



When it comes to your genetics needs, who says you can't have it all?

What do you want from your breeding programme? Do you want to increase Breeding Worth and genetic gain? Or are you looking for more specific characteristics such as udder BVs, conformation and fertility?

At LIC we pride ourselves on the quality of our bull teams. Premier Sires delivers our best-value genetics through our

carefully selected, high BW bulls. On the other hand, Alpha Nominated allows you to hone in on specific breeding objectives by hand-picking sires that best fit your criteria whether that's production, management or type.

But we don't stop there. We also offer genetics to suit different farming systems such as Once-A-Day milking,

High Input and A2 production. Whatever your genetic needs, we have a solution for you at a competitive price.

To find out more about our genetic solutions, talk to your local FSM.



the BULLETIN

LIC 2016 | AUTUMN



SAME GAME, SHIFTING GOALPOSTS



Geoff Corbett,
general manager, biological systems

My message in the previous issue of *The Bulletin* was “in a year like this, when efficiency is king, luxuries are out-the-door and necessities must represent value-for-money.”

Unfortunately there has been little change in the realities facing farmers, and the message this season is similar.

There has been a lot of talk in the media of a need to return to efficient farming systems, more grass and less bought-in feed.

This of course is supported with the ideal grass-based genetics being utilised to efficiently turn pasture into profit.

It's no coincidence that this is exactly where LIC genetics excel.

This year LIC again seeks to ‘lift the bar’, and we're confident we'll do this

again by providing an even wider range of genetic solutions to help our farmers through this tough, almost unprecedented, period.

Last season farmer shareholders saw the value in LIC genetic solutions, especially in the breadth of options offered in Premier Sires (across all breeds), and in our innovative solutions in SGL dairy and Hereford.

We'll continue that theme this year, with certain farmers expected to choose multiple solutions: LIC can meet that challenge with even-stronger teams, complemented by an array of new options to suit individual needs.

Short Gestation Solutions

Our SGL solutions continue to grow strongly: Farmers recognise they offer significant value in this tough environment.

In a difficult year – which can include cases of lower submission rates and dispersed calvings – SGL offers significant benefits: Its use is designed to result in:

- a more-compact calving spread (shortening calving intervals by up to 10 days on-farm);
- more cows in calf;
- less intervention, and;
- more days-in-milk.

SGL is therefore an excellent part of any breeding arsenal, especially when used in conjunction with LIC's Premier Sires solutions.

Things only get better. SGL Hereford will also be available in liquid this year to allow farmers even greater choice and flexibility. The use of the this product should help farmers take advantage of the strong beef market.

It is also worth mentioning that there are a number of other beef breeds available, which are specifically selected for dairy (see the back of LIC's **Alpha Catalogue**).

New Developments

This year LIC is mixing things up, with a range of new nominated options in Alpha: once-a-day (OAD), A2, and High-Input no-choice Packs.

In the current climate, there's growing interest in OAD.

In response, there has been a significant refresh of our OAD index. More about LIC's revamped OAD selection index can be read on page 6 & 7.

If you're looking for faster genetic gain, look no further than LIC's **'Best of the Best'** Forward Pack teams for your herd.

Forward Packs are typically the feature of our spring issue. The Forward Packs are forecast to be considerably stronger this season, with an exciting influx of new spring bulls to come! Of course, there is always a lot of interest in these new guys, and this year should be no exception.

The graduation of last season's spring bulls to Premier Sires has been outstanding: Special mention goes to last year's Jersey spring bulls – Frankie and Index – who now top this year's impressive Premier Sires Jersey team.

What's the story with BW?

It is also worth checking out New Zealand Animal Evaluation's (NZAE) changes to the Breeding Worth (BW) Index, implemented in February's Animal Evaluation run.

Along with the usual routine updates of the economic values, we now see the inclusion of Body Condition Score (BCS) – which LIC pre-emptively introduced last season. Other changes to the model include tweaks to the fertility breeding value and the introduction of a re-proof bias adjustment.

The fertility changes improve the way some mating data is treated within the model, and are designed to increase the accuracy of sire breeding values (more on this is detailed on pages 4 and 5).

The challenges facing each farmer are likely to differ from farm-to-farm, but LIC endeavours to provide an extensive range of genetic solutions to fit requirements.

The best solution for your situation should be discussed and planned with your local Farm Solutions Manager.

Wishing you the very best for season-end in May, and the brightest possible prospects for the 2016/2017 season.

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PAINT IT BLACK!

NEW LOOK KIWICROSS PREMIER SIRES

Here, Greg Hamill, LIC genetics business manager, provides an overview of why many dairy farmers find crossbreeding an attractive proposition, before detailing LIC's market response to an increasing desire among farmers for a bigger, blacker, cow.



Greg Hamill
LIC genetics business manager

The primary goal of dairy cattle breeding is to make efficiency gains in milksolids production.

In New Zealand, crossbreeding is considered the fastest method of achieving this efficiency.

In 2004, in response to growing demand for crossbred genetics, LIC launched KiwiCross bulls to the market.

Since then, the number of crossbred cows in the national herd has dramatically increased. Crossbreds have quickly earned their reputation as 'easier care' cows.

Various studies point to the advantages of crossbreeding, including improvements to:

- Milk production traits
- Reproduction
- Health (for example, somatic cell counts) and survival

The major benefits of the above are two-fold:

- 1) A longer herd life can substantially reduce the number of replacements required for a herd - and therefore associated costs of rearing and grazing replacements. More cows in the 'mature age group' increases total herd productivity.
- 2) Better health and fertility reduces intervention costs, decreasing the

incidence of involuntary culling (and therefore increased scope for voluntary culling or reducing replacements).

Improvements through crossbreeding are a result of heterosis, also referred to as 'hybrid vigour'.

When animals of different breeds are crossed, the performance of the crossbred animal (on average) can be greater than what would be expected from the average of two parents. Heterosis is the measure of superior performance.

The below table shows the benefits of heterosis (hybrid vigour) on a first cross animal:

Trait	Impact of hybrid vigour
Milkfat	+ 4.7%
Protein	+ 4.6%
Milk volume	+ 4.2%
Liveweight	+ 2.1%
Cow fertility*	+5.2%
Somatic cell count	- 4.1% (favourable)
Days of herd life	+ 13.5%

* Number of cows re-calving in first 42 days of calving period.

Heterosis is strongest in the first cross between pure breeds.

Its effect diminishes, although is still significant, in subsequent crossing. For example, a first cross cow (F8J8), mated to a F8J8 sire will retain 50% hybrid vigour, together with associated benefits (listed above).

The same F8J8 cow mated back to either parent breed (F16 or J16) also retains 50% hybrid vigour.

Phenotypic Variability

The first cross animal from purebred parents tends to be fairly uniform in physical appearance.

A Friesian-Jersey first cross animal almost always possesses a solid black coat colour.

However when a first cross animal is mated to another first cross animal, genes are further mixed up - resulting in greater variation in the progeny, including: a greater range of coat colours; a range in size, and; variation in milk production characteristics. For example, the progeny may appear as small black-and-white animals, or larger Jersey-coloured animals.

Farmer feedback (through surveys) reveals the preferred crossbred cow for the majority of LIC's KiwiCross farmers tends to be an animal around the F10- to F12- cross.

This higher-Friesian cross animal reduces the phenotypic (physical appearance) variation, providing farmers with more uniformity in the resulting progeny.

New criteria for LIC KiwiCross Premier Sires

In response to market demand, LIC's genetics team will - when confirming the 2016 Premier Sires KiwiCross team - ensure all appointed bulls meet specific breed-split criteria (in addition to meeting usual benchmarks for selection to Premier Sires).

This year, for the first time, the KiwiCross Premier Sires team will be predominantly made up of sires possessing a breed mix of F8 and greater.

A J9-F7 bull may be selected if it meets a 'liveweight threshold', indicating it would throw progeny that are more characteristic of Friesians.



Lincoln University's crossbred herd has a heavier mix of Friesian - leading to consistency in animal size

However, all J10 and J11 sires will be excluded from the KiwiCross Premier Sires Daughter Proven team.

A higher Jersey content team will be available through Alpha as a 'no-choice pack', at a reduced price from the standard Classic packs (ie. for farmers seeking KiwiCross bulls that are more dominant in Jersey).

By placing more emphasis on the breed split of our Premier Sires KiwiCross team, LIC expects to be able to narrow the variation in progeny - delivering a consistent cohort of calves each year to filter through the herd and helping farmers achieve the uniformity they are seeking.

LIC has seen the kind of uniformity that can delivered on-farm when a F10 breeding goal is worked toward.

Having worked with Lincoln University's Dairy Farm (LUDF) for a number of years, LIC principal advisor Jack Hooper has helped deliver the farm's breeding goal - which was to breed a herd of cows that were between F10 and F12 in breed split.

The size of the cow is consistent (as indicated in the above photo). LUDF is reaping heterosis benefits, and this year the aim is to achieve at least 500kg of milksolids per cow (from a predominantly pasture based system).

For more information on results LUDF is achieving with its crossbreeding programme, visit www.sidc.org.nz

PREMIER SIRES KIWICROSS DAUGHTER PROVEN TEAM			
AB Code	Bull Name	Breed split	BW
511011	PREISTS SIERRA	F11J5	277
511051	DRYSDALES SOVEREIGN	F8J8	256
511026	ARKANS BEAUT ET	F9J7	242
512050	ARKANS PERSPECTIVE-ET	F8J8	230
511007	CASTLEGRACE MAKO	F7J9	228
512005	JUST ONCE COOPER	F9J7	223
512051	ARKANS INSTIGATOR	F7J8O1	217
511028	ARKANS BLOCKBUSTER	F8J8	215
512018	GLENMEAD FLAMBOYANT ET	F12J4	210
512024	WERDERS PRELUDE	F10J6	209
512037	GREENMILE GAME DAY	F8J8	205
512008	SCOTTS BRAVO ET	F8J8	201
Expected team weighted average			232

View full team information on pages 18 & 19.

IMPROVING THE IMPROVEMENT INDEX



In terms of Animal Evaluation (AE) updates, it doesn't get much bigger than the changes that occurred to the Breeding Worth index during February, says Rachel Bloxham, LIC animal evaluation manager.

Rachel Bloxham
LIC animal evaluation manager

Following the February 13 AE run, many farmers will have noticed significant changes in Breeding Worth (BW), Production Worth (PW) and Lactation Worth (LW).

From a cow and herd perspective, the biggest influencing factor was the annual update to the economic values – which, given the fall in dairy returns, took on a good degree of significance this year.

Annual Economic Value (EV) update

The underlying information used in the annual calculation of economic values reflects changes in income and costs for the industry and the farmers within it.

Annual updates ensure Breeding Worth remains relevant in an ever-changing market environment.

New figures are now attributed to economic values (for example, the value of protein has markedly dropped, while the value of fat has slightly increased). See Table 1 on page 5.

NZAEL enhancements

Aside from the annual economic updates, there were several significant enhancements to the AE system in February.

These included:

- The addition of the Body Condition Score (BCS) trait to Breeding Worth
- A change to the model that drives the fertility breeding value
- The introduction of a 'reproof bias adjustment'
- Re-estimation of the residual survival breeding value

All changes have most impact on bull evaluations, although there is a less significant impact on the national population.

Each of the enhancements are outlined in full on DairyNZ's website, but a summary is offered below.

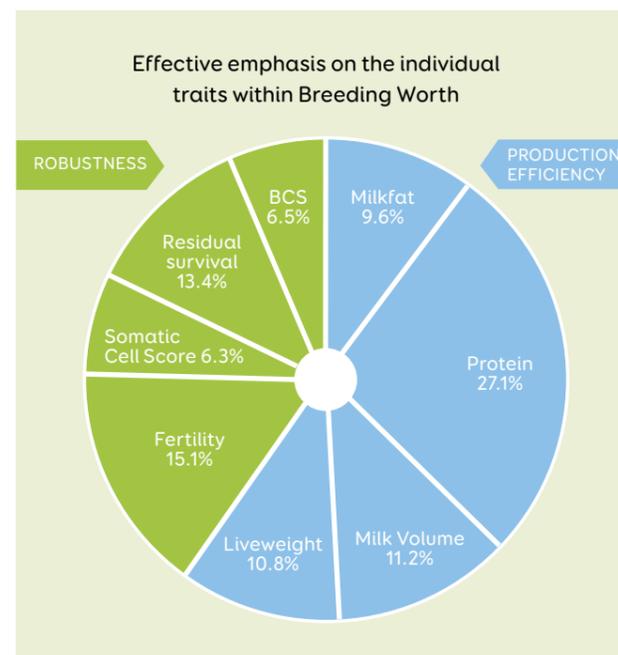
1. Body Condition Score (BCS)

The inclusion of BCS in BW recognises the value of a cow's ability to hold on to body condition into late-lactation.

