60				
Shed Temperament	0.61				
Milking Speed	0.28				
Overall Opinion	0.60				
Stature	0.32				
Capacity	0.07				
Rump Angle	-0.21				
Rump Width	0.24				
Legs	-0.05				
Udder Support	0.49				
Front Udder	0.69				
Rear Udder	0.28				
Front Teat Placement	0.44				
Rear Teat Placement	0.32				
Udder Overall	0.62				
Dairy Conformation	0.25				

A2 Protein	A2A2	TOP Daughters	26
Gestation Length	-1.0 Days	OAD	1280

Holstein-Friesian F16
Registered Pedigree (Supplementary)

Evaluation Date: 15/10/2021

118068 Bagworth GI Original S3F



Breeding Details			
Breeder	R & A Siddins	Dam	Bagworth FME Bev S0F
Sire	Gydeland Excel Inca S3F	MGS	Fairmont Mint-Edition

Production gBVs				
Protein	Milkfat	Milk	Liveweight	Fertility
37 kg	44 kg	531 l	83 kg	5.9 %
4.1%	5.1%			

Total Longevity	Somatic Cell Count	Heifer Calving Difficulty	Cow Calving Difficulty	Body Condition
666 days	-0.07	2.3 / 33%	-0.1 / 87%	0.10

INDIVIDUAL PRICE **\$31.95** +GST SPRING PACK FROM **\$23.58*** +GST

*If 10% InvestaMate discount applies

gBW/Rel \$255/77%

TOP Traits		73 Daughters 38 Herds			
Management	gBV	-0.5	0	0.5	1.0
Adapts to Milking	0.07				
Shed Temperament	0.06				
Milking Speed	-0.02				
Overall Opinion	0.26				
Stature	1.27				
Capacity	0.31				
Rump Angle	-0.02				
Rump Width	0.40				
Legs	-0.06				
Udder Support	0.31				
Front Udder	0.15				
Rear Udder	0.34				
Front Teat Placement	-0.13				
Rear Teat Placement	-0.21				
Udder Overall	0.27				
Dairy Conformation	0.57				

A2 Protein	A1A2	TOP Daughters	39
Gestation Length	-3.5 Days	OAD	1234

Holstein-Friesian F16
Registered Pedigree (Supplementary)

Evaluation Date: 15/10/2021

318021 Glanton Desi Banff



Breeding Details			
Breeder	R & A Thwaites	Dam	Glanton Tana Blysse ET
Sire	Arrieta Terrific Desi ET	MGS	Tawa Grove KRC Tana

Production gBVs				
Protein	Milkfat	Milk	Liveweight	Fertility
10 kg	47 kg	-613 l	-38 kg	2.7 %
4.6%	6.7%			

Total Longevity	Somatic Cell Count	Heifer Calving Difficulty	Cow Calving Difficulty	Body Condition
605 days	-0.44	-3.0 / 94%	-0.4 / 92%	0.21

INDIVIDUAL PRICE **\$31.95** +GST SPRING PACK FROM **\$23.58*** +GST

*If 10% InvestaMate discount applies

gBW/Rel \$424/79%

TOP Traits		128 Daughters 56 Herds			
Management	gBV	-0.5	0	0.5	1.0
Adapts to Milking	0.31				
Shed Temperament	0.31				
Milking Speed	0.08				
Overall Opinion	0.37				
Stature	-0.65				
Capacity	0.45				
Rump Angle	-0.37				
Rump Width	0.13				
Legs	0.01				
Udder Support	0.14				
Front Udder	0.37				
Rear Udder	0.35				
Front Teat Placement	-0.02				
Rear Teat Placement	-0.59				
Udder Overall	0.33				
Dairy Conformation	0.53				

A2 Protein	A2A2	TOP Daughters	48
Gestation Length	-7.4 Days	OAD	1337

Jersey J16
Registered Jersey

Evaluation Date: 15/10/2021

318035 Shelby BC Lotto ET S3J



Breeding Details			
Breeder	T Hughes & V Scott	Dam	Shelby 13-3
Sire	Bells CM Conrad S2J	MGS	Arrieta NN Degree ET

