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BULLETIN

BEING BETTER WITH THE BASICS

SPRING 2019



GETTING THE LITTLE THINGS RIGHT.



by Malcolm Ellis, LIC General Manager NZ Markets

I've long held the view that the difference between a well performed farm (or farmer), and an average farm, is one week.

The key to the above statement is that it's all about timing.

Whether it be the decision to let the cows go in the spring, the planting-date of either winter or summer crops, or the thought process around nitrogen applications, when you strip it all back ultimately a decision has to be made, timing is the key contributing factor of achieving a successful outcome.

Then I start to think about the time of the year a number of these key decisions are made, and I quickly come to the conclusion that to be a successful farmer in today's environment you could do with being on-point year round.

That said, I've always regularly concluded that it doesn't get much bigger than this October and November spring period.

Coming out of a busy calving window, there's clearly a bit of fatigue kicking around, and with balance date behind us there can be a temptation for the farm to be switched to auto pilot for a short period of time.

But wow, when the farm is growing upward of 70kg DM/ha/day things can change pretty quickly!

Identifying and conserving surpluses with precision timing is a real skill, and it needs great timing and careful management; getting the cows to an optimal/profitable peak is an influential factor of seasonal production, and then there is the small matter of getting cows in calf.

When it comes down to it there would be a strong case to elevate mating (and the management thereof) as the most influential factor in setting a farm system up for a productive and profitable outcome.

Another observation I've made, based on receiving the proceeds of a milk cheque for 27 years, is that there's a lot more money in a milking cow than a dry cow!

'Pregnant' versus 'Empty' is a clear distinction, but so is the difference between a 6 week in calf rate of 60% and 78% (industry target).

I'm also a strong advocate of the value of a good cow, and when you combine the forces of high genetic merit and outstanding reproductive performance you have a formidable combination; for me, it's four-fifths of a recipe to create a desirable dairy outcome.

At LIC we're acutely aware of the horse power of high genetic merit cows and the value of great all round repro performance, and the cooperative is highly focused on working with you to achieve this outcome.

For those that have sat down with your Agri Manager to review the 'gold' within a *Fertility Focus Report*, I'm sure you'll agree there is a ridiculous amount of valuable insight sitting in there.

It's the catalyst for key learnings and identification of opportunities, which can be discussed before solid action plans are created and executed.

Throughout our industry there are some great stories of farmers benefiting immensely from a defined breeding plan and super reproductive performance: I strongly recommend you introduce yourself to Simon & Aimee Player through their story on pages 2-3 of this publication. They're a fantastic young sharemilking couple with a sharp understanding of the value of a good cow, high quality repro performance, and a determination to get the basics right.

The incorporation of LIC's short gestation product range is another key consideration and opportunity at this time of the year.

Through the matings carried out last spring (to either SGL Hereford or SGL Dairy), LIC calculates that an additional 1.2 million days in milk were achieved this spring.

This is phenomenal, again days in milk being a real focus. Flexing the value of selection pressure to mate the better cows to replacement AB semen, and lesser cows to an alternative, is the foundation of a smart breeding programme.

And if those alternative matings create additional days in milk you'd have to bank that wouldn't you?

In the herd improvement article (Simon and Aimee Player, p2-3) you'll read that SGL is reintroduced following a period with the bulls to round out the mating programme: This is such a smart play and one that I challenge every farmer to consider the value of. Getting cows



115080 Westedge VHR Sweet-As - S2F

in calf in a relatively short time frame is a considerable seasonal challenge but the opportunity to extend mating by 10-12 days with SGL Dairy, and not subsequently extend the following calving period, provides a no-nonsense opportunity.

I've run the rule of this option over a huge number of farm businesses; days in milk are on the table but of more value is the targeting of wastage, with the opportunity to reduce the empty rate by 2-3%. The outcome is real and I urge you to have your Agri Manager discuss the value of the option with you.

On the topic of SGL, a quick mention of the wonderful achievements of our SGL Hereford partners Shrimpton's Hill (John & Liz Mc Kerchar); This spring we will inseminate the 1,000,000th straw of a Shrimpton's Hill Hereford SGL bull, an amazing achievement for this celebrated family business. Their story on page 6-7 is a tremendous read.

This is always a revealing time of the year as we watch the spring bulls graduate out of the SPS scheme, and LIC's Premier Sires fresh semen distribution allows those bulls to receive early widespread usage as a 'spring bull'.

A great example of this is to see Sweet As sitting at number 1 on the Holstein-Friesian (HF) RAS *List*, having already contributed 34,083 inseminations last spring in the 2018 HF Forward Pack team.

In this publication the team that oversee LIC's breeding scheme run their eye over the early front runners - be sure to benefit from their expertise and insight.

I wish our shareholders all the very best. There are some considerable sector challenges on the horizon and I acknowledge these and follow them with interest, but I strongly recommend that a great deal of energy goes into the things we can control.

A strong focus on herd improvement and the herd's reproductive performance will add returns, like fertiliser to a field. There are some great opportunities in these areas, we are set and resourced to work with you to add value.

This edition of *The Bulletin* is full of powerful articles relating to the wider consideration of herd improvement and reproductive performance, and I encourage you to benefit from them.

Kind regards,
Malcolm.

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SMART PLAYERS...

...KNOW WHEN TO HOLD 'EM...

A sudden low payout in their first year sharemilking was a shock, and Simon & Aimee Player knew they had to increase the value of their asset quick-smart. Their focus on their cows has never since wavered. Here's their remarkable herd improvement story.

This spring, with no intervention, and within 22 days of planned start of mating, Waikato-based sharemilkers Simon and Aimee Player want 100% of their herd submitted to artificial insemination.

From that, they're aiming for a 90% six-week in calf rate.

"If we miss that, I'll be happy with 87%," Simon says.

According to their *Fertility Focus Report*, in the spring of 2018 the

Players achieved an 82% 6-week in-calf rate; in 2017 it was 81%; in 2016 it was 70%, and; in 2015 it was 72%.

Their herd's calving spread during the same period has more than halved, from a tad more than 15 weeks to just 7 weeks. They're targeting a calving spread of 6 weeks next season.

Meanwhile, per-cow production figures in year one (2015) of their job began at 400kg milksolids, followed by 420kg, 450kg, 470kg, and 500kg in 2018. This year the Players are targeting 550kg milksolids per cow.

SHELL-SHOCKER FOR NOVICES

The couple arrived on their current farm in 2015 with a real mix of animals they had purchased (having borrowed from family, as well as a bank that was willing to back their first foray in to dairy cow ownership).

Simon wasn't brought up on a dairy farm, but he had done a fair apprenticeship in the rural sector, having worked in dairying in both Ireland and England, as well as on a

Waikato drystock farm, followed by two years contract milking in 2013 and 2014.

"So in 2015 I purchased five mobs comprising of a core herd of 180, plus 35 heifers, and three other smaller lots I could find that looked good for the right price," Simon says.

That took him up to the required 270 cows he needed for the system 3 farm.

"We had a mix of big Holsteins and tiny little Jerseys. Because we're sharemilking there's always a need to keep the BW (Breeding Worth) up, but once we had the cows, the focus was on improving them."

But a sudden 'payout crash' - that saw dairy farmer cashflows almost halve from the heady heights of more than \$8 in the previous year - forced Simon to act with immediate urgency.

"You can't make too much money in your first season at that kind of payout.

"Because we were struggling I immediately culled all the later (calving) cows. I got \$1200 on-the-hook ... that high beef price got us through. But it dropped us down to 250 cow herd. The last cow that year calved on 26 October."

FOCUS ON REPRO PAYS DIVIDENDS

The tough start to their sharemilking career was down to unlucky timing, but Simon and Aimee believed in the fundamentals for medium- to long-term success.

Sticking to a 250-cow herd, rather than the 270-cows that had traditionally grazed the farm, an aggressive herd improvement strategy was pursued that combined stock sales, culls, and a major focus on repro, health, and selective genetics.

"In the first two years we culled and sold on calving date, and we brought the calving period shorter by two or three weeks each year," Simon says. "I try not to cull, I prefer to sell - and to get a good price I'll sell early."

After the Player's artificial insemination period, they turn to the natural mate bull for 24 days, before finishing off with short gestation length dairy for 10 days (these later cows are thereby able to recover about 10+ days-in-milk; this has helped progressively condense the calving pattern).

The heavy emphasis on a high submission rate and a high six week in-calf rate means the calving period is progressively tighter, but Simon says this is key to his production gains.

"It's all about days-in-milk for me. I've done 14,000 more solids than previous sharemilkers have done under this owner for the last 10 years (despite the lower stocking rate). A lot of that is down to calving spread. Last year I was 10,000 solids ahead in the first three months, so for us it's just a case of staying ahead through the season."

"Having a very supportive owner has enabled me to change the way some things are done and try a new approach."

TOWARD THE IDEAL HERD

For this article, LIC visited the Player's Matamata farm on August 29.

On that day, Simon pointed to the one remaining cow starting to calve that very day.

And across the race, where the main 250-strong herd grazed, the final week of August could have been mistaken for the first week of October: Bulling behaviour among multiple groups of cows was highly noticeable throughout the herd.

The Players don't undertake intervention, preferring to manage both feed and the cows in a way that maintains good condition year-round.

Simon says he likes to have cows in great condition before mating starts, ensuring strong heats from the get-go: "It all comes down to getting cows in-calf early, because every other option stems from that; a low empty rate gives you more options."

For artificial breeding, he'll continue using LIC's best genetics to strike a balance between Breeding Worth (BW) and the traits-other-than production he's after.

Identifying the true bottom-end cows is key to continuous genetic improvement, and this is feeds in to repro management and maintaining cashflows.

"I want to maintain the high number of replacements I've got coming through, and not having too many empties always helps because I'm selling every year, and I'm avoiding culling where I can.

"If I have 50 heifers coming through, 10 might be culls, 20 might be empties, but I've still got another 20 I can sell, and I pick them out by looking at their figures, udders, age, and breed."

On 1 December he'll weigh his herd, because he wants to compare the 350kg Jersey to the heavier Friesian, ultimately aiming for that animal which is doing 1.2+kg milksolids per kilogram of liveweight.

"I've got quite a few doing that, but I want to find out where they're all at in the efficiency pecking order."

Honing-in on accurate production worth figures takes account of breeding values of protein and fat, as well as liveweight and milk volume. This should refine the herd's selection pressure further, helping Simon make

the incremental gains that become progressively harder to achieve over time.

And the subtleties matter, he says.

"Because we're Open Country (suppliers), we currently get paid twice as much for protein, so there's not a lot of need to chase fat content. And we're free-draining soils here. I'm chasing a quality cow with a quality udder that's highly fertile and does good production."

"Ideally I'm after a strong F10-F12 herd, weighting 475kg-500kg, doing 550kg milksolids, with a 6 week calving (7.5 week mating) and a sub-10% empty rate."

Simon concentrates only on keeping calves from the cows he likes milking. He's highly selective and is careful to bring in a better standard of heifer each year.

HEALTHY OUTLOOK

"This year we've got it sorted," Simon says. "I'm excited because next year will be the first year of really good heifers coming through and the mating and repro results are so much better.

"I like to walk in the shed and feel proud about the cows I'm milking, or walk through the paddock and admire the condition of my herd."

Health and wellbeing in the herd is a significant factor, Simon says.

"When cows are healthy they perform that much better."

In the last year, the herd's somatic cell count (SCC) was 51,000, putting the herd at the top of the Open Country supplier index for SCC.

Aside from paying close attention to shed hygiene, Simon makes a point of sighting each teat he sprays, and the herd is metri-checked twice (eight weeks and four weeks out from PSM).

He's also meticulous when it comes to minerals in the cows' diet, with a dispenser recently added to the in-shed feeding infrastructure: "They get everything they need, every day of the year, and I see the difference," Simon says. "They're always in good condition with healthy, shiny coats."



