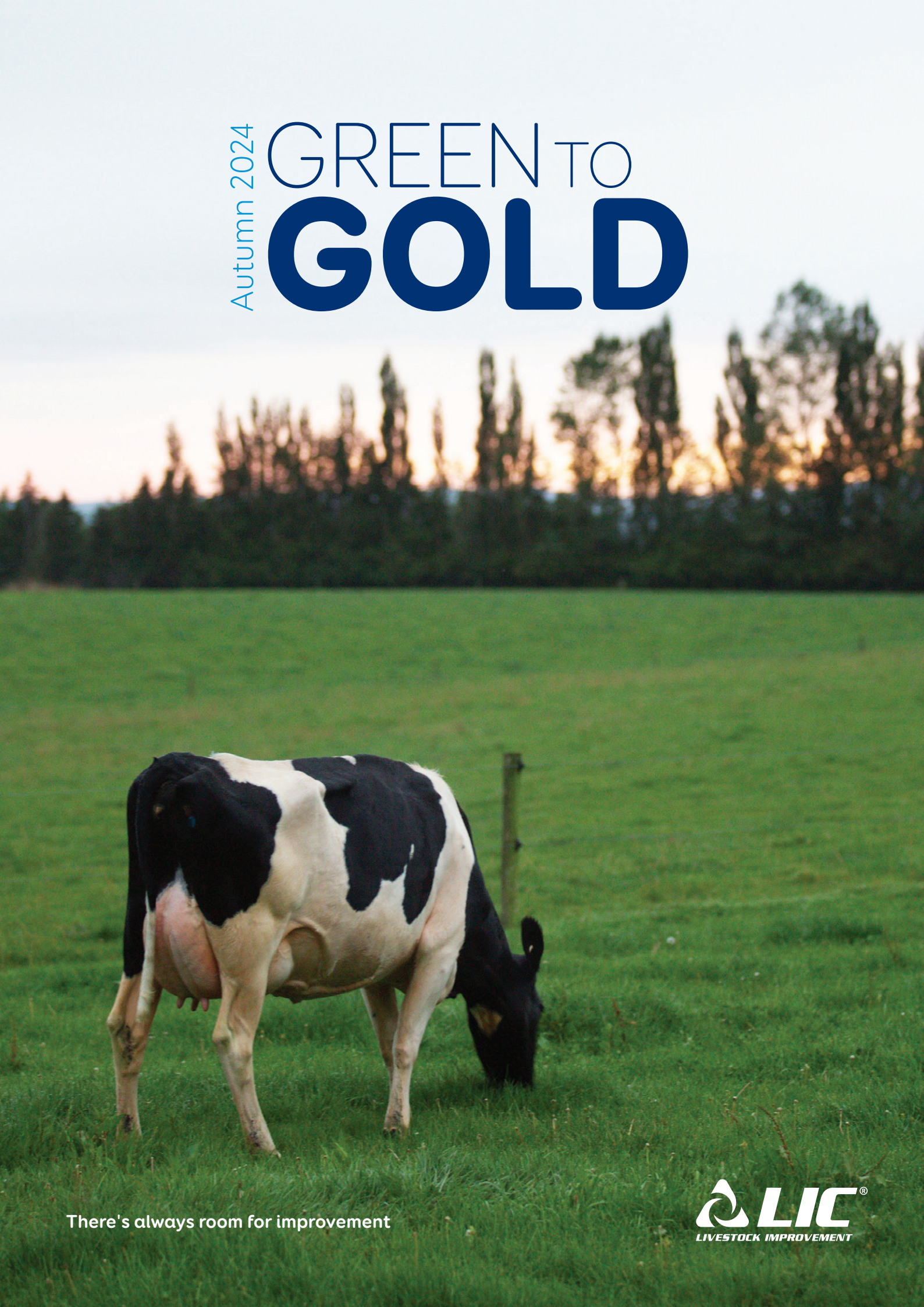
Autumn 2024

GREEN TO GOLD



There's always room for improvement

LIC®
LIVESTOCK IMPROVEMENT

Driving your herd forward

Greetings from Gippsland! It's been an exciting journey since October when I assumed the role of LIC Australia Country Manager.

Originating from New Zealand, my husband Darryn and I have dedicated 30 years to dairy farming. My LIC journey began around two decades ago in a casual role assisting farmers with their herd records, before progressing to District Manager and then Regional Manager in New Zealand, while simultaneously farming. Selling our farm in 2018, we then spent the next three years travelling and working around New Zealand before the opportunity in Gippsland arose.

I've enjoyed the past two years, meeting farmers here in Australia and learning the many differences between dairying in the two countries. However, the fundamental principles of herd improvement are the same.

Cathy Cole with Hilary Lunn

If a significant increase in genetic gain is the goal, careful consideration must be given to the selection of bulls you use over your cows, the calves you keep, and the cows you cull. The breeder's equation highlights the principals of selection accuracy, selection pressure, and generation interval. Now in 2024, the quality and efficiency of dairy cows is more crucial than ever.

Over the last 30 years, LIC has invested heavily into genomic technology with a focus on increasing the rate of genetic gain in our customers' herds.

Genomic selection is now a key part of our breeding scheme, alongside our long-standing sire proving scheme. This technology allows us to identify elite bulls at a younger age, driving a faster rate of genetic gain by increasing our selection intensity, accuracy and greatly reducing generation interval.

With this, I am thrilled to introduce our Fast Forward Team™ on pages 8-11, providing Australian farmers access to the highest quality genetics sooner than ever before.

Enjoy the read, and I wish you all the best for the season ahead.

$$\text{Genetic Gain} = \frac{\text{Selection Intensity} \times \text{Heritability} \times \text{Genetic Variation} \times \text{Accuracy of data}}{\text{Generation Interval in years}}$$

Introducing Cathy Cole

Last October we were thrilled to have Cathy Cole join us as the new Gippsland District Manager. Many of our Gippsland farmers will have already met Cathy, who has been busy attending many discussion groups and industry events since then.

Cathy grew up in Gippsland, and along with her husband Matt and two children, has recently returned to the area after spending 10 years in Queensland.

Horses have been a lifelong passion of Cathy's. She has worked worldwide with some of the best Arabian show and breeding horses, as well as performing artificial insemination (AI) on many U.S. and South American equine farms.

Cathy has also bred her own US National Champion Futurity Colt (American Miniature Horse). Additionally, she performs all AI on her dogs, producing several Australian Champions.