Production gBVs				
Protein	Milkfat	Milk	Liveweight	Fertility
26 kg	47 kg	18 l	-42 kg	3.5 %
4.3 %	5.8 %			
Total Longevity	Somatic Cell Count	Heifer Calving Difficulty	Cow Calving Difficulty	Body Condition
456 days	-0.18	-2.9 / 91%	-0.3 / 89%	0.07

INDIVIDUAL PRICE	\$31.95 +GST	SPRING PACK FROM	\$23.58* +GST
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*If 10% InvestaMate discount applies

gBW/Rel \$397/77%

TOP Traits					
Management	gBV	-0.5	0	0.5	1.0
Adapts to Milking	-0.02				
Shed Temperament	-0.04				
Milking Speed	0.26				
Overall Opinion	0.07				
Stature	-0.65				
Capacity	0.13				
Rump Angle	-0.51				
Rump Width	0.18				
Legs	0.27				
Udder Support	0.06				
Front Udder	0.25				
Rear Udder	0.10				
Front Teat Placement	0.28				
Rear Teat Placement	-0.04				
Udder Overall	0.24				
Dairy Conformation	0.11				

A2 Protein	A2A2	TOP Daughters	27
Gestation Length	-0.4 Days	OAD	1353

Jersey J16
Registered Pedigree (Supplementary)

Evaluation Date:
15/10/2021

318009 Tironui Superman ET



Breeding Details			
Breeder	M & J Gibb	Dam	Tironui Integ Meg
Sire	Puketawa AD Superstition	MGS	Okura LT Integrity

Production gBVs				
Protein	Milkfat	Milk	Liveweight	Fertility
22 kg	54 kg	-29 l	-36 kg	1.1 %
4.3 %	6.0%			
Total Longevity	Somatic Cell Count	Heifer Calving Difficulty	Cow Calving Difficulty	Body Condition
413 days	-0.11	-1.8 / 91%	0.0 / 92%	0.01

INDIVIDUAL PRICE	\$31.95 +GST	SPRING PACK FROM	\$23.58* +GST
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*If 10% InvestaMate discount applies

gBW/Rel \$388/79%

TOP Traits					
Management	gBV	-0.5	0	0.5	1.0
Adapts to Milking	0.21				
Shed Temperament	0.21				
Milking Speed	0.17				
Overall Opinion	0.30				
Stature	-0.46				
Capacity	0.38				
Rump Angle	-0.88				
Rump Width	0.37				
Legs	0.08				
Udder Support	0.62				
Front Udder	0.57				
Rear Udder	0.96				
Front Teat Placement	0.06				
Rear Teat Placement	0.05				
Udder Overall	0.77				
Dairy Conformation	0.54				

A2 Protein	A2A2	TOP Daughters	41
Gestation Length	-2.1 Days	OAD	1382

Jersey J16
Registered Pedigree

Evaluation Date:
15/10/2021

518038 Werders Premonition



Breeding Details			
Breeder	T & C Werder	Dam	BMWJ-13-65
Sire	Priests Sierra	MGS	Marsden NN Excell ET

Production gBVs				
Protein	Milkfat	Milk	Liveweight	Fertility
26 kg	59 kg	97 l	17 kg	3.6 %
4.3%	5.9 %			
Total Longevity	Somatic Cell Count	Heifer Calving Difficulty	Cow Calving Difficulty	Body Condition
519 days	-0.28	-0.1 / 96%	-0.4 / 85%	0.12

INDIVIDUAL PRICE	\$31.95 +GST	SPRING PACK FROM	\$23.58* +GST
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*If 10% InvestaMate discount applies

gBW/Rel \$377/78%

TOP Traits					
Management	gBV	-0.5	0	0.5	1.0
Adapts to Milking	0.47				
Shed Temperament	0.48				
Milking Speed	0.19				
Overall Opinion	0.53				
Stature	-0.04				
Capacity	0.69				
Rump Angle	-0.12				
Rump Width	-0.04				
Legs	-0.01				
Udder Support	0.73				
Front Udder	0.76				
Rear Udder	0.67				
Front Teat Placement	0.47				
Rear Teat Placement	1.07				
Udder Overall	0.80				
Dairy Conformation	0.77				