Top-quartile herds achieve a 6 week in calf rate of 76.5% and a not-in-calf rate of 12%, in a mating period of 10 weeks



Jair Mandriaza - LIC Senior Reproduction Solutions Advisor

No Silver Bullet: Stick to the Knitting, Nail Repro Targets

In this article, LIC senior reproduction solutions advisor **Jair Mandriaza** provides commentary on the latest national reproduction statistics, and sees good cause for optimism.

Reproductively, it's been somewhat of a rollercoaster ride during the last six years.

But, nationally at least, there's been a significant rebound in repro performance over the past two years, and now it's a matter of building on sound recent gains.

Based on 4207 seasonal calving herds (Fertility Focus Reports, via MINDA), data suggests farms have most-

recently achieved their highest '6 week in-calf' rates in five seasons.

Of the approximately 2.3 million cows analysed, the average 6 week in-calf rate now sits at 67.5% (the last time it was at this level was in 2012; by 2016 the same figure had dropped to 65.8%).

Meanwhile, the average not-in-calf-rate today sits at 16%.

The real kicker is context. During that same period (2012 to 2019),

the average on-farm mating length, and therefore calving spread, has noticeably tightened.

As LIC's reproduction advisor, I commonly hear a farmer-held belief that cows are 'harder and harder to get in-calf' and that 'not in-calf rates are higher than ever'.

My response to that is 'harder' and 'higher' compared to what?

Data tells us the average mating length is now down to fewer than 11 weeks (several years ago the average mating length stood at 14.5 weeks).

And we know that as we shorten mating lengths by one-week increments, the likely compromise is a further 1-2% more cows failing to get in-calf per week.

The upshot is that excellent progress is being made despite changing farm practices, increased regulations, and challenging payouts.

My message is to keep concentrating on the fundamentals.

That's because a good 6 week in-calf rate will always be the driver in reducing the not-in-calf rate.

In terms of repro, top-quartile herds achieve an average 6 week in calf rate

of 76.5%, with a not in calf rate of 12%, and they'll do this with an average 10 week mating.

Numbers also show that in the last 10 years there's been great improvements in several areas that contribute to reproductive performance, particularly the management of young stock (the very basis of it all).

In nearly every area of repro performance, I'm increasingly seeing two- and three-year-olds out-performing other groups of cows in the herd. There's been higher emphasis on drying cows off based on BCS targets at calving, and farmers are generally putting in more targeted efforts in heat detection accuracy and processes.

Meanwhile, farms continue in their quest for an increasingly efficient animal through targeted breeding schemes.

Of course there are, for most farmers, still a lot of opportunities to capitalise on their gains and improve further.

Remember, there's no silver bullet when it comes to fertility and repro, so don't bother seeking one. The key is to know the fundamentals toward repro improvement, and then stick to your knitting.

It could turn out that 2019 is the highest reproductive performance year since we started formally measuring repro via the Fertility Focus Reports (2008/09 season).

I shall look forward to finding out just how it all pans out this season and reporting it back to you.

For a full run down on the national reproductive performance figures head to <https://www.lic.co.nz/tips-and-advice/reproduction/national-reproduction-results/>

1,000,000 & counting!!

SGL BULLS ON-THE-CHARGE AS MATING STRATEGIES SHARPEN UP



John and Liz McKerchar

This season South Canterbury-based stud Shrimpton's Hill Herefords, in conjunction with LIC, chalks up 1 million straw sales since short gestation length semen 'lifted-off' in the dairy industry.

John and Liz McKerchar are owners of the beef farm, an impressive operation that is nowadays specifically tailored to service the dairy industry. The couple's decisive entrepreneurial flair means they've carved-out a classic market niche within the fast-changing dairy industry.

"To top 1 million straw sales is incredible," John says.

"It's a huge endorsement of our breeding programme to reach such a milestone. It's also a big endorsement of a wonderful breeding partnership we have with LIC - we couldn't have done it without LIC in terms of their market share, market reach, and promotion of the product.

"So we're very grateful to have a contract, and it's a very close relationship that works well both ways."

THE STARS ALIGNED

Until 2012 Shrimpton's had been ticking away as yet another supplier to what was an established, mature, beef industry.

"But it's true that about 10 years previous to that, in the early 2000s, we could see things were changing," John says.

"We wanted to grow our business, but beef cow numbers across the industry just weren't growing, and yet the dairy cow numbers were.

"When Fonterra was formed, the animal welfare accord suggested that inducing was to be phased out. It was pretty simple for us to say, 'well if you've got a shorter gestation bull you've got a greater opportunity to market it than a longer gestation bull'.

"That gave us a point of difference we were looking for. We sourced the shortest gestation bull we could find on breedplan, in the Hereford world, and started breeding from there.

"To be fair we didn't do that with our whole herd - we just added it as a sideline... and at times there we nearly gave it away because some years you'd



Calving ease in SGL Herefords is always an important factor

sell little or no semen, and then you'd get a sale to the odd company and that would encourage us to keep going.

"But inducing got forgotten about for a bit, and dairy herds were expanding that fast that everything was being kept, and a lot were being induced."

In 2012 Malcolm Ellis, at the time LIC's Bull Acquisition Manager (nowadays LIC's GM NZ Markets), gave John and Liz McKerchar a call "out-of-the-blue."

"We were just ticking away here doing an AI (artificial insemination) programme, but Malcolm encouraged us to do embryo transplants and scale-up our AI, and we agreed to a contract.

With the LIC supply agreement in place it really gave us the confidence to reinvest, and it was easy for us to commit the whole herd down the SGL path."

John says their operation still sells bulls to the beef industry, and it remains an important aspect of the business: "But we knew back in 2012 there were only 950,000 beef cows in the country and only 300,000 in the South Island.

"Herefords aren't the preferred breed - Angus is, and beef cow numbers were diminishing. We saw the opening with the dairy industry with the white-face calf being so easily identified. We asked ourselves, 'what does the dairy industry really want?'

It wanted days-in-milk.

With SGL today firmly entrenched in the dairy industry (generally put over lower Breeding Worth cows and later-calvers in the herd), it's estimated by LIC that more than \$2.5 million in extra production will be collectively added to farmer milk dockets this spring, all courtesy of the shorter gestation lengths of Shrimpton's Hill Herefords (compared to using an average gestation length Hereford).

WHAT NOW?

John concedes that big initial gains in gestation length are getting incrementally thinner and harder to make as time goes on.

"We go to the extremes of the bell curve when we're looking for genetics that will enhance the SGL programme, but we're mindful of a lot of the other traits that we have to keep an eye on - to run our cows on the tussock country we need them to be good-doing cattle, they need survivability, and we like to buy semen out of bulls with high scrotal so they've got good fertility - that's crucial in our environment."

But the real "Achilles heel" is new bloodlines, John says.

"We're at the outer limits of SGL in the Hereford world, and we have to accept lower, longer, gestation lengths to get an outcross - there are a couple of other New Zealand-based studs concentrating on similar programmes to us, but we've basically all got the same genetics."

So Shrimpton's Hill Stud has turned to Australia to solve the threat of inbreeding.

"We've imported semen from quite a few bulls from Australia because their population is simply larger than ours and there's a lot more AI done over there - we can only purchase genetics that have been AI'd.

"So we've found a stud over there where everything is measured - they concentrate on low birth weight, high-growth rate bulls, and there's very good carcass data. Every now and again they pop out an SGL bull so we hook in to that and we're basically getting all those other traits for nothing."

Shrimpton's Hill will take two new sires a year from the Australian stud for the next five years, John says.

OTHER DEVELOPMENTS

Calving ease is always a factor, John says, "because it's the first thing that will wreck our product," but LIC safeguards continue to stay firmly in place with bulls routinely monitored for difficult calvings.

Only the easiest calving bulls with SGL traits are used in the Mckerchar's AI and embryo transfer programmes.

If it's not good enough for the dairy farmers then it's not good enough for the Mckerchar's.

John says another factor was that when Herefords went over dairy cows, their SGL rankings underwent change:

"For example bulls that are only moderate for gestation length (breeding values) in the Hereford world might actually really deliver beyond expectations on the dairy scale for gestation length.

"Being able to know which bulls of these bulls are punching at or above their weight with how they convert to days on the dairy scale really empowers breeding decisions going forward - that's when you say, 'wow, we're on to something here'."

No argument there.

It's clearly evident farmers are also on to something when they pick Shrimpton's Hill Herefords as part of their mating strategy.



by Katherine McNamara, LIC Diagnostics Product Specialist

Herd test milk samples reveal a surprising depth of detail about the individual cow's health, repro, and production status

With New Zealand reaching peak cow numbers, individual cow information has never been more important. Key information might include:

- How does the cow rank at converting pasture to milksolids?
- What type of milk does she produce?
- Are there signs of infection or disease that impact her production or reproduction?
- Has she conceived?

A drop of milk can provide insights on all the above points: These opportunities have come on the back of developments in science and technology, transforming what a simple milk sample has the potential to deliver.

Although viral and bacterial infections such as BVD and Johnes have been detected in milk for a number of years, more recently Staph aureus, a mastitis-causing bacteria, has been discoverable within herd test milk via PCR (polymerase chain reaction) methodology.

Subclinical carriers within the herd can be detected, allowing for better treatment and culling decisions.

According to LIC data, herds tested for Staph aureus (based on milk samples) show that, as SCC levels increase, so

What your drop of milk reveals today

too do the number of identified Staph aureus-positive animals.

The table below shows merely 6.3% of the animals under the 150,000 SCC threshold returned a Staph aureus positive result, while a staggering 67.3% of the animals over 500,000 SCC returned a Staph aureus positive result.

Identifying animals that are major sources of infection on farm is highly valuable when it comes to managing the herd's health, production, and reproductive performance.

SCC range and Staph aureus detected

Source: LIC herd test information

Late season SCC (x1000 cells/ml)	Number of cows tested	SA detected by PCR	% SA detected
< 150	429	27	6.3 %
150 - 250	141	39	27.7%
250 - 500	189	104	55.0%
> 500	284	191	67.3%

A feature of the above diagnostic test, as with any milk sample test, is that it is simple and non-invasive.

Milk samples are also used to identify other changes to a cow's health and wellbeing status, such as pregnancy.

When an animal falls pregnant 'pregnancy associated glycoproteins' are generated from the placenta, which can be detected in the herd test milk sample 28 days after conception.

This information is not only useful to determine pregnant animals after mating, but also to identify animals that may be empty before winter.

The composition of the milk sample can also be analysed to offer information on the type of milk the animal is producing, specifically whether A1 or A2 beta casein proteins are present.

LIC Diagnostics has recently seen a number of farmers wanting to identify A2/A2 animals within their herd,

perhaps reflecting continued consumer demand for A2/A2 milk.

Testing for A2/A2 animals opens avenues for A2/A2 breeding or animal stock sales, or the potential to form an A2/A2 milk supply herd to capitalise on associated milk price premiums.



by Greg Hamill, LIC Genetics Business Manager

As the nation strives to improve environmental and water quality outcomes, genetic gain on farm is perhaps as important as it's ever been.

During the last 10 years alone, the value of genetic gain to the industry is estimated at \$3 billion. Given agriculture's standing in the New Zealand economy, with annual exports of about \$17 billion, this significance of genetic gain within dairying is perhaps among this country's best kept secrets.

Recent analysis suggests cow numbers are now stabilising, and the more-astute farmers will ensure that if they aren't able to milk more cows, they'll need to breed and maintain better-quality cows (i.e. those that are the more-efficient convertors of feed to profit).

Simplicity is key. The most straight-forward way to increase genetic gain rates is to control the cows that are being mated, simultaneously controlling the bulls that are being used. This, combined with an accurate culling programme, is a powerful strategy when it comes to seeking the most-efficient animals from which to milk.