If a cow is light toward the end of her lactation, the farmer must take action to ensure she regains condition before calving.

The farmer can either dry her off early, or feed her more during the autumn and winter (when feed is at a premium). Both options result in lost profit.

The graphic below illustrates the new 'effective trait weightings' within BW, following the update to economic values and the inclusion of Body Condition Score (BCS).



2. Fertility Breeding Value

Ongoing development work on the transfer of AE operations to NZAEL identified the need to modify the fertility model. The model more efficiently utilises mating records, improving the accuracy of the Fertility BV.

The impact of the economic value update is illustrated in Table 1, using February breeding value results from LIC's Innovation Farm.

Trait	Average Herd BV	2015 EVs	Value in BW	2016 EVs	Value in BW	Difference
Milkfat (\$/kg)	20.06	1.81	36.31	1.83	36.71	0.40
Milk protein (\$/kg)	13.85	8.18	113.29	7.25	100.41	-12.88
Milk volume (\$/L)	160	-0.097	-15.52	-0.088	-14.08	1.44
Liveweight (\$/kg)	-11.2	-1.63	18.26	-1.37	15.34	-2.91
Fertility (\$/%)	1.8	7.23	13.01	6.84	12.31	-0.70
Somatic cell score (\$/SCS)	0.03	-38.61	-1.16	-37.88	-1.14	0.02
Residual survival (\$/day)	0.2	0.14	0.03	0.13	0.03	0.00
Body condition score (\$/BCS point)	0.02	NA	0.00	98.4	1.97	1.97
Overall impact on Breeding Worth (\$)						-12.66

NB: The revised economic values for calculating PW and LW are the same as those used in the BW calculation, with the exception of milk volume, which is \$-0.086.

3. Reproof bias adjustment

NZAEL research determined that, when a bull is used on a widespread basis, a negative bias is introduced into his BW.

It is likely this bias is caused by incorrect recording of parentage against this sire.

The scale of this bias has been increasing over time, and, until now, was approaching a level that falls short of international standards.

NZAEL has developed an adjustment method that removes the bias from the Breeding Worth of 'reproof' bulls.

These reproof bulls are typically (i) born between 2003 and 2006, and; (ii) have gone through a progeny test and now have a second set of reproof daughters from widespread use in the national herd.

The degree of adjustment for each bull is based on his age, breed, and number of widespread reproof daughters.

This reproof bias adjustment is a step in the right direction, but it does not entirely address what is recognised as a challenging issue within the industry (and industries worldwide).

DairyNZ says it is committed to ongoing improvement of the genetic evaluation system, and will continue to research alternative correction methods.

4. Re-estimation of residual survival breeding value

A regression equation is used to estimate 'Total Longevity' (not accounted for by the traits making up BW), allowing survival to be included in BW without double-counting.

A refreshed regression equation that relates to the residual survival breeding value has also been introduced to the BW model. The new equation is now more-representative of today's national population, as well as adjusting for the inclusion of BCS.

"Due to a lower forecast milk price for 2015/16, the main changes this year are an easing in the economic values for milk and protein. Despite the lower milk price, the economic value of fat has remained stable due to an increase in the relative value of fat to protein. The lower five-year rolling average milk price has also caused the (negative) economic value for liveweight to ease slightly, as the opportunity cost of feed to satisfy maintenance requirements has reduced, while cull cow and surplus calf values have remained strong."

- Melissa Stephen, genetic evaluation developer, DairyNZ.

OVERALL IMPACT ON FARMERS

The impact of the changes discussed above will differ depending on the breeding values and breed make-up of differing herds.

Based on average breeding values for all current cows, the effect is -1 BW, -13.4 BW, and -9.4 BW for Holstein-Friesian, Jersey and Crossbreds respectively.

It is worth noting that just because a herd's BW may have declined, this doesn't necessarily correspond to a change in ranking within the national population: Herds of similar breed makeups and breeding values will be affected in a similar manner.

Farmers are advised to contact their LIC Farm Solutions Manager for their latest cow and herd AE statistics.

Overall, February 2016's changes are designed to enhance utilisation of records and provide more-accurate predictions, better-reflecting the true value of bulls and their daughters.

To read about these changes in more detail, visit www.dairynz.co.nz/about-bw

Matt and Emma Dark of Aria, making a real success of OAD in a challenging farm situation, discuss the use of LIC's new OAD selection index with Malcolm Ellis (right)



GROWING INTEREST IN OAD MILKING

by Malcolm Ellis, LIC bull acquisition manager.

The economic climate of the dairy industry is causing farmers to ask searching questions.

A number of those questions are about farm systems, as management seeks a farm set up that is sustainable and possesses adequate insulation in a world of fluctuating milk returns.

For many years a small portion of New Zealand dairy farmers have opted for a year-round, once-a-day (OAD), milking regime in their dairy farm operation.

The motivation typically varies from lifestyle to long walks between paddocks and the dairy (due to farm layout). In some cases, cow shed design, or labour structure, contributes to the decision.

The industry is now experiencing a sharp increase in the practice of OAD milking. The new motivation appears to be a desire to reposition the farm business.

The decision to go OAD has been made easier by numerous examples within the industry of outstanding OAD farmers.

With my work in this space at LIC, I've had the pleasure of meeting a number of these successful OAD farmers. Once they are four to six years into their OAD journey, they frequently display an ability to produce very similar milk solids output from their farms as they would under a twice-a-day regime.

Cows may not peak as high as they once did, nor record the same per-cow

per-day performance at different stages of the lactation, but the majority of extra productivity comes from days-in-milk.

Some of the farms I've seen achieve an 80+% 6 week in-calf rate, and 4% to 7% empty rates. Put these statistics into the mix of the farm business and the impact of OAD is looking altogether positive and compelling.

LIC's new OAD Selection Index (OADS)

For the past 10 years LIC has operated an OAD index, with calculations largely aligned to the then small amount of OAD herd performance data to the much larger twice-a-day (TAD) data sets.

The upshot of the maths was a set of predictions for OAD breeding values.

In June 2015 the above method at LIC was overhauled.

After considerable consultation with the OAD community, LIC identified non-negotiable functional OAD traits that were essential to reducing wastage in OAD regimes.

Udder support, front teat placement, milking speed, and body capacity are critical success factors in an OAD

cow; these traits acknowledge the key differences, and challenges, between OAD and TAD herds.

The four traits ultimately dictate survival of a cow in an OAD herd and require a weighting within the new desired gains OAD Selection Index - and potentially in place of the Residual Survival weighting within BW.

On the flipside, fertility - which has a current weighting of 15% in BW - is much less of an issue to an OAD farmer (with the regime going a long way to drive fertility improvement on farm).

The weighting for the somatic cell count (SCC) trait has been an interesting discussion point.

There is a common, misunderstood, perception that SCC can be an issue particular to OAD milking.

The following weightings for OADS were settled on:

Breeding Value (BV)	BW 2016 Weightings	OADS Weightings
Protein	27%	29%
Milkfat	10%	11%
Milk Volume	11%	14%
Liveweight	11%	12%
Fertilty	15%	5%
Somatic Cell Count (SCC)	6%	6%
Body Condition Score (BCS)	7%	2%
Residual Survival	13%	0%
Milking Speed		5%
Capacity		4%
Udder Support		10%
Front Teats		2%
	100%	100%

Unfortunately, this opinion frequently comes from TAD farmers who have negative experiences brought about from putting their herd onto OAD late in a dry season (when there appears to be few other options); this can result in a bulk count doubling and running into the grading zone.

The majority of the OAD farmers I have met admit they must be vigilant with mastitis, treating and culling appropriately. However, if best practice is observed, bulk counts are kept under good control.

A statistic that supports this, and really blows me away, is that the average SCC for OAD farmers (supplying milk to Fonterra) is actually lower than TAD counterparts across the season.

We wanted the new OAD selection index (OADS) to be strongly correlated to BW, because at the end of the day BW is an outstanding predictor of productive efficiency. However, with the added pressure of only extracting milk once a day, OAD cows need to last. When the breeding values (BVs) of these traits are calculated for bulls (or cows) it re-ranks some animals noticeably.

This year LIC will offer a team of OAD bulls for each breed selected on the OADS.

The OAD bulls are outlined in the Alpha Catalogue at a reduced price, but come as a 'no-choice OAD Pack'.

Bulls will remain competitive on BW but will have the added advantage of being outstanding across the additional traits.

The decision to convert a farm system to OAD is not as simple as 'just not getting the girls in tonight'.

The breeding of the best cows to perform on OAD is a long game.

Many will convert extremely well, but some don't, and some won't last.

The new OADS will be a valuable tool in driving the rate of genetic gain in OAD herds as a result of driving down herd wastage.

JERSEY

AB code	Name	OAD Index	Breeding Worth	Fat BV	Protein BV	Milk BV	Liveweight BV	Fertility BV	Somatic Cell BV	Body Condition BV	Residual Survival BV	Milking Speed BV	Capacity BV	Udder Support BV	Front Teat BV
309084	LYNBROOK TERRIFIC ET S3J	1359	249	13	8	-365	-52	5.0	0.00	0.31	5	0.24	0.76	1.20	0.33
312047	ARRIETA TERRIFIC DESI ET	1293	237	22	4	-660	-52	5.8	-0.25	0.10	-155	0.25	0.56	0.32	0.09
306025	TIRONUI OM JOSKIN	1279	215	22	13	61	-38	3.3	-0.19	0.24	-163	0.27	0.99	0.29	0.37
309012	KELLAND SPEEDWAY	1278	207	21	13	-86	-29	1.1	-0.16	0.04	43	0.23	0.49	0.57	0.43
312059	LYNBROOK GG QUICKSILVER	1278	237	25	2	-745	-42	8.1	0.1	0.14	-90	0.31	0.52	0.38	0.05
312060	KAITAKA MURMUR LEO ET	1275	248	16	7	-298	-87	3.4	-0.13	0.01	-59	0.21	0.2	0.09	0.32
309090	KERSTENS KRC RONALDO	1264	171	27	9	-311	-34	-0.7	0.07	0.07	-134	0.12	0.72	0.36	0.64
Average		1289	223	21	8	-343	-48	3.7	-0.08	0.13	-79	0.23	0.61	0.46	0.32

KIWICROSS

AB code	Name	OAD Index	Breeding Worth	Fat BV	Protein BV	Milk BV	Liveweight BV	Fertility BV	Somatic Cell BV	Body Condition BV	Residual Survival BV	Milking Speed BV	Capacity BV	Udder Support BV	Front Teat BV
511051	DRYSDALES SOVEREIGN	1327	256	27	21	256	-4	2.8	-0.67	0.36	-50	0.18	0.94	0.69	0.44
512051	ARKANS INSTIGATOR	1295	217	28	28	637	15	-0.7	-0.48	0.21	9	0.09	0.85	0.67	0.58
511011	PRIESTS SIERRA	1286	277	46	32	595	40	9.9	-0.29	0.12	-141	0.23	0.46	0.32	0.14
511015	BURWELLS RILEY	1279	180	35	41	1066	33	1.4	0.31	-0.12	-198	-0.08	0.49	0.72	0.40
512005	JUST ONCE COOPER	1274	223	31	14	12	-28	5.4	-0.10	-0.01	-71	0.15	0.14	0.55	0.25
508154	PRIESTS SOLARIS	1271	225	17	16	129	-3	4.3	-0.94	0.42	-174	-0.07	1.17	0.40	0.20
512050	ARKANS PERSPECTIVE-ET	1271	230	29	20	256	-17	6.9	-0.18	-0.03	-165	0.17	0.15	0.44	-0.03
Average		1286	230	30	25	422	5	4.3	-0.34	0.14	-113	0.10	0.60	0.54	0.28

HOLSTEIN-FRIESIAN

AB code	Name	OAD Index	Breeding Worth	Fat BV	Protein BV	Milk BV	Liveweight BV	Fertility BV	Somatic Cell BV	Body Condition BV	Residual Survival BV	Milking Speed BV	Capacity BV	Udder Support BV	Front Teat BV
111036	ARKANS FM BUSTER-ET S2F	1300	253	47	34	596	35	6.7	0.00	0.05	-206	0.20	0.42	0.49	-0.16
112046	MOORBYS FM GRANITE S2F	1299	231	32	43	1021	41	0.9	-0.37	0.02	-116	0.21	0.76	0.47	-0.04
111011	ASHDALE FM KELSBELLS S1F	1279	272	31	41	833	47	5.9	-0.16	0.10	-18	0.00	0.26	0.44	0.20
110080	MOURNE GROVE HOTHOUSE S2F	1275	246	25	41	1153	35	6.4	-0.06	0.06	-11	-0.34	-0.04	0.94	0.34
112073	LIGHTBURN IG RANBO-ET S3F	1268	213	40	33	533	24	-1.9	-0.07	0.02	-75	0.11	0.17	0.36	0.15
111044	WAIU MAX TOMMO S3F	1250	179	22	33	871	33	3.5	-0.23	-0.05	-68	0.30	0.75	0.51	0.50
110049	SAVANNAHS HF HAMMER S1F	1242	218	27	29	751	19	6.7	-0.36	-0.04	-60	0.24	0.27	0.39	0.46
Average		1273	230	32	36	822	33	4.0	-0.18	0.02	-79	0.10	0.37	0.51	0.49

Note: 113037 Beamer is the highest-ranking Holstein-Friesian bull on OAD with an index of 1364. Due to his limited availability he is not included in the OAD Pack.

