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BULLETIN



CELEBRATING SUCCESS

WINTER 2021



STEP CHANGE!



by Malcolm Ellis, LIC General Manager NZ Markets

Okay, I am delighted to call it: In 2021 we are experiencing a genuine 'step-change' in the appreciation of the value of Herd Improvement and the significant positive impact quality cows have on the profitability of a given farm system.

This is all about farmers being realistic about what the future holds, and acknowledgement that environmental and regulatory considerations are more than likely going to impact the scale of the national herd down the track. As a sector we are now firmly centred in on the focus of 'If we are not going to be milking more cows - we need to be milking better cows'.

On this theme, I have great news - the opportunity in this space is significant!

I am absolutely delighted to see farmers up and down the country

putting an increased spot light on accelerating their rate of genetic gain with the confidence that their herd data is telling them this is an increased focus that is and will continue to pay dividends.

In recent times NZ dairy farmers have recorded annualised increased rates of genetic gain of approximately 9BW/year (that being the difference in measured genetic merit between one age group to the next).

Very quickly this 'rate of genetic gain' is becoming a well-recognised key performance indicator on farm and I want to see this continue and I want this measure to be right up there with the likes of the '6 week incalf rate' as an industry recognised measure. We are seeing a sharp increase in focus in this area and farmers have an appetite to make the boat go faster - enhanced efficiency of productivity and profitability on farm.

The use of fresh sexed semen over the most elite cows in the herd is on the rise as is the wider uptake in the use of genomically selected sires in particular through the increased use of the Forward Pack Premier Sires teams (more from Greg Hamill on the rate of this change on page 6).

The positive impact of these areas of growth are delivering measurable horsepower into the young animals that are set to join the national herd over the coming years and I have no doubt that through this increased focus we can change gear and experience nationwide gains in the order of 15-20 BW/year.

Current herd data tells a compelling story of the additional productivity and profitability of higher genetic merit cows when compared to those within the herd of lower rank - shifting the bar in the overall rate of gain will deliver the associated productivity gains within herd and collectively across the sector.

Make no mistake dairy is in a sweet spot right now and I will mention and celebrate Fonterra's opening projected milk price for the 2021-22 season having a mid-point of \$8. This is a great story and confirms NZ Dairy's strength in such uncertain times for humanity as the world continues to negotiate a global pandemic but we must lift the line of sight out to 2030 and beyond and I am adamant that an increased focus on cow efficiency makes the light at the end of the tunnel in that medium term considerably less murky.



It dawns on Peter and Julie Bradshaw that they're about to be recognised as the SPS Farmers of the Year at the Sire Proving Scheme's 60th birthday celebrations.

The cow growth days are over; now is very much the time to turn up the heat on Herd Improvement and the rate of genetic gain.

I wish our farmer shareholders all the very best as we review the largely successful 2020-21 season and embark on what 2021-22 may hold. All the key drivers appear to be well set at this time and farmers deserve to benefit over the short to medium term.

As I close my contribution to this edition of The Bulletin I wish to mention and acknowledge that in this month of June 2021 we have celebrated the 60th anniversary of the LIC Sire Proving - for mine hands down the most complete

structured progeny test programme in the world. Over 11,000 bulls have been a part of this scheme with the rich history starting in 1961. I salute all of the SPS farmers, LIC bull farm and laboratory staff as well as those that have contributed in particular to the Genetics and Livestock Selection teams over the years.

Celebrating the 60th anniversary was truly a memorable moment and milestone, this is the scheme that has contributed so much over the years and as farmers we have benefitted immensely.

All the very best,

Malcolm

Malcolm.

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Breeders' Day 2021:

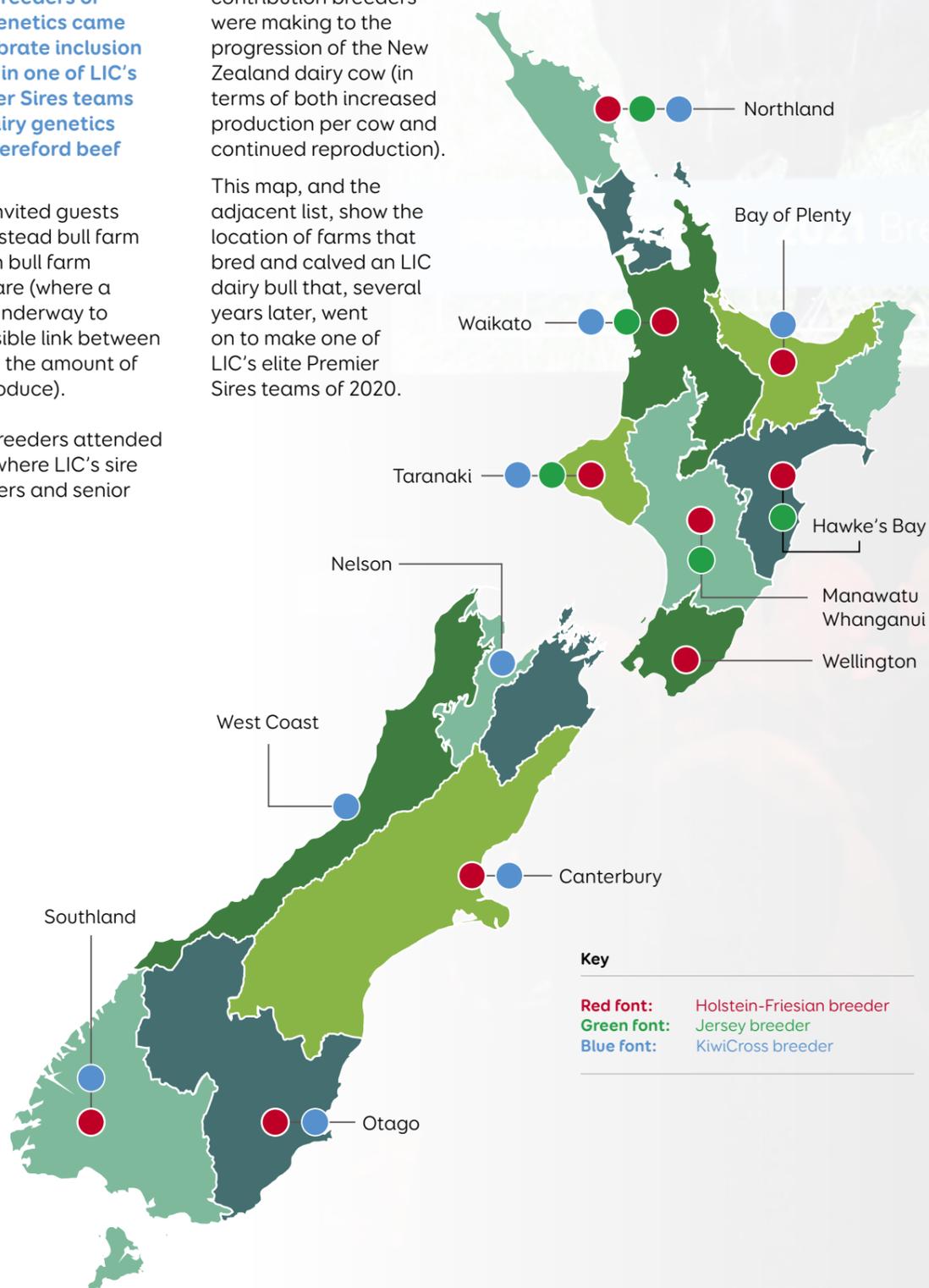
In early-May scores of New Zealand's best breeders of pastoral dairy genetics came together to celebrate inclusion of their progeny in one of LIC's numerous Premier Sires teams of 2020 (both dairy genetics and liquid SGL Hereford beef genetics).

During the day, invited guests toured LIC's Newstead bull farm and its Chudleigh bull farm in nearby Tauwhare (where a methane trial is underway to determine a possible link between bull genetics and the amount of methane they produce).

That night, the breeders attended a formal dinner, where LIC's sire selection managers and senior

management acknowledged the contribution breeders were making to the progression of the New Zealand dairy cow (in terms of both increased production per cow and continued reproduction).

This map, and the adjacent list, show the location of farms that bred and calved an LIC dairy bull that, several years later, went on to make one of LIC's elite Premier Sires teams of 2020.



BREEDERS OF LIC PREMIER SIRES TEAMS 2020: DISTRIBUTION OF ORIGINATING FARMS

Northland

Peter & Trixie Foote, Whangarei
Bellamy Family, Ruawai

Luke & Lyna Beehre, Hikurangi
Roger Shepherd, Whangarei
Williams Family, Okaihau

Roger Shepherd, Whangarei

Waikato

Brad & Claire Payne, Cambridge
Jennie Elliot, Otorohanga
Murray & Nikki Hawkings, Matamata
Robert & Anne Siddins, Thames
Steve & Sandra Pemberton, Matamata
Stu & Sarah Gordon, Morrinsville
Stewart & Kathryn Anderson, Otorohanga
Aidan & Sarah Stevenson, Waitoa
Murray & Julie Dickson, Te Awamutu

Alan & Vivienne Lockwood-Geck, Cambridge
Brett Thompson, Ohaupo
Cameron & Sheree Coombes, Ohaupo
Des Hickey, Ohinewai
Frank & Ida Van Heuven, Matamata
Graham & Glenys Bell, Te Aroha
John & Thelma Bailey, Te Awamutu
Kevin Ireland, Tokoroa
Mark & Diane Townshend, Ngatea
Murray & Janet Gibb, Taupiri
Neil & Eileen Bateup, Ohinewai
Richard Snodgrass & Cathy Foley, Ohaupo
Shaun Good & Michelle Adam, Otorohanga
Stewart & Kathryn Anderson, Otorohanga
Robert & Louisa Lowe, Waiuku
Wilson Family, Te Awamutu

Anthony & Rhonda Vogels, Paeroa
Barry & Wendy Howse, Matamata
Bill & Michelle Burgess, Matamata
Brad & Claire Payne, Cambridge
Dave & Karen Camp, Thames
David & Rochelle Van Straalen, Te Awamutu
Graham & Maureen Shaw, Cambridge
Ian & Pamela Storey, Ohinewai

Joel Riwhi, Hamilton

John & Thelma Bailey, Te Awamutu
Mark & Fiona Speake, Cambridge
Mark & Patricia Scott, Te Aroha
Peter & Johanna Crossan, Te Puke
Richard & Sue Woodward, Te Awamutu
Rowan Priest, Paeroa
Steve & Debbie Smith, Otorohanga
Stewart & Kathryn Anderson, Otorohanga
Jim & Judy Jackson, Morrinsville
Nigel Juby & Claire Wilkinson, Ohaupo

Bay of Plenty

Alan, Anne & Paul Looney, Opotiki
Andre Smith & Tessa Tiwha-Smith, Whakatane
Bruce & Debbie Dean, Rotorua
Geoff & Lynette Taft, Te Puke
Paul & Jill Langdon, Whakatane
Pete & Kerry Coster, Tauranga
Kevin & Felicity Clark, Waimana

Alan, Anne & Paul Looney, Opotiki
Bruce & Debbie Dean, Rotorua

Taranaki

Allan & Leonie Campbell, Opunake
Chris & Kerry Mullin, New Plymouth
John & Rosemary Oliver, Inglewood
Johnson Family, Hawera
Stefan Buhler, Hawera
Tom & Courtney Werder, Patea

Colin & Linda Megaw, Waitara
Brian & Beverly Maxwell, Waitara
Greg & Helen McCallum, Hawera
Rob & Alison Thwaites, Hawera
Tony & Lesley Landers, Hawera

Ben & Deborah Burmeister, New Plymouth
Eddie & Diane Jenkins, Stratford
James Jufferman, New Plymouth
Jim & Sue Webster, Waitara
Tom & Courtney Werder, Patea
Vaughan & Trudy Keegan, Stratford

Hawke's Bay/Manawatu/Whanganui

John & Wendy Allan, Palmerston North
Peter & Susan Allan, Featherston
Shaun & Anna Baxter, Dannevirke
Matthew & Suzanne Jackson, Woodville
Ray & Sandra Hocking, Carterton

Emslie Family, Norsewood
Huzziff Family, Foxton
Troy Hughes, Pahiatua

Nelson/West Coast

Hamish & Charlotte O'Donnell, Rai Valley
John & Donna Stewart, Harihari
Peter & Debbie Langford, Karamea
Fraser & Christine Macbeth, Nelson

Canterbury

Phil & Donna Lowe, Ashburton
Toni & Keri O'Connor, Timaru

John & Joanne Van Polanen, Ashburton
Paul & Pam Snoxell, Waimate
Steve & Nina Ireland, Temuka
Andree & John Blair, Waimate

Otago

Nathan & Amanda Bayne, Oamaru

Nathan & Amanda Bayne, Oamaru

Southland

Todd & Fleur Anderson, Winton
William & Emma Mehrtens, Riverton
Robert & Annemarie Bruin, Otautau

Tony & Wendy Roubroeks, Invercargill



111037-Beamer-5YR

BEAMING OVER BEAMER

It was all smiles earlier this year when LIC announced the latest bull to be added to its *Hall of Fame* at the co-operative's Newstead headquarters.