While LIC advocates the practice of not mating the poorer performing 10-20% of any given herd, the cooperative's specialty lies in providing superior bulls or bull-teams for farmers to utilise.



Continued Growth In Genomics

Ultimately, these top sires generate nearly 80% of the nation's dairy cows.

In February, LIC began using its new 'Single Step Animal Model', a calculation involving genomic data from dairy animals. The new calculation resulted in higher accuracy (8% up on the previous hybrid model).

In terms of genomic evaluations, the new model also better-reflects the true potential of individual bulls, particularly those at the higher- and lower-end of scale (i.e. those at the extremes of the bull population's bell-shaped curve).

The Breeder's Equation:

$$\text{Genetic Gain} = \frac{(\text{Selection Intensity} \times \text{Heritability} \times \text{Phenotypic Variation} \times \text{Accuracy of Selection})}{\text{Generation interval}}$$

With BW differentials between 24 and 29 advertised in the spring 2019 Premier Sires wall charts, LIC reports a significant uptake in Forward Pack and A2/A2 team sales, as farmers appear to be capitalising on the superior genetics on offer.

More than half LIC's farmers are now opting for Forward Pack or A2/A2 teams.

LIC's Sire Proving Scheme has traditionally relied on the four attributes on the top line of the breeder's equation (see above).

But the emergence of genomic information in 2008 has allowed LIC to 'cut to the chase', with more attention able to be given to the generation interval (on the sire's side).

Since that time science and accuracy has steadily progressed, giving the application of genomic technology

unprecedented relevancy in the New Zealand dairy genetics scene.

From an industry perspective it's exciting to see farmers intent on accelerated rates of genetic gain now embracing genomics. Teams of bulls that comprise a significant genomics element are certainly being enthusiastically pursued nowadays.

That's because Forward Pack teams continue to deliver advantages over Daughter Proven teams.

Traditionally, genetic gain delivers about \$11BW units a year, but this number is turbo-charged when

younger, genomically-selected and spring bulls are added to the mix. LIC's Forward Pack and A2/A2 teams sport significant BW differentials when lined up against the Daughter Proven teams (between 24 and 29 BW units).

Genomically-selected animals also help the industry toward more sustainable dairy cows. That's partly because higher genetic-merit animals are known to partition more feed toward milksolids than their lower genetic merit counterparts.

Recent DairyNZ statistics show the average cow in 2019 produces 100kg more in milksolids than the average cow of 20 years ago. Translated, on average, the dairy farmer raising 100 calves this year can expect each of those animals to produce 5kg more in milksolids than the 100 calves that were reared last year. LIC analysis suggests 43% of the overall productive gain can be directly attributed to genetic gain.

FROM THE BREEDING DESK

Like your farming business, LIC also needs to constantly look to the future: we frequently ask ourselves: 'what's around the corner and how do we best-prepare?'

From a breeding perspective this is about understanding what farmers want from their cows 5 to 10 years from now. Therefore, one of the biggest decisions made within the breeding programme is what bulls will be utilised to breed the next generation of bulls (sires of sons).

Only the elite of all young bulls purchased are ultimately marketed through Premier Sires or Alpha (nominated). And it is only a handful of these elite that manage to take the ultimate step of siring the next crop of young bulls.

Over the next few pages the sire selection team takes you through some of the most interesting graduates currently gaining their daughter proofs.

Witnessing the success of the sires of sons utilised back in 2014 to create these graduates is hugely rewarding. Some of these have become household names such as Hall of Fame legend Lynbrook Terrific who, within the Jerseys, is kept in good company with Goldie and Speedway. Meanwhile, the highlights of the black-and-whites include Grandeur, Hothouse, Empire, and Inca while the KiwiCross breed features Breakthrough, Jaydie, Beamer, and again, Terrific.

By the way, these sires of sons belong to you in that they are all LIC bred!

Personally, it's extremely satisfying to see the fantastic cow families that these new graduates stem from.

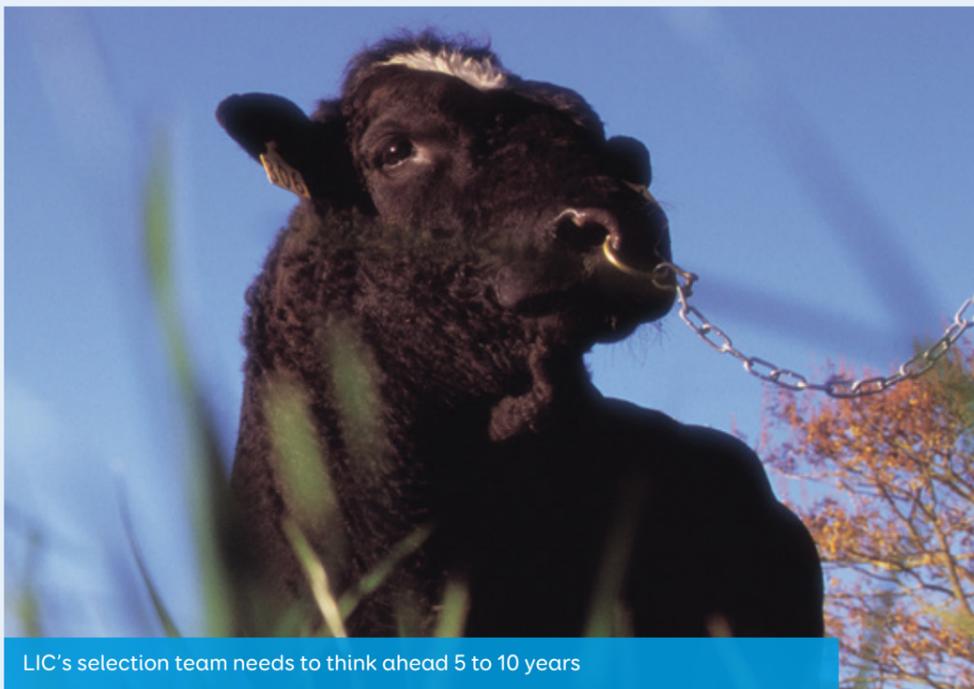


by Simon Worth, LIC Livestock Selection Manager

As always, many thanks to our valued breeders for their passion and cooperation.

And so, it's graduation time!

The journey is near-complete for the 16-codes - that is, bulls that were purchased for LIC's Sire Proving Scheme (SPS) back in 2015.



LIC's selection team needs to think ahead 5 to 10 years

Sires of sons, the absolute cream-of-the-crop in the AB industry

Used within SPS contracted herds in 2016, the majority of the daughters of these graduates have now been herd tested at least once. Many of them, along with being weighed, have also been inspected for conformation traits, including assessment by the farmers milking them on their suitability for the milking routine.

Although it's still early days, some of the graduates are deviating nicely away from the pack, staking their claim to being picked as a 'spring bull'.

These new boys are set to bolster your cooperative's strength across the breeds, and add enormous value as members of LIC's Forward Pack.



by Danie Swart, LIC Bull Acquisition Manager

516015 - Hyjinks Snapper as a two-year-old

KIWICROSS®: IT'S ALL ABOUT THE NEW BLACK

The demand for KiwiCross® continues to grow year-on-year, with 40.6% of all semen ordered from LIC being KiwiCross (to date, 2019).

This is significantly up on 2015/2016, when 33% of all LIC semen ordered with KiwiCross After launching KiwiCross in 2005, LIC and its farming shareholders have come a long way.

Farmers appear to love the hybrid vigour of the black cow that excels in efficiency, fertility, and great longevity.

LIC's strong contribution of Crossbred bulls to RAS List is as consistent as it's ever been. Of the top-25 bulls, the LIC brand sits alongside 21 of them, including 8 of the top-10.

This spring the new KiwiCross 16-code bulls are looking promising in terms of high BW and the all-important udder and dairy conformation traits.

Other Bulls to watch:

CODE	NAME	BW	REL	SIRE	BREEDER
516025	ARRIETA BREW-ET	206	68	SAN RAY FM BEAMER-ET S2F	Waikato Syndicate
516074	CROSSANS CRITICAL-ET	197	67	KRAAKMANS JAYDIE	Peter & Johanna Crossan
516031	AUAHI RAPID FIRE-ET	208	68	KRAAKMANS JAYDIE	Henderson's Family Trust

Of the top-25 bulls graduating, a good number have an udder BV's and dairy conformation BV's of more than 0.6. The same 25 bulls also boast a whopping average longevity BV of 375 days.

The above is a clear sign these bulls are set to produce production-efficient cows with good udders that last a long time.

It is my pleasure to highlight a few early exciting new graduates:

516015 HYJINKS SNAPPER

No surprise that this bull is looking exciting, resulting from a magic Terrific x Mint-Edition cross.

Bred by Edwin & Dianne Jenkins from The Hyjinks Trust, Snapper's dam is a high production cow with super indexes of 205 BW & 445 PW.

Bringing Terrific into the mix, great udders are almost a given. Snapper excels in fertility, somatics, a longevity BV of 413 days, and an udder overall BV of 0.7 (making him a true all-rounder). Snapper was also used in contract mating as a young bull: Six of his sons have already featured in the LIC Sire Proving Scheme, with one having already been used as a sire of sons.

516048 MATAHUI EXPLICIT

At the top of the 16-code ranking, Explicit's out of a solid, high-producing,

cow family with exceptional longevity. Bred by Ian and Violet Noble, this bull has the popular Breakthrough (used as a genomic bull for sire of sons) x Mint Edition combination in his pedigree.

Explicit's dam is a high index cow with a 217 BW, 487 PW, and she's been TOP scored at 7 for udder overall and dairy conformation. An F13J3, this bull's moderate liveweight (BV of 4kg) and calving difficulty (BV -0.4) makes him a prospect to use on smaller/younger females.

A standout for this boy is his phenomenal high fat and protein breeding values at 45kg & 34kg respectively, and he's A2A2 to boot.

516066 WALTON INFERNO

Bred by Walton Park Farm Ltd, Inferno is heading into the all-rounder space, and that's no surprise with Solaris as his sire.

He's out of a solid high performing Mint Edition-free cow family with super production.

Among his stand out traits is his exceptional low somatic cell BV of -0.911.

Solid capacity, udder overall, dairy confirmation, and his A2A2 status add to his positive attributes.



by Charlotte Gray - LIC Sire Analyst

FRIESIAN GRADUATES

Most of LIC's 16-codes have at least 40 daughters inspected to date, and as these numbers grow so too does our confidence in the breeding values (BVs) of their type traits.

It's worth mentioning that just because a bull comes through as high on Breeding Worth (BW), it doesn't automatically mean LIC will market them: There's always high attention paid to conformation and udder traits.

Four of this season's graduate-movers happen to be A2/A2 bulls:

- 116126 TRONNOCO GI SPIKE-ET S3F
- 116019 WERDERS DE OVERTIME S1F
- 116013 STOUPE BG TRIUMPHANT S1F, and;
- 116065 DICKSONS BG MANDATE S1F.

116126 SPIKE isn't yet on the *Ranking of Active Sires (RAS) list* (his BW reliability has yet to hit the 75% threshold), but he's currently LIC's highest ranking Friesian 16-code at 177 BW.

From a superb Blitz cow who has exceptional production herself, Spike is passing all of this on himself with a total milksolids breeding value (BV) of 86kg

- comprised of 42kg of fat and 44kg of protein, with moderate udder BVs.

While the capacity BV is sitting a tad negative right now, his dam's last inspection saw her walk away with an overall dairy conformation score of 8 out of 9.

Spike and his 16-code maternal half brother are the only bulls in the system from this elite Tronocco cow - with 4 lactations under her belt she averages an outstanding 389 lactation worth!

It truly is great to have Spike making such an entrance - congratulations to Tony and Keri O'Connor, together with the Holstein Friesian Discovery Project, for producing yet another bull for LIC's selection team to get behind.