Cathy's experience not only includes working in the AI space with horses and dogs, but also with Angus cows and goats. Currently she has a small, but elite dairy goat herd of Nigerian Dwarfs.

"My obsession with pedigrees and all things genetics began at an early age, breeding my first foal at 12 years old. Putting the pieces of the puzzle together and seeing the results, especially over several generations, seeing the consistency develop, this is what drives me" exclaims Cathy.

Recently spending a week in New Zealand at LIC's head office based in Hamilton in the North Island, Cathy was amazed at the scale of the business. This invaluable experience included visiting the LIC bull farm, and observing first-hand the actual bulls LIC are offering to Australian farmers during a collection, along with a tour of the semen processing facility.

Cathy looks forward to meeting all of you as she travels throughout Gippsland.

A selection of our new bulls for 2024

KiwiCross®

520091 MARSHALL PAPAMOA

A son of Floyd, Papamoa is the epitome of what this breed has to offer. Sitting at 501 gBW, he brings a combined fat and protein genomic breeding value (gBV) of 71kg. He is the complete package, promising exceptional daughters who efficiently convert pasture into milk while maintaining longevity in your herd. Papamoa stands out as one of the highest udder gBV's among all KiwiCross® sires, sitting at a phenomenal 1.15. This impressive trait is complemented by his solid dairy conformation and excellent fertility.

Breeding Details	
Breed	J10F6
Pedigree	FLOYD x PULSE

$501 gBW / 88% REL

NEW ZEALAND DETAILS

Daughter Proven

NZ Breeding Values			146 Daughters
Milk Volume (litres)	-14	Fertility %	4.0
Fat kg	49	Body Condition Score	0.21
Fat %	5.8	Functional Survival	5.0
Protein kg	22	Calving Difficulty (cow)	-1.2
Protein %	4.3	Calving Difficulty (heifer)	-2.4
SCC	-0.24	Gestation Length (days)	-1.6
Liveweight	-2	Beta-Casein	A1/A2

NZ Evaluation Data		Traits other than production
Management	gBV	-0.5 0 0.5 1.0
Adaptability to Milking	0.30	
Shed Temperament	0.30	
Milking Speed	0.18	
Overall Opinion	0.33	
Conformation (112 daughters TOP tested)		
Stature	-0.47	
Capacity	0.51	
Udder Support	1.04	
Front Udder	0.96	
Rear Udder	1.17	
Front Teat Placement	0.27	
Rear Teat Placement	0.53	
Udder Overall	1.15	
Dairy Conformation	0.55	

19/01/2024

KiwiCross®

519023 PAYNES PUBLISHER-ET

Publisher is a bull that is very difficult to fault. An absolute all-rounder in solids, litres, and fertility - farmers absolutely love milking his daughters.

With Publisher's widespread use as a genomic sire, he now boasts over 2,500 daughters milking in the New Zealand, rendering his proof incredibly reliable.

Breeding Details	
Breed	F11J5
Pedigree	BOULEVARD x HOTHOUSE

$510 gBW / 97% REL

NEW ZEALAND DETAILS

Daughter Proven

NZ Breeding Values			2598 Daughters
Milk Volume (litres)	704	Fertility %	2.4
Fat kg	50	Body Condition Score	0.20
Fat %	5.1	Functional Survival	3.0
Protein kg	51	Calving Difficulty (cow)	-0.7
Protein %	4.2	Calving Difficulty (heifer)	2.5
SCC	-0.09	Gestation Length (days)	-3.1
Liveweight	62	Beta-Casein	A2/A2

NZ Evaluation Data		Traits other than production
Management	gBV	-0.5 0 0.5 1.0
Adaptability to Milking	0.29	
Shed Temperament	0.29	
Milking Speed	0.17	
Overall Opinion	0.52	
Conformation (104 daughters TOP tested)		
Stature	0.38	
Capacity	0.66	
Udder Support	0.54	
Front Udder	0.32	
Rear Udder	0.68	
Front Teat Placement	-0.15	
Rear Teat Placement	-0.08	
Udder Overall	0.51	
Dairy Conformation	0.66	

19/01/2024

Holstein Friesian

120003 SCOTTS BV DARIUS-ET

Introducing our most exciting Holstein Friesian graduate of the year, Darius brings plenty to the table. This outstanding sire boasts over 120kg of combined fat and protein, positive fertility, solid conformation and exceptional farmer traits. A Vector son, out of a Freedom dam, Darius hails from the same esteemed cow family as the renowned LIC Hall of Fame bull, 101140 Macfarlanes Dauntless. This lineage underscores the strength inherent in both the family and Darius as a sire in his own right.

Breeding Details	
Breed	F16
Pedigree	VECTOR x FREEDOM

$496 gBW / 86% REL

NEW ZEALAND DETAILS

Daughter Proven

NZ Breeding Values			97 Daughters
Milk Volume (litres)	1160	Fertility %	1.6
Fat kg	73	Body Condition Score	0.24
Fat %	5.1	Functional Survival	2.6
Protein kg	49	Calving Difficulty (cow)	-0.8
Protein %	3.9	Calving Difficulty (heifer)	2.8
SCC	-0.21	Gestation Length (days)	-3.7
Liveweight	104	Beta-Casein	A1/A2

NZ Evaluation Data		Traits other than production
Management	gBV	-0.5 0 0.5 1.0
Adaptability to Milking	0.71	
Shed Temperament	0.72	
Milking Speed	0.32	
Overall Opinion	0.79	
Conformation (89 daughters TOP tested)		
Stature	1.16	
Capacity	0.70	
Udder Support	0.47	
Front Udder	0.29	
Rear Udder	0.34	
Front Teat Placement	0.07	
Rear Teat Placement	0.15	
Udder Overall	0.42	
Dairy Conformation	0.78	

19/01/2024

Holstein Friesian

119034 TAFTS RHD OFFICER-ET S2F

Officer was very popular as a young genomic sire in New Zealand, and with over 2000 daughters now milking, his success speaks for itself.

He has quite the story to tell when it comes to efficiency. Delivering 114kg combined solids through more than 1500 litres of milk, you can have confidence the udders can support such production, with an udder overall gBV of over 1.0!