After siring more than 170,000 daughters for New Zealand farms, making him among the country's most prolific fathers, the Holstein-Friesian bull, San Ray FM Beamer-ET S2F (or 'Beamer' as he is known to farmers), was inducted during LIC's annual Breeders' Day event earlier this year.

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

Ray Hocking said he and Sandra had been proud to follow Beamer's success, seeing him initially selected for the LIC bull team in 2015, and then be so popular with farmers since that time.

Beamer's reputation was based on his high genetic merit, overall conformation traits, and ability to breed capacious daughters with good udders.

"Beamer has a lot of things that just 'click' with New Zealand farmers," Ray said. "His daughters are not overly tall but they are very wide. Production wise, he's also got great numbers and a perfect balance of protein to fat."

"As breeders we are very proud of his achievements. We know he has

delivered a lot of value to a lot of farmers around New Zealand."

LIC livestock selection manager, Simon Worth, said Beamer was the 58th bull to be inducted into the Hall of Fame, an honour which is reserved for animals that have delivered a significant contribution to the dairy industry (LIC's *Hall of Fame* dates back to 1954).

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

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

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

"He's always had a great nature too and is a favourite with our farm



Ray and Sandra Hocking flanked by LIC's Malcolm Ellis, L, and Simon Worth, R.

About San Ray FM Beamer-ET S2F

- Born in 2010, as a result of an embryo transfer
- Sired by Fairmont Mint-Edition - 105038 (a 2015 Hall of Fame inductee)
- Debuted in the Premier Sires teams in 2015
- 734,073 liquid inseminations (PS & SPS) and over 1 million total straws
- 170,000 daughters to date
- 92 sons and 52 grandsons for the artificial breeding (AB) industry
- BW 216/98 as of 24 April 2021
- 58th inductee, 26th Holstein Friesian bull inductee

How Beamer got his name - San Ray FM Beamer-ET S2F

'San Ray' is the name of his breeder's Stud.

'FM' refers to his sire Fairmont Mint-Edition.

Beamer - the name chosen for him by LIC Livestock Selection staff.

'ET' is because he resulted from an embryo transfer.

S2F is his registration status from the breed association.

staff - a quality that would be appreciated in his daughters too I'm sure.

"He enjoys a good scratch behind the ears and is often seen in his paddock sitting like a dog, waiting patiently and keeping an eye on his surroundings."

SOLID MILKER TURNS OUT BAKERBOY!!

Northland farmer Karen Baker says it came out-of-the-blue.

LIC had spotted something interesting in the DNA of a cow owned by Karen and her husband Pat.

Four years later, the couple are celebrating the inclusion of one of their progeny in LIC's Premier Sires Forward Pack, McKay BM Bakerboy ET S2F.

"We're your everyday dairy farmers - we've never done anything special or different on farm, so it's been a great surprise to us to see the bull go so far. It's been quite exciting for us because since the dam that LIC were interested in about four years ago, we've now got five contracted cows."

The couple initially received a letter from LIC, explaining the co-operative was interested in contracting a specific cow for embryo transfer work.

"We were so excited that LIC was taking an interest. They checked on her and analysed her DNA. The first year she did two lots of flushing and embryo transfers - that's where Bakerboy has come from.

"Getting a bull in the LIC (Premier Sires) team is something you don't really think about or specifically aim for. We're very proud, Pat is exceptionally pleased to have the cow chosen for the contract matings. As far as we know she had just good PW (production worth) when LIC noticed her, and at that stage she already had a two-year-old daughter coming through to our herd."



Pat Baker with Bakerboy at LIC's Newstead bull farm.

Bakerboy was born on the Paparua family farm that Karen and Pat lease (now managed by their son Kyle and his partner Becky).

"We had three bulls for LIC to look at that year (2019) from the embryo work. A member of the sire selection team visited the farm. LIC took two of the bull calves and Bakerboy made it in to the team.

"It's been a real thrill to see the bull in both the Sire Proving Catalogue and in this year's Genetics Catalogue. He's not even two years old."

For much of autumn 2021, Karen and Pat had been touring the South Island, so Karen said she had packed a book or two - one of the publications in particular had been frequently pulled out to show strangers and new friends: "I've got LIC's Genetics Catalogue with me to show people our bull as we travel around," Karen said.

"Our first day away on our travels this year was in Hamilton and we visited LIC. We were given a tour of the bull farm. They separated Bakerboy for us in the paddock and we took photos, it was fantastic to see him.

"Last year we got 30 straws of him, and the cows will calve with his offspring so we're spreading it around.

"We've got another seven (progeny) in-calf to the embryo flushing.

Hopefully LIC will get more bulls, but we'll be just as happy to get the heifers really - hopefully both sides of the equation are satisfied!"

Karen said she and Pat had always used "the Premier Sires bull-of-the-day."

"We don't go out to breed, we just want to milk better cows. All we do in terms of targeted mating is not use replacement AB semen for the bottom 10 percent of the herd - we use those cows to go to a natural mate Hereford. We do six weeks AB using LIC's technician service, then we put the bull out."



Karen & Pat Baker



by Greg Hamill LIC genetics business manager

The trend toward farmers' requirement for more replacements from their herd's best cows is where LIC's Sexed Semen and Forward Pack solutions come in. Sexed Semen will provide more heifers from specific cows, while Forward Pack's genomically-selected bulls will cut down on the generation interval, increasing the herd's rate of genetic gain.

it's imperative the focus turns to breeding better ones.

Sexed semen, genomics, and beef are the hot topics when our Agri Managers have been visiting on-farm.

With the annual rate of genetic gain being 9 BW, equating to a 5.9kg lift in milksolids each year, farmers are challenging their systems, their mating plans, and trying to achieve 15-20BW points in a year - thereby capturing the associated productivity gains that come with that.

The demand for liquid sexed semen is nearly 400% greater than what it was this time last year!

It's fair to say the incredible demand is at least partly-driven by a deeper understanding among farmers that if better gains in productivity are to be achieved, more replacements from their best cows will be required, while fewer replacements are desired from the less-productive herd members.

With the heightened demand for sexed semen, and through LIC's partnership with Sexing Technologies, part of LIC's campus is undergoing refurbishment as the sexing machines are housed on-site.

This will allow for increased efficiency in sorting the semen, and allows the ability for farmers on night AB runs to utilise the product (not previously possible).

Shortening the generation interval is another way of speeding up

rates of genetic gain, which is precisely what genomic technology allows the LIC Genetics team to do within its breeding programme.

With validation showing clear advantages for the Forward Pack teams over LIC's traditional Daughter Proven teams, we're once again seeing a significant lift in numbers in demand for teams that contain genomic bulls.

The solid differentials are no doubt a big reason why LIC now sees 70% of its genetics sales coming from teams that contain genomically-selected bulls.

As farmers try to capture more productive gains from their elite animals, we're also seeing a clear drive to stop drawing on dairy replacements from the bottom 10-20% of the herd.

Beef sales continue to grow. There's continuing demand seen in the short gestation products, as farmers also seek to capitalise on additional days in milk.

Last year LIC launched the HoofPrint index in its dairy section of the catalogue, and this year we've launched the BeefPrint index.

It's significant that farmers can now select dairy and beef sires that are more environmentally friendly when it comes to nitrogen or enteric methane emissions, so be sure to get familiar with what's now available in that space.

All the best for the start of the season - just like you, our aim is to keep on improving in 2021/2022.



by Simon Worth, LIC livestock selection manager

FROM THE BREEDERS' DESK

For LIC's Livestock Selection team it seems to have been a period of rightful celebration lately.

We've recently have the privilege of hosting the breeders of the 2020 Premier Sires teams, which, given the value we put on the relationship we have with our breeders, is a significant day.

The icing on the cake (and not something that takes place each year at Breeders Day) was celebrating the 58th bull to be inducted into the Hall of Fame.

Personally, it is an absolute honour to induct these bulls and this time we were able to recognise Ray and Sandra Hocking on behalf of the standout Holstein Friesian bull, San Ray FM Beamer ET S2F.

At the beginning of June LIC hosted about 80 current long standing Sire Proving Scheme (SPS) farmers, and past SPS members of the year, to mark the scheme's 60th birthday. This is an outstanding milestone for a scheme that has delivered

enormously to not only LIC shareholders, but to the national economy - and is recognised as being the most robust scheme in the world.

Given we have also recently celebrated our SPS manager Ann Scott's 40 years' service with LIC, there's been plenty to be proud of within Livestock Selection.

The industry has witnessed some outstanding sales of high indexing animals (many with LIC contracts) over the last month or two.

This too is certainly cause for celebration for the breeders involved, and reward for years of passion and hard work. It is also cause for celebration that these high indexing, and well balanced females, are being recognised as efficient and very profitable animals.

As a team we also celebrate Adrian Young who joined the team in February this year as Senior Sire Analyst. Over the next few pages Adrian, Danie and Kelli will take you

through some of the highlights of the various 'colours' and touch on just a few of the bulls set to make an impact this year.

All the best for winter, the next update will be in spring where we look forward to highlighting the up-coming graduates.

I'm confident we'll once again be celebrating!



2021 SPS farmer of the year
Julie & Peter Bradshaw

The Bradshaws were named LIC's SPS Farmers of the Year at the celebrations marking the scheme's 60th year.

Black & White Bull Slam-Dunk (& a Splash of Supreme Cow Quality)



by Kelli Buckley, LIC Bull Acquisition Manager

For the first four months of this year I've had the pleasure of putting on my gumboots and travelling the country to inspect our future bull dams.

As the Holstein Friesian breed is continuously and progressively developing, nothing was more evident to me than viewing well-bred, all-round efficient cows in the paddock.

It was incredibly reassuring to see the quality of cows we have in our Friesian breeding scheme, and is a true reflection of the hard work and dedication that the breeders are putting in.

We all understand that the efficiency of seasonal calving, pasture-based milk production

systems is dependent on achieving balance between feed demand, pasture growth, and what is utilised.

About 50% of the variable costs for milk production can be attributed to feeding, and higher-producing cows have to metabolize greater volumes of feed.

Having the combination of high milk production with strong components, impressive health traits, and all fitting into a medium sized frame, means we will achieve farm efficiencies with the cows we breed and the herds we develop.

The black-and-whites have shown that over the past 20-plus seasons they have been able to hold consistent the liveweight of the breed while driving genetic gain (see graphic on the adjacent page).

Collectively, the Holstein Friesian cows of New Zealand have been generating the industry average of 9BW points of genetic gain a year without compromising the size of the animals.

With three in four heifers reared being sired by LICs sires, it's easy to see the impact our bulls are having on the national herd.

Sound health, solid milk production, high components, well-attached udders, medium frame, easy calvings, and longevity

are what a bull's proof is likely to express. There are several sires that fit this profile, and below I list some of the young ones being marketed by LIC this year.