116019 OVERTIME is already occupying a team placing at LIC, being a member of the Holstein-Friesian sexed team for 2019.

Overtime's dam (by Illustrious) was rated in 2014 by breeders Thomas and Courtney Werder as the best heifer they were milking at that time.

This lasting impression is one that Overtime is now making himself, with an overall opinion BV of 0.71 - and he comes with solid conformation and udder traits as well as production.

Although he has 95 herd tested daughters accounted for, there are more to come forward with in excess of 1000 calvings already to his name through his use as a genomic sire.

Overtime's maternal half-brother by Hothouse is following in the same hoof prints as his older brother by being marketed as a genomic sire in LIC's Holstein-Friesian A2/A2 team.

116013 TRIUMPHANT is a Grandeur son out of an exceptional Mint-Edition cow. This girl (as well as the Applause dam behind her) are production machines! Both currently have a 450+ PW and an average LW in excess of 500 - outstanding!

Like the other Grandeur sons coming through, Triumphant's daughters are

quite the lookers with Triumphant's udder and conformation BVs both in excess of 0.50.

Another bonus with this new graduate is that proofs suggest he's one of the easier-calving Friesian options (much like his sire), with a calving difficulty BV of -0.7. This provides the potential for use over yearlings.

Well done to David Stoupe and Tracey Wallace for producing this young sire.

116065 MANDATE was one of LIC's highest-use genomic sires in the breeding scheme, so the cooperative is rapt to see him come through with such excellent type traits.

His udder overall is currently sitting at 0.75 and dairy conformation at 0.40.

Like Triumphant, Mandate is another Grandeur son that is yearling-friendly, and the breeding team has been excited to follow his progress (with a number of maternal half-brothers in the pipeline).

Given Mandate's widespread use as a genomic sire there are more than 250 herd tested daughters contributing to his proof, and in excess of 7000 Mandate-sired calves have hit the ground so far.

Murray and Julie Dickson should rightly be chuffed to have this bull, the first of the sons from their extreme BW/PW Pulse cow, to come through.



116013 Triumphant at two-years-old



Two-year-old dam of Mandate



by Taylor Connell, LIC Senior Sire Analyst

NEW JERSEYS

THE YOUNG, THE BOLD, & THE BEAUTIFUL

early days, below are some up-and-comers to keep an eye on.

316038 DEEP RIVER PCG FAVOUR

From Valarie & Ian Cocker's farm in Manawatu, this is a bull we've been keen to watch ever since he was purchased in late-2015. Out of one of the very best Integrity cows in the country, this Goldie son looked set to deliver from the get-go.

Having been utilised in both Alpha Nominated and Premier Sires Forward Pack as a young sire means a number of farmers will already have Favour daughters in the pipeline.

Early traits-other-than-production (TOP) information indicates strong capacious cows that are well liked by farmers; coupled with 253BW, Favour will be one to follow closely in subsequent NZAEL runs.

However, unfortunate circumstances mean Favour is no longer around, so there are now very limited straws of Favour available. Get in quick through Alpha Nominated!

The good news is Favour's use in LIC's contract mating scheme sees some exciting sons already in the sire proving pipeline; this includes one of LIC's

Alpha Nominated yearling bulls 319005 Braedene Fav Transpire.

316009 TIRONUI LT BESIEGE ET

The sire stack of this bull boasts a number of 'the greats': Terrific x Degree x Manhattan x SS Forever provide serious horsepower to this pedigree.

In fact, looking back, we can see the 2000-born SS Forever cow sits with a 339 PW, with the 2004-born Manhattan cow coming in at a massive 493 PW! Clearly this cow family love to milk.

Some may recognise the name, given this guy was marketed as a young bull through Alpha, so it's great to see him come through with such a well-balanced proof.

Initial indications show Besiege daughters love to milk, are capacious, are well-liked, and have sound udders.



Seven-year-old grandam of Besiege

Currently at 243 BW, we've seen a massive 56-point gain over the last three NZAEL runs and long may these increases continue!

This bull is an exciting prospect and is hard to fault. I look forward to tracking Besiege through future NZAEL runs.

Congratulations to Murray and Janet Gibb for breeding Besiege (and full brother Bossman).

316051 CLUAIN GOLDIE JACOB ET

Looking for an outcross to those Terrific and Integrity genetics? Then Jacob is your guy.

Sired by Goldie and a maternal sire pathway of Zeus and Nimrod combined with huge production protein + fat BV of 35kg and milk volume BV of -32 litres, this is a bull LIC will be following very closely.

To add to his accolades his 34 TOP inspected daughters are painting the picture of capacious, well liked heifers with sound udders.

At 239 BW Jacob is sitting as one of the top outcross bulls and is no doubt something to be excited about.

Congratulations to the Emslie family from Norsewood for breeding a bull of this calibre.

Just as quickly as calving comes to a close, the mating period arrives!

This time of year sees LIC's livestock selection and genetics teams eagerly awaiting each weekly animal evaluation run (executed by New Zealand Animal Evaluation Ltd, a subsidiary of DairyNZ) to see who's lining up to be future Premier Sires.

They say breeding is a long game, and that couldn't be more-true: The new boys that are making LIC's best teams have come from contract matings back in 2014 - and now it's finally Judgement Day!

As data from sire proving herds flows in from all corners of New Zealand, LIC's bull acquisition team starts to build a picture on what the daughters (from this elite crop of bulls) are producing and looking like.

There's plenty of excitement around the Jersey boys in 2019. While it's still



Four-year-old dam of Favour

Other Bulls to watch:

AB Code	Bull Name	Breeding Worth	Breeding Worth Reliability	Name of Sire	Breeder Name
316007	TIRONUI LT BOSSMAN ET	229	68	LYNBROOK TERRIFIC ET S3J	M & J Gibb
316016	CARATACUS DANSBY ET S2J	223	67	SHALENDY IDEAL ASCENT S3J	M & C Newson
316042	KERRS GOLDIE LAD ET S2J	212	68	PUHIPUHI CAPS GOLDIE S3J	B & V Kerr
316036	FOXTON PG COYOTE ET S2J	206	67	PUHIPUHI CAPS GOLDIE S3J	Huzziff Family



2019 Spring KiwiCross® Daughter Proven Team

Sire	BW/Rel%	Sire	BW/Rel%		
515058	KAHURANGI IZABULL	266/84	513098	ARKANS BOUNTY	173/98
511011	PRIESTS SIERRA	217/99	515028	ZONA CROSSFIRE	169/81
514017	GLEN KORU BECKON	214/87			
515017	LYNBROOK KARTELL	211/81			
515083	MCCAOSS MAJESTY	209/82			
514018	GLEN KORU EPIC	197/84			
515068	WOODWARDS SPOT ON	193/82			
513050	WOODHEYS SPEED DIAL	188/98			
513074	SCHRADERS TUSK	182/87			
515025	SPEAKES SLIPSTREAM ET	176/82			

WEIGHTED AVERAGES OF PREMIER SIRES - \$206/99%

Management	-0.5	0	0.5	1	BW/Rel%	206/99
Adapts to Milking	0.30			quickly	Milkfat BV	29 kgs
Shed Temperament	0.32			placid	Protein BV	20 kgs
Milking Speed	0.28			fast	Milk BV	194 Litres
Overall Opinion	0.39			desirable	Liveweight BV	-6 kgs
Conformation	-0.5	0	0.5	1	Longevity BV	410 days
Stature	-0.09			tall	Milkfat BV %	5.2%
Capacity	0.31			capacious	Protein BV %	4.1%
Rump Angle	-0.27			sloping	Calving Dif BV	-0.4
Rump Width	0.21			wide	Fertility BV	2.3
Legs	0.08			curved	SCC BV	-0.16
Udder Support	0.40			strong	BCS BV	0.00
Front Udder	0.42			strong	NB: the reliability of a team of bulls is always higher than using just one bull.	
Rear Udder	0.48			high	AE 14/10/2019	
Front Teat Placement	0.08			close		
Rear Teat Placement	0.23			close		
Udder Overall	0.49			desirable		
Dairy Conformation	0.29			desirable		

2019 Spring KiwiCross® Forward Pack Team

Sire	BW/gBW/Rel%	Sire	BW/gBW/Rel%		
515058	KAHURANGI IZABULL	266/84	518015	SMITHS HERALD	270/68
511011	PRIESTS SIERRA	217/99	518056	JACKSONS BOCELLI	268/53
514017	GLEN KORU BECKON	214/87	518016	HORIZON ASCOTT	265/55
515017	LYNBROOK KARTELL	211/81	518047	CLARKES MASTERCLASS	263/51
515083	MCCAOSS MAJESTY	209/82	518037	SHEPHERDS EGMONT-ET	253/52
516048	MATAHUI EXPLICIT	226/65	518069	TOTARA VIEW NAVIGATOR	250/59
518076	GREENWELL BLACKHAWK	298/52	517021	HORIZON BANZAI	245/58
517026	HOWSES SPRINGFIELD	290/58	516015	HYJINKS SNAPPER	212/70
517043	GLEN KORU PROCLAIMER-ET	286/59			
518017	HORIZON BARNSTORMER-ET	273/60			

WEIGHTED AVERAGES OF PREMIER SIRES - \$236/98%

Management	-0.5	0	0.5	1	BW/gBW/Rel%	236/98
Adapts to Milking	0.39			quickly	Milkfat BV/gBV	36 kgs
Shed Temperament	0.40			placid	Protein BV/gBV	24 kgs
Milking Speed	0.21			fast	Milk BV/gBV	270 Litres
Overall Opinion	0.42			desirable	Liveweight BV/gBV	1 kgs
Conformation	-0.5	0	0.5	1	Longevity BV/gBV	537 days
Stature	-0.01			tall	Milkfat BV/gBV %	5.2%
Capacity	0.42			capacious	Protein BV/gBV %	4.1%
Rump Angle	-0.10			sloping	Calving Dif BV/gBV	-0.3
Rump Width	0.19			wide	Fertility BV/gBV	3.5
Legs	0.07			curved	SCC BV/gBV	-0.14
Udder Support	0.55			strong	BCS BV/gBV	0.09
Front Udder	0.50			strong	NB: the reliability of a team of bulls is always higher than using just one bull.	
Rear Udder	0.50			high	Shaded bulls are daughter proven with AEU BW & BV's 14/10/2019 AE	
Front Teat Placement	0.18			close	Non shaded bulls are genomically selected with LIC gBW & gBV's	
Rear Teat Placement	0.43			close	data. Source date 14/10/2019	
Udder Overall	0.57			desirable		
Dairy Conformation	0.41			desirable		

2019 Spring KiwiCross® A2A2 Team

Sire	gBW/Rel%	Sire	gBW/Rel%		
518072	DEANS PROFESSIONAL	320/52	518034	ELLISONS POLDARK-ET	228/60
518038	WERDERS PREMONITION	271/59	517019	HANSARALLY RAD	226/58
518061	INNOVATION HOMEBREW	258/53	516066	WALTON INFERNO	209/68
517042	LUCK-AT-LAST INSPIRED-ET	256/59	516074	CROSSANS CRITICAL-ET	190/69
518063	VAN STRAALENS SAFARI	249/56			
518044	JUFFERMANS ENDURANCE-ET	249/57			
518001	ARKANS BALMORAL	246/61			
518029	ROUBROEKS AMMUNITION	245/56			
518003	ARKANS SLINGSHOT-ET	235/52			
518025	WOODHEYS SOPRANO	232/51			

