SIDDC FOCUS DAYS

Methven
Tue 30 April @ 10.15am – 1.00pm
Venue: Highveld Pastures
465 Reynolds Road, Methven
SN37225

Eyrewell Forest
Wed 1 May @ 10.15am – 1.00pm
Venue: Waimak Dairies
151 Two Chain Road, Eyrewell Forest
SN37777

SIDDC
South Island Dairying Demonstration Centre

LUDF UPDATE
Peter Hancox & Antoinette Archer

- Setting up for dry off
- Milk production
- Season's financials & outlook for 24/25
- Winter cow management

FLEXIBLE MILKING
Flo Coetzee (Methven)
Richard Pearse (Eyrewell Forest)

How has flexible milking stacked up?
Hear about the host farm's milking regime as well as a review of LUDF's system

- What did we do?
- Why did we do it?
- How did we do it?
- Key learnings & practical tips

REPRODUCTION PROJECT UPDATE
Jeremy Savage, Aaron Henderson & Jair Mandriaza
Guest Vets: Donald Arthur & Ryan Luckman

We have halved our not in-calf rate – how did we do it?
LUDF Mating Benchmark Project: Year 2 results

- What were our keys to success?

Reproduction Results & Objectives

- Regional and National trends – how are we tracking?
- Breeding objectives and opportunities

E. office@siddc.org.nz T. (03) 423-0022

Welcome to Highveld Pastures, Methven & Waimak Dairies, Eyrewell Forest

As host farms for the SIDDC Focus Day Autumn series 2024, these two farms are a fully operational, commercial dairy farms with a number of potential hazards for both visitors and staff. Many of the potential hazards cannot be eliminated while also providing access to visitors therefore all staff and visitors MUST watch for potential hazards and act with caution.

Hazard Summary: Look; Think; Act.

The following chart provides a reminder of the types of hazards on farm.

Watch for these and any other hazards that may be on farm today.

People: • Uninformed / ill prepared visitors may be the greatest risk	**Animals:** • **You are in their space** 	**Milking shed:** • Moving rotary platform • Confined animals • Chemicals
Eyes / Ears: • Water / oil / milk / chemical splashes • Welding flashes • Loud machinery		**Touch:** • Hot / cold surfaces, hot water, chemical burns • Electric fences – treat them as high voltage power sources
On farm machinery and tools • Chainsaws, hand tools etc. generate noise, fragments	**Potential slips / trips:** • Uneven surfaces occur across the farm • Fences • Drains • Underpass • Effluent pond	**Vehicles:** • Contractors and farm equipment – **act as though they can't see you** – keep out of their way • Centre Pivot takes precedence over your plan

ARE YOU TRAINED FOR WHAT YOU ARE ABOUT TO DO? If not, 

If you are uncertain how you should act or proceed, stop and contact the farm manager, farm staff or your host and organiser.

By entering these farms, you are acknowledging your receipt of this hazard summary, and your agreement to take personal responsibility to watch out for potential hazards, and act in such a manner as to protect yourself and any others also on-farm.

SIDDC
South Island Dairying Demonstration Centre

LUDF
Tomorrow's farming, today

FOCUS DAY

LUDF Update

- **Production update**
- **Feed: Pasture & Supplement**
- **Farm Plan 2024/25**
- **Financials: Budget vs Actual + Forecast**

Flexible Milking

- **History & research**
- **Host farm system**
- **10 in 7 findings at LUDF**

Reproduction Project Update

- **LUDF reproduction results**
- **Regional & National reproduction results – LIC**
- **LUDF breeding objectives**

Tuesday 30th April 2024 - Methven
Wednesday 1st May 2024 – Eyrewell Forest
10:15am – 1:00pm

Enquires: **Ph: 03 423 0022** www.siddc.org.nz www.ludf.org.nz

Thanks to our sponsors:

LIC

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LUDF Farm System Overview

SIDDC

Lincoln University Dairy Farm (LUDF) is a demonstration farm developed by the South Island Dairy Demonstration Centre (SIDDC). This industry-funded partnership of seven leading dairy sector organisations collaborate to promote the sustainable development of South Island dairying via demonstration activities, research, education, and training of farmers. The current partners of SIDDC are:

Strategic Objective at LUDF

To maximise sustainable profit embracing the whole farm system through:

- Increasing productivity
- Without increasing the farm's total environmental footprint
- While operating within definable and acceptable animal welfare targets; and
- Remaining relevant to Canterbury (and South Island) dairy farmers by demonstrating practices achievable by leading and progressive farmers.