Breeding Details	
Breed	F16
Pedigree	DUDE x BEAMER

$428 gBV / 97% REL

NEW ZEALAND DETAILS

Daughter Proven

NZ Breeding Values			2288 Daughters
Milk Volume (litres)	1522	Fertility %	2.0
Fat kg	54	Body Condition Score	0.37
Fat %	4.4	Functional Survival	3.1
Protein kg	60	Calving Difficulty (cow)	1.7
Protein %	3.8	Calving Difficulty (heifer)	0.3
SCC	0.15	Gestation Length (days)	-3.7
Liveweight	126	Beta-Casein	A2/A2

NZ Evaluation Data		Traits other than production
Management	gBV	-0.5 0 0.5 1.0
Adaptability to Milking	0.48	
Shed Temperament	0.51	
Milking Speed	-0.15	
Overall Opinion	0.55	
Conformation (112 daughters TOP tested)		
Stature	1.28	
Capacity	0.68	
Udder Support	0.83	
Front Udder	0.96	
Rear Udder	0.72	
Front Teat Placement	0.46	
Rear Teat Placement	0.13	
Udder Overall	1.03	
Dairy Conformation	0.81	

19/01/2024

Jersey

320029 ROCKLAND LQ BERKLY

Our number one Jersey graduate, Berkly daughters are exceptional milkers. Along with the highest fat gBV ever for a proven Jersey bull, he has the highest overall opinion gBV of any LIC Jersey bull alive today. Farmers simply love milking these girls. Not only are they high producers, but they also have the udder and frame to sustain this output through the years.

Breeding Details	
Breed	J16
Pedigree	QUADRANT x LARSON

$534/89% gBW REL

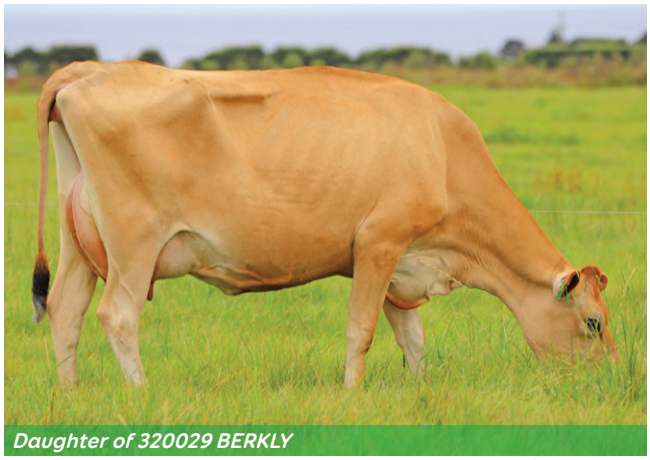
NEW ZEALAND DETAILS

Daughter Proven

NZ Breeding Values			162 Daughters
Milk Volume (litres)	-145	Fertility %	1.6
Fat kg	61	Body Condition Score	-0.06
Fat %	6.3	Functional Survival	3.0
Protein kg	24	Calving Difficulty (cow)	-0.6
Protein %	4.4	Calving Difficulty (heifer)	-2.4
SCC	0.01	Gestation Length (days)	0.3
Liveweight	-16	Beta-Casein	A2/A2

NZ Evaluation Data		Traits other than production
Management	gBV	-0.5 0 0.5 1.0
Adaptability to Milking	0.55	
Shed Temperament	0.55	
Milking Speed	0.37	
Overall Opinion	0.71	
Conformation (128 daughters TOP tested)		
Stature	-0.14	
Capacity	0.28	
Udder Support	0.63	
Front Udder	0.63	
Rear Udder	1.13	
Front Teat Placement	0.08	
Rear Teat Placement	-0.02	
Udder Overall	0.86	
Dairy Conformation	0.34	

Daughter of 320029 BERKLY



Daughter of 320029 BERKLY

19/01/2024

Sustainable and Resilient Farming: Passionate Young Farmers Vision

Located in Lang Lang East, Victoria, Tom and Kim Kent are carrying on the rich legacy running the family farm. Originally purchased by Tom's grandparents back in 1949, the farm was taken over by Tom's parents in the 80s.

Tom has always lived on the farm, returning to work on it at the age of 22 after completing his diesel mechanic apprenticeship. Tom and Kim are now in full partnership with his parents, who remain actively engaged in the venture. Kim juggles farm work around her off farm role as a primary school teacher. Together, the family are committed to revitalising the farming operation.

When asked to define himself, Tom chose the words: passionate, innovative, open-minded and family-focused. With a commitment to continuing the family farming tradition, they are currently engaged in succession planning, especially as they anticipate the arrival of their first child, due in April.

Tom's long-term vision is to create resilience through low payout years and weather-affected periods, including a drive towards more sustainable farming.

With a current herd size of 375 cows in the peak, with a breed makeup of Holstein Friesian, some crossbreds and a handful of Jerseys.

Last year's milk production came in at 480kg MS/cow. The farm is currently poised for a promising increase to 510kg MS/cow this year, despite the challenges of a particularly wet spring, coupled with the incorporation of a new dairy facility.

The farm spans 140 ha of effective milking area, with a 140 ha runoff. 100 ha of the runoff runs all the rising 1 year olds (R1) and rising 2 year old (R2) young stock, averaging 100 replacements per year, with the remaining 40 ha used for silage and dry cows.

The stocking rate, once established at 3 cows/ha, has undergone a strategic adjustment this year, now settling at 2.7 cows/ha. This recalibration stems from the expansion of the land portfolio, coupled with a deliberate reduction in the number of beef animals.

Grain feed has been reduced from 1.8 tonne/cow, down to 1.6 tonne/cow this season. While with a good season, and additional land, silage conserved has increased from an average of 1 t DM/cow to 2.1 t DM/cow.

Tom expands, "We have a predominantly rye grass-based farm with the addition of some annual mixed species cropping. This helps to push enough growth through winter/summer/autumn."

"We have undertaken extensive soil testing and nutrient rebalancing over the past 3 to 4 years, with the view to creating a system less reliant on synthetic fertiliser, whilst remaining productive."

Fertiliser usage has moved from conventional in 2019, to a gradual reduction in urea and phosphorus and the introduction of biological foliar sprays in 2021. Lime and potassium sulphate, along with additional trace minerals based on soil test results, were spread across the entire farm. Although the transition phase resulted in a temporary slowdown in growth, the farm successfully navigated this period and exhibited a notable increase in clover content on the shoulders of spring. As a result, this has led to more consistent production throughout the exceptional season they have just experienced.

Tom's reproduction strategy involves 9 weeks of artificial insemination followed by 3 weeks with natural service bulls.