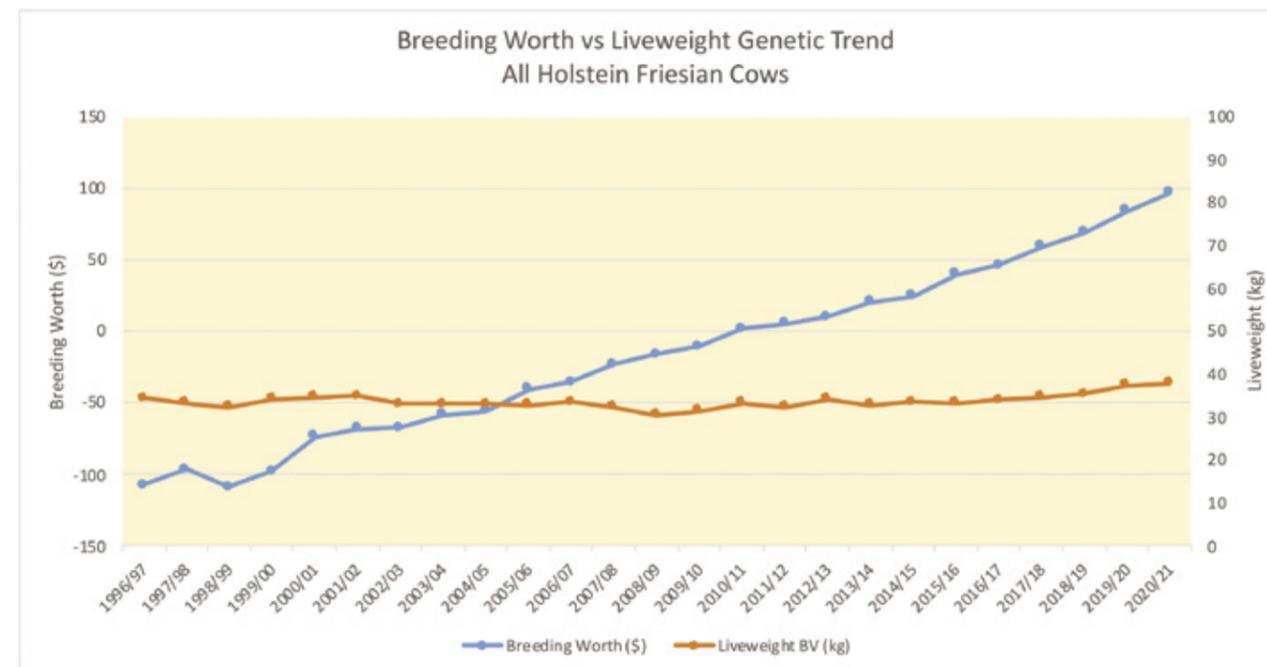
Indeed, there are several sires in the branch that are bred for this type of profile, but the following bulls appear to fit these specifications closer than most.



Two-year-old daughter of 117088 Spring River OL Scout S2F

117088 Spring River OL Scout S2F. A Legacy son that offers the complete package, with a 205 gBW, combined fat and protein BV of 90kg, and liveweight at 41.5, Scout will no doubt add strength in the udder at 0.54 and bring efficiency to his daughters.

Scout's dam Spring River P Suzy has consistent production with her LW at more than 400. She has also continued to produce bulls for LIC, with two still to come through with their proofs. Phil and Donna Lowe from Ashburton are no strangers to breeding top bulls for the industry.



120021 McKay BM Bakerboy

120021 McKay BM Bakerboy Mint-Edition free! For those looking for an outcross, look no further. Bakerboy is a Maxima son which reflects nicely in his TOP.

A very respectable 251 gBW and some very solid production traits, he's the perfect bull to use over cows if farmers are wanting to keep outcross, or on those tricky pedigrees where a suitable bull is a struggle to find.

A really special moment for Pat and Karen Baker with the first bull ever tagged on farm being marketed this season.

Another strong partnership between LIC and Holstein Friesian New Zealand comes in the form of the Discovery Project, which was established to ensure that the superior genes in our industry's best cow families are identified,

packaged up, and disseminated in the shape of elite sires.

Only a limited number of the country's best heifers are accepted into the Discovery Project every year, and when the result of its work is **120080 Tronnoco M Saquoon-ET S3F**, the value of the joint venture could not be better expressed.

Saquoon is a fine example of Friesian efficiency with type, high components, and positive fertility.

With combined solids of over 80kgs (while not being overly high volume), and only 53kgs for liveweight, he exudes efficiency. Note also he doesn't compromise much for the high components and great type. The additional bonus for Saquoon is that he's also A2A2.

Bred by long time supporters of The Discovery Project Tony and Keri O'Connor from the Tronoco Stud in Timaru.

117090 Tronnoco MH Samba-ET-S2F. A credit to what this Hothouse son offers, Samba will be on LIC's 'Sires of Sons' list for 2021 for use in elite embryo transfer and contract mating programmes. As a rare quadruple threat on index, production, type, and A2/A2 status, Samba offers significant value.

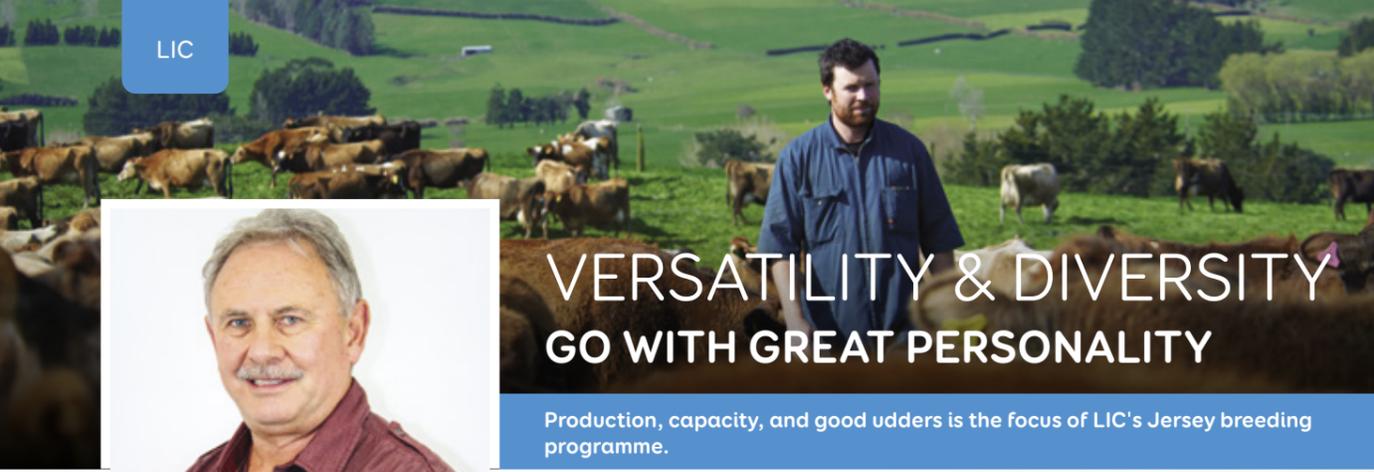


Two-year-old daughter of 117090 Tronnoco MH Samba-ET S3F

At 193 gBW (April data) with 35kg of fat and 49kg of protein to his name, he ranks among some of the highest-producing bulls available.

On the conformation side, Samba is near-impossible to fault. With a dairy conformation gBV of 0.40, a front udder gBV of 1.04, and an udder overall gBV of 0.91, he is most definitely an udder improver. Another exceptional sire that resulted from the Discovery Project from the Tronnoco stud, bred by Timaru's, Tony and Keri O'Connor.

So the stage is certainly set. In these times of solid milk returns, the black-and-whites are set to steal the show over the next few years, and beyond. Farmers lucky enough to milk daughters of bulls like the ones profiled above have booked themselves premier seats, and they're in for an entertaining and rewarding time. Strap yourselves in.



VERSATILITY & DIVERSITY GO WITH GREAT PERSONALITY

Production, capacity, and good udders is the focus of LIC's Jersey breeding programme.



by Danie Swart, LIC bull acquisition manager

Travelling throughout the country over the past few months inspecting hundreds of contract mating cows, I've been privileged to once again observe the sheer quality of Jersey cows on New Zealand farms.

This is especially so when it comes to production, capacity, and good udders - and I'm convinced the Jersey breed is punching above its weight.

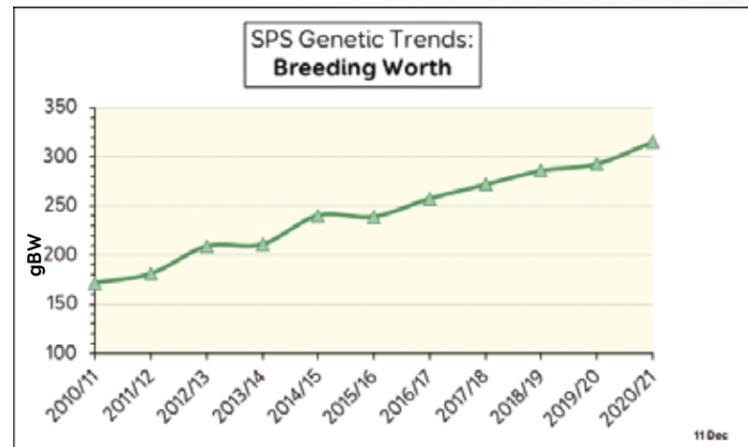
Genetic Gain & Production of LIC Jersey bulls

The LIC Sire Proving Scheme (SPS) young sire intake during the past 10 years shows a significant increase in gBW, from 170 in 2010 to 315 in 2020.

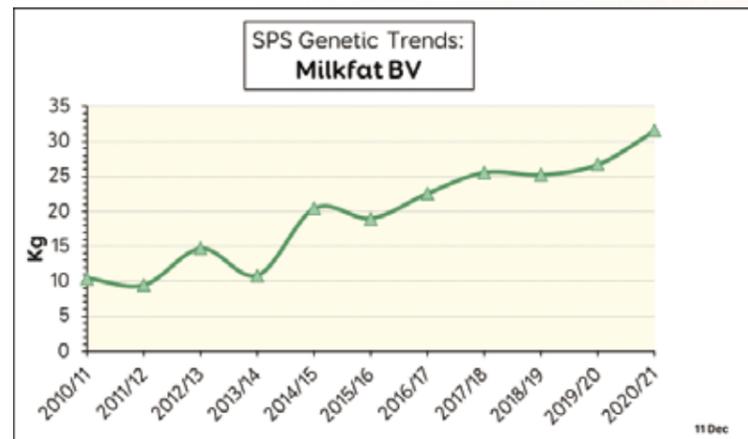
In the same timeframe, overall production and liveweight has seen similar trends, with a massive increase in the fat and protein breeding values (BVs).

It therefore stands to reason that breeding an efficient, larger-framed Jersey cow will ultimately prove to be highly competitive in all feeding systems. LIC's breeding programme has anticipated this for some time, and recently, that's precisely what LIC shareholders have been asking for.

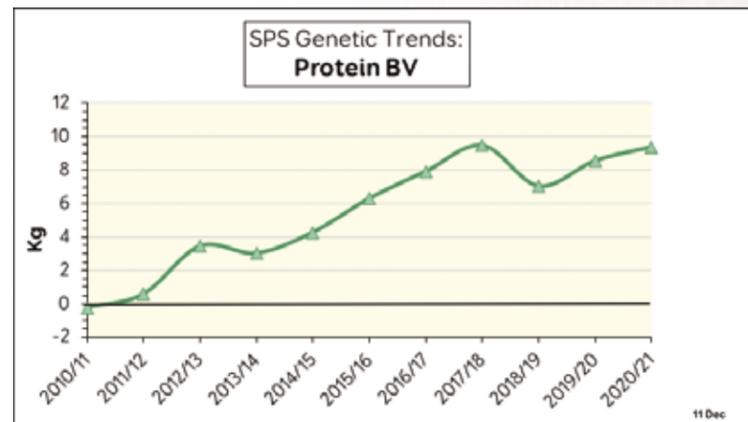
The trends in gBW, production, and liveweight breeding values (BVs) during the past 10 years is illustrated on the following graphs:



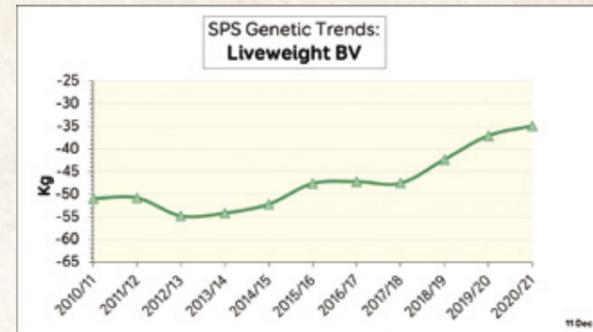
170 gBW increase to 315 gBW



10kgs of fat gBV increase to 31kgs



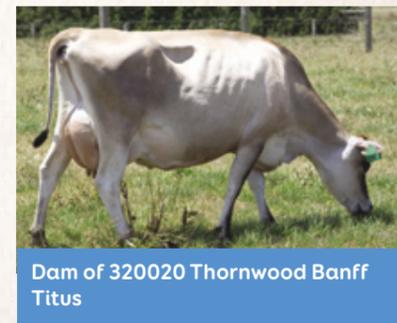
-0.1kgs of protein gBV increase to 9.5kgs



Live Weight increase from a -52 gBV to -35.

As many industry players are aware, the Once a Day (OAD) milking regime is another system that fits the Jersey breed like a glove.

High milk solids percentages and good udder BVs make Jersey the ideal breed to make the transition from twice a day milking to once



a day. When on OAD, Jersey cows are less likely to be culled due to udder break down and low production.

Because of this, fewer replacements are needed.

The graph above indicates the average udder overall gBV of the SPS Jersey young bull intake. The gBV improved from 0.12 to 0.52 over the past decade, which has resulted in cows with significantly better udder attachments.