Focus for 2023/24 Season:

Nil-Infrastructure, low input, low N-loss, optimise profit.

Current farm system:

- 3.4 cows/ha – at peak milked.
- Target use of up to 190kgN/ha synthetic nitrogen, not to exceed 190kgN/ha cap.
- 648 kg DM/cow imported supplement.
- Winter cows off farm.
- FWE budgeted at $5.63/kg MS.
- Target production 469 kg MS/cow (>100% liveweight in milk production less 5.7% with 10 in 7 milking).

Current research projects on the farm

Variable Milking Project

- 10 milkings in 7 days.
- Commenced from start of season, this is the third second season of the project.
- Predict 5.7% drop in MS production.
- Profitability should remain the same because of lower costs (drop a labour unit, less animal health and shed costs, better cow condition and higher mating results).
- First season made a loss due to high pay out, last season back on production.

Plantain Grazing Project

- Aim to get a minimum of 10% of the diet, with a target of 30% of the diet in plantain via a mixed sward.
- To assess composition over time through direct drilling and broadcast with a spring and autumn sowing date.
- To result in decrease in N loss in OverseerFM from 26 kg N/ha/yr to 23 kg N/ha/yr for expected composition when direct drilled and 22 kg N/ha/yr for expected composition when broadcasted.

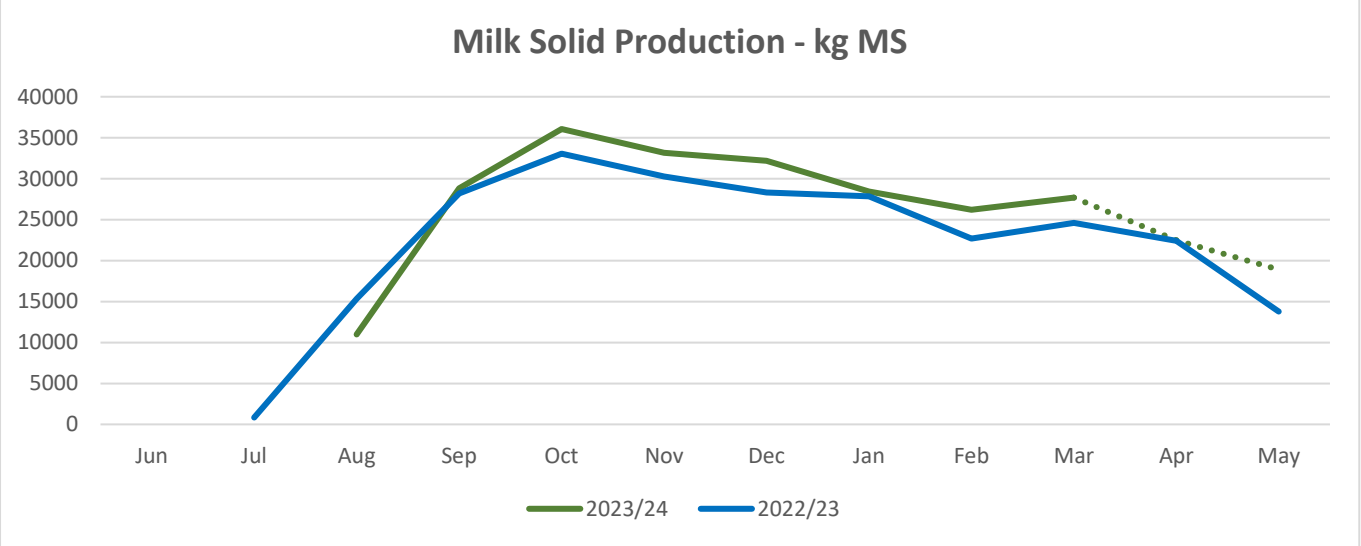
Mating Benchmarking Project

- Benchmark project with top quartile local performing farmer, Liam Kelly. This project has improved mating results of 21% empty 2021/22 season, to a not in calf rate of 9% for 2022/23 season and 7% for the 2023/24 season.