A2 Protein	A2A2	TOP Daughters	28
Gestation Length	-7.3 Days	OAD	1385

KiwiCross® F8J8

Evaluation Date:
15/10/2021

518061 Innovation Homebrew



Breeding Details			
Breeder	LIC Innovation Farm	Dam	Moonshine
Sire	Arrieta Branson-ET	MGS	Arkans Beaut ET

Production gBVs				
Protein	Milkfat	Milk	Liveweight	Fertility
25 kg	40 kg	-87 l	16 kg	3.8 %
4.4 %	5.7 %			
Total Longevity	Somatic Cell Count	Heifer Calving Difficulty	Cow Calving Difficulty	Body Condition
621 days	0.41	0.7 / 96%	0.7 / 84%	0.40

INDIVIDUAL PRICE	\$31.95 +GST	SPRING PACK FROM	\$23.58* +GST
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*If 10% InvestaMate discount applies

gBW/Rel \$330/75%

TOP Traits					
Management	gBV	-0.5	0	0.5	1.0
Adapts to Milking	0.51				
Shed Temperament	0.51				
Milking Speed	0.40				
Overall Opinion	0.63				
Stature	-0.08				
Capacity	0.58				
Rump Angle	-0.14				
Rump Width	0.21				
Legs	-0.11				
Udder Support	0.47				
Front Udder	0.63				
Rear Udder	0.55				
Front Teat Placement	0.01				
Rear Teat Placement	-0.35				
Udder Overall	0.59				
Dairy Conformation	0.48				

A2 Protein	A2A2	TOP Daughters	24
Gestation Length	-7.2 Days	OAD	1285

KiwiCross® F9J7

Evaluation Date:
15/10/2021

Bacteria, viruses, and fungi from the vat contain key clues about animals and the farm

DNA SEQUENCING & THE MILK MICROBIOME: THE KEY TO BETTER COW HEALTH?



by Christine Couldrey,
LIC research leader, molecular
genetics

During the past 18 months, the COVID-19 crisis has brought the power of DNA sequencing technologies into the news on an almost-daily basis.

DNA sequencing however can be used for an extensive range of applications, and one potential application is to extract a wealth of information on animal health and farm status direct from vat milk samples (the same type of samples used to determine payment for fat and protein by the milk processors).

DNA sequencing technologies allows the milk microbiome to be sequenced, meaning all species present within the vat milk sample are 'mapped'. This information

can then be used to monitor herd health, and allow for early intervention of disease.

Although the term 'microbiome' was almost unheard of in mainstream media less than a decade ago, more recently there's been increasing publicity through media and advertising channels covering 'the human-gut microbiome' (as a source of information on the health and history of people).

While the samples between humans and cows are different, similar principles to the human gut can be applied to milk, allowing the agriculture industry to tap into cow health and individual farm status.

In addition to the somatic cells from cows, milk contains hundreds of different species (bacteria, fungus, viruses etc.).

Some species can cause disease while others are likely to be beneficial to the cow.

The species LIC is DNA sequencing from vat milk could have originated from inside the udder, the teat skin (and whatever might be on the teats when the cups go on), the air in the milking shed, and the milking plant itself.

Early detection is a better protection

Typically, LIC is finding 100-400 different species present in each vat milk sample that is analysed.

The aim is to use this information to develop 'early-warning systems' which will allow farmers and vets to manage and treat animal health events more efficiently through understanding:

- exactly which pathogens are present in the animal and on-farm;
- how virulent they are (similar to COVID sequencing, letting us know which strain of the virus is present), and;
- whether they are resistant to antibiotics.

This knowledge should make it easier to select the correct treatment the first time, possibly before clinical symptoms are even observed.

It's a case of finding a match

Using this approach, farmers and vets can move away from testing for a single species when a cow is suspected to be sick.