USE OF THE OADS

- Primarily a noticeably better way to evaluate the best bulls to use in an OAD AB programme.
- An excellent tool to use to select cows most-suitable for OAD.
- Farms should still be advised to use the PW as the best measure to select cull cows (to leave the herd).

Proud as Punch: Black & Whites Reign Supreme

**! Attention Holstein
Friesian enthusiasts!**

There is little doubt 2016 will be remembered as a year LIC was supreme on the Holstein Friesian scene.

It's a year the cooperative offers a wide array of choice - from those wanting bulls that dominate on protein, to those that want sires to excel in the fertility stakes.

Should it be udders, capacity, or out-and-out index - the black n whites are certainly here!

Although they're physically at Newstead, Hamilton, the highest ranking sires belong squarely to LIC shareholders.

When we refer to highest ranking, that's exactly what we mean, as illustrated by DairyNZ's Ranking of Active Sires list, published after each Animal Evaluation (AE) update.

Based on the last AE run (13 February), the cooperative is proud to bask in the fact the top 16 Holstein Friesian bulls are eating grass at Newstead.

In fact, when reviewing the top-50 bull list, LIC's name is against 44 of them!

A genuine acknowledgement of thanks goes to the breeders that work with LIC to create this pool of (soon-to-be!) influential bulls. These elite bulls that look likely to become Premier Sires and Alpha selections should not only become household names, but are likely to go on to have a significant financial impact on the overall industry.

In terms of new bulls returning to service after being



Daughter of the industry's new No1 indexing sire across all breeds, Carsons Mecca Pulse S1F

progeny tested, 2015-16 has been another exceptional year.

No fewer than nine new graduates, from six different sires-of-sons, have made their way to the draft Premier Sires and/or Alpha selections. To see nine bulls emerge, forcing their way into this exclusive pool of likely players, is an impressive effort.

The current draft Premier Sires team, selected after February's Animal Evaluation update, boasts a phenomenal 241 BW.

Aside from the nine new graduates, what's remarkable is that this BW will be met by 22 Holstein-Friesian bulls.

Putting the 241 average into perspective - the highest, single, opposition bull has a current BW of 227.

LIC believes shareholder investment in genetics must result in herds that are more efficient converters of feed to profit.

There is little doubt the bulls available this season will deliver the kind of genetic gain demonstrated in the BW they offer.



Simon Worth,
bull acquisition manager



Daughter of the superbly balanced Mint-Edition son, Moorbys FM Granite S2F

While this is the ultimate goal, we remain mindful that cows require more than an ability to efficiently produce milk: This explains why not all bulls ranked highly on BW meet Premier Sires standards.

For example, cows also need strong udder attachments - allowing them to cope with the increased pressure that comes with higher volumes. Cows also need physical capacity to compete and get their share of feed, and an ability to walk to the paddock, conceive, and stay in-calf.

Given the above, a 'balanced approach to breeding' is the focus of LIC's bull acquisition team.

BW is extremely important, but it is not everything.

Obviously the bulls we market are at the upper end of the 'bell shaped curve'.

In the graph below (Dairy animals by BW), the blue line shows the variation when a group of bulls graduate with a proof. To the right, the coloured area indicates those that are selected to contribute to the national herd through Premier Sires and Alpha Nominated.

The adjacent four tables list bulls that are almost certainly available this year through Premier Sires and or Alpha Nominated. These are merely examples of the kind of quality you can expect, and are ranked on just some of the traits we understand to be important to dairy farmers - protein, fertility, capacity and udders.

The percentile relates to how the relevant bull ranks for the given trait against all other Holstein Friesian bulls (ie. bulls above 75% reliability).

For example 90% means he is better than 90% of all contemporary bulls for that trait.

On review of the 'percentiles' you can be assured your cooperative is delivering you the very 'best of the best'

The numbers in the adjacent tables may be impressive, but what is the Premier Sires team likely to deliver this year?

Not only is 241BW expected, but on current forecasts, this commanding team of 22 bulls can be expected to provide:

- protein BV of 37
- fertility BV of 3.8
- capacity BV of 0.27
- udder overall BV of 0.55

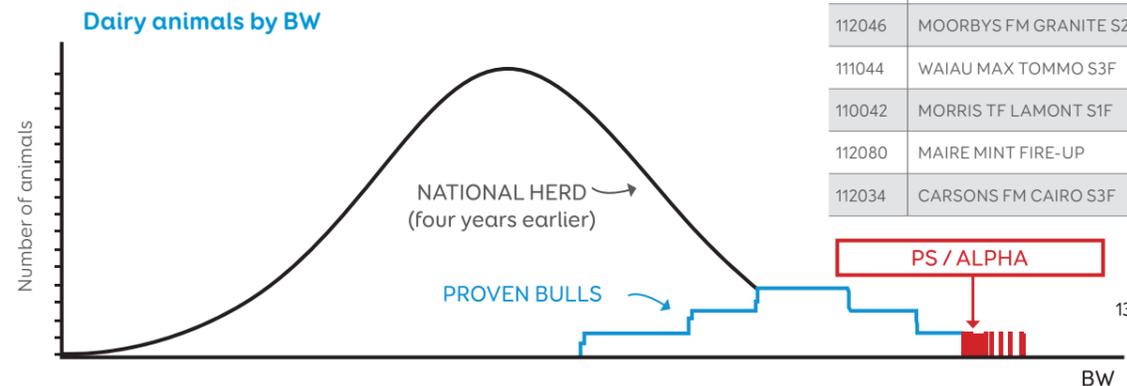
The black & whites are in a very good space - that's certainly the case at LIC!

This year I'm sure we'll witness the delivery of some fantastic bulls, allowing farmers to fast track genetic gain within their own herds.

Within LIC's bull acquisition team we're as proud as punch.

However we can never rest on our laurels and are driven to ensure the genetic gain momentum continues.

Rest assured we will strive to ensure bulls of this calibre continue to emerge from our programme. In the meantime - enjoy!



PROTEIN			
AB code	Name	Protein BV	Percentile
112080	MAIRE MINT FIRE-UP	48	99.9
111037	SAN RAY FM BEAMER-ET S2F	46	99.7
110042	MORRIS TF LAMONT S1F	45	99.5
112046	MOORBYS FM GRANITE S2F	43	99.2
111082	HAZAEEL FM MAJESTIC-ET	43	99.2
110077	WHINLEA PF ESTEEM-ET S2F	42	98.6

FERTILITY			
AB code	Name	Fertility BV	Percentile
110053	GOOCHS HF FURY S2F	8.9	98.9
112035	CARSONS MECCA PULSE S1F	6.8	96.4
111036	ARKAN FM BUSTER-ET S2F	6.7	96.4
110049	SAVANNAHS HF HAMMER S1F	6.7	96.4
112033	CETARA GB LONESTAR S3F	6.5	95.5
110080	MOURNE GROVE HOTHOUSE S2F	6.4	95.5

UDDER OVERALL			
AB code	Name	Udder Overall	Percentile
110080	MOURNE GROVE HOTHOUSE S2F	1.20	98.9
109238	KAILEY FORMAT KAGE	1.19	98.8
112080	MAIRE MINT FIRE-UP	1.12	98.2
110006	BAGWORTH PF GRANDEUR S1F	1.03	97.1
111037	SAN RAY FM BEAMER-ET S2F	0.98	95.5
112073	LIGHTBURN IG RANBO-ET S3F	0.83	90.3

CAPACITY			
AB code	Name	Capacity BV	Percentile
110053	GOOCHS HF FURY S2F	0.85	98.9
112046	MOORBYS FM GRANITE S2F	0.76	97.7
111044	WAIU MAX TOMMO S3F	0.75	97.7
110042	MORRIS TF LAMONT S1F	0.74	97.7
112080	MAIRE MINT FIRE-UP	0.61	94.5
112034	CARSONS FM CAIRO S3F	0.60	94.5



13/02/16

BW

New Boys ARRIVE IN NUMBERS

The Jersey Ranking of Active Sires (RAS) list has undergone a shake-up.

Things began looking quite different with the January 2016 AE run, when, for the first time ever, six new graduates held spots 1 to 6 on the industry log of Genetic Merit.

About November each year, LIC sire selection team waits in anticipation to see who the top graduates will be from each of the respective Sire Proving schemes.

We watch with interest where they may fit into the top 10-15 bulls.

It was a different story this year: By January, six new graduates, ranked 1 through to 6, were from LIC.

February brought the standard annual economic value updates – but this year that was accompanied by the inclusion of the eighth trait into BW, body condition score (BCS).

This was accompanied by an alteration to the residual survival breeding value (BV), a fertility BV



Malcolm Ellis, bull acquisition manager

enhancement, and the introduction of a new re-proof calculation.

Despite a lot of change and fine tuning, LIC's 'Jersey Momentum' continued: The top 6 on *The RAS list*, 8 out of the top 10, and 11 of the top 15.

The most significant aspect is, among those top-11 LIC Jersey bulls, nine are new graduations.

Bull code	Bull Name	BW (\$)	Protein (kg)	Milkfat (kg)	Milk (l)	Liveweight (kg)	Fertility (%)	SCC (score)	Resid Surv (days)	BCS BV	Gene tests	Sire	Marketer
312014	CHARDONNAY FRANKIE	276/80	6.6	17.3	-372	-79.8	5.5	-0.31	-76	0.15	B-V-S-C-	OKURA LIKA MURMUR S3J L	LIC
312034	OKURA GOLDIE INDEX	264/78	15.7	39.5	132	-74	-1.8	-0.21	-85	0.04	B-V-S-C-	PUHIPUHI CAPS GOLDIE S3J	LIC
312031	MOEHAU SLO FLAME S3J	253/78	7.1	0	-546	-63.1	5.6	0.01	123	0.13	B-V-S-C-	SHANTILLY LOT ONE S2J	LIC
312045	FLAXMILL LT DANE S3J	253/78	22.9	33.4	255	-40.8	0.5	-0.17	-51	-0.11	B-V-S-C-	LYNBROOK HTA TOPGEAR ET	LIC
309084	LYNBROOK TERRIFIC ET S3J	249/99	7.7	13.2	-365	-52.4	5	0	5	0.31	S-	FERNAIG ADMIRAL SJ3	LIC
312060	KAITAKA MURMUR LEO ET	248/83	7.1	16.5	-298	-86.7	3.4	-0.13	-59	0.01	B-V-S-C-	OKURA LIKA MURMUR S3J	LIC
307514	CRESCENT MAN DOMINIC ET	245/99	14.2	17.7	-238	-53.6	1.7	0.1	-64	0.16	S-	OKURA MANHATTEN ET SJ3	CRV/Ambreed
308583	ARRIETA NN DEGREE ET 2	243/98	6.6	26.7	-409	-51.6	2.6	0.06	51	0.17	S-	NOAKES NEVVY S3J	CRV/Ambreed
312054	TIRONUI MUR KELSTON S3J	242/80	7	17.2	-221	-73.7	2.5	-0.47	-92	0.17	B-V-S-C-	OKURA LIKA MURMUR S3J	LIC
312059	LYNBROOK GG QUICKSILVER	237/94	2.1	25	-745	-42	8.1	0.1	-90	0.14	B-V-S-C-	GLENHAVEN TGM GENIUS S3J	LIC
312047	ARRIETA TERRIFIC DESI ET	237/80	4.1	21.9	-660	-51.5	5.8	-0.25	-154	0.1	B-V-S-C-	LYNBROOK TERRIFIC ET S3J	LIC
308533	PUKEROA TGM MANZELLO	236/99	6.3	25.1	-428	-56.7	3.2	0.01	127	-0.09	S-	TAWA GROVE MAUNGA ET SJ3	CRV/Ambreed
312023	BONACORD TGM BROCK	235/95	5.3	21.2	-342	-93	3.7	-0.16	-68	-0.22	B-S-C-	TAWA GROVE MAUNGA ET SJ3 L	LIC
311013	OKURA LT INTEGRITY	235/99	8.6	28.8	-251	-50.1	2.9	0.02	-139	0.29	B-V-S-C-	LYNBROOK TERRIFIC ET S3J	LIC
312548	PATERANGI MURMUR INGOT ET	233/77	14.2	23.8	62	-52.1	0.1	-0.42	-56	0.12	S-	OKURA LIKA MURMUR S3J	CRV/Ambreed