Current bulls that could be considered as stand outs for udder overall are Trigger, Superman, Magnify, Popeye, Berkly, and Titus.

SEXED Jersey

Demand for Jersey Sexed Semen is significantly up on last year.

It seems many farmers are now capitalising on the opportunity

to mate yearling heifers and their best cows to sexed semen, with a view to dramatically increasing the rate of genetic gain in their herds.

Some of the best genomic young bulls are featured in the potential Premier Sires Jersey Sexed team 2021.

The team presents a formidable look, boasting an average of 328gBW, high production BVs, and impressive fertility BVs (see the table below).

Many of these bulls are out of outstanding, proven, cow families and good examples of this are Titus, Lucian, Marco, and Landis.

AB Code	Bull Name	BW	Rel %	Breed Split	Protein BV (kg)	Milkfat BV (kg)	Milk BV (ltrs)	Lwt gBV (kg)	Fert gBV %
320036	CHARTERIS COJACK MAKA	377	51	J16	10.7	33.4	-623	-59	2.6
320027	CHARLTONS MISTY MAGNIFY	366	59	J16	10.8	36.8	-442	-31	7.4
320020	THORNWOOD BANFF TITUS	353	52	J16	11.4	29.8	-501	-30	4.9
320035	SHELBY HOSS LATITUDE	334	58	J16	11.4	38.3	-474	-32	3.0
319018	GLENUI GB LANDIS-ET	330	57	J16	12.3	29.9	-416	-27	3.2
319020	GLENUI GB LUCIAN	320	55	J16	7.1	28.8	-553	-20	6.2
319066	TIRONUI GB MOTAGE-ET	320	58	J16	12.6	35.2	-223	-23	3.0
319037	OKURA TIRONUI BT MARCO ET	316	62	J16	10.6	30.9	-493	-37	1.6
319008	ARKAN BT ASTEROID-ET S3J	310	62	J16	4.3	28.2	-729	-41	4.2
320031	GLENUI WALKER LEBRON ET	309	58	J16	4.3	25.2	-463	-46	3.0
318035	SHELBY BC LOTTO ET S3J	309	63	J16	12.0	26.9	-426	-33	4.3
320014	EVLEEN GL LIGHTHOUSE	304	52	J16	7.9	35.0	-327	-27	2.1
Expected team weighted average		328	96		9.7	31.4	-471	-34	3.8

DIVERSITY JERSEY FUTURE JOINT PROGRAMME

One of the LIC's objectives every year is to select bulls that deliver the desired rates of genetic gain while providing adequate genetic diversity.

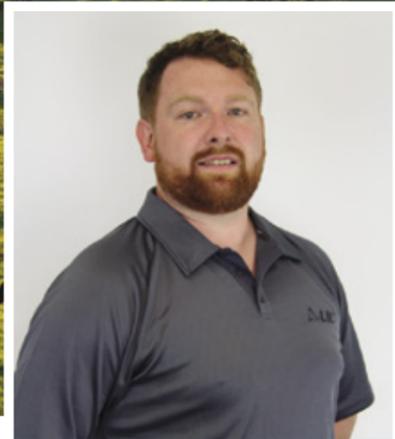
In the past five years LIC has partnered with Jersey NZ in a programme called Jersey Future.

The objective of the partnership is to purchase a team of diverse young Jerseys out of elite cow families utilising the latest genomic technology.

These 21-code yearling bulls can be purchased via Jersey NZ.

The first proven successes from the Jersey Future programme are marketed through LIC: **Little River Trident S3J** and **Paspalum OI Limelight** have left outstanding daughters across New Zealand, and are proving their high genetic merit.

Another Jersey Future 20-code bull, **Thornlea Misty Topshot ET**, has been selected for the potential LIC Premier Sires Forward Pack for 2021, and he promises to bring performance and diversity to the team.



by Adrian Young,
LIC senior sire analyst

When it comes to balance it doesn't get better than the production of Friesians paired with the efficiency of Jerseys.

The best of both worlds

The KiwiCross team is going from strength to strength, with an all-round team that shows few, if any, weaknesses, and is not dominated by one or two key players. While it's always a pleasure to have superstars like Sierra and Solaris, what really matters is depth across the paddock.

And when it comes to balance, it doesn't get better than the production of Friesians, paired with the efficiency of Jerseys.

The livestock selection team have just finished dam inspections for the coming year's contract matings. We saw plenty of amazing cows, and they'll be valuable contributors to LIC's breeding

programmes in the years ahead.

Feedback and discussions between farmers and LIC's livestock sire selection team suggests a common desire among farmers for more progress in fertility and udder overall breeding values.

Currently the average BVs in the Premier Sires Kiwicross teams sit at 2.9 fertility gBV and 0.54 udder overall gBV, figures that represent the strongest values across all breeds in these traits, and well above national averages in KiwiCross herds (0.7% fertility gBV and 0.16 udder overall gBV).

Using KiwiCross Premier Sires across your herd provides the best

opportunity to lift particular traits, specifically those which were most desired in the initial feedback from the National Breeding Objective review.

The continued strength of KiwiCross is recognised in its increased usage across the national herd, with more than 1.3 million straws of Kiwicross semen used in the past year.

When it comes to size and liveweight, farmers have asked for more consistency among Kiwicross progeny, and LIC's sire selection team has been fast to act on this.

The average liveweight gBV among the Premier Sires bull teams is -1kg (see table). The base cow in animal evaluation with a 0 liveweight gBV

KiwiCross Team	gBW/Rel %	Fat & Protein combined BV (kg)	Fertility gBV %	Udder Overall gBV	Liveweight gBV (kg)
Forward Pack	319/98	68	3.0	0.54	1
Sexed Semen	317/97	64	2.7	0.48	-4
D'ter Proven	303/99	66	3.0	0.61	1
Average of teams	313/98	66	2.9	0.54	-1



Dam of 520057 Bells Pierce

has a mature liveweight of 467kg: Mated to the Premier Sires bull teams, we will expect to create a mature cow liveweight between 450 and 500 kgs.

Depending on the size of cows, if the Premier Sires bull teams are used across an average liveweight gBV herd of -1kg, it will maintain a mature cow liveweight between 450kg and 500 kgs.

In both the LIC *Genetics Catalogue* and in LIC's Premier Sires teams, some genomic bulls to keep an eye out for are:

520057 Bells Pierce. He sits at 316 gBW and is a really well balanced bull from Graham and Glenys Bell's stable in Te Aroha. Pierce has an udder overall gBV of 0.91, and boasts some great production with 63 kgs combined fat and protein BV and a very respectable fertility gBV of 2.4%. Pierce was used as a sire of sons last year, and we have big belief in this Sheperds Egmont son whose dam is sired by Castlegrace Mako.

Another exciting sire is **518038 Werders Premonition.** A Sierra son bred in Patea by Thomas and Courtney Werder, he's F8J8 with excellent TOP BVs. His somatic cell count gBV is a massive advantage, sitting at -0.29; with targeted use of antibiotics at dry off now emerging as a non-negotiable,

Premonition should be a great solution in this space.



Dam of 518038 Werders Premonition

A third genomically selected sire is an F7J9 bull bred by Nick and Mary Dowson in Tauranga, **520033 Dowson Honenui-ET.** He's outstanding at 1.05 on udder overall gBV, with capacity gBV sitting at 0.58.



Dam of 520033 Dowson Honenui -ET

A Greenwell Blackhawk son with 64 kgs of milksolids gBV, and a fertility gBV of 6.3%.

He's also an A2A2 bull who has been used as a sire of sons and

LIC's livestock selection team is very excited to see how his sons will genomically test next spring.



Daughter of 515025 Speakes Slipstream

A proven option who is still doing the business is **515025 Speakes Slipstream**, bred in Cambridge by Mark and Fiona Speake.

A Manzello son from a Mint-Edition cow, he has rock solid pedigree, and Slipstream simply continues that tradition.

An F6J10 bull with a proven 1.1 udder overall gBV, he's also easy calving and would be an ideal bull for crossing on Friesian heifers; crossed with an F16 (Full Friesian) animal, he would create F11J5 offspring with great udders and also massive fertility, with Slipstream boasting a 6.6% fertility gBV.



515025 Speakes Slipstream

All bulls mentioned are A2A2, and feature in LIC's 2021 *Genetics Catalogue* and Premier Sires teams: These bulls would not be out of place in AB banks on any farm around the country!

Potential Spring 2021 Holstein-Friesian *Daughter Proven* Team

Sire	Sire
117068 MEANDER SB ARROW-ET S2F	116036 ARKAN MGH BACKDROP-ET S2F
116019 WERDERS DE OVERTIME S1F	116122 SPRING TRALEE BASS-ET S2F
117051 BUSY/BROOK SB FORTUNE S2F	115107 LIGHTBURN BLADE GUSTO
117038 TANGLEWOOD GL HARDY	115046 TRALEE GB RESONATE-ET S3F
114007 BUSY/BROOK WTP VECTOR S3F	112032 JACLES BOY JAKS S2F
115077 TAFTS WM TRANQUIL-ET	116001 FOOTEHILLS BG LINCOLN S1F
116015 PAYNES BG ARCHIE S1F	117035 BELLAMYS MH GAMBIT-ET S2F
115021 GORDONS AM LANCELOT S3F	117088 SPRING RIVER OL SCOUT S2F
117033 MCKENZIE SB MIGHTYMAC S2F	117090 TRONNOCO MH SAMBA-ET S3F

WEIGHTED AVERAGES OF PREMIER SIRESM - gBW\$230/99%

Management	-0.5	0	0.5	1	gBW/Rel%	\$ 230/99
Adapts to Milking	0.36			quickly	Milkfat	37 kgs
Shed Temperament	0.35			placid	Protein	35 kgs
Milking Speed	0.23			fast	Milk	622 Litres
Overall Opinion	0.46			desirable	Liveweight	36 kgs
Conformation	-0.5	0	0.5	1	Total Longevity	482 days
Stature	0.47			tall	Milkfat %	4.9%
Capacity	0.52			capacious	Protein %	4.0%
Rump Angle	-0.01			sloping	Heifer Calving Dif	2.1%
Rump Width	0.40			wide	Cow Calving Dif	0.9%
Legs	0.01			curved	Fertility	1.8%
Udder Support	0.44			strong	SCC	0.17
Front Udder	0.39			strong	BCS	0.12
Rear Udder	0.30			high	NB: the reliability of a team of bulls is always higher than using just one bull.	
FrontTeat Placement	0.14			close	Date 21/05/2021	
Rear Teat Placement	0.27			close	Shaded bulls include daughter information	
Udder Overall	0.42			desirable		
Dairy Conformation	0.52			desirable		

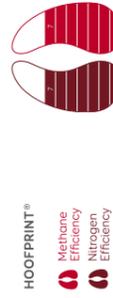


Potential Spring 2021 Holstein-Friesian *A2A2* Team

Sire	Sire
120002 MILL-RIDGE TS FLEX-ET S1F	118071 GLENMEAD SB TRAPEZE S1F
120035 MAH SUPER STARDUST S1F	120045 WOODCOTE VHR LUCID-ET S1F
118053 GREENWELL GR GOVERNOR S1F	120063 MATTAJUDE VR BRUTE-ET S1F
120055 DICKSONS VR MERGER-ET S1F	119081 BUSY/BROOK CONVICT-ET S1F
120088 BALDRICKS WD INTEL-ET S2F	
119002 BELLAMYS DM GALANT-ET S1F	
120056 GARDNER BM GUARDIAN S2F	
119065 MEANDER TD AZURE-ET S1F	
120041 MAKKERS MONEYMOON S2F	
120080 TRONNOCO M SAQUOON-ET S3F	

WEIGHTED AVERAGES OF PREMIER SIRESM - gBW\$244/97%

Management	-0.5	0	0.5	1	gBW/Rel%	\$ 244/97
Adapts to Milking	0.39			quickly	Milkfat	41 kgs
Shed Temperament	0.37			placid	Protein	34 kgs
Milking Speed	0.20			fast	Milk	501 Litres
Overall Opinion	0.49			desirable	Liveweight	42 kgs
Conformation	-0.5	0	0.5	1	Total Longevity	516 days
Stature	0.68			tall	Milkfat %	5.1%
Capacity	0.39			capacious	Protein %	4.1%
Rump Angle	-0.13			sloping	Heifer Calving Dif	1.9%
Rump Width	0.47			wide	Cow Calving Dif	0.8%
Legs	-0.02			curved	Fertility	1.3%
Udder Support	0.48			strong	SCC	0.02
Front Udder	0.47			strong	BCS	0.03
Rear Udder	0.24			high	NB: the reliability of a team of bulls is always higher than using just one bull.	
FrontTeat Placement	0.24			close	Date 21/05/2021	
Rear Teat Placement	0.38			close	Shaded bulls include daughter information	
Udder Overall	0.46			desirable		
Dairy Conformation	0.48			desirable		