No assumptions about the cause of the illness need to be made.

For example, rather than testing for Johne's disease, we could instead monitor all species known to be detrimental to cow and/or human health, as well as species that are new to New Zealand (biosecurity information).

We can tap in to an international public database for sequence information to find a match.

The database most scientists use (to store genome sequences) is hosted by the National Institute of Health in the USA, which currently contains more than 63,400 bacterial species alone (with a variety of strains representing each species).

The milk microbiome team within

LIC is working towards making this a reality, not just in the lab, but on farm.

Over the past two years, lab processes have been developed to extract DNA from milk samples and generate reliable DNA sequence data.

So what's in your milk?

The second phase of this project has recently started; analysis of vat milk samples from a wide range of farms across New Zealand.

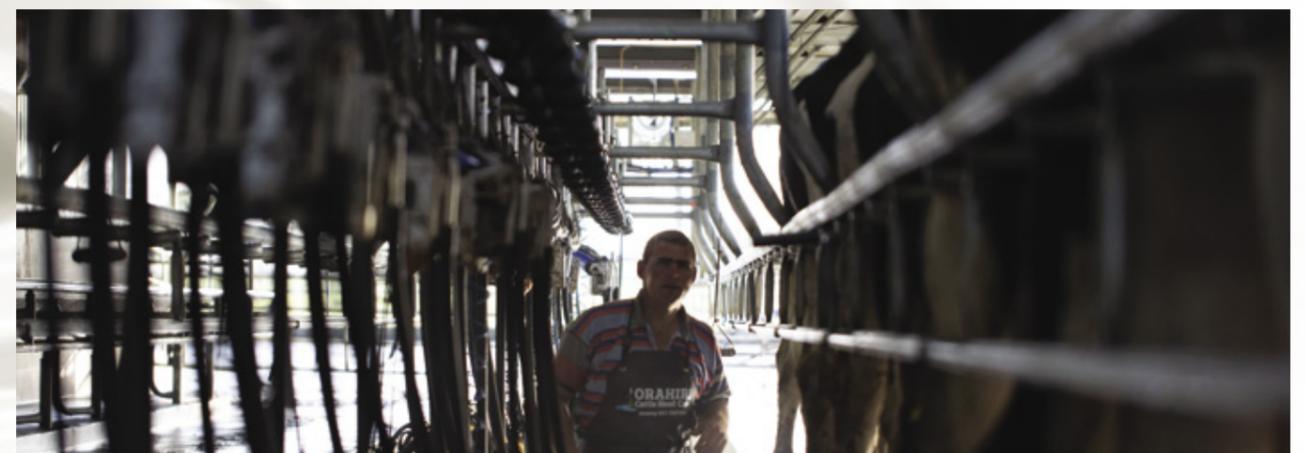
The aim of this phase is to gain an understanding of what species (and what levels of these species) are typically present in vat milk samples on New Zealand dairy farms, and how this varies across location, farming systems, and time of year.

Once we understand the vat milk microbiome, we have the opportunity to provide farmers with animal health indicators with little (or no) extra effort on-farm.

This should also help protect the dairy industry by minimising detrimental effects experienced when new species slip through New Zealand's biosecurity net.

This work is part of the Resilient Dairy research programme, which is being led by LIC with investment and support from the Ministry for Primary Industries (MPI) and DairyNZ.

If you have any questions or you would like to contribute vat milk samples to this project, please email resilient.dairy@lic.co.nz



Understanding NZ's typical milk microbiome is the first step for LIC's research team



SUPPORTING FARMERS THROUGH THICK & THIN; FUTURE-PROOFING CRITICAL

Arahura River in full flow covering farmland

Torrential rain in Southland in early February forced a State of Emergency to be declared, and the same alerts were applied in late-May when sudden widespread flooding hit Canterbury, followed by a disastrous mid-July event in the West Coast, Buller, Tasman and Nelson-Marlborough regions.