2016 Potential Premier Sires Jersey Team - Daughter Proven

AB code	Bull Name	BW
312014	CHARDONNAY FRANKIE	276
312034	OKURA GOLDIE INDEX	264
312031	MOEHAU SLO FLAME S3J	253
309084	LYNBROOK TERRIFIC ET S3J	249
312059	LYNBROOK GG QUICKSILVER	237
312047	ARRIETA TERRIFIC DESI ET	237
311013	OKURA LT INTEGRITY	235
312057	BELLS CM CONRAD S2J	220
Expected team weighted average		249

Impact on Premier Sires Delivery

This year the Jersey daughter proven Premier Sires team at LIC will be an outstanding combination; the very cream of the country's top Jersey bulls!

Today the 8-bull team would have a team weighted average BW of 249, compared to 245BW of the top opposition bull on *The RAS list*.

BW is an excellent reflection of efficiency and profitability, and this team will deliver these measures in spades.

Even when you look beyond BW, the team boasts an average Fertility BV of 4.7, Farm Opinion of 0.27, Capacity BV of 0.46, and Udder Overall of 0.60.

Premier Sires has a proud 50-year history.

It has always been, and still is, your co-operative's most cost effective way to deliver LIC's best bulls to farm using the world class fresh semen technology; an outstanding technician service and inbreeding protection (via DataMATE) completes the delivery.

When you think back through the years there have been some outstanding teams of bulls in the Jersey space – led out by legends like Admiral, Fjord, Forever, Casper, Samuel and Nevvy.

When you signed on to Premier Sires, you had access to the best bulls, cost-effectively and seamlessly.



Malcolm and Frankie at LIC's Newstead bull farm. Terrific is in the background.

It is a fair observation to say that during the past decade or so, LIC hasn't consistently delivered top-class Jersey bulls. While some LIC Jerseys have been outstanding, the 'balance of power' has been well spread among suppliers.

With that spread came a gradual shift in farmers seeking out the top bulls via a nominated service, irrespective of their origin.

That's simply astute consumer behaviour; no-one needs to apologise for their desire to acquire the best.

It's time to take another look at that RAS list again, because LIC is back to where farmers expect it to be, and where we aim to stay.

In these economically challenging times, 2016 is the year Jersey farmers can get top bulls via a trusted Premier Sires solution – in the cow for less than \$18/ insemination (excl. GST, based on a 400-cow herd with InvestaMate discount).

No fuss, no tech fee – just satisfaction in getting great bang for your buck.

In the last 4 ½ years, I've met a lot of Jersey farmers and I am very proud to now say to them "the good old days are back".

For those that have had a historic association with Premier Sires, me and my mates Frankie, Index, Flame, Terrific, Quicksilver, Desi, Integrity, and Conrad are ready to welcome you back.

Forward Pack

The 2016 Jersey Forward Pack will offer farmers access to LIC's best of the best principle: Only the top-four ranked Daughter Proven bulls will be combined with the highest ranked genomically-selected bulls, with the added bonus of welcoming the leading spring graduate bulls (from 20 October).

Watch that date of October 20 closely.

Watch for next year's new boys.

If you've got the 2016 mating underway with the Daughter Proven team, you may be tempted to switch across to Forward Pack to get 'a piece of all the action'.

It's a tough enough time on farm, and having retained our farm, I know that as well as anyone.

All the best – control the things you can control. Elect Premier Sires in 2016, we'll look after your herd investment.

That's the way it should be.

INTO THE BLACK

The dairy downturn brings with it inevitable change



Casey Inverarity,
LIC senior sire analyst

Everyone is now looking a bit closer into how things are done on farm - reviewing and scrutinising on farm practices in line with farming objectives.

In line with our objective at bull acquisition - to generate marketable

bulls that drive genetic gain - we constantly review what we're doing, and how we could be doing things better.

Farmer feedback tells us there's an increasing preference among New Zealand farmers for a particular type of crossbred. This trend, which showed emerging signs several years ago, continues to grow.

In summary, the feedback we're noting includes an appetite for:

- A strong black cow with minimal variation
- Heterosis/hybrid vigour- but not lots of 'little cows'
- Excellent fertility
- Per cow efficiency

We hear you!

We're seeking to breed in this direction (see adjacent table), therefore creating a good degree of uniformity in the breed - without compromising the ultimate end goal, which is profit.



Sierra daughter

PERCENTAGE OF SPS BULLS IN BREED MIX CATEGORY

	F8 or greater (%)	F10 or greater (%)	F12 or greater (%)
2016	78	60	20
2015	77	56	22
2014	72	48	21
2013	62	33	9
2012	50	22	7

In the meantime, we'll still purchase some lighter crosses for those that simply want BW, or who are after a lighter cross.

Although we can look to breed down a certain path, it should be understood and accepted there will inevitably be some variation in size, coat colour, or live weight - and that goes for any breed. That's the nature of breeding.

The KiwiCross line-up for 2016.

It is my pleasure to introduce highlights of our 2016 (potential) KiwiCross Daughter Proven team, which boasts among the strongest conformation and highest fertility teams we've seen.

Highlights from the daughter proven team include (but are by no means limited to):

511011 Priests Sierra.

What a potent cow family this is!

Bred by Rowan Priest, Sierra combines the best of both worlds with Solaris and Mint-Edition bloodlines being embedded in the pedigree.

At 277 BW, and out of a full sister to Priests Solaris, Sierra is currently our top-ranked bull to make Premier Sires.



Dam of 515078 Taramont Estuary.

This bull is a great example of how cross-breeding can work to combine the very best strengths of the Jersey and Holstein Friesian breeds.

With a fertility breeding value (BV) of 9.9, Sierra has the highest BV of any bull currently alive in NZ; regardless of breed, he almost uniquely combines this with high production and a similar size of a Holstein bull.

Sierra couples this with traits that are sought-after in any breed: fantastic temperament, great capacity, and superb udders.

He's a classic example of a bull that looks set to breed daughters that simply 'last' in your herd.

Big changes occurred within the BW Index in February.

One change we've been talking about for some time is the inclusion of late-lactation body condition score as a breeding value in BW.

With this, we've seen some winners and losers. But, as expected, the game has come to **511051 Drysdales Sovereign**.

Not only is he our second-ranked bull at 256 BW, but he is our top-ranked KiwiCross bull on our Once a Day selection index (OADSI).

Again a Solaris son who is proving his worth, I have raved about this bull already - but he's worth talking about again.

There is really nothing not to like about this bull: With such a well-balanced proof he has great management

traits, fantastic type, and low SCC.

These cows seem sure to last. Well done to Graeme and Gavin Drysdale of Eketahuna.

512050 Arkans Perspective-ET is a very welcome addition to the team.

Perspective graduated from being a Spring bull in the Forward Pack team, where he was exclusively used last season.

Now, a year later, this bull is available to our Daughter Proven clients.

A Mint-Edition son, Perspective is one of three bulls from Stewart and Kathryn Andersons to make the team - and he's the pick of the 12-code bulls to date.

Currently sitting at 230BW, this Mint-Edition by Manhattan first cross is giving us all-round fantastic traits-other-than-production (TOP), particularly udder overall at 0.82 - and, in terms of extreme fertility, he's a front-runner with Sierra.

"These cows seem sure to last"

What's in the pipeline?

At the end of last year our bull acquisition team traipsed through the country buying the next generation

of bulls to go into Sire Proving, with the very best to become available this spring (in the Alpha catalogue).

With his unfortunate and early demise, we were only able to get a few hundred straws from **510043 Kraakmans Jaydie**, who at 277 BW has left some exceptional Sire Proving Scheme (SPS) daughters.

However, through the exclusive use of this bull in embryo transfer work, his legacy lives on - with a range of his sons available in the Alpha Catalogue; the sons are out of cows with impressive pedigrees that average 247 BW and 380 PW.

In addition, we have Beamer sons available for those looking for a more cross-bred bull to work within in their herd.

These Beamer sons are out of proven cow families which have bred bulls that are currently on, or have previously made, the *Ranking of Active Sires* list: (i) Manzello; (ii) Kieran, and; (iii) Bullion.

These dams average 257 BW and 435 PW.

In Forward Pack we are excited to have stars such as Checkpoint son **515078 Taramont Estuary**, whose dam is a Riley daughter (an absolute powerhouse of a cow!).

We're also anticipating good results from Forward Pack player **513082 Englands Tuxedo**, the son of LIC's number one Daughter Proven bull Sierra.

In a nutshell, it's a pleasure to see four out of six of our Genomically selected bulls in Forward Pack coming from proven cow families, with **513098 Arkans Bounty** leading the way.

In summary, KiwiCross has plenty to offer with:

- our ever-reliable daughter proven graduates
- what's emerging in the SPS pipeline, and,
- what we're currently breeding toward.

Whether you're after a consistent team, the best-of-the-best, or whether you choose to cherry pick to breed for the type of cow you enjoy milking, there are plenty of options in the KiwiCross space!

All the best for the remainder of the season.