WEIGHTED AVERAGES OF PREMIER SIRES - \$232/98%

Management	-0.5	0	0.5	1	gBW/Rel%	232/98
Adapts to Milking	0.38			quickly	Milkfat gBV	34 kgs
Shed Temperament	0.38			placid	Protein gBV	26 kgs
Milking Speed	0.15			fast	Milk gBV	359 Litres
Overall Opinion	0.38			desirable	Liveweight gBV	3 kgs
Conformation	-0.5	0	0.5	1	Longevity gBV	554 days
Stature	-0.07			tall	Milkfat gBV %	5.1%
Capacity	0.51			capacious	Protein gBV %	4.0%
Rump Angle	-0.03			sloping	Calving Dif gBV	-0.3
Rump Width	0.09			wide	Fertility gBV	3.1
Legs	-0.03			curved	SCC gBV	-0.11
Udder Support	0.44			strong	BCS gBV	0.13
Front Udder	0.46			strong	NB: the reliability of a team of bulls is always higher than using just one bull.	
Rear Udder	0.50			high	Shaded bulls are daughter proven with AEU BW & BV's 14/10/2019 AE	
Front Teat Placement	0.23			close	Non shaded bulls are genomically selected with LIC gBW & gBV's	
Rear Teat Placement	0.32			close	data. Source date 14/10/2019	
Udder Overall	0.58			desirable		
Dairy Conformation	0.51			desirable		

2019 Spring Holstein-Friesian Daughter Proven Team

Sire	BW/Rel%	Sire	BW/Rel%	
115080	WESTEDGE VHR SWEET AS S2F	210/85	115017	LANGEVELDS SRB VALOUR S2F
115021	GORDONS AM LANCELOT S3F	184/93	111067	BYREBURN PF ETERNAL S2F
111037	SAN RAY FM BEAMER-ET S2F	182/99	114123	BACKHOUSE EO GRAVITY S2F
114007	BUSY BROOK WTP VECTOR S3F	169/86	115107	LIGHTBURNBLADE GUSTO
112034	CARSONS FM CAIRO S3F	167/98	115046	TRALEE GB RESONATE-ET S3F
111036	ARKAN FM BUSTER-ET S2F	167/99	113120	BOTHWELL WT MAXIMA S2F
115132	COSTERS POLARISE-ET S3F	164/84	115054	MEANDER SB WINGMAN-ET S3F
112032	JACLES BOY JAKS S2F	156/93	115068	HODGES GFB CUTLASS S3F
114032	WOODCOTE FIMASTERMIND	156/86	115112	KINGSDOWN AM JAXON-ET S2F
115062	PAALVASTS MT CYCLONE S2F	155/85	115023	TANGLEWOOD MT KAURI S2F

WEIGHTED AVERAGES OF PREMIER SIREs - \$162/99%

Management	-0.5	0	0.5	1
Adapts to Milking	0.29			quickly
Shed Temperament	0.27			placid
Milking Speed	0.19			fast
Overall Opinion	0.39			desirable
Conformation	-0.5	0	0.5	1
Stature	0.66			tall
Capacity	0.41			capacious
Rump Angle	-0.11			sloping
Rump Width	0.35			wide
Legs	-0.01			curved
Udder Support	0.51			strong
Front Udder	0.39			strong
Rear Udder	0.35			high
Front Teat Placement	0.13			close
Rear Teat Placement	0.37			close
Udder Overall	0.45			desirable
Dairy Conformation	0.44			desirable

BW/Rel%	162/99
Milkfat BV	35 kgs
Protein BV	27 kgs
Milk BV	611 Litres
Liveweight BV	41 kgs
Longevity BV	400 days
Milkfat BV %	4.9%
Protein BV %	3.9%
Calving Dif BV	1.4%
Fertility BV	2.5%
SCC BV	-0.10%
BCS BV	0.12%

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

AE 14/10/2019



2019 Spring Holstein-Friesian Forward Pack Team

Sire	BW/gBW/Rel%	Sire	BW/gBW/Rel%	
115080	WESTEDGE VHR SWEET AS S2F	210/85	117068	MEANDER SB ARROW-ET S2F
115021	GORDONS AM LANCELOT S3F	184/93	118068	BAGWORTH GI ORIGINAL S3F
111037	SAN RAY FM BEAMER-ET S2F	182/99	118001	WAIMATA SB RANSOM-ET S2F
114007	BUSY BROOK WTP VECTOR S3F	169/86	118042	DICKSONS MH MASON-ET S2F
112034	CARSONS FM CAIRO S3F	167/98	117057	MAIRE GL GRADUATE-ET
112032	JACLES BOY JAKS S2F	156/93	118051	GREENWELL DM ALCATRAZ SIF
116126	TRONNOCO GI SPIKE-ET S3F	177/66	117018	KLAUS KJ WORLDCLASS S2F
116019	WERDERS DE OVERTIME SIF	169/67	117061	ALLANS SB ANTIDOTE S2F
118070	TAFTS GR SUPERVISOR SIF	257/51	118028	PEMBERTON DM PIVOTAL SIF
118031	DICKSONS HD MYTH-ET S1F	255/55	117051	BUSY BROOK SB FORTUNE S2F

WEIGHTED AVERAGES OF PREMIER SIREs - \$189/98%

Management	-0.5	0	0.5	1
Adapts to Milking	0.37			quickly
Shed Temperament	0.36			placid
Milking Speed	0.20			fast
Overall Opinion	0.46			desirable
Conformation	-0.5	0	0.5	1
Stature	0.56			tall
Capacity	0.42			capacious
Rump Angle	0.04			sloping
Rump Width	0.48			wide
Legs	0.03			curved
Udder Support	0.43			strong
Front Udder	0.37			strong
Rear Udder	0.33			high
Front Teat Placement	0.12			close
Rear Teat Placement	0.30			close
Udder Overall	0.42			desirable
Dairy Conformation	0.46			desirable

BW/gBW/Rel%	189/98
Milkfat BV/gBV	38 kgs
Protein BV/gBV	35 kgs
Milk BV/gBV	777 Litres
Liveweight BV/gBV	37 kgs
Longevity BV/gBV	510 days
Milkfat BV/gBV %	4.8%
Protein BV/gBV %	3.9%
Calving Dif BV/gBV	1.5
Fertility BV/gBV	3.3
SCC BV/gBV	-0.01
BCS BV/gBV	0.10

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

Shaded bulls are daughter proven with AEU BW & BV's 14/10/2019 AE. Non shaded bulls are genomically selected with LIC gBW & gBV's data. Source date 14/10/2019

2019 Spring Holstein-Friesian A2A2 Team

Sire	gBW/Rel%	Sire	gBW/Rel%	
118053	GREENWELL GR GOVERNOR SIF	246/53	118059	LIGHTBURN AB RIPTIDE S3F
118071	GLENMEAD SB TRAPEZE SIF	216/52	116013	STOUPES BG TRIUMPHANT SIF
118049	DICKSONS DM LEVI-ET SIF	214/52	116065	DICKSONS BG MANDATE SIF
118016	WERDERS MH OPTIMAL S2F	202/59	116035	ARKAN MGH BESTSELLER
118023	TRONNOCO INCA SHAKIR S3F	189/59		
117046	TELESIS KJ EMIRATE S2F	174/60		
118037	CHARLTONS DM AGENT-ET SIF	174/51		
118013	SPRING RIVER GR SURGE SIF	173/51		
118014	DEANS MH ATLANTIS S2F	173/60		
117088	SPRING RIVER OL SCOUT S2F	170/57		

WEIGHTED AVERAGES OF PREMIER SIREs - \$184/98%

Management	-0.5	0	0.5	1
Adapts to Milking	0.25			quickly
Shed Temperament	0.24			placid
Milking Speed	0.05			fast
Overall Opinion	0.33			desirable
Conformation	-0.5	0	0.5	1
Stature	0.50			tall
Capacity	0.22			capacious
Rump Angle	0.01			sloping
Rump Width	0.28			wide
Legs	-0.03			curved
Udder Support	0.35			strong
Front Udder	0.37			strong
Rear Udder	0.32			high
Front Teat Placement	0.21			close
Rear Teat Placement	0.27			close
Udder Overall	0.39			desirable
Dairy Conformation	0.30			desirable

gBW/Rel%	184/98
Milkfat gBV	31 kgs
Protein gBV	31 kgs
Milk gBV	698 Litres
Liveweight gBV	32 kgs
Longevity gBV	586 days
Milkfat gBV %	4.7%
Protein gBV %	3.9%
Calving Dif gBV	0.9
Fertility gBV	3.1
SCC gBV	-0.09
BCS gBV	0.07

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

Shaded bulls are daughter proven with AEU BW & BV's 14/10/2019 AE. Non shaded bulls are genomically selected with LIC gBW & gBV's data. Source date 14/10/2019



2019 Spring Jersey Daughter Proven Team

Sire	BW/Rel%	Sire	BW/Rel%
315008	274/83	314005	194/86
314052	273/86	312057	166/94
314012	262/92		
315045	250/85		
314022	246/91		
311013	245/99		
315009	234/83		
314004	233/96		
313046	226/98		
314039	200/94		

WEIGHTED AVERAGES OF PREMIER Sires - \$238/99%

Management	-0.5	0	0.5	1
Adapts to Milking	0.16			quickly
Shed Temperament	0.21			placid
Milking Speed	0.10			fast
Overall Opinion	0.25			desirable
Conformation	-0.5	0	0.5	1
Stature	-0.83			tall
Capacity	0.42			capacious
Rump Angle	-0.05			sloping
Rump Width	-0.06			wide
Legs	0.05			curved
Udder Support	0.44			strong
Front Udder	0.55			strong
Rear Udder	0.68			high
Front Teat Placement	0.11			close
Rear Teat Placement	0.08			close
Udder Overall	0.64			desirable
Dairy Conformation	0.40			desirable

BW/Rel%
Milkfat BV 238/99
Protein BV 22 kgs
Milk BV 4 kgs
Liveweight BV -478 Litres
Longevity BV -45 kgs
Milkfat BV % 382 days
Protein BV % 5.8%
Calving Dif BV 4.3%
Fertility BV -2.0
SCC BV 2.3
BCS BV -0.21
0.17

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

AE 14/10/2019

2019 Spring Jersey Forward Pack Team

Sire	BW/gBW/Rel%	Sire	BW/gBW/Rel%
315008	274/83	318018	269/55
314052	273/86	318002	261/52
314012	262/92	318034	261/57
315045	250/85	318029	259/58
316051	239/68	318012	257/59
318027	312/52	317041	249/59
318021	312/57	318015	248/59
317023	287/61		
318009	282/60		
318035	281/57		

WEIGHTED AVERAGES OF PREMIER Sires - \$261/98%

Management	-0.5	0	0.5	1
Adapts to Milking	0.24			quickly
Shed Temperament	0.26			placid
Milking Speed	0.19			fast
Overall Opinion	0.29			desirable
Conformation	-0.5	0	0.5	1
Stature	-0.78			tall
Capacity	0.40			capacious
Rump Angle	-0.15			sloping
Rump Width	-0.01			wide
Legs	0.06			curved
Udder Support	0.36			strong
Front Udder	0.48			strong
Rear Udder	0.58			high
Front Teat Placement	0.10			close
Rear Teat Placement	-0.11			close
Udder Overall	0.55			desirable
Dairy Conformation	0.40			desirable

BW/gBW/Rel%
Milkfat BV/gBV 261/98
Protein BV/gBV 28 kgs
Milk BV/gBV 6 kgs
Liveweight BV/gBV -440 Litres
Longevity BV/gBV -42 kgs
Milkfat BV/gBV % 453 days
Protein BV/gBV % 5.9%
Calving Dif BV/gBV 4.2%
Fertility BV/gBV -2.1
SCC BV/gBV 3.0
BCS BV/gBV -0.25
0.16

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

Non shaded bulls are genomically selected with LIC gBW & gBV's data. Source date 14/10/2019

Shaded bulls are daughter proven with AEU BW & BV's 14/10/2019 AE

516048 Matahui Explicit



Two-year-old Paternal sister

Breeding Details

Breeder	I & J Noble	Dam	CLG-10-25
Sire	Greenwell Breakthrough ET	MGS	Fairmont Mint-Edition