The flooding has taken a heavy toll: One Wairua River farmer was reported to have had up to one-fifth of his land severely damaged, and assessed the repair bill at up to \$250,000, estimating between six and 24 months to restore.

Hard work to fix land and infrastructure continues, particularly in those regions affected more-recently.

In this article, two of the South Island's FarmWise team reflect on the damage that's been caused, as their farming clients dig deep and fight to continue-on in the face of adversity.

This article is a reflection through the eyes of Brent Boyce, Nelson-Marlborough FarmWise consultant, and Simon Pontin, West Coast FarmWise consultant.



Brent Boyce

Brent said that by mid-September most of his clients were still suffering from the prolonged wet season, and a second-wave of flooding had hit later into the calving season, bringing further stress to the situation.

"In one case a farming client had been forced to repair a fence three times as floods continued to roll through."

Pasture damage was widespread.

"By mid-spring pasture cover was down, on average, by 300kgDM / ha," Brent said.



Simon Pontin

"Farmers have been finishing their first round three days to three weeks ahead of plan, and have been struggling to get fertiliser on.

"Cow BCS (body condition score) was typically one-quarter to one-half a point below optimal levels."

Production was down in most areas, Brent said, and SCC (somatic cell count) was higher compared to typical levels seen at September.

Dealing with continuing wet weather through the calving period had inevitably led to mental and physical exhaustion, Brent said.

"Hopefully we'll see better weather later in spring, so cows can recover more ahead of mating; the implications of missing the first mating cycle will be significant for next season."

Simon Pontin, West Coast FarmWise consultant, said most grass had come back well on the West Coast where the silt wasn't too deep.

"Most dairy farmers here are in an okay position, but overall the West Coast is a bit short so hopefully a better late-spring will grow more feed.

The winter floods caused a lot of infrastructure loss, Simon said.

"Major slips, fences down, roads and farm tracks scoured, culverts and buildings damaged, and machinery carried away or soaked beyond repair.

"On one farm approximately 5km of fencing was completely stuffed, along with associated farm race scouring. Another farm lost 10 major creek crossings - the water just flowed so fast."

Generally, only minor stock losses occurred (there were exceptions, however).

Simon said it was gratifying to see the support of other farmers and the community working together to help those most affected. Organisations like the Rural Support Trust had provided some critical coordination support immediately after the flooding.

Since the floods there had been mixed success in achieving 'a return to normal', Simon said.

"A big job has been getting the debris off the fences and repairing farm tracks, so the ongoing farm operations can be achieved effectively.

"In some areas re-sowing has been able to occur. In areas where the



A humps and hollows paddock inundated with flood water in Karamea

silt was too deep the pasture has not been able to be remediated because of ongoing wet periods and the inability to get onto the paddocks."

Boyce and Pontin are part of a wider FarmWise team in the south that attended to needs during, and after, the flooding event.

"We were available on email, phone, and social media to steer people in the right direction for help," Brent said.

"When the floods were happening we focused on dealing with getting immediate help for individuals, sorting grazing issues, sourcing feed. Importantly, we had the backing of a team of supporters and dedicated rural professionals to make sure no-one slipped through the cracks."

A small number of cases in the Tasman/West Coast had been of a serious nature, and detailed feed planning, pasture re-grassing programmes, and soil and fertiliser recommendations had been made, Brent said.

MITIGATING FUTURE RISK

The floods had been a catalyst for some farmers to conduct a review of their business structures and systems, seeking out additional professional consultant advice

from both FarmWise and the wider rural profession.

Future-proofing the farm infrastructure and the overall farm business, so it was prepared for repeat weather events, was critical - knowledge from experience could feed in to immediate response plans and contingency plans.

FarmWise continues to offer significant experience and technical expertise to recommend solutions and improvements.

"The ability to understand, to cope with the complexities of individual problems, to shoulder and help resolve the burden, and to provide a stable focal point so that farmers can continue-on, can't be underestimated," Boyce said.

"Being in the FarmWise team for so long, I feel we're having a greater impact on people's lives than we ever dreamt."