2016 POTENTIAL PREMIER SIRES HOLSTEIN-FRIESIAN TEAM - DAUGHTER PROVEN

AB Code	Bull Name	BW	Reliability %	Breed Split	Protein BV (kg)	Milkfat BV (kg)	Milk BV (litres)	Liveweight BV (kg)	Fertility BV %	Somatic Cell Score BV	Total Longevity BV (days)	Protein % BV	Milkfat % BV	Calving Difficulty BV %	Body Condition Score BV	No of herds	Tested daughters	NZ %	A2	Sire
112035	CARSONS MECCA PULSE S1F	292	97	F16	28.6	19.9	791	-41	6.8	-0.33	475	3.7	4.4	-0.8	0.09	631	1515	37	A1A2	O'NEILLS ELSTO MECCA S1F
111037	SAN RAY FM BEAMER-ET S2F	284	83	F14J2	45.8	50.5	976	36	3.3	0.53	467	3.9	4.8	2.3	-0.02	38	76	34	A1A2	FAIRMONT MINT-EDITION
110042	MORRIS TF LAMONT S1F^	272	90	F15J1	45.1	32.7	926	28	2.5	-0.07	284	3.9	4.6	0.4	0.20	85	193	39	A1A2	TELESIS EUON FIRENZE
111011	ASHDALE FM KELSBELLS S1F	272	83	F15J1	41.2	31.1	831	47	5.9	-0.16	495	3.9	4.6	4.4	0.10	40	86	44	A1A2	FAIRMONT MINT-EDITION
111036	ARKAN FM BUSTER-ET S2F	253	81	F14J2	33.7	46.8	597	35	6.7	0.00	339	4.0	5.1	1.2	0.05	40	69	34	A1A2	FAIRMONT MINT-EDITION
110080	MOURNE GROVE HOTHOUSE S2F	246	98	F16	41.2	24.9	1153	35	6.4	-0.06	464	3.7	4.2	2	0.06	1077	2806	41	A2A2	SRC GLENMEAD ROCKSOLID-ET
112054	BAGWORTH SH KEEPSAKE S2F	243	79	F16	40.0	32.3	1341	17	2.9	-0.54	474	3.6	4.2	2.9	-0.11	41	88	35	A1A2	SAVANNAHS HF HAMMER S1F
110052	GYDELAND EXCEL INCA S3F	235	85	F16	40.2	31.4	847	74	3.5	-0.11	583	3.9	4.6	-0.6	0.14	33	79	30	A1A2	WHINLEA NAUT EXCEL-ET S3F
110077	WHINLEA PF ESTEEM-ET S2F	235	84	F16	41.8	37.6	1440	35	3.5	-0.32	503	3.5	4.2	1.5	-0.03	48	76	41	A2A2	PUKETIRO FROSTMAN S1F
112046	MOORBYS FM GRANITE S2F#	231	80	F15J1	43.1	31.6	1017	41	0.9	-0.37	311	3.8	4.5	2.7	0.02	35	90	33	A2A2	FAIRMONT MINT-EDITION
111057	OAKLINE DI LEGACY S2F	227	85	F16	40.3	23.6	1401	40	4.2	0.12	609	3.5	4.0	-2.2	0.26	44	104	38	A1A2	DELTOP IDOL IGNITE S2F
110049	SAVANNAHS HF HAMMER S1F	218	99	F15J1	29.3	26.7	751	19	6.7	-0.36	365	3.8	4.6	1.3	-0.04	1467	5223	43	A2A2	HIGGINS FORMAT
112040	KAHURANGI GB TOPGUN S2F	218	98	F16	31.4	21.6	992	-24	2.8	-0.35	289	3.6	4.3	-1.7	-0.20	1013	3368	45	A2A2	GREENWELLS HF BONZA S3F
112073	LIGHTBURN IG RANBO-ET S3F^	213	79	F16	32.7	40.0	534	24	-1.9	-0.07	287	4.0	5.1	4.5	0.02	45	85	39	A1A2	INVERNIA TGF IGNITION S3F
112095	BONNYS HAMMER HEAD S1F	207	81	F16	27.3	28.4	651	4	3.5	-0.07	318	3.8	4.7	0.5	0.03	43	101	48	A2A2	SAVANNAHS HF HAMMER S1F
106227	EDWARDS BANQ OVATION S3F#	205	99	F15J1	34.0	6.8	771	8	0.7	-0.03	397	3.8	4.2	1.2	0.03	5007	47189	39	A2A2	SRD JENERAYTIONS BANQUET
112064	WELLS FM IMPACT S3F	204	82	F15J1	35.1	40.1	861	21	2.3	0.26	257	3.8	4.7	1.6	-0.08	45	106	38	A1A2	FAIRMONT MINT-EDITION
111023	BENDALE AD BLAZA S1F	203	83	F15O1	20.4	24.5	530	1	1.9	-0.77	406	3.7	4.7	-0.3	0.14	41	86	51	A1A2	ARKAN VA DYNASTY S2F
112034	CARSONS FM CAIRO S3F	203	82	F16	33.9	39.4	959	48	5.2	-0.35	270	3.7	4.6	1.6	0.21	48	110	36	A2A2	FAIRMONT MINT-EDITION
112063	PADRUTTS GB TOPNOTCH S2F	198	82	F15J1	35.6	21.1	1078	30	3.3	-0.26	372	3.6	4.2	-0.7	0.06	53	111	42	A1A2	MAIRE PF GOLDEN BOY S2F
107015	GREENWELL MD BRUTUS S3F	192	99	F16	28.6	9.9	716	17	5.4	-0.23	389	3.8	4.3	-1.8	-0.03	2858	14039	37	A2A2	MACFARLANES DAUNTLESS
110006	BAGWORTH PF GRANDEUR S1F	190	84	F16	29.9	37.6	810	60	2.9	-0.35	482	3.7	4.7	-1.4	0.18	41	76	48	A2A2	PUKETIRO FROSTMAN S1F
Expected team weighted average		240	99		36.9	31.1	932	24	3.8	-0.13	414	3.8	4.5	1.1	0.04					

2016 POTENTIAL PREMIER SIRES HOLSTEIN-FRIESIAN TEAM - FORWARD PACK

AB Code	Bull Name	gBW / BW	Reliability %	Breed Split	Protein BV/gBV (kg)	Milkfat BV/gBV (kg)	Milk BV/gBV (litres)	Liveweight BV/gBV (kg)	Fertility BV/gBV %	Somatic Cell Score BV/gBV	Total Longevity BV/gBV (days)	Protein % BV/gBV	Milkfat % BV/gBV	Calving Difficulty BV/gBV %	Body Condition Score BV/gBV	A2	Sire
112035	CARSONS MECCA PULSE S1F	292	97	F16	28.6	19.9	791	-41	6.8	-0.33	475	3.7	4.4	-0.8	0.09	A1A2	O'NEILLS ELSTO MECCA S1F
111037	SAN RAY FM BEAMER-ET S2F	284	83	F14J2	45.8	50.5	976	36	3.3	0.53	467	3.9	4.8	2.3	-0.02	A1A2	FAIRMONT MINT-EDITION
110042	MORRIS TF LAMONT S1F^	272	90	F15J1	45.1	32.7	926	28	2.5	-0.07	284	3.9	4.6	0.4	0.20	A1A2	TELESIS EUON FIRENZE
111011	ASHDALE FM KELSBELLS S1F	272	83	F15J1	41.2	31.1	831	47	5.9	-0.16	495	3.9	4.6	4.4	0.10	A1A2	FAIRMONT MINT-EDITION
111036	ARKAN FM BUSTER-ET S2F	253	81	F14J2	33.7	46.8	597	35	6.7	0.00	339	4.0	5.1	1.2	0.05	A1A2	FAIRMONT MINT-EDITION
110080	MOURNE GROVE HOTHOUSE S2F	246	98	F16	41.2	24.9	1153	35	6.4	-0.06	464	3.7	4.2	2.0	0.06	A2A2	SRC GLENMEAD ROCKSOLID-ET
112054	BAGWORTH SH KEEPSAKE S2F	243	79	F16	40.0	32.3	1341	17	2.9	-0.54	474	3.6	4.2	2.9	-0.11	A1A2	SAVANNAHS HF HAMMER S1F
110052	GYDELAND EXCEL INCA S3F	235	85	F16	40.2	31.4	847	74	3.5	-0.11	583	3.9	4.6	-0.6	0.14	A1A2	WHINLEA NAUT EXCEL-ET S3F
	SPRING BULLS	255	65		38.7	32.2	939	22	4.6	-0.10	448	3.8	4.5	1.6	0.06		
115004	ARKAN EO BIGSHOT-ET S3F	248	62	F15J1	36.4	27.3	765	16	3.4	-0.02	392	3.9	4.5	1.4	0.06	A2A2	EDWARDS BANQ OVATION S3F
115021	GORDONS AM LANCELOT S3F	243	59	F16	37.8	38.2	897	32	3.3	-0.06	404	3.8	4.6	1.4	0.06	A1A1	ALJO TEF MAELSTROM-ET S3F
115043	HYJINKS AM DEEJAY S1F	241	58	F15J1	38.6	43.9	945	32	3.4	0.06	360	3.8	4.7	2.1	0.05	A1A2	ALJO TEF MAELSTROM-ET S3F
115125	BUSY BROOK SB MUSE-ET S3F^	235	52	F16	43.3	33.8	1304	22	1.8	-0.03	374	3.6	4.4	1.0	-0.02	A2A2	SPRING TRALEE BOSS-ET S3F
115084	GREENWELL SB FORAY-ET S3F	233	52	F16	40.9	33.5	1075	32	3.1	-0.02	375	3.7	4.6	0.8	0.00	A2A2	SPRING TRALEE BOSS-ET S3F
115017	LANGEVELDS SRB VALOUR S2F^	226	57	F15J1	36.2	40.1	902	39	3.8	0.31	451	3.8	4.7	1.2	0.08	A1A1	SAN RAY FM BEAMER-ET S2F
Expected team weighted average		258	98		39	33.7	931	25	4.6	-0.07	438	3.8	4.6	1.5	0.06		

Shaded bulls are Daughter Proven with AE BW and BV's 13/02/2016.

Non shaded bulls are genomically selected with LIC gBWs and gBVs.

Red Factor carrier * Small Calf Syndrome carrier ^ Recessive Fertility Gene carrier

2016 POTENTIAL PREMIER SIRES JERSEY TEAM - DAUGHTER PROVEN

AB Code	Bull Name	BW	Reliability %	Breed Split	Protein BV (kg)	Milkfat BV (kg)	Milk BV (litres)	Liveweight BV (kg)	Fertility BV %	Somatic Cell Score BV	Total Longevity BV (days)	Protein % BV	Milkfat % BV	Calving Difficulty BV %	BCS BV	No of herds	Tested daughters	NZ %	A2	Sire
312014	CHARDONNAY FRANKIE	276	80	J16	6.6	17.3	-372	-80	5.5	-0.31	370	4.2	5.6	-2.7	0.15	41	93	80	A2A2	OKURA LIKA MURMUR S3J
312034	OKURA GOLDIE INDEX	264	78	J16	15.7	39.5	132	-74	-1.8	-0.21	328	4.0	5.5	-3.9	0.04	42	80	68	A2A2	PUHIPUHI CAPS GOLDIE S3J
312031	MOEHAU SLO FLAME S3J	253	78	J16	7.1	0.0	-546	-63	5.6	0.01	443	4.4	5.4	-3	0.13	42	81	79	A2A2	SHANTILLY LOT ONE S2J
309084	LYNBROOK TERRIFIC ET S3J	249	99	J16	7.7	13.2	-365	-52	5.0	0.00	425	4.3	5.5	-2.3	0.31	814	2036	68	A2A2	FERNAIG ADMIRAL SJ3
312059	LYNBROOK GG QUICKSILVER	237	94	J16	2.1	25.0	-745	-42	8.1	0.10	333	4.5	6.4	-1.9	0.14	299	645	83	A2A2	GLENHAVEN TGM GENIUS S3J
312047	ARRIETA TERRIFIC DESI ET	237	80	J16	4.1	21.9	-660	-52	5.8	-0.25	248	4.5	6.2	-3.6	0.10	39	86	76	A2A2	LYNBROOK TERRIFIC ET S3J
311013	OKURA LT INTEGRITY	235	99	J16	8.6	28.8	-251	-50	2.9	0.02	309	4.2	5.7	-2.4	0.29	1134	4221	59	A1A2	LYNBROOK TERRIFIC ET S3J
312057	BELLS CM CONRAD S2J	220	80	J15F1	9.8	27.4	-209	-19	6.8	0.04	371	4.1	5.7	-2.4	0.17	45	92	79	A2A2	CRESCENT AMC MARVEL
Expected team weighted average		249	99		7.5	20.9	-395	-56	4.7	-0.09	355	4.3	5.8	-2.8	0.16					

2016 POTENTIAL PREMIER SIRES JERSEY TEAM - FORWARD PACK

Code	Bull Name	gBW/BW	Reliability %	Breed Split	Protein BV/gBV (kg)	Milkfat BV/gBV (kg)	Milk BV/gBV (litres)	Liveweight BV/gBV (kg)	Fertility BV/gBV %	Somatic Cell Score BV/gBV	Total Longevity BV/gBV (days)	Protein % BV/gBV	Milkfat % BV/gBV	Calving Difficulty BV/gBV %	Body Condition Score BV/gBV	A2	Sire
312014	CHARDONNAY FRANKIE	276	80	J16	6.6	17.3	-372	-80	5.5	-0.31	370	4.2	5.6	-2.7	0.15	A2A2	OKURA LIKA MURMUR S3J
312034	OKURA GOLDIE INDEX	264	78	J16	15.7	39.5	132	-74	-1.8	-0.21	328	4.0	5.5	-3.9	0.04	A2A2	PUHIPUHI CAPS GOLDIE S3J
312031	MOEHAU SLO FLAME S3J	253	78	J16	7.1	0.0	-546	-63	5.6	0.01	443	4.4	5.4	-3.0	0.13	A2A2	SHANTILLY LOT ONE S2J
309084	LYNBROOK TERRIFIC ET S3J	249	99	J16	7.7	13.2	-365	-52	5.0	0.00	425	4.3	5.5	-2.3	0.31	A2A2	FERNAIG ADMIRAL SJ3
	SPRING BULLS	260	65		9.3	17.5	-288	-55	3.6	-0.13	392	4.2	5.5	-3.0	0.20		
315059	BONACORD AND BERNARD S2J	265	65	J16	7.5	28.0	-496	-66	3.2	-0.08	364	4.4	5.8	-1.6	0.04	A2A2	ARRIETA NN DEGREE ET
315038	ELLISON MURMUR NEON S3J	258	66	J16	12.1	26.6	-122	-65	3.4	-0.28	286	4.1	5.5	-2.6	0.07	A2A2	OKURA LIKA MURMUR S3J
314025	GLANTON DEGREE BALKAN ET	247	66	J16	10.4	25.9	-267	-54	2.9	0.04	351	4.2	5.8	-1.1	0.17	A1A2	ARRIETA NN DEGREE ET
315029	THORNWOOD DEGREE TRIGGER	246	65	J16	7.9	31.5	-380	-52	2.5	0.05	409	4.3	5.8	-2.0	0.07	A2A2	ARRIETA NN DEGREE ET
314012	KAITAKA OI LEOPARD ET	245	66	J16	9.8	31.4	-268	-59	2.1	-0.06	308	4.2	5.7	-1.9	0.08	A2A2	OKURA LT INTEGRITY
314030	THORNWOOD OLM THOR	245	66	J16	9.2	24.3	-145	-59	4.4	-0.15	368	4.1	5.4	-1.4	0.09	A1A2	OKURA LIKA MURMUR S3J
Expected team weighted average		259	98		9.3	18.8	-288	-62	3.5	-0.12	386	4.2	5.5	-2.8	0.16		

Shaded bulls are Daughter Proven with AE BW and BV's 13/02/2016. Non shaded bulls are genomically selected with LIC gBWs and gBVs.