Potential Spring 2021 Holstein-Friesian *Forward Pack* Team

Sire	Sire
117068 MEANDER SB ARROW-ET S2F	119003 BELLAMYS AB GALAXY S2F
116019 WERDERS DE OVERTIME S1F	119014 BUELIN BM EQUATOR S2F
117051 BUSY/BROOK SB FORTUNE S2F	120062 DIACKS BM SOLUTION S2F
117038 TANGLEWOOD GL HARDY	120083 SPRING RIVER MH BERT S1F
114007 BUSY/BROOK WTP VECTOR S3F	120053 DICKSONS MR POLL-P-ET S2F
115077 TAFTS WM TRANQUIL-ET	120021 MCKAY BM BAKERBOY-ET S2F
120001 MILL-RIDGE TS FINN-ETS1F	118068 BAGWORTH GI ORIGINAL S3F
120073 MEANDER TS ALLOY-ET S1F	118031 DICKSONS HD MYTH-ET S1F
119013 TANGLEWOOD MD REEF-ET S1F	120052 DICKSONS GE MALONE S1F

WEIGHTED AVERAGES OF PREMIER SIRESM - gBW\$261/98%

Management	-0.5	0	0.5	1	gBW/Rel%	\$ 261/98
Adapts to Milking	0.37			quickly	Milkfat	40 kgs
Shed Temperament	0.35			placid	Protein	31 kgs
Milking Speed	0.22			fast	Milk	395 Litres
Overall Opinion	0.48			desirable	Liveweight	30 kgs
Conformation	-0.5	0	0.5	1	Total Longevity	522 days
Stature	0.45			tall	Milkfat %	5.2%
Capacity	0.33			capacious	Protein %	4.1%
Rump Angle	-0.04			sloping	Heifer Calving Dif	1.8%
Rump Width	0.45			wide	Cow Calving Dif	0.4%
Legs	-0.01			curved	Fertility	2.9%
Udder Support	0.41			strong	SCC	0.12
Front Udder	0.29			strong	BCS	0.04
Rear Udder	0.32			high	NB: the reliability of a team of bulls is always higher than using just one bull.	
FrontTeat Placement	0.02			close	Date 21/05/2021	
Rear Teat Placement	0.24			close	Shaded bulls include daughter information	
Udder Overall	0.36			desirable		
Dairy Conformation	0.42			desirable		



Potential Spring 2021 Holstein-Friesian *Sexed Team (A2A2)*

Sire	Sire
120031 BELLAMYS GG GURU-ET S1F	119008 POTO GR CHOICE S1F
120005 CULGLEN BF ILLUSION S2F	119049 WITTENHAM MG ALPINE S2F
118001 WAIMATA SB RANSOM-ET S2F	120077 CRANIEF MAXIMA MAGE S1F
120040 MAKKERS BUDDYBOY S2F	118049 DICKSONS DM LEVI-ET S1F
119048 RIVERBANK BBL STATION S1F	119033 LIGHTBURN FREE RANGE-ET
118042 DICKSONS MH MASON-ET S2F	
120051 DICKSONS BM METEOR-ET S2F	
120065 CAVALIER SS RIVAL-ET S2F	
120026 BELLAMYS DM GLIDER-ET S2F	
120064 JOHNSONS MH ROULETTE S2F	

WEIGHTED AVERAGES OF PREMIER SIRESM - gBW\$238/97%

Management	-0.5	0	0.5	1	gBW/Rel%	\$ 238/97
Adapts to Milking	0.46			quickly	Milkfat	34 kgs
Shed Temperament	0.46			placid	Protein	33 kgs
Milking Speed	0.15			fast	Milk	550 Litres
Overall Opinion	0.53			desirable	Liveweight	30 kgs
Conformation	-0.5	0	0.5	1	Total Longevity	562 days
Stature	0.43			tall	Milkfat %	4.9%
Capacity	0.36			capacious	Protein %	4.0%
Rump Angle	-0.09			sloping	Heifer Calving Dif	1.2%
Rump Width	0.39			wide	Cow Calving Dif	0.0%
Legs	-0.03			curved	Fertility	2.0%
Udder Support	0.48			strong	SCC	-0.11
Front Udder	0.43			strong	BCS	0.07
Rear Udder	0.36			high	NB: the reliability of a team of bulls is always higher than using just one bull.	
FrontTeat Placement	0.19			close	Date 21/05/2021	
Rear Teat Placement	0.36			close	Shaded bulls include daughter information	
Udder Overall	0.49			desirable		
Dairy Conformation	0.43			desirable		



Potential Spring 2021 Jersey Daughter Proven Team

Sire	Sire
316039 ULMARRA TT GALLIVANT	317061 LITTLE RIVER TRIDENT S3J
316036 FOXTON PG COYOTE ET	317041 FLAXMILL PCG GALAXIE
313023 CRESCENT EXCELL MONOPOLY	
317052 LOCKHART OI JOEL JC15	
315045 GLENUI DEGEE HOSS ET	
316009 TIRONUI LT BESIEGE ET	
317006 WILLIAMS PCG TENOR	
317060 PASPALUM OI LIMELIGHT	
314004 BELLS OI FLOYD S3J	
317049 SHELBY SS LORENZO S3J	

WEIGHTED AVERAGES OF PREMIER SIRES - gBW \$316/99%

Management	-0.5	0	0.5	1	gBW/Rel%	316/99
Adapts to Milking	0.30			quickly	Milkfat	32 kgs
Shed Temperament	0.34			placid	Protein	13 kgs
Milking Speed	0.17			fast	Milk	-211 Litres
Overall Opinion	0.40			desirable	Liveweight	-45 kgs
Conformation	-0.5	0	0.5	1	Total Longevity	446 days
Stature	-0.83			tall	Milkfat %	5.7%
Capacity	0.53			capacious	Protein %	4.3%
Rump Angle	-0.13			sloping	Heifer Calving Dif	-2.1%
Rump Width	-0.03			wide	Cow Calving Dif	-1.2%
Legs	0.09			curved	Fertility	2.5%
Udder Support	0.37			strong	SCC	-0.12
Front Udder	0.42			strong	BCS	0.17
Rear Udder	0.64			high		
Front Teat Placement	0.11			close		
Rear Teat Placement	-0.01			close		
Udder Overall	0.57			desirable		
Dairy Conformation	0.46			desirable		

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

Date 21/05/2021



Potential Spring 2021 Jersey Forward Pack Team (A2A2)

Sire	Sire
316036 FOXTON PG COYOTE ET	319009 ARKAN BT ZAMBEZI S3J
313023 CRESCENT EXCELL MONOPOLY	320039 CAWDOR CHIEF SITTINGBULL
315045 GLENUI DEGEE HOSS ET	319005 BRAEDENE FAV TRANSPIRE
316009 TIRONUI LT BESIEGE ET	320200 THORNLEA MISTY TOPSHOT ET
320011 KAIMATARAU FLINT POPEYE	318012 LYNBROOK KING QUADRANT
320029 ROCKLAND LQ BERKLY	318034 SHELBY BC LUNAR ET S3J
320033 LYNBROOK CM BOISTEROUS ET	
318021 GLANTON DESI BANFF	
318009 TIRONUI SUPERMAN ET	
320030 GLENUI CM LAZARO	

WEIGHTED AVERAGES OF PREMIER SIRES - gBW \$333/98%

Management	-0.5	0	0.5	1	gBW/Rel%	\$ 333/98
Adapts to Milking	0.32			quickly	Milkfat	35 kgs
Shed Temperament	0.34			placid	Protein	12 kgs
Milking Speed	0.24			fast	Milk	-404 Litres
Overall Opinion	0.39			desirable	Liveweight	-37 kgs
Conformation	-0.5	0	0.5	1	Total Longevity	459 days
Stature	-0.69			tall	Milkfat %	6.0%
Capacity	0.54			capacious	Protein %	4.4%
Rump Angle	-0.08			sloping	Heifer Calving Dif	-1.9%
Rump Width	-0.01			wide	Cow Calving Dif	-0.8%
Legs	0.12			curved	Fertility	3.0%
Udder Support	0.30			strong	SCC	-0.11
Front Udder	0.37			strong	BCS	0.17
Rear Udder	0.52			high		
Front Teat Placement	0.09			close		
Rear Teat Placement	-0.11			close		
Udder Overall	0.48			desirable		
Dairy Conformation	0.48			desirable		

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

Date 21/05/2021

Shaded bulls include daughter information



Potential Spring 2021 Jersey Sexed Team (A2A2)

Sire	Sire
320036 CHARTERIS CO JACK MAK	318035 SHELBY BC LOTTO ET S3J
320027 CHARLTONS MISTY MAGNIFY	320014 EVLEEN GL LIGHTHOUSE
320020 THORNWOOD BANFF TITUS	
320035 SHELBY HOSS LATITUDE	
319018 GLENUI GB LANDIS-ET	
319020 GLENUI GB LUCIAN	
319066 TIRONUI GB MONTAGE-ET	
319037 OKURA TIRONUI BT MARCO ET	
319008 ARKAN BT ASTEROID-ET S3J	
320031 GLENUI WALKER LEBRON ET	

WEIGHTED AVERAGES OF PREMIER SIRES - gBW \$328/96%

Management	-0.5	0	0.5	1	gBW/Rel%	\$ 328/96
Adapts to Milking	0.21			quickly	Milkfat	31 kgs
Shed Temperament	0.22			placid	Protein	10 kgs
Milking Speed	0.20			fast	Milk	-466 Litres
Overall Opinion	0.32			desirable	Liveweight	-34 kgs
Conformation	-0.5	0	0.5	1	Total Longevity	511 days
Stature	-0.71			tall	Milkfat %	6.0%
Capacity	0.59			capacious	Protein %	4.4%
Rump Angle	-0.25			sloping	Heifer Calving Dif	-2.3%
Rump Width	0.10			wide	Cow Calving Dif	-0.7%
Legs	0.11			curved	Fertility	3.8%
Udder Support	0.33			strong	SCC	-0.15
Front Udder	0.40			strong	BCS	0.23
Rear Udder	0.53			high		
Front Teat Placement	0.20			close		
Rear Teat Placement	0.04			close		
Udder Overall	0.52			desirable		
Dairy Conformation	0.52			desirable		

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

Date 21/05/2021



Potential Spring 2021 KiwiCross® Daughter Proven Team (F9J7)

Sire	Sire
517043 GLEN KORU PROCLAIMER-ET	517060 KEGZYS REMARKABLE
515025 SPEAKES SLIPSTREAM ET	517069 BROOKSTEAD CADENCE
516066 WALTON INFERNO	
517026 HOWSES SPRINGFIELD	
517042 LUCK-AT-LAST INSPIRED-ET	
516074 CROSSANS CRITICAL-ET	
517073 LYNBROOK KNOCKOUT	
516015 HYJINKS SNAPPER	
517003 ARKANS BATTLESHIP	
517001 ARKANS PATRIARCH-ET	

WEIGHTED AVERAGES OF PREMIER SIRES - gBW \$300/99%

Management	-0.5	0	0.5	1	gBW/Rel%	\$ 300/99
Adapts to Milking	0.31			quickly	Milkfat	39 kgs
Shed Temperament	0.29			placid	Protein	27 kgs
Milking Speed	0.13			fast	Milk	271 Litres
Overall Opinion	0.39			desirable	Liveweight	2 kgs
Conformation	-0.5	0	0.5	1	Total Longevity	520 days
Stature	-0.13			tall	Milkfat %	5.3%
Capacity	0.66			capacious	Protein %	4.1%
Rump Angle	0.15			sloping	Heifer Calving Dif	0.2%
Rump Width	0.06			wide	Cow Calving Dif	-0.4%
Legs	0.08			curved	Fertility	3.0%
Udder Support	0.56			strong	SCC	-0.23
Front Udder	0.49			strong	BCS	0.15
Rear Udder	0.49			high		
Front Teat Placement	0.21			close		
Rear Teat Placement	0.46			close		
Udder Overall	0.58			desirable		
Dairy Conformation	0.57			desirable		

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

Date 21/05/2021



Potential Spring 2021 KiwiCross® Forward Pack Team (F8J8) (A2A2)