FarmWise services all the regions of New Zealand and has a wealth of experience and technical capability to model, review, and take you through different options to optimise your system. The national team can be found in the link <https://www.lic.co.nz/contact-lic/find-farmwise-consultant/>



Feed intake and methane emissions, in the form of bull burps among 20 young bulls, were measured in phase one of the research

Dairy & Beef Environmental Efficiency:

We're Measuring it, but can we Breed for it?



Tony Fransen, LIC environment & welfare manager

Can a low-methane emitting cow be bred for in future?

Enteric methane emissions (generated from cows belching) and urinary nitrogen excretion from dairy cows are two of the major contributors to the environmental impact of agriculture in New Zealand, but it's extremely difficult to measure actual emissions and excretions from cattle in pasture-based systems.

To quantify the expected emissions and excretions of our artificial breeding bulls (and their offspring) LIC developed the HoofPrint® and BeefPrint® indexes.

The respective 10-point ranking systems enable farmers to select bulls based on their predicted ability to generate offspring with a lower

environmental impact - the higher the score, the more environmentally efficient they are.

HoofPrint first appeared in LIC's *Genetics Catalogue* in Autumn 2020, while BeefPrint was introduced this year alongside selected beef bulls.

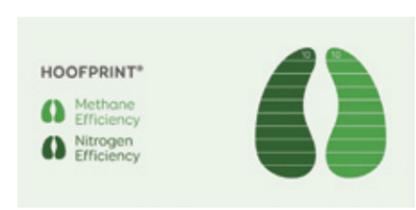
LIC uses modelling methodology based on the New Zealand greenhouse gas agricultural inventory methodology (AIM) model. The model incorporates seven breeding values used either directly or indirectly within breeding worth (BW) for each bull (liveweight, milk volume, milkfat, protein, fertility, total longevity, and gestation length).

The animal's growth, production, reproduction, and departure are estimated; this enables calculations for energy requirements, dry matter intake, partitioning, emissions, and excretion. The results from the model are expressed as lifetime enteric methane emissions and lifetime urinary nitrogen per kilogram of milk solid produced.

All bulls are ranked within a reference population of the most-recent 10 years of AB registered dairy genetics.

Only the top 2% of bulls in the reference population can be rated at 10.

Fifty percent of the bulls are rated 6-10, and the remaining 50% are rated 1-5.



What About Breeding for Low-Methane Dairy Animals?

The cooperative has also started a major research project to measure methane emissions from young breeding bulls with the aim of being able to select for low-methane-emitting dairy cows.

The pilot trial, run in conjunction with CRV and with funding from the New Zealand Agricultural Greenhouse Gas Research Centre, measured feed intake and methane emissions - in the form of bull burps among 20 young bulls.

Results from the initial phase were promising: Methane production largely related to how much an animal ate, and the research showed variation in emissions per kg of feed eaten: This suggests there is difference in emissions from the bulls, but researchers now need to understand how much of this difference is genetic, and how much is from the environment they live in: This requires measuring hundreds of animals during the next three years.

The more-substantive second research phase is now underway; specifically, this involves a study of about 260 young bulls, representing intakes from LIC's and CRV's respective Sire Proving Schemes. To fully understand the role of genetics, the research programme will include measuring the emissions from daughters of these bulls.

If a genetic link is confirmed, this will ultimately enable farmers to breed low methane-emitting cows from low methane-emitting bulls.

Find out more about how LIC is responding to sustainability challenges facing its farmer shareholders and the New Zealand dairy industry at www.lic.co.nz/sustainability.

Merv Brider Remembered

This article reflects on LIC's Newstead Bull Farms staff member Merv Brider, who died in early-September during the Level 4 Covid-19 lockdown. Merv worked on LIC's bull farms for more than 25 years, serving the needs of dairy animals, farmers, and the wider industry.

One of 15 siblings, Merv was born-and-bred in the remote central North Island town of Raetihi, with his iwi being Ngati Tuwharetoa.

Merv and Helen met 42 years ago, and were married for 37 years.