2016 POTENTIAL PREMIER SIRES KIWICROSS™ TEAM - DAUGHTER PROVEN

AB Code	Bull Name	Breed split	BW	Reliability %	Protein BV (kg)	Milkfat BV (kg)	Milk BV (litres)	Liveweight BV (kg)	Fertility BV %	Somatic Cell Score BV	Total Longevity BV (days)	Protein % BV	Milkfat % BV	Calving Difficulty BV %	Body Condition Score BV	No of herds	Tested daughters	NZ %	A2	Sire
511011	PRIESTS SIERRA	F11J5	277	98	31.5	46.1	595	40	9.9	-0.29	479	3.9	5.1	0.6	0.12	637	1679	50	A2A2	FAIRMONT MINT-EDITION
511051	DRYSDALES SOVEREIGN	F8J8	256	84	20.9	26.6	256	-4	2.8	-0.67	462	4.0	5.1	-3.3	0.36	46	92	66	A2A2	PRIESTS SOLARIS-ET
511026	ARKANS BEAUT ET	F9J7	242	99	30.4	27.5	547	2	3.3	-0.29	306	3.9	4.8	-0.9	0.07	1274	4560	40	A1A2	NEVRON SHOWMAN
512050	ARKANS PERSPECTIVE-ET	F8J8	230	77	20.4	29.0	256	-17	6.9	-0.18	271	4.0	5.1	-1.3	-0.03	32	65	51	A1A2	FAIRMONT MINT-EDITION
511007	CASTLEGRACE MAKO	F7J9	228	84	18.7	19.8	-176	15	5.3	0.00	377	4.3	5.4	-3.4	0.35	44	95	71	A2A2	SHALLOCHS SENSATION
512005	JUST ONCE COOPER	F9J7	223	78	13.7	30.7	14	-28	5.4	-0.10	326	4.0	5.4	-2.2	0.01	38	78	71	A2A2	ST PETERS OBSIDIAN
512051	ARKANS INSTIGATOR	F7J8O1	217	74	28.4	28.4	638	15	-0.7	-0.48	411	3.8	4.7	1.7	0.21	27	58	73	A1A2	ST PETERS OBSIDIAN
511028	ARKANS BLOCKBUSTER	F8J8	215	99	11.8	22.7	-48	-25	7.1	-0.17	308	4.0	5.3	-0.5	0.08	1147	3583	65	A1A2	AMBROSE SUPER STAN
512018	GLENMEAD FLAMBOYANT ET	F12J4	210	78	37.8	42.6	974	8	0.6	0.40	149	3.8	4.7	0.5	0.05	33	69	27	A1A2	FAIRMONT MINT-EDITION
512024	WERDERS PRELUDE	F10J6	209	78	28.5	14.7	513	19	4.3	-0.14	355	3.9	4.6	0.4	0.14	31	76	45	A2A2	NEVRON SHOWMAN
512037	GREENMILE GAME DAY	F8J8	205	76	26.6	35.0	309	0	1.7	0.40	212	4.0	5.2	-0.2	-0.03	26	65	46	A1A2	FAIRMONT MINT-EDITION
512008	SCOTT'S BRAVO ET	F8J8	201	98	18.0	20.8	462	-23	6.4	-0.20	270	3.7	4.7	-0.1	0.12	797	2364	62	A1A2	ST PETERS OBSIDIAN
Expected team weighted average			232	98	23.7	29.0	333	1	4.7	-0.19	344	4.0	5.0	-1.0	0.13					

2016 POTENTIAL PREMIER SIRES KIWICROSS™ TEAM - FORWARD PACK

AB Code	Bull Name	Breed Split	gBW / BW	Reliability %	Protein BV/gBV (kg)	Milkfat BV/gBV (kg)	Milk BV/gBV (litres)	Liveweight BV/gBV (kg)	Fertility BV/gBV %	Somatic Cell Score BV/gBV	Total Longevity BV/gBV (days)	Protein % BV/gBV	Milkfat % BV/gBV	Calving Difficulty BV/gBV %	Body Condition Score BV/gBV	A2	Sire
511011	PRIESTS SIERRA^	F11J5	277	98	31.5	46.1	595	40	9.9	-0.29	479	3.9	5.1	0.6	0.12	A2A2	FAIRMONT MINT-EDITION
511051	DRYSDALES SOVEREIGN^	F8J8	256	84	20.9	26.6	256	-4	2.8	-0.67	462	4.0	5.1	-3.3	0.36	A2A2	PRIESTS SOLARIS-ET
511052	MOODYS EXECUTIVE	J10F6	256	86	26.3	14.3	466	-11	5.7	-0.44	402	3.9	4.6	-2.8	0.18	A2A2	PUHIPUHI CAPS GOLDIE S3J
511026	ARKANS BEAUT ET	F9J7	242	99	30.4	27.5	547	2	3.3	-0.29	306	3.9	4.8	-0.9	0.07	A1A2	NEVRON SHOWMAN
512050	ARKANS PERSPECTIVE-ET	F8J8	230	77	20.4	29.0	256	-17	6.9	-0.18	271	4.0	5.1	-1.3	-0.03	A1A2	FAIRMONT MINT-EDITION
511007	CASTLEGRACE MAKO	J9F7	228	84	18.7	19.8	-176	15	5.3	0.00	377	4.3	5.4	-3.4	0.35	A2A2	SHALLOCHS SENSATION
	SPRING BULLS		250	65	24.7	27.2	324	4	5.7	-0.31	383	4.0	5.0	-1.9	0.18		
513098	ARKANS BOUNTY	J11F5	250	68	25.6	36.4	395	-20	1.8	0.17	338	4.0	5.1	-0.2	0.17	A1A2	OKURA LT INTEGRITY
515078	TARAMONT ESTUARY	F10J6	249	60	35.8	38.3	805	-1	0.0	0.02	363	3.8	4.7	-0.8	-0.05	A2A2	HOWIES CHECKPOINT
515056	GREENMILE PERSIA	F7J9	241	58	19.1	26.3	180	-34	4.6	-0.15	274	4.0	5.1	-0.8	0.10	A1A2	BELLS SOLARIS PERRY
515018	LYNBROOK KRYPTON ET	F7J8A1	241	57	27.5	40.7	734	-21	3.7	-0.02	326	3.7	4.9	-2.1	-0.08	A1A2	HOWIES ARKAN RAMADA ET
515032	HOWSES STANDOUT	F9J7	240	56	23.6	36.1	247	-11	3.6	-0.11	302	4.0	5.1	-0.4	-0.03	A1A2	CAWDOR PROMOTION
513082	ENGLANDS TUXEDO^	F7J9	238	63	25.0	43.3	390	9	4.6	-0.16	349	3.9	5.2	0.0	0.04	A2A2	PRIESTS SIERRA
Expected team weighted average			249	98	24.9	28.6	346	3	5.4	-0.29	380	4.0	5.0	-1.7	0.16		

Shaded bulls are Daughter Proven with AE BW and BV's 13/02/2016. Non shaded bulls are genomically selected with LIC gBWs and gBVs.

* Small Calf Syndrome carrier ^ Recessive Fertility Gene carrier

**2016 POTENTIAL PREMIER SIRES HOLSTEIN-FRIESIAN YEARLING TEAM
- DAUGHTER PROVEN**

AB Code	Bull Name	BW	Reliability %	Breed Split	Protein BV (kg)	Milkfat BV (kg)	Milk BV (litres)	Liveweight BV (kg)	Fertility BV %	Somatic Cell Score BV	Total Longevity BV (days)	Protein % BV	Milkfat % BV	Calving Difficulty BV %	Body Condition Score BV	No of herds	Tested daughters	NZ %	A2	Sire
112035	CARSONS MECCA PULSE S1F	292	97	F16	28.6	19.9	791	-41	6.8	-0.33	475	3.7	4.4	-0.8	0.09	631	1515	37	A1A2	O'NEILLS ELSTO MECCA S1F
110052	GYDELAND EXCEL INCA S3F	235	85	F16	40.2	31.4	847	74	3.5	-0.11	583	3.9	4.6	-0.6	0.14	33	79	30	A1A2	WHINLEA NAUT EXCEL-ET S3F
111057	OAKLINE DI LEGACY S2F	227	85	F16	40.3	23.6	1401	40	4.2	0.12	609	3.5	4.0	-2.2	0.26	44	104	38	A1A2	DELTOP IDOL IGNITE S2F
111023	BENDALE AD BLAZA S1F	203	83	F15J1	20.4	24.5	530	1	1.9	-0.77	406	3.7	4.7	-0.3	0.14	41	86	51	A1A2	ARKAN VA DYNASTY S2F
112063	PADRUTTS GB TOPNOTCH S2F	198	82	F16	35.6	21.1	1078	30	3.3	-0.26	372	3.6	4.2	-0.7	0.06	53	111	42	A1A2	MAIRE PF GOLDEN BOY S2F
Expected team weighted average		231	98		33	24	929	21	3.9	-0.27	489	3.7	4.4	-0.9	0.14					

**2016 POTENTIAL PREMIER SIRES KIWICROSS™ YEARLING TEAM
- DAUGHTER PROVEN**

AB Code	Bull Name	Breed Split	BW	Reliability %	Protein BV (kg)	Milkfat BV (kg)	Milk BV (litres)	Liveweight BV (kg)	Fertility BV %	Somatic Cell Score BV	Total Longevity BV (days)	Protein % BV	Milkfat % BV	Calving Difficulty BV %	Body Condition Score BV	No of herds	Tested daughters	NZ %	A2	Sire
511051	DRYSDALES SOVEREIGN^	F8J8	256	84	20.9	26.6	256	-4	2.8	-0.67	462	4.0	5.1	-3.3	0.36	46	92	66	A2A2	PRIESTS SOLARIS-ET
511052	MOODYS EXECUTIVE	J10F6	256	86	26.3	14.3	466	-11	5.7	-0.44	402	3.9	4.6	-2.8	0.18	52	110	62	A2A2	PUHIPUHI CAPS GOLDIE S3J
512050	ARKANS PERSPECTIVE-ET	F8J8	230	77	20.4	29.0	256	-17	6.9	-0.18	271	4.0	5.1	-1.3	-0.03	32	65	51	A1A2	FAIRMONT MINT-EDITION
511007	CASTLEGRACE MAKO	F7J9	228	84	18.7	19.8	-176	15	5.3	0.00	377	4.3	5.4	-3.4	0.35	44	95	71	A2A2	SHALLOCHS SENSATION
508154	PRIESTS SOLARIS-ET^	J10F6	225	99	16.4	16.5	129	-3	4.3	-0.95	327	4.0	5.0	-1.8	0.42	2940	16787	76	A2A2	INGRAMS RAMROD
Expected team weighted average			239	98	21	21	186	-4	5.0	-0.45	368	4.0	5.0	-2.5	0.26					

* Small Calf Syndrome carrier ^ Recessive Fertility Gene carrier

LIC TECHS: Skills we all bank on

In this article, artificial breeding manager Scott Ballinger provides a summary of the training, support, and assessment behind LIC's network of AB Technicians - the specialists behind your cows during the AB mating season.