LUDF 2023/2024 Season Update

Milk Production

- Budget 265,221 kg MS from 560 cows at 469 kg MS/cow with a milking frequency of 10-in-7.
- This is derived from a TAD budget of 500 kg MS/cow. This is based on DairyNZ flexible milking research, where a 3 in 2 milking regime would expect a 5% drop, therefore for 10 in 7 we would expect a 6% drop.
- Production at the end of March was 223,525 kg MS, which was 84% of budget.
- We are on target, with a revised production of 264,901, which is 1,650 kg MS/ha.
- As at the end of March, we were 5.9% up season to date, and 12.6% up for March.
- We have continued the 10-in-7 milking regime all season.



Budget vs Actual - as at 31 March

- Currently on target for 264,901 kg MS, which is 477 kg MS/cow - based on peak 555 cows.
- Goal is 500 kg MS/cow with TAD = 472 kg MS/cow with 10-in-7 (-5.7%).
- Feed harvested for the season is back and forecasted to be 13.6 t DM/ha.
- Supplement – budget 648 kg DM/cow, this is now forecasted to be 840 kg DM/cow.

Herd

Stock Reconciliation as at 23/04/2024:

- Culls to be off farm by end of April. This is farm policy as a strategy to reduce N leaching risk and loss in Overseer.
- This are made up of 51 MT's, 44 discretionary culls [high somatic cells and repeat mastitis (8), repeat lameness (4), low production (21) and age (11)] along with Johne's cows (6) that have tested positive.

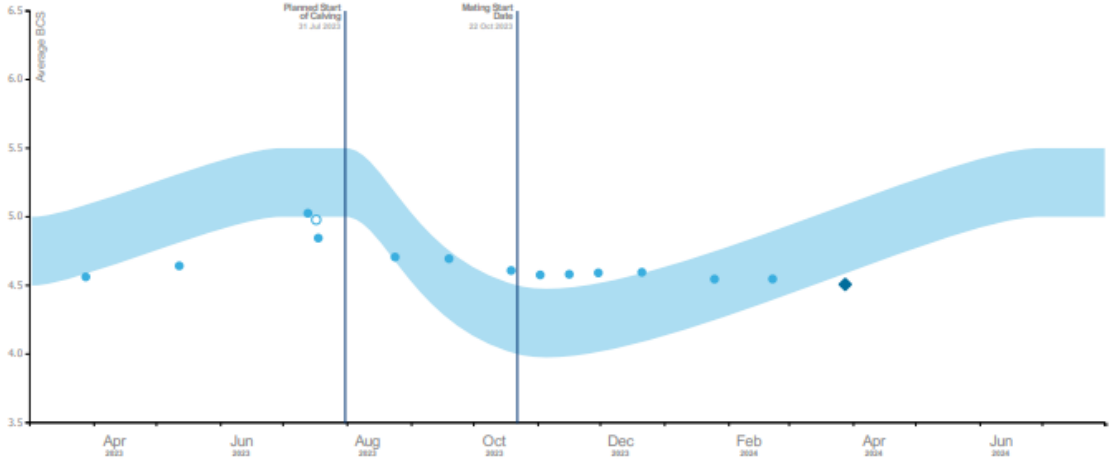
Stock Class	Number
In milk – retained	452
In milk - MT's & Culls	57
Dries - retained	2
To winter:	
IC MA	452
IC Heifers	129
Total	581*

*we plan to winter 581 cows with an expectation of peak milk numbers of 560 for next season.

Body Condition Score

- Average BCS on 28 March was 4.5.
- Body Condition Score has been a focus particularly with our mating benchmark project.
- We scored our herd fortnightly over mating, and monthly thereafter with results below.
- Our cows were lighter than the optimal range however within target (5.0) over winter but did drop pre calving to 4.8 and at end of calving was 4.7. We have been able to hold body condition score over mating at 4.6 and are currently at 4.5.
- 96% of our herd are between 4.0 and 5.0.
- We will use BCS to aid with drying off dates and winter mobs.