"Merv grew up in the era of 10 guitars and parties, and he had quite eclectic taste in just about everything," Helen says.

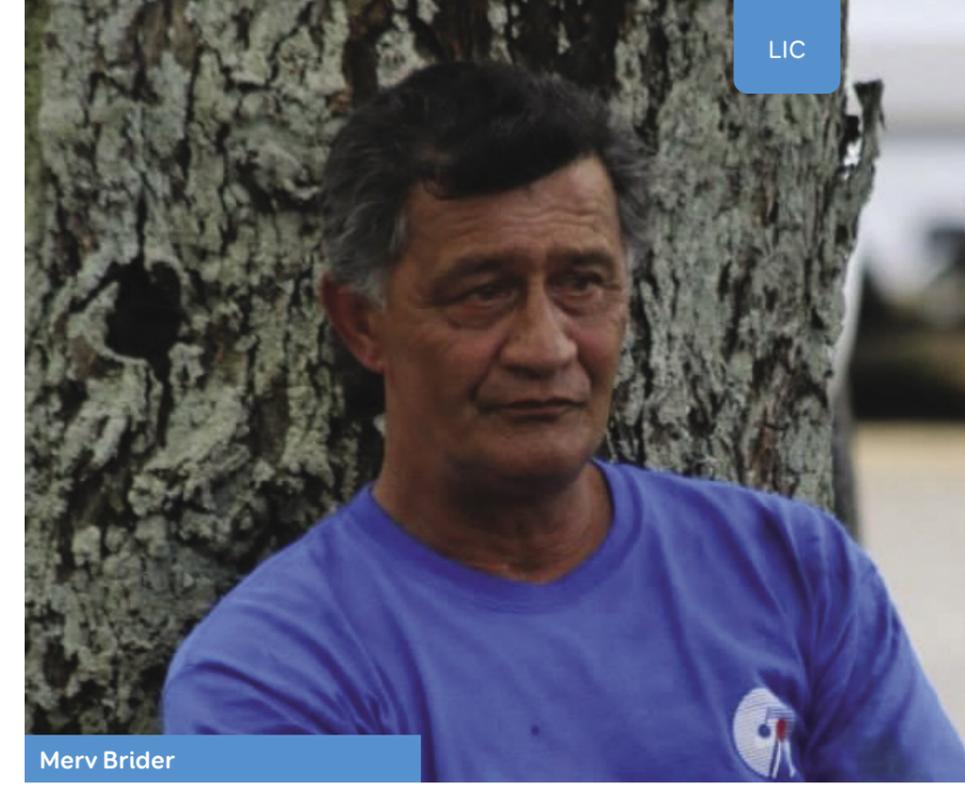
Merv developed skills in both the horse-stud and dairy industries around the Waikato.

"He had a rare talent with animals," Helen says. "He was gentle, soft, and kind - our home has always been home to waifs and strays, both four-legged and two-legged!"

"He was a natural-born horseman, and he immensely enjoyed working with cows, and later the bulls at LIC. He had an innate ability to notice any health problems or injuries with animals, and he constantly talked and sang to them - although he always had his own version of the words."

Beside Helen, Merv is survived by his two children Campbell, 35, and Melissa, 31.

He also leaves behind numerous grandchildren and great-grandchildren, descendants from Merv's recently-deceased children, Rebecca and Tawhiao



Merv Brider

(Merv's two children from previous relationships).

"He had a real passion for teaching the children skills in hunting, fishing, fencing, and farming in general," Helen says. "He was kind, compassionate, and decent."

Long-time LIC workmate on the Newstead bull farm, and best friend Gavin Coles, says Merv was renowned for his singing.

"It's going to be pretty quiet in the barn now. You used to hear him singing before you saw him, especially in the mornings."

Gavin says Merv had his own style - he hated the limelight and shied away whenever a camera was pulled out.

"He was a happy guy to be around. He could be quiet, but he didn't hesitate to speak his mind when the moment came."

Gavin has many fond memories of working with Merv over the past decade: "Once Merv was driving the tractor, and most farmers know birds have a habit of nesting in the engine. Anyway, the tractor caught on fire, and after the fire was out, I went to have a look and the whole top of the engine was covered in dirt.