LIC employs more than 1500 seasonal staff to manufacture, deliver, and inseminate approximately 5 million artificial breeding (AB) straws each spring.

A subset of that seasonal workforce, the co-operative's network of nearly 1000 AB Technicians represents the largest, and some would argue, most-important pool of staff at LIC.

To qualify as an LIC AB Technician, at least one year of rigorous training and assessment must be first completed. A series of modules are pre-requisites, and each step of the journey is performance monitored.

High-performers will reach a necessary standard that opens the way to serve a closely-supervised practical apprenticeship in the field.

Only on successful completion of assessed fieldwork will the apprentice graduate to deliver LIC's AB Technician service.



Prospective technicians are interviewed before any training takes place. Their physical abilities are assessed, along with a behavioural assessment to ensure the person is 'fit for the role'.

Animal management and stock husbandry is key; LIC technicians must have excellent attitude in working with, and treating, animals.

Customer service benchmarks and empathy for farmers are also critical, since AB Technicians are expected to work daily with some farmers for weeks, and at times, months.

Artificial insemination training begins with theory on biology.

The practical part of the course then begins, with a view to gaining an ability to successfully inseminate an artificial cow: This is a crucial step which must be passed before training on a live animal can be undertaken.

Once a prospective trainee demonstrates successful, consistent, placement of semen into a live animal, the trainee will graduate to 'apprentice' status.

Apprentices are paired with senior technicians for mentoring and coaching on-farm during the spring mating season.

Apprentices inseminate a small percentage of the cows on the senior technician's run. This not only minimises risk to customers, but importantly allows non-return rates to be assessed; this helps assess genuine performance of the apprentice in the field.

After graduation to AB Technician (frequently in the same season), assessment of training and performance continues indefinitely.

DataMATE transmits daily insemination data to supervisors and management, enabling daily performance measurement. During



spring, assessment of performance applies to all qualified AB Technicians, apprentices, and bulls.

The (almost) real-time DataMATE information ensures technician and bull performance consistently meets LIC's expected standards; it is also designed to provide reassurance to farmers the cooperative serves.

LIC employs a network of AB supervisors: Their key focus is to support, coach, and mentor all AB Technicians. Without the ability for a technician's work to be assessed, and positively challenged to improve, the company cannot grow and develop this critical group of staff.

AB supervisors continually assess AB Technician attitudes and behaviours toward customers and animals, together with insemination technique, adherence to hygiene standards, and stock management.

Assessment data is captured on a central database and this is processed for planning and reporting purposes.

It is LIC's goal to continually improve the level of service provided by its group of AB Technicians.



A New Way Forward



Greg Hamill
LIC genetics business manager

Greg Hamill, LIC genetics manager, provides an overview of the Forward Pack proposition, before explaining a change in how the solution gets delivered in 2016.

Premier Sires Forward Pack, referred to as LIC's offering of 'the best of the best', combines the best:

- (i) Daughter Proven sires;
- (ii) Early-proof Spring Bulls, and;
- (iii) Genomic bulls - selected from two sources: first, their genomic predictions on BW and type traits, and; second, from sire analyst knowledge about the strength of ancestry lines that sit behind the bull (on both paternal and maternal lines).

It's odds-on that offspring of elite sports couples would possess good eye-hand coordination or turn into better-than-average athletes: It's no different when LIC sire analysts select bulls for Forward Pack inclusion!

LIC bull acquisition selects from strong ancestry lines in a bid to reduce variation. Put another way, analysts focus on outstanding parents, good heritage, and great genes.

However, variation is still expected within genomically-selected sires - frankly, that's the exciting part of using them.

LIC has high expectations for such sires, and there's always great anticipation within the LIC genetics team that we're possibly selecting 'the next Checkpoint' or 'the next Beamer'.

When it comes to genomic selection

In response to market dynamics and farmer feedback - and in an effort to continuously improve the LIC genetics offering - this year will see a small but important evolution in the way Premier Sires Forward Pack teams are delivered.

LIC does everything it can to select forward-moving bulls, consistently remaining true to 'the best of the best' principal, and with a strong intent to retain a significant differential between Daughter Proven and Forward Pack bulls.

We know farmers that use Forward Pack are generally attempting to fast-track genetic gain for their herd, and value exclusive access to the highest-portion of Daughter Proven bulls.

The cooperative is guided by best-available scientific data at the time of selections. Nature does however occasionally take unforeseen paths, and LIC therefore remains mindful of a risk that some sires may track backward.

Feedback tells us Forward Pack users are also excited to have access to early-proof Spring Pack bulls which have the added security of a Herd Test and a TOP (traits other than production) inspection; this helps in terms of reliability - typically 80% of these sires make the grade and get marketed the following year.

LIC and Forward Pack farmers understand that 'closing the generation interval' results in an increased rate of genetic gain; closing the gap is achieved through use of genomically-selected sires.

Though reliability is compromised, on balance the 'punt' is seen as a worthwhile risk, given the four years it would otherwise have taken to gain a proof for the bull. Getting access to hand-picked (genomic) sires from great cow families is simply exciting.

What's the change?

LIC will this year offer greater flexibility in the way Forward Pack is delivered, aimed at ensuring the early Spring Bulls are fully utilised.

Previously, Spring Bulls only got despatched as a 'day two' option.

Now, Spring Pack bulls (selected following New Zealand Animal Evaluation's Traits Other than Production run in October) will go out based on merit within the team.

With a 200-strong Sire Proving cohort of graduates expected in October, LIC genetics team is eagerly waiting to see how many bulls will be included in the Spring Pack portion of Forward Pack.

Offering a greater degree of flexibility with Spring Pack bulls mean we can expect to deliver additional BW advantages for Premier Sires Forward Pack over Premier Sires Daughter Proven.

Differentials are anticipated at 17 BW for both Friesian and KiwiCross, and 10 BW for Jersey (see pages 14-19 for details on potential Premier Sires teams).

Farmers can expect the composition of the Forward Pack team to be approximately 53% Daughter Proven bulls, 35% Spring Pack bulls, and 12% Genomic bulls (calculation is based on what is expected to be delivered over the peak of the season, from 10 October to 20 November).

We trust you'll enjoy taking full advantage of the new way we're delivering Forward Pack this year, and the better differentials we expect you'll obtain.

MATE, REVIEW MATING, MATE. NOW'S GOOD.

Top farmers will now be making time to find out how reproduction went – this is one of the most important reviews of the season, and can be the difference between remaining static or making good progress in 2016/2017.

LIC reproduction solutions advisor **Jair Mandriaza-Munoz** runs through highly recommended reports for reviewing how things went during the spring of 2015.



Jair Mandriaza-Munoz
LIC reproduction solutions advisor

Early aged pregnancy testing data is carried out with the intention to gain accurate measures of both the six week in-calf rate and the 'not in-calf rate' of the herd.

To find out how well things have gone is simple: head to www.minda.co.nz and click on **PREGNANCY** under the **REPRODUCTION** section of MINDA Web.

The *Whole Herd* graphic will provide both the six week in-calf rate and the not-in-calf rate, along with a table that allows comparisons to be made against previous seasons (NB: results should only be compared when all relevant seasons have accurate early-aged pregnancy testing data recorded).

Irrespective of results, look through reports to discover possible opportunities for improvement next season.

Keep in-mind the key influencers of herd reproductive performance, outlined in DairyNZ's In-Calf programme (the eight pieces of the reproductive cake):

- Calving pattern
- Heifer management
- Nutrition and body condition
- Heat detection
- Service bulls
- AB practices and genetics
- Non-cycler issues
- Cow health

MINDA Reproduction provides farmers with a suite of reports that help identify which pieces of the cake

should be the focus – or where the greatest areas for improvement lie (for example, after consulting with the vet, cow health might not be a problem, but a poor submission rate might indicate a problem with heat detection practices).

Calving pattern has a big impact on herd reproductive performance.

The *In-Calf by Calving Pattern* report and associated graphic will highlight areas of comfort or concern, and helps quantify how big an influence calving pattern had on the herd.

Management of heifer performance can be illustrated by both MINDA Weights (this monitors growth rates against industry targets) and a graphic that displays in-calf rates by age group (this provides a view of how well first-calvers performed reproductively compared to other age groups; this also provides good insight into which age groups may have struggled).

Body Condition Score (BCS) is among the biggest drivers of a herd's productive and reproductive performance.

The Body Condition Score section within MINDA Repro provides distribution and averages in the herd's various age groups (when individual

body condition scores are recorded for cows).

If the BCS is one month either side of Planned Start of Calving or Mating Start Date you can view the different BCS groups in terms of reproductive performance (using the *In-Calf Rates by Body Condition Scores Report*).

BCS affects reproductive performance, so strategies should ensure animals go into calving and mating at optimal BCS.

The *In-Calf Rates by Diagnosis* report allows good insight in to the impact of (i) anoestrous, and (ii) health treatments, on reproductive performance.

By selecting up to two groups of treatments, graphical comparisons can be drawn between animals affected and animals not affected.

For each of the In-Calf rate reports mentioned above, there are correspondent *Conception Rate* reports available. This should help gain an appreciation of the influence each factor (calving pattern, heifer management, body condition, cow health) has on a cow's ability to convert an AB mating into pregnancy.

Service bulls do not have a specific report but the *In-Calf rate for the Whole Herd* report provides an idea of natural mate bull performance. Track the rate of cows getting pregnant in the period after the 'End of AB mating period' line – where sudden changes in the rate of cows getting pregnant can be discussed with a rural professional.

Heat detection efficiency indicators are located in the Mating section of MINDA Reproduction.

An *Early Calved Mature Cows* graph provides a view of how well adult cows calved eight weeks or more before mating start date: This group of cows has absolutely no excuse not to be cycling by the time mating starts.

The *Early Indicator - Repeat Matings* report provides a meaningful measure of heat detection efficiency in the first 17 days of mating.

Once 24 days of mating have elapsed, the *Return Interval Analysis* report becomes the 'go-to' option.

LIC's Farm Solutions Managers can help farmers navigate reports, and it is recommended rural professionals be involved when reviewing reproductive performance and formulating plans.

SGL A NATURAL GO-TO

LIC's short gestation plus high-BW semen is being credited as a 'key tool' in turning around the fortunes of Northland College's dairy farm near Kaikohe.

Three years ago the farm's 285-cow herd languished in the bottom-10% of the national dairy herd in terms of breeding and production worth (BW/PW).

The farm was dogged by poor per-cow and per-hectare returns. The herd also had an 18 week calving spread between July 1 and November.

Murray Jamieson, farm governance committee chairman, set a five-year goal of lifting the herd into the nation's top-25% (of BW and PW).

"We're now in year three, and we're on the right track.

"We started by working with Bob Wood (former LIC Farm Solutions Manager) and John Tobin (LIC Farm Solutions Manager) to help us achieve our goals.

"We didn't want to use drug intervention, which basically means no inductions and no CIDRs... we feel drugs are merely band-aids that don't

address the fundamentals, or the underlying management issues.

"So, essentially, we wanted to have good management of cows as evidenced by BW, PW, 6 week in-calf rates, and calving spread."

The farm's breeding plan gets refined each season.

Last spring a mix of Alpha bulls and Premier Sires was used for the first six weeks of artificial breeding (AB), followed by LIC's short gestation-high BW liquid semen for 10 days.



Murray Jamieson - Northland College farm governance chair.

"We then used Hereford natural mate bulls after AB, then went back to doing three weeks of short gestation semen to pull that tail forward," Murray says.

He describes Hereford as simple, colour-coded marker system that's easily understood by farm cadets and staff.

In consultation with John Tobin, the herd is moving toward a KiwiCross cow, and there is strong emphasis on lifting recorded ancestry from 73% to 95%-100%.

Results from the breeding plan are filtering through.

"Last year we had 70 calves on the ground for replacements – that's 40% more than we've previously recorded," Murray says. "The particularly pleasing aspect was that within five weeks we had 90% of our replacements."

"SGL is a natural tool to keep our calving pattern tight; it shows strong financial benefits, including days-in-milk and low empty rates.