Focusing on quality genetics, the aim is to produce heifers from their superior cows; the top 50% of cows receive sexed semen, beef semen is spread across the bottom 20%, and the remaining 30% plus returns are given conventional semen.

The most recent joining was the fourth using sexed semen on the milking herd, and resulted in a 48% conception rate (CR) to all sexed semen on milking cows and 51% CR with conventional semen on milking cows.

When pressed to define his criteria for identifying the 'top' cows in his herd, Tom clarifies, "I'm not solely relying on indexes, but take into account: production, size, overall health, days in milk, fertility and historic performance."

Half of his superior heifers also receive sexed semen via a FTAI program, while the remaining portion are naturally mated with bulls. To determine the very 'best' heifers, he looks at the dam info, physical appearance, breed/type, width, capacity and functionality.

The milking herd completes three weeks of joining before the non-cycling cows are identified and addressed. Non-cyclers predominantly come from the later-calving cows, which were an issue due to historical extended joining periods. Currently, the non-cyclers constitute 7% of the herd for the present season, a notable improvement from 12% over recent years and well below the industry target of <10% left unmated after the first three weeks of joining.

To help identify cows in heat, Tom finds LIC Scratch Patches a very effective heat detection aid. "They are very easy to apply and simple to read, all taking the stress out of joining."

Cow 3512, with an estimated weight of 520kg, holds the current title of Tom's favourite. Sired by Beamer (LIC bull 111037), she is a second-calver, with a first 305 day lactation of 537kg MS and has currently hit 647kg MS in 253 days. Pregnancy tested and in-calf, with a due date of 2 June 2024 she has a planned 60-day dry off period, and is expected to hit 720kg MS this lactation.

Carefully considering his bull selection, Tom keeps an eye on indexes but is more interested in capacity and functionality. Key considerations include udders, as well as feet and legs, as his cows have to walk a considerable distance to the dairy.

An article in last autumn's Green to Gold 2023 by FarmWise consultant Darren Sutton, suggested bringing the calving date forward and reducing stocking rate as a solution to changing seasonal climates, as well as increasing grazed feed as a proportion of the diet. Tom has taken this advice on board and hopes this will be reflected in providing more seasonal resilience.

The herd has moved from a split-calving to seasonal-calving farm system in 2020.

After a period of research investigating more sustainable farming practices, and collaborating with his consultant Peter Norwood, Tom began implementing biological farming in 2020. This change has resulted in noticeable benefits in both production and reproduction on farm.

The calving dates on farm have also pulled forward noticeably. In 2018, the last 45 cows in the herd calved in October, whereas in 2024, there were only 22 cows due to calve in the first 5 days of September and none in October. Tom says this has generally been attributed to lower dietary, non-protein nitrogen (NPN), as demonstrated by tissue testing of pasture. But improvements in non-cycler cow management and better dry cow feeding practices are also contributing factors.

The Kent's herd holds a distinguished position as part of the Ginfo national reference herd, actively leveraging genetic information.

Their commitment to this decision is rooted in a broader perspective, emphasising industry improvement rather than personal gain. While their primary motivation lies in contributing to the advancement of the sector, the Kent family has experienced an additional advantage. They've been able to utilise the required bi-monthly herd test results, using the insights to selectively sell surplus animals.

After years of operating a 22-swing-over milking system with cup removers, a pivotal decision was taken to upgrade to a second-hand 40-bail rotary. The project kicked off in February of 2022, marked by the dismantling of the rotary and its subsequent relocation to the farm. Tom personally completed the majority of the intricate steelwork involved in the construction process, which was no small undertaking. The culmination of these efforts resulted in the first milking session in the new dairy, in November 2022. The transition to the expanded and more efficient milking infrastructure marks a significant milestone in the evolution of the farm's operational setup. More changes are under consideration by the team. "We milk twice-a-day year round, at this stage, but are considering once-a-day milking for the colostrum period."

Tom concludes, "Our overarching goal and vision for the farm is to establish and continue sustainable and regenerative farming practices, whilst enhancing resilience in relation to our family, environment and business."

Accelerate your herd's genetic gain with the FAST FORWARD Team™

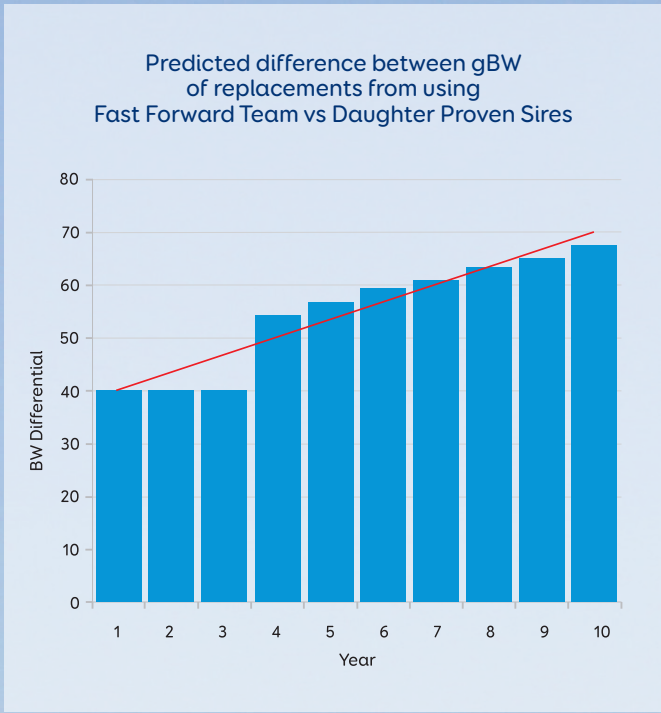
Mike Rose - Business Development Manager, LIC Australia

Spring 2024 marks a significant advancement in our genetic offering for Australian dairy farmers. With a broader selection of our most elite genomic sires, our new Fast Forward Team™ offers premium genetics for farmers to fast-track genetic gain in their herd and ultimately deliver more value on farm.

Our focus continues to be on improving the genetic gain of our customers' herds and ensuring we deliver the types of cows our farmers love - cows that are not only highly productive and efficient, but also long-lasting and profitable.

The Fast Forward Team provides some of our most elite genomic sires, while still leaving room in the mating programme for daughter proven sires to be used.This approach simplifies mating decisions with a group of bulls carefully selected by our Livestock Selection team based on key traits such as production, fertility, health traits and conformation. The result is an exceptional group of bulls whose breeding values, even as a team, rival those of many individual elite daughter proven sires. This is demonstrated by the combined breeding worth of the Fast Forward Team of 83 gBW points higher than the top seven Holstein Friesian and KiwiCross® sires.