"I asked Merv 'why is all this dirt on the engine' and he replied, 'well the fire extinguisher ran out so all I had was dirt'. He was scooping it up in his hand and throwing it at the tractor!"

"Merv had a great relationship with our team, a great relationship with the bulls, a great relationship with my family, and he's left a massive hole in our hearts."

Merv was 64.



Note from Helen: "Merv loved being a part of the LIC family and would have been humbled by the support we have received since his untimely death."



Wayne McNee at LIC, Newstead

THE FINAL WORD

by Wayne McNee, LIC chief executive

This will be the last Bulletin before I leave LIC after 8 and a half years. So, I thought I would take this opportunity to make a few final comments. LIC is a great company, the DNA of the New Zealand dairy industry.

I came to LIC from the role of Director General of MPI, after I led the merger of The Ministry of Agriculture and Forestry, the Ministry of Fisheries, and the New Zealand Food Safety Authority.

I wanted to move to the private sector after 18 years in the state sector. I wanted to work in the dairy industry as in my view it is the engine room of the New Zealand economy - it was then, it is now, and it will be for many years to come.

While other sectors come and go, the dairy industry leads the way.

There is work to do on the

environmental footprint of the sector, but LIC is one of many companies working to find the solutions.

I am proud of the contribution I have made at LIC, and the contribution LIC makes to the New Zealand dairy industry.

I am most proud of the ongoing investment LIC makes into research and development (R&D) and the benefits that brings the sector, over 6% of revenue, the highest percentage of any company in the New Zealand food and fibre sectors.

Being a co-operative helps LIC have a long term focus, investing in science which may not pay back for a decade, and may never pay back.

Over my time in the role I have particularly enjoyed getting out and visiting our farmer shareholders all over the country. Apart from the last 18 months which has been affected by

COVID-19, I have been to dairy farms from the far north to the deep south, large corporate operations and small owner operators.

It's great to see the passion farmers have for the dairy industry, for their family farms, and for their cows.

I have seen farmers who care deeply about their herds. I've also seen a lot of innovation in all sorts of ways on farm, from ways to reduce the impact on the environment, ways to better care for cows, and different business models to make their farms more profitable.

But there are challenges ahead.

Climate change, both its affect on our environment and the changes needed to reduce the production of methane, is one of those challenges. LIC is doing everything it can to help farmers meet these challenges, through the use of genomics, through research into low methane emitting cows, and



Drought and floods are two major effects of climate change, but LIC is striving for solutions to reduce farming's environmental impact. Here, Wayne (centre) visits a Northland farm battling through a 2014 drought.

breeding more heat tolerant cows.

On the plus side, it does seem consumers are prepared to pay for quality, and the sustained high milk prices we are seeing certainly help farmers invest in their future.

What next for Wayne McNee?

I have now been a chief executive for almost 23 years back-to-

back without a break, starting at PHARMAC in 1998, and finishing up at LIC.

My plan is to spend time over the summer with my wife Natalie and my two little girls Ella and Hazel. Hopefully if Covid allows spend some time with the family at the beach. I will be heading back to work some time next year - but the

details of that are not finalised just yet.

But whatever happens, as I said at the start, the dairy industry is the engine room of the New Zealand economy and I congratulate you all on the contribution you make to our country.



Wayne, second-from-right, has visited scores of farms with senior LIC managers to gain feedback direct from farmers over the years.



The proof is in the progeny.

SGL Angus, the shortest gestation beef breed available to dairy farmers.

LIC is offering two of the top graduates from Beef + Lamb New Zealand Genetics Dairy Beef Progeny Test as part of this season's Short Gestation Length (SGL) Angus stable. LIC's SGL Angus bulls rank highly for low birthweight and short gestation length traits.

For tried and trusted easy-calving genetics that will deliver a beef-sired calf with days in milk to boot, contact your Agri Manager today or visit lic.co.nz.

There's always room for improvement