Sire	Sire
517043 GLEN KORU PROCLAIMER-ET	520034 CROSSANS CHANCELLOR-ET
515025 SPEAKES SLIPSTREAM ET	520047 SPRING RIVER KOBE-ET
516066 WALTON INFERNO	519011 SANDERS ACCOLADE
517026 HOWSES SPRINGFIELD	520089 BALDRICKS SIGNIFICANT
517042 LUCK-AT-LAST INSPIRED-ET	520037 GLENMEAD MARVELLOUS-ET
516074 CROSSANS CRITICAL-ET	520068 MORGANS MALAWI
520011 AUAHI BUSTLE	520054 PAYNES PALATINE-ET
520064 HURWORTH HOT TODDY	520039 PIKO SPOKESMAN
520038 GREENWELL BACKGAMMON	520071 BALANTIS THRILLER-ET
520083 GASKELLS SWAGGER-ET	518038 WERDERS PREMONITION

WEIGHTED AVERAGES OF PREMIER SIRES - gBW \$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	27 kgs
Milking Speed	0.10			fast	Milk	187 Litres
Overall Opinion	0.39			desirable	Liveweight	1 kgs
Conformation	-0.5	0	0.5	1	Total Longevity	523 days
Stature	-0.11			tall	Milkfat %	5.4%
Capacity	0.62			capacious	Protein %	4.2%
Rump Angle	0.01			sloping	Heifer Calving Dif	0.2%
Rump Width	0.08			wide	Cow Calving Dif	-0.1%
Legs	0.08			curved	Fertility	3.0%
Udder Support	0.42			strong	SCC	-0.20
Front Udder	0.41			strong	BCS	0.13
Rear Udder	0.40			high		
Front Teat Placement	0.15			close		
Rear Teat Placement	0.35			close		
Udder Overall	0.46			desirable		
Dairy Conformation	0.54			desirable		

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

Date 21/05/2021

Shaded bulls include daughter information



Potential Spring 2021 KiwiCross® Sexed Team (F8J8) (A2A2)

Sire	Sire
520033 DOWSON HONENUI-ET	520016 AUAHI FIXER
518072 DEANS PROFESSIONAL	519078 BURGESS PRESTIGE-ET
520008 JULIAN MULTIPLIER-ET	520046 KOKOAMO KILIMANJARO
520044 WICKLOW HIGH CHAPARRAL	520067 PALMERDELL DELIGHT
520090 CAW/DOR POUNAMU	520013 AUAHI PATENT-ET
520078 SPRING RIVER JORDY	
520057 BELLS PIERCE	
518016 HORIZON ASCOTT	
520086 PENRITHS SIR STRATHMORE	
520020 ARKANS PROSPECT-ET	

WEIGHTED AVERAGES OF PREMIER SIRES - gBW \$315/97%

Management	-0.5	0	0.5	1	gBW/Rel%	\$ 315/97
Adapts to Milking	0.29			quickly	Milkfat	38 kgs
Shed Temperament	0.30			placid	Protein	26 kgs
Milking Speed	0.10			fast	Milk	93 Litres
Overall Opinion	0.34			desirable	Liveweight	-4 kgs
Conformation	-0.5	0	0.5	1	Total Longevity	570 days
Stature	-0.17			tall	Milkfat %	5.5%
Capacity	0.49			capacious	Protein %	4.3%
Rump Angle	-0.19			sloping	Heifer Calving Dif	-0.2%
Rump Width	0.06			wide	Cow Calving Dif	-0.3%
Legs	0.07			curved	Fertility	2.7%
Udder Support	0.46			strong	SCC	-0.03
Front Udder	0.46			strong	BCS	0.11
Rear Udder	0.50			high		
Front Teat Placement	0.08			close		
Rear Teat Placement	0.27			close		
Udder Overall	0.50			desirable		
Dairy Conformation	0.48			desirable		

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

Date 21/05/2021



WAYS TO IMPROVE IN-CALF RATE

During the winter farmers should take time to look at their calving pattern to target cows most at risk of not getting back in-calf next season.

Jair Mandriaza, LIC senior reproduction solutions advisor, said cows that calve late, within three weeks of the planned start of mating, had about a 40% chance of being empty and being culled by the end of the season.*

"Looking after those cows - in fact any cow that calves within 6 weeks of mating start date - will improve their chances," Jair said.

On the other hand, data suggested that cows that calved within the first six weeks of calving start date had only about a 15% chance of

being empty at the end of mating.

Age also affected not-in-calf rates. Cows nine years or older had a 31% chance of being empty.



Jair Mandriaza

"Older cows have done a lot of heavy lifting in their milking and reproductive lives, and at nine years of age their reproductive performance suffers."

Farmers should consider categorising their empty cows by age, calving pattern, and breeding worth (BW) to find where the weaknesses were, Jair said.

Speaking earlier this year in Southland, Jair said cows in the bottom quartile of BW in that region had a 19% chance of being empty, while those in the top quartile were at 13% (similar to the national picture; 20% and 14% respectively).

Looking at lactation worth (LW) as a proxy for milk production,



Jair says cows in the bottom quartile of BW had a 19 percent chance of being empty, while those in the top quartile had a 13% chance of being empty.

Fertility Focus Report data busts the myth that higher producing cows are harder to get in-calf: For example, top LW cows across Southland had a 14% chance of being empty, while bottom LW cows in Southland were at 21%.

Farmers could target difficult-to-get-in-calf cows by considering reduction of their milking interval, and prioritising their feed during winter, with the aim of achieving a correct body condition score (BCS) target pre-calving.

"Making sure they're at the correct body condition score is the best thing you can do," Jair said.

Although farmers had been targeting six-week-in-calf rates, national results tended to follow the annual fluctuation of the dairy payout.

"This year, with a better milk price, we expect to see it up again," Jair said.

Not in-calf rates had been stable during the last few seasons throughout the country. "The main change on this measure (compared to 10 years ago) is that farmers are now mating over fewer weeks, and this has resulted in a mating period that's now between four and five weeks shorter."

"Every week you continue mating, whether by AI or by using bulls, decreases the empty rate by one to two percent," Jair said.

"If you cut your mating from 15

weeks to 11 weeks, which is what is happening on many farms, then expect an empty rate four to eight percent higher than what you're used to."

He said looking after young stock well was the best thing farmers could do to improve their in-calf rates.

"Puberty is dictated by liveweight, so if your rising-ones and -twos are not hitting their targets then they will be harder to get in-calf, and their productive performance will also be below par."

Figures showed that while calves usually made the 100kg weaning weight easily, it was an uphill battle after that with some losing weight in their first winter, he said.

"Invest in your young stock, because it's the biggest age group, in numberised terms, in your herd."

Jair likened mating performance on-farm to the America's Cup yacht racing early this year: "The races were frequently won in the starting box, not out on the race course. It's the same with your herd. If you don't win the start with your young stock, you're unlikely to ever catch up."

*Data taken from all LIC shareholder herds that produced a *Detailed Fertility Focus Report* for the 2019/2020 season, which equates to 2.4 million cow records.

The basis of this article first appeared in the March issue of Dairy Exporter, and is re-published with permission of its editor.



WEIGHING ON YOUR MIND?

- In recent years NZ farmers have made excellent progress in growing their young replacement stock to key liveweight targets (i.e. between weaning age and graduation to the milking herd); benefits include increased early-life production and better 1-3 week in-calf rates.
- Data averages reflected within MINDA Weights suggest targets are largely achievable.
- There remains however a noticeable drop-off in growth rates between 16-months and 22-months (the second winter), and the drop-off is worst among animals that have previously missed their target weights from birth.

Latest LIC analysis shows most New Zealand dairy farmers who conduct at least one weighing event are getting their emerging genetics to hit liveweight targets, but there's still a shortfall happening at the 22-month milestone.

"Do yourself, and your replacement stock, justice by properly growing your rising one- and two-year-olds to all the target liveweights," says Steve Forsman, LIC's animal performance manager.

Steve recently pored over millions of young calf weight recordings entered in MINDA LIVE over the past several years.

"Despite the 22-month hiccup, people need to know that progress over the past decade has been really good," Steve says. "Nowadays, on average, farmers who weigh their stock are generally hitting their targets."

"The only measure where there remains some concern is just before the rising-twos go in to the milking herd for the first time.

"But even at that age the progress has been impressively steady.

"Historical records show the 2009-2011 born heifer group was 10% below its 22-month target liveweight at the time (see graphic 1, next page).

"When we looked at the 2012-2014 born heifer group, that same figure had dropped to 5%, and now we're looking at the data of 2016-2018 borns, and they show the figure is steady at 4-5% below the target weight."

Steve said the numbers translated to big bucks.

Each percentage gain toward the 22-month target represented an additional 2kg of milksolids in the animal's first year of production (i.e. on a national basis, 2kg @ \$7 payout x 1 million industry replacements = \$14 million extra revenue across the industry).

The wake-up call of eight years ago appeared to have had some effect, Steve said: "Industry groups responded,



Steve Forsman

and it's clear that the behaviour of farmers' feeding regimes of their young stock has since changed for the better."

After the initial LIC weights survey* (2006-born, released in 2010-11), DairyNZ had allocated significant resource to the area of growing young stock, and LIC had introduced MINDA Weights (which provided an industry guideline for monitoring where weights were at different intervals during the first 24 months).

"From there we gained a better understanding of what's going on in the industry by plugging in data that showed an average seasonal overlay, and we identified where the peaks and troughs were likely to occur," Steve said.

In reference to graphic 3 adjacent, Steve said the purple line showed that the top 5-10% of farmers were "nailing target weights" and would have outstanding young stock ready to hit the milking herd, which were likely to perform both productively and reproductively.

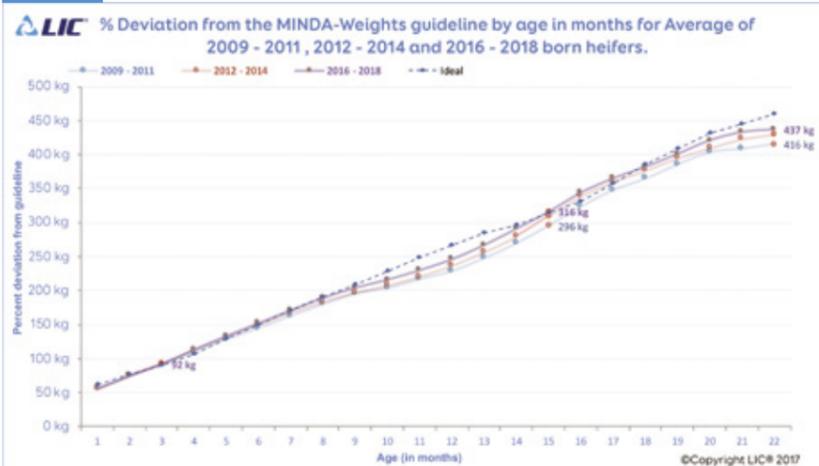
"These farmers are doing justice to their replacement stock - they're doing justice to the genetics they've invested in from the start."

On the other hand, Steve said farmers in the bottom 5-10% (the orange line in graphic 3, which looks at 2017-born heifers) were likely to be disappointed in their young stock coming through, and the disappointment would not necessarily be down to poor genetic choices: "Rather, it'll be down to a failure to grow their valuable young stock properly."

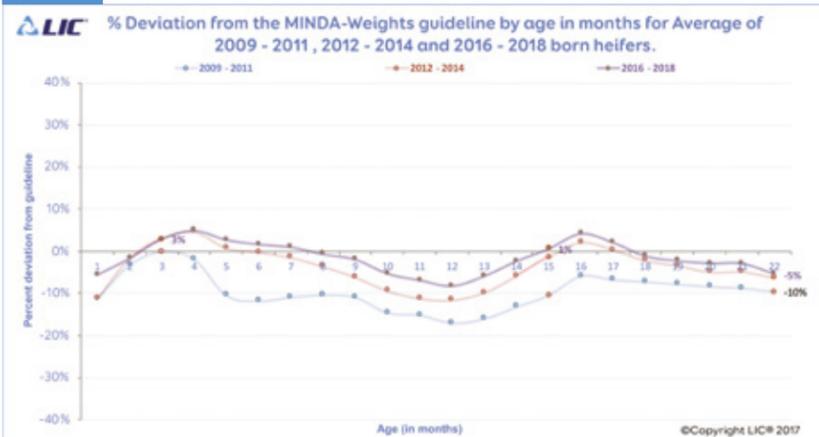
Looking at the same graphic, it was also interesting to note the faster rate of decline of bottom 10% of heifers compared to the top 10% heifers. During this period there is natural decline among most, if not all, animals - but the gradient of decline is more rapid among the poorly grown group, meaning the overall average is being disproportionately pulled-down by the lighter animals, Steve said.