Through strong investment into research and development, our genomic sires consistently deliver higher rates of genetic gain. As a result, the gap between genomic and daughter proven sires is widening, and the variation within the genomic group is decreasing, therefore providing farmers with greater confidence.



Farmers across the ditch have benefitted from these gains, with the average gBW (genomic Breeding Worth) of replacement animals increasing by over 70% from 9 gBW per year between 2012 and 2016, to 16 gBW between 2017 and 2020.

This increase is particularly impactful considering that for every 10 gBW point increase per cow, there is an associated increase of 2.3kg milksolids per cow per year.[1] Such rapid improvement in genetic gain has a significant financial impact on farm and in the milk vat.

The genomic sire use in New Zealand continues to rise. This trend has been facilitated by farmers willingness to use larger teams of bulls, often utilising 20 or more bulls during a single joining period.

These larger teams offer several advantages, including reducing the impact of individual bull movement and enhancing genetic diversity by creating a wider range of daughters. This approach also helps to mitigate potential issues related to inbreeding.

With ongoing advancements in genomics, it's probable that this differential will continue to expand.

The Fast Forward Team will be available to farmers from spring 2024.

[1]Source: Demystifying the black box' article, Dairy NZ (July 2014 Technical Series)

How the Fast Forward Team works

- A selection of LIC's elite genomic sires make up the Fast Forward Team
- A team of five to seven sires will be allocated
- The sires are hand-picked by LIC breeding managers to ensure high genetic merit, all-round performance and strong cow families
- An even spread of straws from bulls in the team will be supplied
- Minimum of 50 straws per order
- Available from spring 2024

Terms and conditions apply

$23 - Team price per straw

For more information talk to your District Manager.

Holstein Friesian FAST FORWARD Team™

Genomic Breeding Values

NZ AB Code	Name	Breed 16th	Beta Casein	gBW	Rel	Fat kg	Fat %	Protein kg	Protein %	Milk Volume (litres)	Liveweight	Fertility	Functional Survival	Somatic Cell Count	Body Condition	Heifer Calving Difficulty	Cow Calving Difficulty	Gestation Length (days)
123058	WITTENHAM JACKPOT **AEGON**-ET S2F	F16	A1/A2	558	44	64	5.3	37	4.0	680	55	8.1	6.7	-0.4	0.3	3.7	0.7	0.3
122058	TELESIS FLEX **THEODORE** S1F	F16	A2/A2	524	53	63	5.1	38	3.9	885	53	9.5	2.9	0.1	0.3	1.6	-0.6	-8.0
122013	DICKSONS AR **MONOPOLL**-ET-P S2F	F16	A2/A2	513	56	47	5.2	37	4.2	466	1	7.3	3.6	0.2	0.0	1.7	-0.3	-5.1
123005	PAYNES MJ **PROTECTIVE**-ET S2F	F16	A2/A2	505	45	53	4.5	53	3.7	1473	45	6.9	4.2	-0.2	0.1	4.9	0.8	-5.1
123087	BUSYBROOK S **SMOKIN GUN**-ET S1F	F16	A2/A2	500	48	55	5.3	42	4.2	550	49	4.5	3.6	-0.4	0.0	3.0	1.6	-4.8
123066	MEANDER BROKER **ALLEGRO**-ET S1F	F16	A2/A2	491	45	52	5.2	40	4.1	599	28	3.9	2.5	-0.2	0.0	2.7	1.0	-3.7
122056	MAH FINN **SAGE**-ET S1F	F16	A2/A2	491	54	61	5.7	31	4.2	265	30	3.1	2.2	0.1	0.0	6.0	-0.2	-5.4
	Team Average			**512**	**93**	**56**	**5.2**	**40**	**4.0**	**703**	**37**	**6.2**	**4.0**	**-0.1**	**0.1**	**3.4**	**0.4**	**-4.6**

19/01/2024

Traits other than production

NZ AB Code	Name	Adaptability to Milking	Shed Temperament	Milking Speed	Overall Opinion	Stature	Capacity	Rump Angle	Rump Width	Legs	Udder Support	Front Udder	Rear Udder	Front Teat Placement	Rear Teat Placement	Teat Length	Udder Overall	Dairy Conformation
123058	WITTENHAM JACKPOT **AEGON**-ET S2F	0.29	0.29	0.09	0.46	0.46	0.59	0.54	0.40	-0.08	0.52	0.77	0.29	0.19	0.05	-0.17	0.58	0.54
122058	TELESIS FLEX **THEODORE** S1F	0.19	0.19	0.06	0.33	0.38	0.47	-0.14	0.62	-0.08	0.47	0.57	0.09	0.02	0.10	0.08	0.36	0.55
122013	DICKSONS AR **MONOPOLL**-ET-P S2F	0.42	0.42	0.43	0.49	0.38	0.25	0.00	0.66	-0.02	0.69	0.90	0.50	0.11	0.23	-0.54	0.70	0.37
123005	PAYNES MJ **PROTECTIVE**-ET S2F	0.26	0.26	0.23	0.46	0.35	0.31	-0.31	0.44	-0.20	0.48	0.48	0.40	0.01	-0.11	-0.12	0.48	0.32
123087	BUSYBROOK S **SMOKIN GUN**-ET S1F	0.05	0.04	0.14	0.18	0.82	-0.03	0.17	0.90	-0.16	0.81	0.60	0.53	0.59	0.92	-0.33	0.83	0.28
123066	MEANDER BROKER **ALLEGRO**-ET S1F	0.20	0.19	0.23	0.36	0.70	0.22	0.16	0.30	-0.05	0.80	1.03	0.69	0.78	0.58	-0.37	1.10	0.39
122056	MAH FINN **SAGE**-ET S1F	0.35	0.34	0.32	0.55	0.29	0.22	-0.09	0.16	0.07	0.45	0.43	0.17	0.37	0.11	0.29	0.51	0.39
	Team Average	**0.25**	**0.25**	**0.21**	**0.40**	**0.48**	**0.29**	**0.05**	**0.50**	**-0.07**	**0.60**	**0.68**	**0.38**	**0.30**	**0.27**	**-0.17**	**0.65**	**0.40**