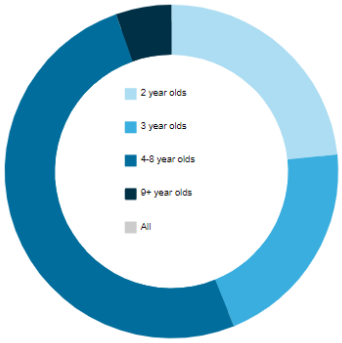
Body Condition Score for 1 March 2023 to 28 March 2024

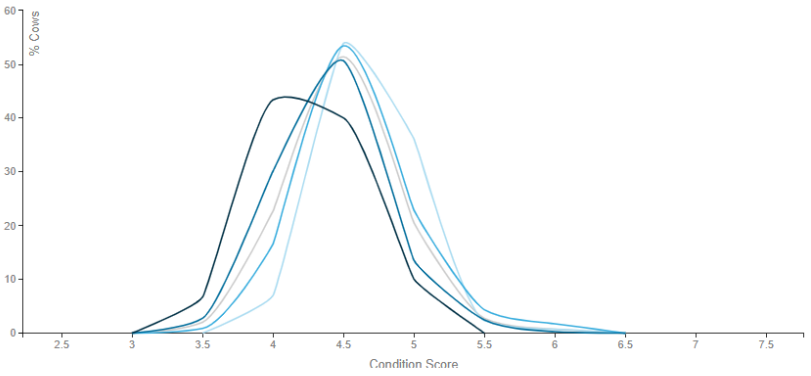


Body Condition Score by Age

BCS by Age for 28 March 2024

556 of 558 cows scored on this date.





Body Condition Scores

Age	3.5	4.0	4.5	5.0	5.5	6.0	Average	Total Scored	% Scored
2	0	9	70	47	3	1	4.7	130	99%
3	1	19	61	26	5	2	4.6	114	100%
4-8	8	85	143	38	7	1	4.4	282	100%
9+	2	13	12	3	0	0	4.3	30	97%
All	**11**	**126**	**286**	**114**	**15**	**4**	**4.5**	**556**	**100%**

Drying off & Wintering

- Target dry off date is 30 May 2024.
- Grazed off farm at independent grazier in Hororata until approx. 15 July, then return to support block.
- All stock will winter on kale. Expected yield is 10 t DM/ha, crop yield test will be done prior to grazing.
- Winter mobs will be based on BCS, and expect the following mobs:

Mob	Number	BCS	Feed Allocation	Utilisation
Light	100	4.0	16 kg DM/cow/day	70%
Mid	246	4.5 & 4.0 (lates)	13.5 kg DM/cow/day	75%
Heavy	100	5.0 +	10.5 kg DM/cow/day	80%
IC Heifers	129	5.5	10.5 kg DM/cow/day	80%
Average	**575**		**12.74 kg DM/cow/day**	

- We will draft and mob cows into to calving dates around 10 July, with feed adjusted as per BCS.
- We will BCS at least once over winter.

FARMAX

Compare Physical Summary

Jun 23 - May 24

		23/24 Revised	202324 Plan	Difference	
Farm	Effective Area	160	160		ha
	Stocking Rate	3.5	3.5	0.0	cows/ha
	Potential Pasture Growth	17.2	18.3	1.1	t DM/ha
	Nitrogen Use per total ha	189	180	-10	kg N/ha
	Feed Conversion Efficiency (eaten)	11.3	11.2	-0.1	kg DM eaten/kg MS
Herd	Cow Numbers (1st July)	560	565	5	cows
	Peak Cows Milked	560	565	5	cows
	Days in Milk	276	280	4	days
	Avg. BCS at calving	4.9	5.0	0.1	BCS
	Liveweight per total ha	1,754	1,695	-58	kg/ha
Production	Milk Solids total	264,724	265,221	497	kg
(to Factory)	Milk Solids per total ha	1,655	1,658	3	kg/ha
	Milk Solids per cow	473	469	-3	kg/cow
	Peak Milk Solids production	2.19	2.05	-0.14	kg/cow/day
	Milk Solids as % of live weight	94.4	97.8	3.4	%
Feeding	Pasture Eaten per cow *	3.9	4.0	0.1	t DM/cow
	Supplements Eaten per cow *	0.7	0.5	-0.1	t DM/cow
	Off-farm Grazing Eaten per cow *	0.8	0.7	-0.1	t DM/cow
	Total Feed Eaten per cow *	5.4	5.3	-0.1	t DM/cow
	Pasture Eaten per total ha	13.6	14.2	0.5	t DM/ha
	Supplements Eaten per total ha	2.4	1.9	-0.5	t DM/ha
	Off-farm Grazing Eaten per total ha	5.0	4.8	-0.2	t DM/ha
	Total Feed Eaten per total ha	21.1	20.9	-0.1	t DM/ha
	Supplements and Grazing / Feed Eaten *	27.1	23.6	-3.5	%
	Bought Feed / Feed Eaten *	15.6	12.7	-2.9	%