Production BVs

Protein	Milkfat	Milk	Liveweight	Fertility
34 kg	45 kg	764 l	20 kg	3.3 %
3.9 %	4.9 %			

Total Longevity	Somatic Cell Count	Calving Difficulty	Body Condition
370 days	-0.23	-0.4 %	0.05

INDIVIDUAL PRICE	\$31.55 +GST	SPRING PACK FROM	\$23.18* +GST
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*If 10% InvestaMate discount applies

BW/Rel Current \$226/65%

TOP Traits		83 Daughters 42 Herds			
Management	BV	-0.5	0	0.5	1.0
Adapts to Milking	0.54				
Shed Temperament	0.53				
Milking Speed	0.14				
Overall Opinion	0.51				
Stature	0.37				
Capacity	0.33				
Rump Angle	0.09				
Rump Width	0.09				
Legs	0.04				
Udder Support	0.55				
Front Udder	0.34				
Rear Udder	0.40				
Front Teat Placement	0.32				
Rear Teat Placement	0.51				
Udder Overall	0.54				
Dairy Conformation	0.46				

A2 Protein	A2A2	TOP Daughters	32
Gestation Length	-4.0 Days	OAD	1398

KiwiCross® F13J3 Evaluation Date: 14/10/2019

516066 Walton Inferno



Two-year-old Paternal sister

Breeding Details

Breeder	P & P Snoxell	Dam	GMWY-13-32
Sire	Priests Solaris-ET	MGS	Howies Checkpoint

Production BVs

Protein	Milkfat	Milk	Liveweight	Fertility
21 kg	29 kg	176 l	8 kg	0.1 %
4.1 %	5.2 %			

Total Longevity	Somatic Cell Count	Calving Difficulty	Body Condition
343 days	-0.91	-2.2 %	0.16

INDIVIDUAL PRICE	\$31.55 +GST	SPRING PACK FROM	\$23.18* +GST
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*If 10% InvestaMate discount applies

BW/Rel Current \$209/68%

TOP Traits		102 Daughters 30 Herds			
Management	BV	-0.5	0	0.5	1.0
Adapts to Milking	0.43				
Shed Temperament	0.42				
Milking Speed	0.11				
Overall Opinion	0.38				
Stature	-0.11				
Capacity	0.57				
Rump Angle	-0.22				
Rump Width	-0.19				
Legs	-0.13				
Udder Support	0.44				
Front Udder	0.40				
Rear Udder	0.31				
Front Teat Placement	0.51				
Rear Teat Placement	0.61				
Udder Overall	0.50				
Dairy Conformation	0.56				

A2 Protein	A2A2	TOP Daughters	40
Gestation Length	-8.9 Days	OAD	1325

KiwiCross® F9J7 Evaluation Date: 14/10/2019

116126 Tronnoco GI Spike-ET S3F



Six-year-old Paternal Grandam

Breeding Details

Breeder	T & K O'Connor	Dam	Tronnoco Blit Suellen S3F
Sire	Gydeland Excel Inca S3F	MGS	Greenwell TF Blitz-ET S3F

Production BVs

Protein	Milkfat	Milk	Liveweight	Fertility
44 kg	42 kg	1291 l	27 kg	0.5 %
3.7 %	4.4 %			

Total Longevity	Somatic Cell Count	Calving Difficulty	Body Condition
395 days	0.23	0.9 %	0.03

INDIVIDUAL PRICE	\$31.55 +GST	SPRING PACK FROM	\$23.18* +GST
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*If 10% InvestaMate discount applies

BW/Rel Current \$177/66%

TOP Traits		70 Daughters 38 Herds			
Management	BV	-0.5	0	0.5	1.0
Adapts to Milking	0.15				
Shed Temperament	0.14				
Milking Speed	-0.15				
Overall Opinion	0.23				
Stature	0.45				
Capacity	-0.06				
Rump Angle	0.56				
Rump Width	0.14				
Legs	0.05				
Udder Support	0.28				
Front Udder	0.08				
Rear Udder	0.47				
Front Teat Placement	-0.31				
Rear Teat Placement	0.17				
Udder Overall	0.23				
Dairy Conformation	0.09				

A2 Protein	A2A2	TOP Daughters	41
Gestation Length	1.2 Days	OAD	1254

Holstein-Friesian F16 Registered Pedigree (Supplementary) Evaluation Date: 14/10/2019

116019 Werders DE Overtime S1F



Two-year-old Paternal sister

Breeding Details

Breeder	T & C Werder	Dam	BMWJ-12-18
Sire	Dicksons Shade Empire S1F	MGS	Farside M Illustrious S3F

Production BVs

Protein	Milkfat	Milk	Liveweight	Fertility
32 kg	38 kg	759 l	14 kg	2.6 %
3.9 %	4.8 %			

Total Longevity	Somatic Cell Count	Calving Difficulty	Body Condition
183 days	0.19	3.7 %	0.02

INDIVIDUAL PRICE	\$31.55 +GST	SPRING PACK FROM	\$23.18* +GST
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*If 10% InvestaMate discount applies

BW/Rel Current \$169/67%

TOP Traits		95 Daughters 45 Herds			
Management	BV	-0.5	0	0.5	1.0
Adapts to Milking	0.57				
Shed Temperament	0.59				
Milking Speed	0.39				
Overall Opinion	0.71				
Stature	0.14				
Capacity	0.38				
Rump Angle	0.06				
Rump Width	-0.07				
Legs	-0.14				
Udder Support	0.50				
Front Udder	-0.02				
Rear Udder	0.69				
Front Teat Placement	-0.11				
Rear Teat Placement	0.13				
Udder Overall	0.38				
Dairy Conformation	0.36				

A2 Protein	A2A2	TOP Daughters	48
Gestation Length	-7.8 Days	OAD	1341

Holstein-Friesian F16 Registered Pedigree (Supplementary) Evaluation Date: 14/10/2019

316051 Cluain Goldie Jacob ET



Three-year-old Paternal sister

Breeding Details

Breeder	Emslie Family	Dam	Cluain Zeus Jessie
Sire	Puhipuhi Caps Goldie S3J	MGS	Hawthorn Grove Zeus ET

Production BVs

Protein	Milkfat	Milk	Liveweight	Fertility
4 kg	31 kg	-32 l	-70 kg	-0.8 %
3.9 %	5.5 %			

Total Longevity	Somatic Cell Count	Calving Difficulty	Body Condition
226 days	-0.73	-3.1 %	0.11

INDIVIDUAL PRICE **\$31.55** +GST

SPRING PACK FROM **\$23.18*** +GST

*If 10% InvestaMate discount applies

BW/Rel Current \$239/68%

TOP Traits	BV	-0.5	0	0.5	1.0
Management					
Adapts to Milking	0.33				
Shed Temperament	0.33				
Milking Speed	0.08				
Overall Opinion	0.30				
Stature	-1.18				
Capacity	0.50				
Rump Angle	-0.32				
Rump Width	0.02				
Legs	0.14				
Udder Support	0.05				
Front Udder	0.39				
Rear Udder	0.70				
Front Teat Placement	-0.07				
Rear Teat Placement	-0.54				
Udder Overall	0.40				
Dairy Conformation	0.52				

A2 Protein	A2A2	TOP Daughters	34
Gestation Length	-6.2 Days	OAD	1316

Jersey J16
Registered Pedigree

Evaluation Date: 14/10/2019 **AE**

2019 Alpha Nominated Yearling Bulls

LIC's yearling bulls have been selected.

These bulls began their first semen collections between July and August 2019, allowing them a good amount of time to reach sexual maturity.

Final selection of the most promising bulls is delayed as long as possible – this is done to provide reassurance the bulls can consistently produce enough quality semen to fulfil orders.

The 19-code bulls below have been hand-picked by LIC's sire analysts.

Selections are based on a combination of factors, the most important of which include:

- bulls with a high genomic rating;
- bulls from strong cow families, and;
- diversity.

The upshot of above are high genomic breeding worth bulls.

Many of the highest yearling bulls were themselves sired by genomic bulls, who had previously also been marketed as yearling bulls.

This allows for the best genetics tomorrow to be purchased today, cutting down the generation interval and providing the potential for faster, greater, strides in genetic gain.

These bulls can be purchased individually or selected in-part with other genomically-selected bulls via a Genomic Pack.

LIC Yearling/19-Code Bulls

Code	Name	gBW	REL	Fat	Prot	Vol	LWT	Fert	UdderO	Dairy C	A2	Sire
119013	TANGLEWOOD MD REEF-ET S1F	278	50	44	31	459	38	8.0	0.17	0.48	A1A2	DICKSONS BG MANDATE S1F
119002	BELLAMYS DM GALANT-ET S1F	236	51	48	33	638	51	4.0	0.35	0.55	A2A2	DICKSONS BG MANDATE S1F
119065	MEANDER TD AZURE-ET S1F	232	57	43	30	548	43	5.5	0.38	0.00	A2A2	TENNANT DARKSTAR-OC S1F
119004	IONIC GB CLUEDO S1F	231	57	28	30	509	24	6.9	0.74	0.36	A1A2	GREENWELL SH BOMBER S1F
119014	BUELIN BMEQUATOR S2F	211	58	51	31	788	52	6.0	0.58	0.64	A1A2	BOTHWELL WT MAXIMA S2F
119049	WITTENHAM MG ALPINE S2F	193	54	44	38	921	48	1.4	0.53	0.90	A2A2	MAIRE IG GAUNTLET-ET
119041	ROYSON MG CURRENCY S3F	160	54	39	55	1609	92	4.1	0.93	0.67	A2A2	MAIRE IG GAUNTLET-ET

Code	Name	gBW	REL	Fat	Prot	Vol	LWT	Fert	UdderO	Dairy C	A2	Sire
319009	ARKAN BT ZAMBEZI S3J	306	56	37	9	-605	-52	4.9	0.43	0.52	A2A2	BRAEDENE PAS TRIPLESTAR
319031	FREYDAN BT GLORY-ET	301	55	32	10	-399	-40	5.8	0.68	0.72	A2A2	BRAEDENE PAS TRIPLESTAR
319037	OKURA-TIRONUI BT MARCO-ET	289	56	34	11	-405	-43	1.5	0.40	0.48	A2A2	BRAEDENE PAS TRIPLESTAR
319005	BRAEDENE FAV TRANSPIRE	283	53	26	13	-699	-51	2.5	0.32	0.32	A2A2	DEEP RIVER PCG FAVOUR
319020	GLENUI GB LUCIAN	283	49	27	5	-527	-22	6.5	0.63	0.97	A2A2	GLANTON SS BALTIC ET S3J
319003	BAILEY LW DETECTIVE -ET	277	57	37	19	-227	-47	1.5	0.62	0.27	A2A2	LINAN INTEGRITY WINSTON
319034	OKURA TRIPLESTAR MATUA	263	55	34	22	-1	-31	0.2	0.22	0.61	A2A2	BRAEDENE PAS TRIPLESTAR
319016	SCOTTSDALE BT COOLCHANGE	258	55	41	1	250	-43	4.1	0.65	0.33	A2A2	BRAEDENE PAS TRIPLESTAR

Code	Name	gBW	REL	Fat	Prot	Vol	LWT	Fert	UdderO	Dairy C	A2	Sire
519011	SANDERS ACCOLADE	306	52	32	23	124	-1	3.7	0.90	0.73	A2A2	HYJINKS SNAPPER
519013	BUSY BROOK OUTLAW	268	55	39	29	347	-17	2.2	0.44	0.51	A2A2	BRAEDENE PAS TRIPLESTAR
519067	VAN STRAALENS HULK	267	58	46	20	838	22	6.3	0.41	0.53	A2A2	PRIESTS SIERRA
519078	BURGESS PRESTIGE-ET	265	58	40	22	100	-8	3.6	0.54	0.51	A2A2	BOTHWELL WT MAXIMA S2F
519034	GORDONS FLASH-GORDON	258	56	37	39	133	4	4.4	0.37	0.47	A1A2	LINAN INTEGRITY WINSTON
519062	ARKANS BARRIER	249	48	32	14	-151	17	7.8	0.77	0.68	A2A2	ARKANS PATRIARCH-ET
519063	ARKANS BREAK-AWAY	247	47	34	24	178	5	1.4	0.15	0.58	A2A2	HOWSES SPRINGFIELD

INDIVIDUAL PRICE

\$31.55 +GST

GENOMIC PACK

\$28.40 +GST

*LIC Data Source 14/10/2019

*Volume and InvestaMate discounts may apply



Keep a close eye on individual health and wellbeing of heifers

'SHOULD I BE CULLING MY HEIFERS OR GIVING THEM A SECOND CHANCE?'