"We're down to 12.5 weeks of mating now; the previous season it was a touch over 14 weeks, and five years ago mating took 18 weeks."

Just-completed pregnancy diagnosis shows the farm's empty rate this season was 12%, following on from the February 2015 empty rate of 7.5%. Previously it has ranged between 12% and 18%.

This year LIC will market a liquid SGL Hereford AB solution (see the 2016 Alpha Catalogue for more detail).

Key benefits:

- To indicate, during calving, the finish of AB replacement calves. Alternatively, to indicate the break between AB replacement calves and the start of SGL Dairy crossbred short gestation calves, or other SGL calves.
- To take advantage of the beef market and schedule.
- To replace, or reduce reliance on, natural mate bulls (extending AB as a more cost-effective option)
- As a tool for herd improvement by placing selection pressure on the herd (ie. from not mating from the bottom 10% of the herd for example, ensuring better-quality replacements entering the herd).

Note: LIC clause 62-A applies to all progeny from SGL products. See LIC's Pricing, Products and Solutions Catalogue for full information or contact your Farm Solutions Manager.



Benefits of SGL at Northland College (summarised by John Tobin, LIC Farm Solutions Manager):

- A bigger gap between calving and mating as a result of a shorter calving period.
- Using SGL + BW for weeks 6 & 7 of mating sees cows calving earlier, keeping the 6 week in-calf rate close to the industry target of 78% (74% this season).
- Early-calving cows will cycle fully in time for the start of mating; this allows breeding of replacements while shortening the calving period, and getting 613 more days in milk.

SLASHING COSTS:

Saving the business, or prolonging the pain?



Jair Mandriaza-Munoz
LIC reproduction solutions advisor

There's a fine-line between a business expense and a business investment. Cutting costs everywhere may keep the wolves from the door, but when fat is mistaken for muscle and bone, the pain can be severe and long-lasting.

Jair Mandriaza-Munoz, LIC reproduction solutions advisor, argues reproductive investments should not be compromised.

Farmer Dan Brice of Mangakino (north of Taupo), recently experienced first-hand the difference between a discretionary cost and the value of a long-term investment.

Herd testing was the case-in-point.

Once the shock of the low cashflow year was absorbed, Dan, a sharemilker, needed to take the pressure off the platform.

To do this he had to decide which cows to remove from his herd, and he realised he needed hard data to make an informed decision.

Once herd test results came through, he easily identified a handful of cows that were producing a mere 1kg MS/day - among a herd that was peaking at 2.1kg MS/cow.

The passengers were gone and farm efficiency received a small boost.

In a low payout climate, targeted cost savings are inevitable, and are indeed prudent business practice.

Using the same herd test data, Dan was delighted to confirm the high performance of animals that were the result of his breeding policy.

"Proven high genetic merit animals with high reliability of indexes deliver higher performance and profitability, as well as market value," he said.

Reproductive performance was a focus during his second season (on this specific farm), a job that included about double the number of milkers than his previous job.

Dan's decision not to intervene early with non-cyclers, in the interest of cost-savings, was one he regretted.

During his previous job, he was able to achieve an 82% six week in-calf rate.

For the second year running, this measure came in at a disappointing 69%.

He felt the choice to do delay intervention had ruined his chance at progress. Not only did he significantly narrow his reproductive choices, he missed out on days-in-milk (despite achieving the same 6 week in-calf rate), because the 3 week in-calf rate was down on the previous year.

There was however some bright news.

Dan's six week in-calf rate was achieved on the back of half the intervention used in the previous season.

Another upside is that, thanks to the weather, feed availability has been good. Production is ahead of last year, and the year's target is now within reach.

Use of short gestation semen to tidy up the end of mating has helped him tighten his calving interval by at least seven days, with a 10-week calving interval to look forward to next season.



Dan Brice
Mangakino farmer

BENEATH THE BONNET OF COW 20.



Steven Max, right, with farm owner Grant Blake

She was considered a matriarch of the herd, perceived to owe nothing. She had great udders and conformation. And she produced 'off the charts'.

But looks can be deceiving.

And it took a herd test (the first in eight years) to expose her.

The cow belonged in a herd that West Coast farmer Steve and Sunny Max took over two years ago.

"The herd test was the last straw for her," Steve said. "She was an old cow anyway so she was due to be culled."

"There are possibly a few more in the herd like cow 20; the girls who are producing well but not measuring up in solids and are probably costing us more than we realise."

Cow 20 produced litres that were 24% higher than the herd average.

However, the milksolids within those litres were relatively miniscule: in terms of mustering protein and fat, she fell way down the chart at 10% below the herd average.

Farmers with a basic understanding of the Breeding and Production Worth would know that water (litres) has a negative impact on the index, while milksolids have a positive impact.

Cow 20 clearly failed on both counts.

"It was disheartening to see all the litres and knowing what kind of feed she was going through to produce that. She was obviously dominating in the paddock without paying her way," Steve said.

In days-gone-by the cow belonged in a herd that had its historical roots as 'town supply' - and it may have been a hangover of the past that milksolids weren't considered a high priority, Steve said. Liquid, and vast quantities of it, were perhaps the order of the day.

The herd had gone without a herd test for eight years.

Steve said another herd test before the end of the year would be done on the herd, with three planned for the 2016/2017 season.

"Looks can be deceiving, absolutely. The herd test revealed things you don't see in an individual, the test goes below the bonnet and really gets into detail that surprised us."



Animal detail

Animal no.	Sex	Breed	Age	Name	Class	MS (kg)	Fat (kg)	Protein (kg)	Protein (kg)	MS (kg)	Calving date	Days in milk (days)	SCC threshold exceeded	MS (kg)	Fat (kg)	LW (kg)
228	F	7	7	720	3.08	25	3.75	27	35	30/09/2015	75	0/1	4813	220/40	201	
37	F	8	8	540	5.90	35	4.00	35	35	04/09/2015	70	0/1	0/40	-102/75	-104	
338	F	5	5	600	3.71	35	3.75	25	35	16/08/2015	75	0/1	4554	-179/60	-201	
20	F	11	11	1000	3.75	40	3.75	30	40	11/08/2014	75	0/1	1400	-174/01	-195	
204	F	8	8	370	4.09	25	3.75	21	44	20/09/2015	75	0/1	317	-174/01	-200	
79	F	8	8	300	4.00	27	4.00	25	35	10/09/2015	75	0/1	4118	-140/40	-100	

GENOMICS: an update.

Picking genetics during the artificial breeding season works on the assumption that, when it comes to breeding and production efficiency, farmers want new generations of replacement cows to outperform the previous generation.

This comes largely down to good sire selection.

Arguably still in its infancy, genomic selection of bull calves is finally getting traction in New Zealand, where benefits for LIC's sire selection processes are emerging, and better alignment between forecasted genomic worth and realised breeding worth is the expectation.

Genomically-selected bulls have been marketed by LIC for eight years, with mixed results in the first several years. Here, we offer an insight into progress that's been made by LIC since 2013.

Using milk and TOP (traits other than production) information from a bull's daughters, the process takes LIC seven years to get an accurate estimate of a bull's genetic merit, commonly referred to as breeding worth (BW).

Only after that 'progeny test' period will the bull's genetics become commercially available to the nation's dairy farmers. This is the traditional method of 'proving' a bull's value as a breeder of dairy cow replacements.

But genomic selection, using latest science methodology, offers the industry an attractive alternative proposition.

"What we want to do is get a reliable estimate of genetic quality at a bull's birth, rather than having to wait five years (for daughter information)," says Bevin Harris, LIC science leader.

Bevin leads LIC's development of its genomic selection tool.

How the tool works

"The really cool thing is that, when I say 'reliable estimate', it doesn't have to be as reliable as progeny testing," Bevin continues.

"Because, if you save four years, you can actually forgo a little bit of reliability and make greater levels of genetic improvement, just by using the slightly less reliable bulls at a younger age."

That's the essence of genomic selection.

Genomic selection hones-in on a series of DNA markers that control the key traits dairy farmers are interested in (for example, fertility, fat, protein, udder support).

"The idea is that we use DNA from young animals when they're born, and derive a better estimate of their BW



Bevin Harris
LIC science leader.

than we'd get from the parent average BW, bypassing progeny testing in the process," Bevin says.

"We do this by using their DNA, specifically the DNA markers.

"So some markers are associated with genes that control the traits we are interested in. If we get a marker that's associated with a positive trait, we can work out whether that animal is going to be any good."

What's been the hold-up?

The method is working well in almost all dairy industries around the world, but progress has been slower in New Zealand and a few Scandinavian countries.

"We (New Zealand, Norway, and Finland) have large cow populations, but our industries also feature multiple breeds and cross-breeds," explains Bevin.

"When you've got one population, for example, exclusively Holstein - like in the United States, it seems to work much better.

"When you start crossbreeding, you start splitting up the associations between the DNA and the traits, so you get a lot more admixture in the genome.

"It's a matter of really driving the science forward and having the ability to gain a good understanding of how to take account of the crossbreeding within the genomic predictions - that's the really important component in getting this thing really firing."

Recent progress

There are aspects of the technology that are firing.

Five years ago, bull calves for LIC's Sire Proving Scheme were selected exclusively on ancestry records.

Now, rather than merely selecting 200 male calves to be raised and tested from LIC's Newstead bull farm, the co-operative pre-selects a list of 2000 male calves.

These comprise calves from cow families that have sound conformation traits, and are deemed as the most-efficient producers in New Zealand.

Before leaving the farms they are born on, LIC is able to run all 2000 young sires through DNA testing, Bevin says.

"We run them across the DNA chip (looking for key 'marker' traits). So we take the top-200 or 250 (from the initial list of 2000), for the Sire Proving Scheme.

Sire acquisition managers will visit farms throughout the country to eyeball the 200 to 250 bull calves (and their dams) before confirming their place in the Sire Proving Scheme.

"That's a really big change from what LIC used to do," Bevin says, "which was select our top-200 based purely on the parent average (the BW index)."

Although parent average is still a significant factor, the genomic selection tool complements the process and Bevin maintains bull composition is slightly different under the improved pre-selection method: "There's much more choice, a wider range of bulls," Bevin says.

"Looking at a list of 2000 sires allows us to open the way for a small number of animals that might not have otherwise come on the radar.

"We can use the knowledge that a bull has good genomic values compared to his parent average, which gives the bull a greater probability of having a successful outcome from progeny testing.

"We're also doing more embryo transfer work. This helps, for example, if you take two identical full brothers who have identical parent averages: You can use the DNA information to show differences - one might have better associations in the traits we're interested in, so we'll take him."



Before arriving at LIC's Newstead farm to join the Sire Proving Scheme, bulls like these ones will have had their DNA screened for traits that farmers are most-interested in.

What about the girls?

The co-operative is also using a lot more heifers to generate elite bulls.

Previously, LIC had to wait until cows were milking to get an idea of how good they were, before using them as mothers of bull calves.

Before leaving the farms they are born on, LIC is able to run all 2000 young sires through DNA testing

Nowadays LIC gets samples of the heifers' DNA, generating breeding values before the heifers have calved: "So that speeds things up again (intensifying the selection), we're turning generations over," Bevin says.

Promising signs

In 2013, LIC made a significant change in the method behind genomic selections, including the mathematics behind it: "What we're trying to do is to improve the stability of the difference between what we say the animal's going to be (based on DNA information) and what it finally comes out at (when daughter information comes through).

Ideally the numbers would be the same, Bevin says.

"We don't want to over-promise on the genetic level of these animals, or over-promise on the accuracy we think we're getting from the genomic Breeding Worths.

LIC is also using a different system to calculate the association between genomic markers and the traits farmers are most-interested in: milksolid production, fertility, and survival.

Looking at bulls that had their progeny-test results coming through in 2014 and 2015, Bevin says their original genomic predictions (using the improved calculations) appeared to be holding up as more daughter information became available.

"Pre-selection is working, and we're seeing results in *The RAS List* right now.

"Instead of having a group of sires below zero (ie. falling short of initial genomic predictions when daughter proofs emerged), they're not there anymore," Bevin says.

"In other words, the ones that inherit poor genes from their Mums and Dads are less likely to be progeny tested."

If improved rates of genetic gain are achieved, more-profitable cows for farmers will result, Bevin says.

"The other benefit, from a company point of view, is that if we're getting improved rates of genetic gain, we're getting more top bulls on to *The RAS List* than our competitors."