19/01/2024

Weighted Team Averages

Management	-0.5	0	0.5	1	
Adapts to Milking	**0.25**				quickly
Shed Temperament	**0.25**				placid
Milking Speed	**0.21**				fast
Overall Opinion	**0.40**				desirable

Conformation	-0.5	0	0.5	1	
Stature	**0.48**				tall
Capacity	**0.29**				capacious
Rump Angle	**0.05**				sloping
Rump Width	**0.50**				wide
Legs	**-0.07**				curved
Udder Support	**0.60**				strong
Front Udder	**0.68**				strong
Rear Udder	**0.38**				high
Front Teat Placement	**0.30**				close
Rear Teat Placement	**0.27**				close
Teat Length	**-0.17**				long
Udder Overall	**0.65**				desirable
Dairy Conformation	**0.40**				desirable

gBW/Rel%	$512/93%
Milkfat	**56 kgs**
Protein	**40 kgs**
Milk	**703 litres**
Liveweight	**37 kgs**
Functional Survival	**4%**
Milkfat %	**5.2%**
Protein %	**4.0%**
Heifer Calving Dif	**3.4%**
Cow Calving Dif	**0.4%**
Fertility	**6.2%**
SCC	**-0.1**
BCS	**0.1**

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

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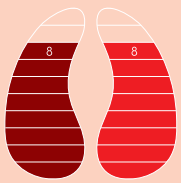
Methane Efficiency

Nitrogen Efficiency



KiwiCross® FAST FORWARD Team™

Genomic Breeding Values

NZ AB Code	Name	Breed 16th	Beta Casein	gBW	Rel	Fat kg	Fat %	Protein kg	Protein %	Milk Volume (litres)	Liveweight	Fertility	Functional Survival	Somatic Cell Count	Body Condition	Heifer Calving Difficulty	Cow Calving Difficulty	Gestation Length (days)
523004	PAYNES **SORCERER**-ET	F9J7	A2/A2	667	47	60	5.6	38	4.3	381	-19	7.0	6.2	-0.4	0.1	-1.2	-1.2	-6.5
523022	BUELIN **ORAN**	J9F7	A2/A2	615	53	69	5.7	44	4.3	433	42	6.5	3.4	-0.1	0.1	-0.6	-0.2	-2.7
523092	PLATEAU **DEMBE**	F9J7	A2/A2	599	46	67	5.6	40	4.2	499	27	4.5	3.8	-0.4	0.1	0.8	-0.1	0.9
523075	ARKANS **GAMBLER**	F10J6	A2/A2	591	47	56	5.2	32	4.1	98	3	9.7	3.9	0.0	0.2	-0.1	-0.5	-7.1
523078	RHANTANA **ZEPPELIN**	F10J6	A2/A2	563	46	53	5.5	30	4.2	313	12	10.3	2.9	-0.5	0.1	-0.7	-0.3	-5.8
522077	TATAWAI **WRESTLER**-ET	F9J7	A2/A2	558	55	54	5.7	38	4.4	197	44	9.0	5.2	0.3	0.3	-0.6	-1.5	-5.8
522069	BENTONS **SECOND-CHANCE**	F11J5	A2/A2	548	53	67	5.6	41	4.2	496	56	3.9	2.3	0.1	0.2	3.2	-1.1	-1.9
	Team Average			**592**	**93**	**61**	**5.6**	**38**	**4.2**	**345**	**24**	**7.3**	**4.0**	**-0.1**	**0.1**	**0.1**	**-0.7**	**-4.1**

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Traits other than production

NZ AB Code	Name	Adaptability to Milking	Shed Temperament	Milking Speed	Overall Opinion	Stature	Capacity	Rump Angle	Rump Width	Legs	Udder Support	Front Udder	Rear Udder	Front Teat Placement	Rear Teat Placement	Teat Length	Udder Overall	Dairy Conformation
523004	PAYNES **SORCERER**-ET	0.58	0.58	0.39	0.68	-0.48	0.45	0.09	-0.07	0.17	0.77	0.52	0.66	-0.04	0.57	-0.13	0.61	0.32
523022	BUELIN **ORAN**	0.49	0.50	0.23	0.68	0.67	0.11	-0.11	0.25	-0.10	0.68	0.33	0.62	0.13	0.36	0.28	0.62	0.29
523092	PLATEAU **DEMBE**	0.11	0.09	0.35	0.23	0.31	0.62	-0.26	0.25	0.13	0.96	0.69	0.97	0.25	0.53	-0.50	0.98	0.69
523075	ARKANS **GAMBLER**	0.18	0.18	0.16	0.31	-0.17	0.28	0.03	0.17	-0.07	0.80	0.90	0.66	0.26	0.25	-0.97	0.87	0.25
523078	RHANTANA **ZEPPELIN**	0.29	0.31	-0.22	0.36	0.06	0.49	0.17	0.24	0.11	0.94	0.94	1.01	0.25	0.36	-0.31	1.05	0.41
522077	TATAWAI **WRESTLER**-ET	0.83	0.86	0.11	0.79	0.09	0.78	0.64	-0.45	0.15	0.34	0.35	0.14	0.24	0.34	-0.14	0.34	0.56
522069	BENTONS **SECOND-CHANCE**	0.63	0.66	0.07	0.66	0.47	0.92	-0.15	0.52	-0.06	0.37	0.31	0.52	0.15	-0.05	-0.11	0.50	0.83
	Team Average	**0.44**	**0.45**	**0.16**	**0.53**	**0.14**	**0.52**	**0.06**	**0.13**	**0.05**	**0.69**	**0.58**	**0.65**	**0.18**	**0.34**	**-0.27**	**0.71**	**0.48**

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Weighted Team Averages

Management	-0.5	0	0.5	1	
Adapts to Milking	**0.44**				quickly
Shed Temperament	**0.45**				placid
Milking Speed	**0.16**				fast
Overall Opinion	**0.53**				desirable
Conformation	-0.5	0	0.5	1	
Stature	**0.14**				tall
Capacity	**0.52**				capacious
Rump Angle	**0.06**				sloping
Rump Width	**0.13**				wide
Legs	**0.05**				curved
Udder Support	**0.69**				strong
Front Udder	**0.58**				strong
Rear Udder	**0.65**				high
Front Teat Placement	**0.18**				close
Rear Teat Placement	**0.34**				close
Teat Length	**-0.27**				long
Udder Overall	**0.71**				desirable
Dairy Conformation	**0.48**				desirable

gBW/Rel%	$592/93
Milkfat	**61 kgs**
Protein	**38 kgs**
Milk	**345 litres**
Liveweight	**24 kgs**
Functional Survival	**4.0%**
Milkfat %	**5.6%**
Protein %	**4.2%**
Heifer Calving Dif	**0.1%**
Cow Calving Dif	**-0.7%**
Fertility	**7.3%**
SCC	**-0.1**
BCS	**0.1**

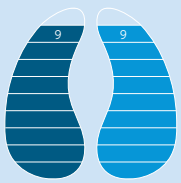
NB: the reliability of a team of bulls is always higher than using just one bull.