By Rachel Bloxham, LIC Herd Improvement Technical Manager

Quite rightly, farmers tend to frequently question the fate of their heifers as a result of their young cows' productive performance during their first lactation.

By the time heifers get to the end of the lactation (ideally with four herd tests),

a range in performance will have been observed due to both.

- (i) management practice, and
- (ii) as the first-calvers establish rankings within their herd.

Generally there'll always be young cows that appear in the culling guide, because, unlike other age groups, they're yet to have any selection pressure (or culling pressure) applied to them.

Two-year-olds, milking twice a day, should generally produce 75% of what the average cow within the mature-age group does (within the same herd)

Despite the above, chance dictates there will be animals that turn out as

	Volume	Milkfat	Protein
Lactation 1 to 2	0.92	0.92	0.90
Lactation 1 to 3	0.90	0.90	0.89
Lactation 1 to 4	0.86	0.86	0.85

sub-optimal performers: whether this is due to genetics, or whether there are other factors at play, is what needs to be established.

What does the data tell us?

Research shows there's a strong genetic correlation between performance as a two-year-old and performance as a three-year-old. In fact, the genetic correlation is equal to, or greater, than 0.9 across all three production traits. These high levels continue across later lactations (table 1).

Table 1. Genetic correlations between lactations 1 and other lactations for production traits.

With everything else being equal, and no events impacting at an animal level, if a cow performs poorly in her first lactation there is a high chance she won't do any better in her second lactation and beyond.

However, genetics is only part of the equation when it comes to what an animal actually produces.

Genetics accounts for 30-35% (level of heritability for production traits) of the variation observed in production.

The remaining 65-70% of the variation is a result of environmental and management factors.

From an animal evaluation perspective, the system is designed to account for differing environment and management conditions (that affect the herd as a whole) by the use of contemporary groups (i.e. herd-mate comparisons).

This ensures like-for-like animals are only compared against each other (i.e. same age, herd, season of calving).

Factors like weather conditions (e.g. droughts) and different farming systems (e.g. system 2 versus system 4) are therefore taken into consideration, and get removed from the analysis when calculating indices.

At a phenotypic level, the correlation between first and second lactations is about 0.5.

The above demonstrates that, even though variation is observed, more often than not the same animals appear to produce poorly across both lactations.

But we know the nature of dairying isn't that simple.

To gain a better understanding of why farmers choose not to cull their first-calvers, LIC asked several Waikato based dairy farmers for their comments.

A common theme was a desire to understand if there was anything that occurred during the season that impacted an animal individually (i.e. health issues, dry quarters, hard calving).

As mentioned, factors that affect performance at a herd level are removed by the animal evaluation system.

"Data indicates a poor performer will still be a poor performer in the following season, but it's just as important to understand what's happening at the individual level." - Rachel Bloxham

Figure 1: Milk solids production - 2015-borns (May 2018 v April 2019)

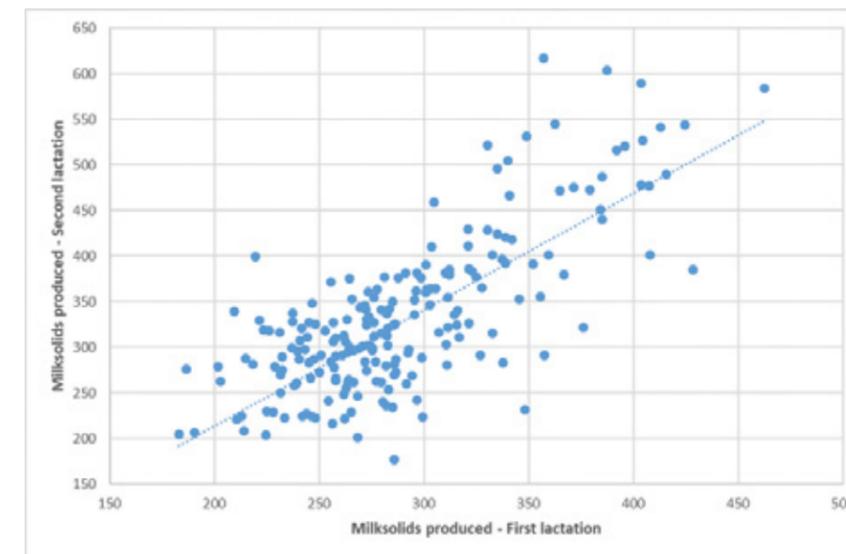


Figure 1 shows a comparison of milk solids production in first and second lactations for 220 spring-born animals (2015) in three Waikato herds that are known to avoid culling their first calvers.

Less obvious are factors that may affect an individual animal.

For example, did she suffer from a period of lameness, or was she holding milk due to strong, regular, heats? Not identifying these events, especially at the time of a herd test, could disadvantage the animal when it comes to assessing her performance compared to her herd mates. Use of herd test exception (abnormal) codes are encouraged to help identify these cases.

Reviewing past research indicates that the most important period of mammary growth (determining milk

yield) occurs during pregnancy and very-early lactation.

Any influencing factors that affect the heifer during this period could result in less than ideal udder development for that season.

It is therefore an important period of time to keep a close eye on the health and wellbeing of individual heifers.

Calving down for a second season possibly gives a young, promising, cow an opportunity to re-set herself and start afresh.

QUANTIFYING the environmental efficiency of LIC's BULLS

LIC has bred environmentally efficient dairy animals for some time, and here Tony Fransen reflects on recent data that illustrates just how far LIC's Premier Sires teams have come since 1989.



by Tony Fransen, LIC
Environment & Welfare
Manager

Tony Fransen

LIC employed Tony Fransen as environment and welfare manager in January 2019.

Tony's career to date includes:

- farm management up to 900 cows on a Waikato split calving farm;
- environmental advice for farmers regarding effluent system design, nitrogen regulations, farm environment plans, and good environmental farming practices; and;
- studying AgriScience at Massey University.

One of Tony's first tasks at LIC has been to calculate the environmental gains LIC has made through their Premier Sires breeding programme, and how this correlates to BW.

Nitrogen loss associated with cow urine patches and methane emissions from cow burps are demanding more attention due to their environmental effects, media interest, and regulatory change.

LIC has always focused on breeding and selecting for cows which efficiently convert the food they eat into milk production, while maintaining important attributes needed to maximise the productive life of the cow.

Since its inception in 1996, Breeding Worth (BW) has been, and still is, a great indicator of environmental efficiency.

It's a strong assumption then, that when it comes to improving both nitrogen and methane efficiency of cows, a key driver would be the animal's ability to maximise production output per kilogram of feed eaten.

Until now, however, the relationship between good genetic merit animals and nitrogen output and efficiency was yet to be formally quantified by LIC.

The calculations described in this article were done with three steps:

(i) by looking at a wider breeding bull population;

(ii) by looking at the Premier Sires bull teams, and;

(iii) by validating the findings with cow data.

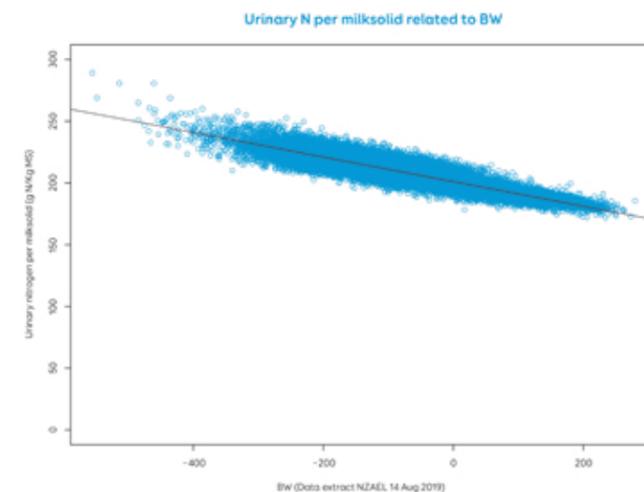
The first step was to use the NZAEL database of breeding bulls across all dairy breeds.

The analysis indicates that BW shows a good relationship with how much urinary nitrogen is produced by an animal per kilogram of milk solid produced (see graph 1).

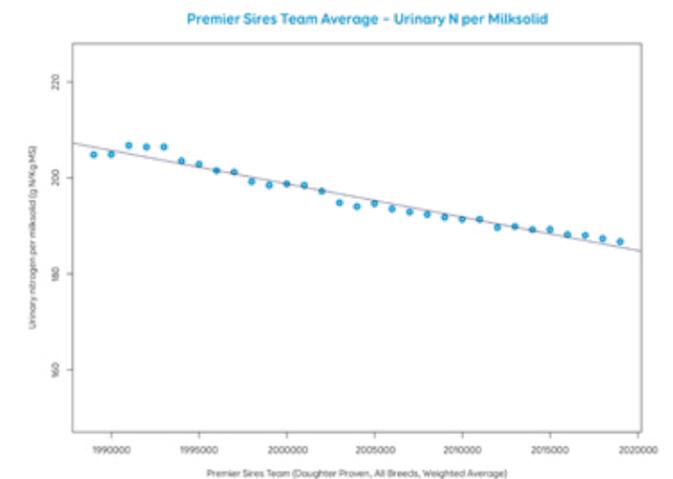
For every \$10BW increase, there was 1.0g less urinary nitrogen produced per kilogram milk solid.

According to Premier Sires bull data, urinary nitrogen per kg of milk solids has declined by 7% over 30 years

Graph 1



Graph 2



These results align with the DairyNZ research, with high BW and low BW cows in metabolic stalls comparing intake, output, and partitioning.

High BW cows showed greater nitrogen efficiency, higher levels of nitrogen being in milk protein and lower amounts of nitrogen in urine.

The second stage was to see how the LIC Daughter Proven Premier Sires team (including Friesian, Jersey and KiwiCross®) has improved over time.

Using the weighted average from the number of straws sold each year,

graph 2 shows how the urinary nitrogen calculated per kilogram of milk solid has progressively decreased by 0.22% per year (7% over 30 years) as LIC has pushed for greater animal efficiency.

LIC has made these improvements in environmental efficiency through BW being a sound measure of overall efficiency of a dairy animal.

This has enabled the breeding programme to select the best all-round genetics which has resulted in consistent genetic gain.

So when making decisions on a breeding programme, remember that BW is a key measure of the overall efficiency of the animal, including environmental efficiency.

¹Woodward S.L., Waghorn G.C., Bryant M.A., and Mandok K., (2011) **Are high breeding worth index cows more feed conversion efficient and nitrogen use efficient?**, DairyNZ, Proceedings of the New Zealand Society of Animal Production 2011. Vol 71: 109-113



SUMMER PLANNING

What resources are needed if the summer is great, average, or poor?



by Edward Hardie - LIC
National FarmWise Manager

As another summer approaches crucial on-farm decisions will need to be made including if and when to

- (i) provide additional supplement;
- (ii) change the milking frequency, and/or;
- (iii) dry cows off.