*LIC's initial 2010/2011 study of liveweight records (conducted by LIC researchers Lorna McNaughton and Thomas Lopdell) showed that 70% of heifers at that time were at least 5% below their target weight at 22 months of age, and, on average they were 11% below target.

Graphic 1



Graphic 2



Graphic 3



However, it was clear that increased numbers of farmers were sending heifers to grazing in better order, which kick-started the grazier's ability to keep animals in touch with their guideline weights.

"This frequently means the rising one- and two-year-olds are fed well throughout the summer and winter feed-pinches to limit that winter dip," Steve said.

"The improvements we've seen are also likely down to more specialist-graziers, who are offering the industry more choice than in previous decades."

"In our industry there's better awareness and acknowledgement that replacement stock which hit weight-targets early in their life are proven life-long performers in the milking herd. As an industry we've come a long way, and I expect we'll continue heading in the right direction."



The top 5-10% of farmers appear to be nailing target weights.

Well grown heifers (DairyNZ website)

- Have improved milk production
- Heifers reaching target liveweight will produce 8.5kgMS more in their first lactation than if they are 10% below target liveweight
- Have greater lifetime productivity. Heifers reaching target liveweight will have 5% better six-week in-calf rates and 1.5% lower empty rates. This equates to \$35 economic benefit per heifer compared to heifers 10% below target liveweight
- Have reduced replacement costs.

"The daily growth rates required (kg/head/day) do not change much during the 18-month period from 3 to 22 months of age, but in the same period a heifer's liveweight will increase by a factor of 4.5. The fastest growth period is from birth to 3 months when calves will typically double their liveweight. It

takes another 6 months to double their liveweight again. It pays to take advantage of heifers' growth potential when they are young, and avoid the trap of having to catch up later when animals are less growth-efficient." (DairyNZ Heifer Factsheet 16, Creating a Heifer Growth Rate Plan, p3).

- Using InCalf data for a mob of 50 heifers, the potential gain to move them from 10% under target liveweight to achieving targets is \$3875 at a \$5/kgMS milk price.

According to DairyNZ, at 22-months the heifer should be at 90% of its mature liveweight:

Average Mature liveweight for Jerseys is 444kg (90% = 400kg)

Average Mature liveweight for Crossbreds is 492kg (90% = 443kg)

Mature liveweight for Holstein-Friesians is 529kg (90% = 476kg).

(NB: The mature weights above are an average of the population; groups of heifers of a comparative breed can have targets above the average mature weight).

WHERE TO FROM HERE?

LIC offers an on-farm weighing service that includes a Field Assist to help set up and weigh stock. Including actual weights data results in a more-accurate index for the animal and the herd, allowing for better breeding and culling decisions.

LIC also has a weights application in its MINDA LIVE suite of products, which provides easy-to-read graphics that:

- provide a young stock overview;
- show how mobs are tracking against target weights, and;
- displays information on how individual animals are progressing.



MINDA LIVE and the MINDA App mean information is available anytime, anywhere, on-farm.

MINDA LIVE UPDATE 2021

Read about what groups and reports will be most relevant to farm staff as the crucial calving and mating period approaches.

MINDA LIVE and MINDA App software developments have taken some giant leaps since May 2020, with more than 60 features or enhancements adding more value for farmers, their staff, and vets at the right time of the year.

As a result, on-farm use of MINDA LIVE and the MINDA App has increased significantly: More than 8500 farmers are now using MINDA LIVE, and 10,000 farmers (including staff) are using the MINDA App.

One of those users is Kelsey Thompson, a Stratford-based farmer who won several merit award categories at the Dairy Industry Awards earlier this year (along with her husband Josh, they were also overall Taranaki runners-up).

Kelsey said the power of MINDA LIVE and LIC's phone app were all she needed on farm in terms of information requirements for her herd of 170 Holstein-Friesians.

"It's so easy because you can do what you need to on-the-spot, on the farm, in the cow shed; it's all

done in one go - and that includes your matings, your calvings, and any health treatments. Last spring I recorded all my matings, every day, straight into my phone, and then it was updated in MINDA LIVE when I got home every day. It's very simple.

"During calving I still use the yellow notebook a bit but the information is transferred straight to my phone and through to MINDA LIVE."

Accessing reports relevant to what was happening 'in the here-and-now' were a breeze, she said.

"For every report I filter by BW or PW to see where the cows are. There's also the *Culling Report* which is hugely helpful because you can filter by the parameters you want to cull on, and it spits out a report which reflects the cows that fit those requirements."

Due Date	Animals Expected to Calve	Expected: 52	Total: 52	Due Date	Animals Expected to Calve	Expected: 28	Total: 135
Week 1 20 Jul - 26 Jul Accumulated Grazing Days: 192				Week 3 03 Aug - 09 Aug Accumulated Grazing Days: 1682			
20 Jul	60 183			09 Aug	237 258		
21 Jul	10 17 23 106 147 206 234 266 280			Week 4 10 Aug - 16 Aug Accumulated Grazing Days: 2689			
22 Jul	1 25 39 61 72 94 238			10 Aug	22	Expected: 15	Total: 150
23 Jul	74 168 192 195 198 222 225 234 264 321 371			11 Aug	164 250		
24 Jul	83 93 179 259 271 283 365			12 Aug	44 80 122 187 265		
25 Jul	33 79 115 204 247 285 319 329			13 Aug	75 251		
26 Jul	16 63 121 178 182 205 216 340			14 Aug	160		
Week 2 27 Jul - 02 Aug Accumulated Grazing Days: 799				15 Aug	136 S 137 344		
27 Jul	12 21 31 116 117 118 132 170 200 229 S 236 239 246 342	Expected: 55	Total: 107	16 Aug	152		
28 Jul	6 105 156			Week 5 17 Aug - 23 Aug Accumulated Grazing Days: 3785			
				17 Aug	64	Expected: 18	Total: 168

An example of the *Expected Calving Report* available through MINDA LIVE.

Kelsey believed it was a matter of diving-in and getting used to the software, most of which was intuitive.

"It's one of those things that as you get used to things it just gets easier and easier.

"This season I got my Mum in to it - she was a huge user of MINDApro - and now she pretty much only uses LIVE. LIC keeps updating the software too which helps, little things get refined to make the reports better and information more relevant."

Jessica Bedford, LIC product experience manager, said development work had been critical to ensure farmers were well-placed as the impending 2021 calving and mating periods approached.

She emphasised it was essential farmers began transitioning to MINDA LIVE and the app, because LIC was retiring its previous herd recording software, MINDApro, in May 2022.



Jessica Bedford

"At 17 years-old MINDApro is outdated in technology terms. We've been working hard to ensure that the most-loved features

from MINDApro are available in MINDA LIVE or the MINDA App.

"These changes give our farmers access to information that is critical to their farm's productivity, while using the latest technologies available," she said.

For the upcoming calving period, there were several reports and groups that would be handy to create, Jessica said.

"When it comes to groups, some of the key pieces of data farmers could use are the expected calving attributes; these will help identify



Kelsey Thompson on farm in Stratford - she says MINDA LIVE contains everything she needs.

animals that are expected to calve either early or late, or, for example, animals that are expected to calve to the short gestation matings.

"These groups will share with your MINDA App to ensure you have the right information on hand to make drafting a breeze.

"For those that prefer paper-in-hand, the *Expected Calving by Date* or *Expected Calving by Cow* reports will show the animals' expected calving information, including an indication of which animals are expected to short gestation matings, and expected calf BW.

"Entering your calvings using the MINDA App will ensure there's no double-handling of that information during the calving period, allowing more time to do other tasks on farm."

For farmers with Allflex, Gallagher, or TruTest EID wands on farm, connecting to mobile devices to use with the MINDA App would make recording even easier (i.e. by scanning an animal's EID whenever you see an animal ID entry screen, and then carrying on through the event wizard).

"Off the back of calving, be sure to enter pre-mating heats into MINDA LIVE or the MINDA App to help

identify animals that may need intervention when it comes to the mating period," Jessica said.

"I'd also recommend using *Groups* to filter animals with high indices which will help identify animals that should be considered for elite genetic options, like sexed semen, and which low-index animals that could be considered for beef genetics."

MINDA LIVE has additional information to help with herd improvement goals, Jessica said.

"A significant piece of feedback we received was a desire to access Breeding Value information from within MINDA, so from Reports in MINDA LIVE this is now possible; the value of MINDA is in the data, so it's been great to be able to provide this."

Visit LIC's Improvement Zone (learn.lic.co.nz), to find online tools to help you through the transition from MINDApro to MINDA LIVE.

Also, keep an eye out on LIC's website (lic.co.nz/roadmap) and Facebook pages for updates on new features released into MINDA.



NOW THAT'S CONVENIENT!

Take samples while tagging/de-budding: Help eliminate the BVD (PI) risk in new-born calves (less than 35-days-old).

This calving season LIC customers have the luxury of immediately taking a BVD PCR tissue sample from a new-born calf, giving farmers a faster turnaround on the health status of their new stock.

Previously a tissue sample required farmers to wait until calves were at least 35-days-old before being able to confirm the BVD (persistently infected) status of the new-borns.

A persistently infected (PI) calf, a 'BVD carrier', can cause havoc on the health status of the wider herd, and should be culled as soon as possible.

Eliminating the delay of 35 days before taking a tissue sample will significantly reduce the risk to the herd and other calves.

Results from the tissue sample are issued within seven working days of being received at LIC's Animal Health Lab.

Indications are that many farmers will take advantage of the newly-introduced BVD PCR test on their

calves because, for the sake of convenience and efficiency, they will likely combine the sampling task with tagging and/or disbudding.

The tissue BVD PCR tests for calves were offered to a limited number of customers last year, with the pilot a success with those customers.

The product is now available to all LIC customers.

BVD is a common, highly infectious, disease that costs the industry \$127 million a year in production and reproduction. About 60% of New Zealand herds are affected by the disease, and 10% of herds have an active infection at any one time.

BVD is spread by PI animals, and culling PI animals is the only way to get rid of BVD from a herd.

PI animals are born with the virus in their body, either because their mother is also a PI animal, or because she was exposed to the virus in the first four months of pregnancy.

PI animals don't grow well, and 50 percent of them die by the age of

two, although those that survive longer can spread the infection for many years.

PI animals are most dangerous for pregnant cows. Cows that are infected with BVD in the first four months of pregnancy are more likely to miscarry or have a stillbirth. They also produce PI calves.

LIC's existing calf BVD PCR using blood samples is still available, so customers have the choice of testing young calves (fewer than 35-days-old) using either blood or tissue samples.

The tissue BVD PCR test can only be performed using dry Allflex tissue sampling units (TSUs).

LIC uses wet tissue sampling units (TSUs) for all its DNA parentage testing.

BVD/Parentage combo customers that want to do BVD PCR must collect a dry tissue punch for the BVD test, as well as a wet tissue punch for the GeneMark test.

Contact GeneMark on 0800 436 362 for further information.



NEW PRODUCTION VARIANTS DISCOVERED

From spring this year, all farmers using LIC's GeneMark DNA Parentage Testing service will have their calves screened for six newly-discovered production variants which impact animal health and milk production.

Although affected animals are rare (about 0.5% of animals born are affected by one of the six variants), impacts are substantial and include lower milk production, lower milk solids, smaller stature, smaller chest circumference, and lower liveweight.

Because the variants are recessive, animals need to inherit two copies of the gene to show an effect (i.e. one variant each from the sire and dam).

Richard Spelman, LIC chief scientist, says the discoveries reinforce the importance of continued investment in gene discovery and genetic analysis technology to help farmers breed



Richard Spelman

healthier, more efficient, dairy herds. "By supporting farmers to identify and minimise the number of animals



The cow on the left is affected by one of the production variants discovered by LIC which causes ~100kg reduction in mature body weight and substantial losses of milk fat, protein, and volume.

that are susceptible to particular 'negative' genes, we can breed cows that are more resilient, speed up the rate of genetic gain, and help ensure the sustainability of New Zealand's pastoral industries for years to come," he said.

The implementation of the new Illumina technology at GeneMark has allowed the variants to be included within the new genetic panels used for GeneMark DNA parentage testing.

Information on affected animals will be provided free-of-charge alongside parentage results so farmers can make an informed decision on whether to retain these animals in their herd.

"We're excited to transform our investment in research and development into a simple convenient service for our farmer shareholders, one that could save millions in lost production," Spelman said.

"Knowing what calves have these genetic variations will help ensure farmers rear only the healthiest, highest performing animals."

The discoveries were made possible by genetic mapping studies on LIC's large DNA sequencing and animal production datasets, as well as funding received from MBIE's Endeavour fund.