19/01/2024

HoofPrint®

Methane Efficiency

Nitrogen Efficiency



by Jayden Calder,
LIC herd improvement analyst

Reliability - There's no 'i' in Team

Don't overlook reliability when assessing whether young bulls will fulfil your breeding aspirations. What does it mean, and just what kind of impact does it have?

At mating, the choice of bulls to sire the next generation of replacements is many and varied: This bull, or that bull? A team of five bulls or 10 bulls?

All decisions require a level of trust in the quality of animal evaluation information that sits behind bull selections.

The engine room of LIC's bull selections is the LIC genomic evaluation model, which had its most significant update implemented in February 2020.

Since then, both the number and quality of genotypes used for genomic evaluation has significantly increased, leading to better estimations of genetic merit.

The use of genomics has enabled the widespread use of young bulls, years before the bulls' daughters have information of their own.

While this reduction in the sire generation interval has huge benefits for increasing rates of genetic gain, it's important to not lose sight of the practical application of bull teams on-farm; more specifically, the reliability of gBW and the appropriate use of a team of young genomic bulls.

For all traits, reliability is measured on a scale of 0 to 100%, and indicates the confidence that an animal's gBW (or individual breeding values) are a measure of their true merit. The breeding value for each trait has an associated reliability, and will change over time with the addition of more information from sources like ancestry and daughter information.

The gBW index is a combination of breeding values and economic values for 10 traits that have measurable economic value to pastoral dairy farmers. Changes to gBW are not limited to the addition of new information; factors such as economic value updates and model changes also influence gBW changes.

Ultimately, changes to gBW provide a more accurate ranking of bulls on their expected ability to breed profitable and efficient replacements, while reliability of gBW serves as a useful indication of the amount of information behind the estimate.

Without a genotype, a young bull will have a gBW that represents his parent average genetic merit, and will carry a gBW reliability of 30-40%.

At this early age it is not known whether the bull received a 'favourable' or 'unfavourable' combination of genes from sire and dam.

Early genomic prediction provides a far greater estimate of lifetime genetic merit over and above what can be obtained through parent average information alone

Cue the value proposition of genomics:

Take the same bull and add the information from his own genotype and the gBW reliability will increase to around 50-60%. At this level of reliability, movement in gBW is still expected once daughter information is obtained for a young genomically-evaluated bull. However, the accuracy of this early genomic prediction provides a far greater estimate of lifetime genetic merit over and above what can be obtained through parent average information alone.

What does this mean for bull selections?

Putting all your eggs in one basket, by choosing only a couple of young genomic bulls, opens the door for differences in team gBW expected vs team gBW delivered. But this should not deter farmers from selecting young genomic bulls, as early access to these genetics is an opportunity to get ahead of the pack.

Picking an adequate number of bulls means that the team gBW delivered will match the team gBW expected, smoothing out any upward or downward movements in gBW at an individual bull level.

Finding the sweet spot between gBW gain and target number of bulls will ensure that the risk versus reward is balanced appropriately, while maintaining genetic diversity across the herd.

Table 1 provides estimates of team gBW reliability under increasing numbers of young genomic bulls.

The 'sweet spot' is around 6-10 young genomic bulls which will balance team gBW with team gBW reliability.

Selecting more bulls will further increase the team gBW reliability, however may compromise genetic gain through having to select additional bulls.

The team approach is a non-negotiable principle to a balanced breeding approach which should always be considered at the time of making bull selections. Getting the balance right will manage the potential variation at an individual level, while breeding the best cows for your herd of the future.

Table 1. Estimated team gBW reliability for varied numbers of young genomic bulls

Number of Young Genomic Bulls	1	2	4	6	8	16
Team gBW Reliability (%)*	52	76	88	92	94	97

(*approximations only)

Young Dairy Network Study Tour

New Zealand Farming Diversity Insights

YDN Study Tour group outside LIC's head office, Newstead

Recently, LIC Tasmanian District Manager Rowan Priest had the pleasure of accompanying a group of 19 young dairy farmers from Australia on a week-long study tour of New Zealand.

Organized by the Young Dairy Network (YDN) and facilitated by WestVic Dairy, the tour aimed to provide participants with a first-hand experience to highlight the diversity of dairy farming within New Zealand.

The group, comprised of dairy farm owners, share farmers, farm managers, and skilled workers, was inspired by the experiences of four YDN members who had participated in a similar study tour visiting LIC back in 2022. The tours aim was to highlight the innovative practices and technologies that have made New Zealand successful in dairy farming.

The tour kicked off with a visit to a 480-cow herd farm using cow wearable technology. The final stop for the day, was a visit to a sheep farm, milking up to 1,100 sheep at peak production and producing an average production of 260 litres per ewe, per lactation.

A great start to the second day, was a visit to Livestock Improvement's (LIC) head office based at Newstead, Hamilton. Here the group learned about the company's role in developing their crossbred KiwiCross® bulls. LIC genetics, now shipped around the world, including the UK and Ireland, along with long standing markets in South America and South Africa, have had a significant impact on New Zealand's dairy industry. The visit provided valuable insights into the latest advancements in genetic improvement services and their application, along with the future of dairy farming.

The group then travelled to Owl Farm, a 160-hectare demonstration dairy farm, which is a joint venture between St Peter's School Cambridge and Lincoln University. Owl Farm's commitment to environmental sustainability, including carbon measurement and emission reduction, sets a high standard for the industry.

It was then onto another dairy farm who has been using cow wearable technology for the last three years, who praised the system for its ability to maximise pasture usage and reduce labour requirements. Adding to the already busy tour, was an evening dinner discussion with a NZ Dairy Farm Manager Award winner, Andrew Macky who talked about once-a-day milking options.

Day three began with a visit to the Dairy Expo at Matamata, featuring over 80 exhibitors. Following this, they set off to visit a farming operation that managed both an autumn-calving herd and a more traditional spring-calving herd (350 cows each).