Decisions will become clearer as the season progresses, but some clarity can emerge now if farmers know their true profit margins (for example, what animals produce the most milksolids per kilogram of liveweight), and are therefore able to identify where the farm's genuine profitability lies.

FIRST THINGS FIRST

As the natural mate bulls enter herds at the tail-end of mating, check bull power is matching the number of cows cycling. It's safest to work on one bull per 20 to 30 cycling cows.

If you're doing all-AB, keep the heat detection aids in good order.

Use of short gestation length semen for the last 10-14 days of AB provides the advantage of mating for longer and lowering the empty rate, and retaining a relatively tight calving pattern.

Looking slightly ahead, ensure a pregnancy test plan is in-place (scanners get booked up quickly). Doing an early pregnancy test at 12 weeks can help with culling decisions, and in reviewing 6 week in calf rates.

STAY IN CONTROL & BE AGILE

When the mating period finishes, it's important the feed plan is reviewed for the summer months ahead:

- What feed, pasture, crops, and supplements are stockpiled and contracted? Is there enough to cover a tough summer?
- What if the weather is significantly different from what's planned, or milk prices change substantially? How can the feed plan, and livestock levels, be adjusted accordingly?

- How is pasture management best-optimised to achieve an effective rotation plan (including use of irrigation and fertiliser) to accomplish high-quality grass for milk production? Remember, it's imperative the farm stays within nutrient and water-use limits.
- What circumstances or timings will be the triggers for a change to the plan? i.e. what are the catalysts for progressively drying off, culling, or moving animals off farm?

CONTINGENCIES, ROUND LENGTHS, SUPPLY & DEMAND

Three summer feed budget scenarios can certainly help: For example, (i) a great summer; (ii) an average summer, or; (iii) a tough summer.

What resources are needed in each scenario?

A good plan of attack is to first re-confirm what your pasture cover is now, and what you intend to do based on current weather predictions.

Adjust the stocking rate and stock numbers early so pasture rotation can be lengthened in early summer - this is critical.

Plan fertiliser and nitrogen applications for late spring/early summer - generally this is a good time to get pasture cover accumulated.

The reason for adjusting round length out is to build Average Pasture Cover (APC), and to match rotation with the slowing leaf appearance rate.

Lengthening is done easily and quickly with supplements. However, if this is uneconomic, the farm at least needs to be lifting target pre-graze covers instead of cutting silage, and reducing areas allocated per day.

Other options include reducing demand. This can be done by changing the milking frequency and/or starting to cull cows that are empty or genuine culls.

From the middle of December any repeat offenders for mastitis or lame cows (that are older cows with low production worth or lactation worth figures) could be worth more by being culled: This has the effect of lowering demand and feeding remaining cows better.

Once January/February arrives and the farm has its first pregnancy test information, culling can continue on the re-checks that may be empty or are at least late-calving.

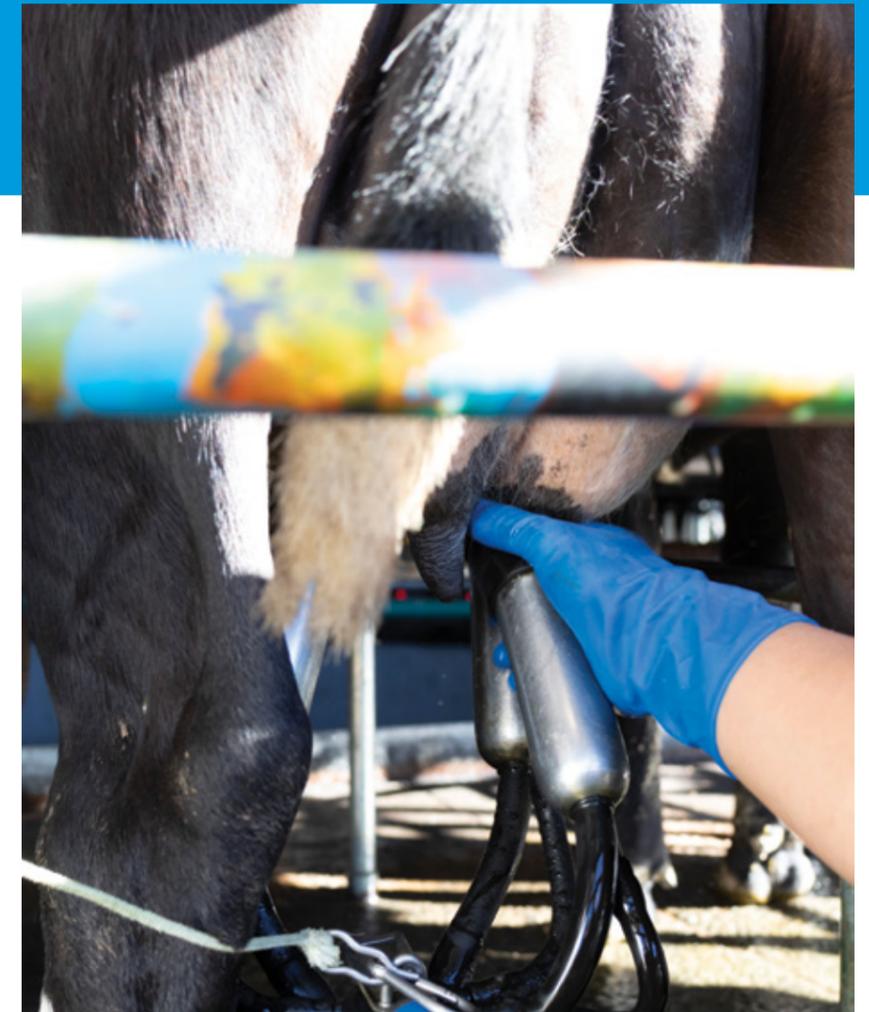
ALL ON-THE-SAME-PAGE

Make sure you and staff know what the plan is, and monitor the situation weekly to see if the plan needs tweaking or updating.

Undertake weekly pasture measurements (eg. walks, tow-behinds, eye-ometer, SPACE™).

Enter information in MINDA Land & Feed to identify paddock rankings and average pasture cover for checking against the plan. Regularly inspect any crops for growth progress and weed control; ensure there is some technical support for the crop maintenance programme.

Use herd test data and the body condition score (BCS) of animals to check cows are at optimum condition and performance for efficient milk production.



As the summer unfolds consider changes to the milking frequency.

Weigh young stock monthly, and enter this data into MINDA for future reference. Beware of animal heat stress and ensure there are mitigation options available.

As mentioned above, consider changes to milking frequency - there are several variations that can lie between once-a-day, three-in-two days, and twice a day. Depending on the time of year and how the summer unfolds, work out one that best suits the cows, your staff, and you.

THERE'S BANG-FOR-BUCK IN SEEKING HELP

For self help with setting up a plan, DairyNZ's summer management plan, accessed through the DairyNZ website, is a good guide.

If you need a hand or want your plan reviewed or modelled, book in a FarmWise advisor. They have access to effective modelling tools, which

combined with their experience, help to predict feed requirements and associated costings (which can be updated when situations change).

Money spent planning should be thought of as an investment rather than an expense. A robust plan provides a good basis for monitoring, reviewing, and adjusting as situations change.

If unexpected events occur seek help early, because this will help minimise unnecessary expense and can provide guidance on the best way to maximise profit.

Whatever happens there will be choices and options for your farming business.

Make good decisions, and make them early.

Best wishes for achieving your goals and a good profit this summer.

BREEDING MARVELLOUS! 25 YEARS PROVING THEIR WORTH IN WHAKATANE

From humble beginnings in Masterton, to steep learning curves in Manawatu and hard yakka in the Waikato, one sharemilking couple finally began business ownership near Whakatane, where they've since managed to adapt their cows to unique conditions - all while serving the greater good of national dairy genetics.

Although Rod and Jacquie McPherson have been part of LIC's Sire Proving Scheme (SPS) for 25 consecutive years, the herd itself has been proving the worth of young dairy bulls for at least 35 years.

As far back as 1983 the herd was owned by a sharemilking couple, the Simpsons of Matamata, who at the time were members of SPS. But in 1993 the McPhersons branched out in to the world of sharemilking, and it was then that Rod and Jacquie purchased the cows from the Simpsons.

"Back then the cows were all big Friesians," Rod says, "but we were heading across to the Bay of Plenty, and on this farm we realised the cows were far too heavy for the really soft, wet, soils we get - especially in spring."

WHAT SIZE DO YOU PREFER? YOU'D LIKE IT IN BLACK?

Despite belonging to the Sire Proving Scheme, the couple knew there was still a degree of influence they could have over the genetic make-up of the herd.

They decided to breed toward a mid-size progeny.

"Nowadays the herd is a real mix. It was in the mid-90's, well before KiwiCross® got commercially marketed, that I decided to put Jersey over them," Rod says.

The resulting hybrid vigour was strong and significant, and this was most noticeable in terms of fertility.

"We were getting empty rates as low as 3%, with the highest about 6%," Rod says. "Back then, in the 90s, it wasn't hard to pick cows that were cycling, the heats were strong."

Rod and Jacquie like a black cow, and some time ago they stopped using Jersey semen and went back to KiwiCross® and Friesian.

"I'm after a cow that's about mid-size, and I've had one or two stropky Jerseys so I'm happy to stick with the blacker cow for now," Rod says.

THE INFLUENCE & VALUE OF GENOMICS

Beside price, the McPhersons believe the biggest advantage of belonging to the Sire Proving Scheme has been recent advances in genomic screening, selection, and reliability.

"It leads to a better quality gene-pool from the start. Initially the motivation for belonging to the scheme was because we could purchase the semen for a good price... there's so many wheels turning at LIC, and I guess the price (of SPS-supplied semen) has shifted on the back of that," Rod says.



Jacquie and Rod McPherson

"But, over time, we've certainly seen a big shift in the value of the bulls we get access to, and that's a major driving force for us now. As an SPS client, the lower-performing bulls we get nowadays are probably as good, possibly better, as the best bulls we were getting 25 years ago."

Jacquie believes the progress in the quality of dairy animals is largely driven by advances in genomics and more sophisticated methods of selection.

"It seems LIC rules out certain genetics early on, for whatever genetic fault, like health traits, and that's different from 20 years ago when you didn't necessarily even know about any genetic risks," she says.

Rod concurs: "And being a sire proving farmer means you've got LIC looking in to the DNA of their bulls, and that's a cost we don't have to directly bear," he says. "All calves are DNA profiled to ensure the right sire is picked up, and I think that's a big factor when you look at the mis-mothering that goes on across the industry in general."

PREMIER SIRES SWANSONG

Rod and Jacquie have loved being part of the Sire Proving Scheme, and derive a good deal of pleasure in the knowledge that they're contributing to an 'industry good' cause.

"We've had our share of what I like to call my 'super-models'," Rod says, "ones with good conformation and depth, where we've hit the money button."

"We've had access to excellent bulls ahead of anyone else, and, at times, yes we've had to take genetics from what turned out to be average bulls - but overall, in the long-run, we're still on-par or slightly ahead of Premier Sires, so that's why we've continued on with SPS."

But Rod and Jacquie have plans for a change in lifestyle, and this will be their final year with SPS as they plan to exit the industry in the next four years or so.

This spring they're using Premier Sires Daughter Proven semen for the first time in their career.

"Our job with SPS has been relatively simple, and Ann (LIC's SPS manager) and her team have been easy to deal

with. We've just put the semen in to the animal of our choice, seen what's come out, (TOP) scored it accordingly, herd tested the daughter, and that's it.

"LIC's done the hard bit, compiling our information with all the other thousands of daughters across New Zealand, and picked a prospective bull from all that data, with a view to the bull making it all the way to Premier Sires."

Each year there are opportunities for farmers to become members of the Sire Proving Scheme. If you're interested in joining or finding out more, talk to your LIC Agri Manager.

www.lic.co.nz