Are 2 AB Tech visits better than 1?

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

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

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

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

Cows were split into two groups:

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

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

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

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

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

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

service delivers.

"We're committed to getting our farmers cows in-calf. If there was a genuine benefit in providing a twice-a-day AB tech service, we'd look closely at providing it, however this research has shown there's no value when it comes to conception rate."

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

Time of insemination relative to oestrus alert

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

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



David Hale, LIC national AB manager

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

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

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

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

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

Conception rates decreased rapidly after 25 hours.

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

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

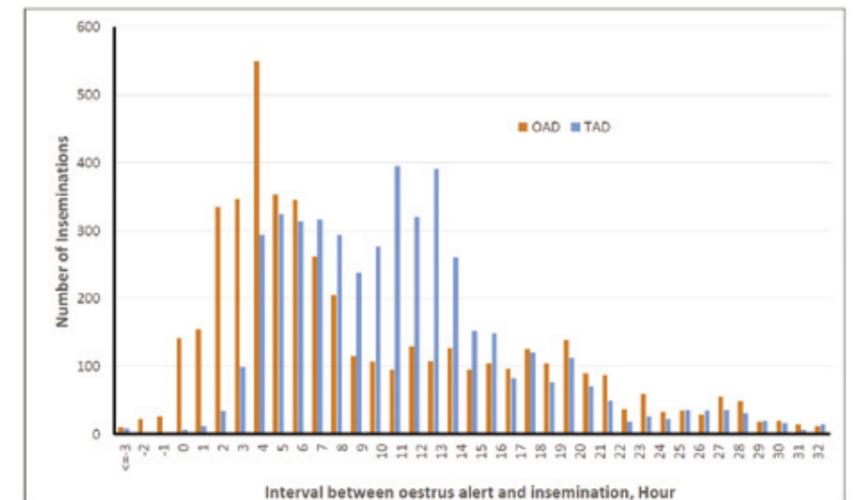


Figure 2. Frequency distribution in time of insemination relative to oestrus alert for cows in once-a-day (OAD) and twice-a-day (TAD) groups.

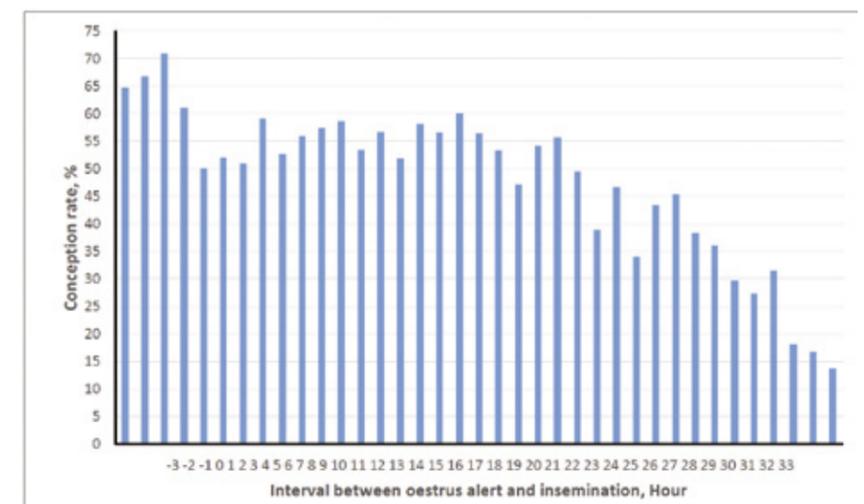


Figure 3. Conception rate of insemination at different times after oestrus alert.

Based on results in this trial, twice-a-day visits by the AB technician did not significantly improve conception rates for lactating dairy cows grazing on pasture. The current practice of submitting cows for insemination at the first

opportunity after oestrus detection applies to all animals on heat, whether alerted by a collar system, a heat detection aid, or farmer observation.



O'Sullivan estimates a significant *S. aureus* problem probably exists on only 5-10% of farms, but when affected, the need to address the issue is urgent.

Staphylococcus aureus: Discover, Identify, Target, Eliminate

Oamaru-based vet Mat O'Sullivan says in recent years he's been able to effectively manage large herds with major *Staph aureus* (*S. aureus*) problems, "to the point we no longer see it as a significant feature of the farm or herd in the clinical mastitis they get - we've had some big wins with it."

He puts the wins largely down to the convenience of a simple *S. aureus* milk test, which uses samples from an ordinary LIC herd test to clearly identify affected cows.

Once the culprits with *S. aureus* are known, they can be (i) isolated; (ii) prioritised for the preferred option of culling, or; (iii) treated.

"The reason why I like the test is that it's so easy," O'Sullivan says.

"The herd test samples have been collected, they're sitting at the lab, and rather than having to go in and identify cows and manually sample quarters of high cell-count

cows, what we do is we wait until the farmer receives the herd test results back - which usually pretty promptly - and we access those.

"I then pull down a spreadsheet and identify cows that are chronically affected... I work on testing cows that have had two consecutive tests at or greater than 250,000 - or one individual test over 400,000 - those will be the cows I'd request that LIC tests.

"And that's all done with that same milk sample from the herd test."

O'Sullivan estimates a significant *S. aureus* problem probably exists on 5-10% of farms.

"You could still find it if you're looking for it in about 70% of herds, but it's not creating a problem - it could be their management of mastitis is such that it's never been allowed to become an issue, through good practises such as good teat-spraying or good milk machine settings.

"And culling of chronically infected cows is a big part of annual management of mastitis."

O'Sullivan adds that while most herds don't have a problem, when *S. aureus* takes hold it must be managed with urgency because the rate of spread can be exponential.

"You often find problems with contagious mastitis in herds that have poor reproductive performance.

"They haven't got that ability to cull (due to high empty rates), so they end up retaining these animals that should have been culled.

"Farms are forced to retain older, chronically infected cows, because of high empty



Mat O'Sullivan

rates and low heifer replacement rates, may have even-more chronic infections in the next lactation. It's a vicious cycle."

Unlike the bacteria *Streptococcus uberis* (an environmental pathogen), *S. aureus* is a contagious pathogen and it has a number of concerning characteristics that can make it difficult to treat or control, including:

- poor cure rates;
- an ability to stimulate the production of scar tissue in the udder;
- an ability to go in to a phase of 'hibernation' in which the bacteria doesn't replicate (to work, many antibiotics require bacteria to be rapidly multiplying), meaning it can 'weather a storm' of antibiotic;
- an ability to go intra-cellular - again, evading antibiotics;
- approximately 25% of known *S. aureus* populations are resistant to penicillin;
- when *S. aureus* spreads from cow to cow it does so via the milking machine.

If *S. aureus* is present in a number of animals, potentially indicated by a high bulk milk somatic cell count, the urgency to do something about the problem is high.

O'Sullivan stresses the importance of starting the season with a "relatively clean herd", and that's why a *S. aureus* test might be useful following both the fourth herd test (previous season) and at the first herd test (new season).

"You need to try to reset the clock at the beginning of the season. That is, cure existing infections or cull the ones you think are unlikely to cure."

That's important because of the nature of the bacteria, O'Sullivan says.

"It's considered that in the right conditions a cow carrying *S. aureus* may infect another four cows over

the course of a lactation. If you start the season with too many infected cows it can become out-of-control by the end of the season."

Dry cow therapy on infected cows at the end of the season was one tool, but farmers need to be mindful that cure rates won't be as high as they are with *Strep uberis*.

It's suggested aureus cure rates with dry cow therapy are about 50%, as opposed to the 80% (approximately) cure rates when the bacteria is *Strep uberis*, O'Sullivan says.

If we can see cows that have had previous herd tests with high cell counts, even those extending into the previous year, we know that bug's been there for a long time, and potential development of scar tissue means it's a lot harder to get an effective cure rate.

That's why younger cows tend to have much better chances of curing.

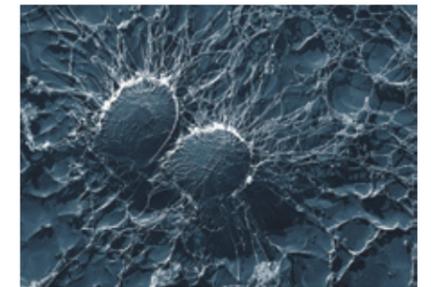
Culling is the preference, O'Sullivan says, although it depends on how risk-averse farmers are.

"Some might say 'we have surplus cows available' so they'll be quite happy to cull all cows diagnosed with *S. aureus*.

Others might say 'we can't afford to cull all those cows, but we'll cull all those that are least-likely to respond to antibiotic dry cow therapy, and we'll do dry cow therapy on the cows to be retained, but milk these separately the following season and monitor their cell count; they're more likely to be younger cows.

"But in a perfect world you'll make the fastest progress culling most of them."

Note: Confirmed *S. aureus* cases require a proper management plan, based on professional advice from your local vet; these plans may vary from farm to farm, based on specific circumstances, resources, and needs of the farm.



Bacterial cells of *S. aureus*, which is one of the causal agents of mastitis in dairy cows. Its large capsule protects the organism from attack by the cow's immunological defences.

About LIC's *S. aureus* testing:

- Milk samples from a routine herd test are used to run *S. aureus* specific PCR tests.
- A select group of animals can be identified for testing by the vet or farmer forwarding a list to LIC's Animal Health Lab; the list can be based on a combination of high SCC history, clinical history, past treatments, potential new infections, or any other criteria relevant to the herd.
- Alternatively, the list can be selected by LIC based on agreed SCC criteria: The SCC threshold can be decided in consultation with the vet and farmer.
- A maximum number of samples for testing can be specified, but there must be a minimum number of 25 samples selected.
- Testing is recommended in later lactation when *S. aureus* is the most common mastitis-causing bacteria in many herds.
- Results can be emailed to the client's vet within seven working days of the farm receiving its herd test lab strip.



Wayne McNee at LIC, Newstead

OUR STRATEGY

Doing what we are good at.
Playing to our strengths.

LIC Strategy Refinement Driving value for our farmer shareholders

Over the past 5 years with the support of shareholders we've transformed LIC into a modern, progressive co-operative with a focus on the core NZ Dairy Industry.

Thank you for all that we have achieved together so far. LIC is now in a position of strength, however we must respond to local and global shifts impacting on our customers, the industry and our co-operative.

To respond effectively, our refined business strategy builds on our strengths, our clear differentiating capabilities and key assets.

And we've listened to you, our shareholders.

To overcome our challenges we must sharpen our focus, strengthen our core and enhance our capabilities.

Value for our farmer shareholders is at the heart of our strategy.

We will drive value, innovate and deliver a positive impact for our customers and shareholders.

We're focussing on helping you optimise value from your livestock by enabling you to produce the most sustainable and efficient animals and the highest value product.

We will be guided by our primary focus of delivering value for our farmer shareholders. We have made three commitments to you:

- 1. Operational Excellence:** We commit to getting the basics right and delivering for you, on time, every time.
- 2. Faster Genetic Improvement:** We commit to having your back when it comes to helping you meet the environmental challenges you face, in particular animal efficiency, and nitrogen and methane mitigation.

- 3. Software Reliability and Performance:** We commit to being better at delivering our software to you. We renew our commitment to continuous improvement and transparency around delivery of new features.

Our strategy is in service of building a strong, sustainable co-operative, leading the world in our field and delivering outstanding value for our customers, shareholders and industry, next year, in five years and for another 100 years.

Thank you again for all that we have achieved together so far. I am excited for where this refined strategy will take us into the future and the value it will deliver you on-farm.

Wayne McNee,
LIC chief executive

For more information about our strategy, including videos about how it will deliver value on your farm, visit www.lic.co.nz/strategy



How we will drive value for our farmers

Our Farmers
Deepen our understanding of the current and future needs of all of our farmers.

Animal
Most sustainable & efficient animal. Highest value products.

Data & Digital
Modernising the animal data & digital capabilities.

Innovation
Research & development. Responsive innovation.

Our 3 commitments to our farmers

1 Operational Excellence
We commit to getting the basics right and delivering for you, on time, every time.

2 Faster Genetic Improvement
We commit to having your back when it comes to helping you meet the environmental challenges you face, in particular animal efficiency, and nitrogen and methane mitigation.

3 Software Reliability and Performance
We commit to being better at delivering our software to you. We renew our commitment to continuous improvement and transparency around delivery of new features.



Improve your footprint with HoofPrint[®]

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

LIC's new HoofPrint index assigns bulls a score based on their progeny's estimated methane and nitrogen efficiency. The higher the score, the more improvement on your farm and the environment. And that could give NZ, a greener footprint.

Talk to your Agri Manager about the HoofPrint index today.

There's always room for improvement