The young crew were then treated to a bygone era, with a special visit to a private tractor collection in Morrinsville before meeting with members of the Fonterra New Zealand team. This provided some great insight and discussion into the processing side of the New Zealand dairy industry and how Fonterra places a strong emphasis on environmental sustainability and animal welfare.

Day four began with a visit to the most intensive farm on the tour, milking 226 Jersey cows on 55 hectares, achieving a stocking rate of 4.1 cows per hectare. The farm's drainage and effluent management system utilises water from the nearby river.

The day's final visit was to a farm operating on a slightly different 50:50 share farm business model. With 800 cows and machinery, the owners hire a contract milker to handle most labour. Additionally, they run a 650-strong herd of Herefords on a separate property.

The final day of the tour saw the group stop at a Māori trust established back in 1962, milking up to 1000 spring-calving cows. Recently they have been significantly impacted by nitrogen laws and restrictions due to the farm's proximity to a local Lake. This has led to some unique diversifications, one of which being land leased to the government for a young offender facility.

The group concluded their tour visiting a 50:50 share farmer dairy operation, with a strong focus on environmental improvement. This commitment drove them to plant hectares of native trees and make significant upgrades to their effluent system, including a lined pond managed remotely via phone or laptop. An impressive effort which culminated in them winning the Supreme Award at the 2018 Balance Environment Awards.

Overall, the study tour was a resounding success, providing participants with valuable insights into the latest innovations and varied practices in dairy farming. The experiences shared and lessons learned will undoubtedly inspire the group to implement new ideas and technologies back on their own farms, in Western Victoria.

Tour Insights Q&A

Billy Buckingham, Jancourt East, Victoria

Billy Buckingham grew up on his family's dairy farm in Jancourt East, Southwest Victoria, and two and a half years ago began working alongside his father and uncle on the 400-cow farm. Billy is eager to learn about the practices and techniques used in New Zealand that could benefit his farm.

How did the tour contribute to your understanding of the challenges faced by the dairy industry and agriculture in New Zealand?

It was good to know that NZ are facing the same challenges in dairy farming and agriculture in general, and also that other tour participants are in the same boat.

Were there any interactions or discussions with farmers or industry experts that were particularly insightful or memorable?

Evening speaker, Andrew Macky who is a NZ Dairy Farm Manager Award winner, gave an insightful talk about once-a-day milking, which is a totally foreign concept to me but something that may certainly be considered in the future. It highlighted for me that there is no right or wrong way to do something - every farmer can do what works for them.

In what ways do you think the Young Dairy Network of Australia could incorporate learnings from this tour to better support young people in the industry?

I am on the committee of West Vic YDN, and we are ready to help drive change and renew enthusiasm among young farmers. There are a few younger people returning to family farms and we need to engage with them. If more of these tours could happen to educate and engage young farmers, it would be worth every penny.

Billy Buckingham and Zoe Greenslade

How did the tour highlight the importance of sustainability and environmental stewardship in dairy farming and agriculture?

NZ are far more advanced in sustainability education, especially in areas like effluent management.

What were your overall thoughts after the tour?

I really enjoyed networking with other young farmers from Australia, always talking on the bus, in the evenings, learning from each other, and sharing ideas. Also being given the opportunity to network with industry leaders during the tour and speaking with government and Fonterra representatives.

Our visit to LIC was so comfortable and relaxed, everyone just felt like a big family and we were welcomed with open arms. Everything was explained in a language we could understand, and no question was a silly one. Rowan Priest was an awesome LIC ambassador to have on the tour with us, and being an LIC breeder of elite bulls, and a current australian dairy farmer, he had a wealth of knowledge to share and was very easy to relate to.

> "This tour was the best experience ever - overall it was a brilliant tour."

I was impressed with the crossbred cows that I saw on the tour. I liked their robustness, being good for the conditions, less pugging, and were sturdy cows doing really good production. We are targeting fat and protein, which is why we like the Friesian Jersey cross. I also really liked the LIC Jerseys I saw, as they were big and robust - everything I want in a Jersey.

Zoe Greenslade - Peterborough, South Australia

Zoe is not a newbie to study tours, with this being her fourth tour and third time to New Zealand. She currently farms alongside her partner in Peterborough, milking 280 mixed crossbred cows, in a 50/50 share farming arrangement.

Were there any specific aspects of the New Zealand dairy industry that you found particularly inspiring or innovative?

Having visited New Zealand previously, we have implemented similar farming practices and have a similar stocking rate.

Did the tour inspire any ideas or changes that you think could be implemented in your own work or industry?

Effluent management is a big thing now and it was great to see lots of options - we are looking at ways of doing it better and saw some great ideas from the farms we visited.

What were your overall thoughts after the tour?

Spending time with Rowan Priest on tour and visiting LIC, my impression is that they know where they're going and have a great strategy in place. Very well structured.

Heat Detection

Effective heat detection leads to higher AI success, which gives you more cows in-calf, a tighter calving pattern and extra milk in the vat, improving productivity and profitability for your farm.

LIC Scratch Patch

LIC Scratch Patch heat detectors are cost-effective and efficient aids. When mating activity occurs the silver layer rubs off to reveal a fluorescent colour.

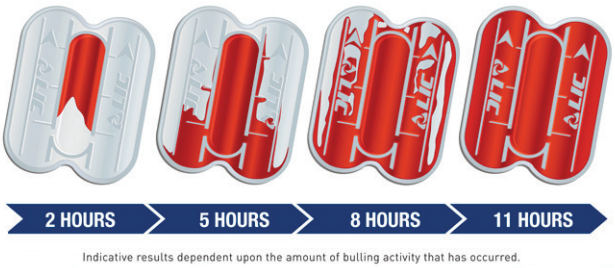
- Multiple colours allow for multiple rounds of heat detection.
- Friction based technology helps indicate the approximate level of mating that has occurred.

Available in 5 fluorescent, easy-to-spot colours – red, yellow, pink, green, blue.

Pack of 50

LIC Heat Patch Plus

LIC Heat Patch Plus heat detection aids are our premium patches for easy and accurate identification. The technology enables the dye to bleed right to the edges making them highly visible and indicating the length of time a cow has been on heat.



- Dye can spread right to the edges of the patch for greater visibility and accuracy.
- Self-adhesive - no glue required.
- Four-second time-release technology to help identify true standing heats.

Available in 3 colours: red, pink & blue.

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