(*) feed eaten by females > 20 months old / peak cows milked

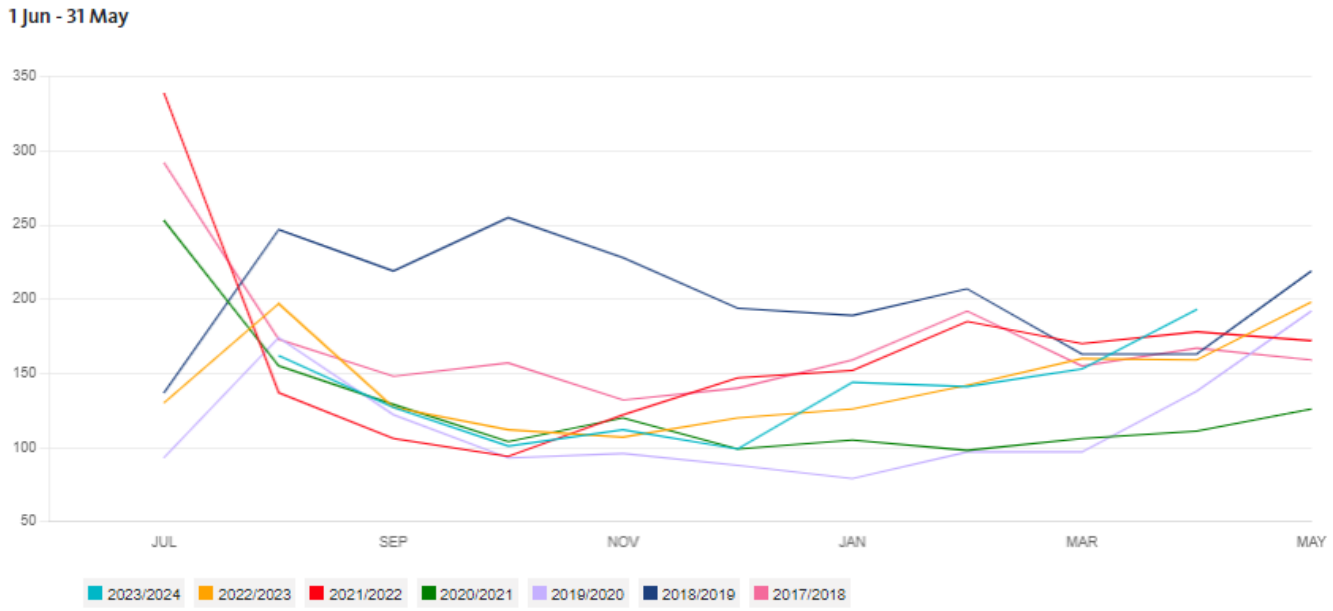
Farmax Dairy 8.3.1.13

Mating – covered in depth during reproduction project session

Animal Health

- Lameness continues to be higher than we would like. We will complete a lameness assessment to identify issues and where progress can be made. To date culling decisions have been limited due to repro performance.
- Somatic Cell Count: Our STD average is currently 137,000 compared to last season's STD of 138,000. We have seen a lift in January which has continued to lift and currently at 193,000 for April. Strep. uberis has been found when cultured, we have had no S. aureus this season, that we are aware of.
- We will use our herd test results to determine which cows require dry cow therapy or teat seal.

Somatic Cell Count '000s



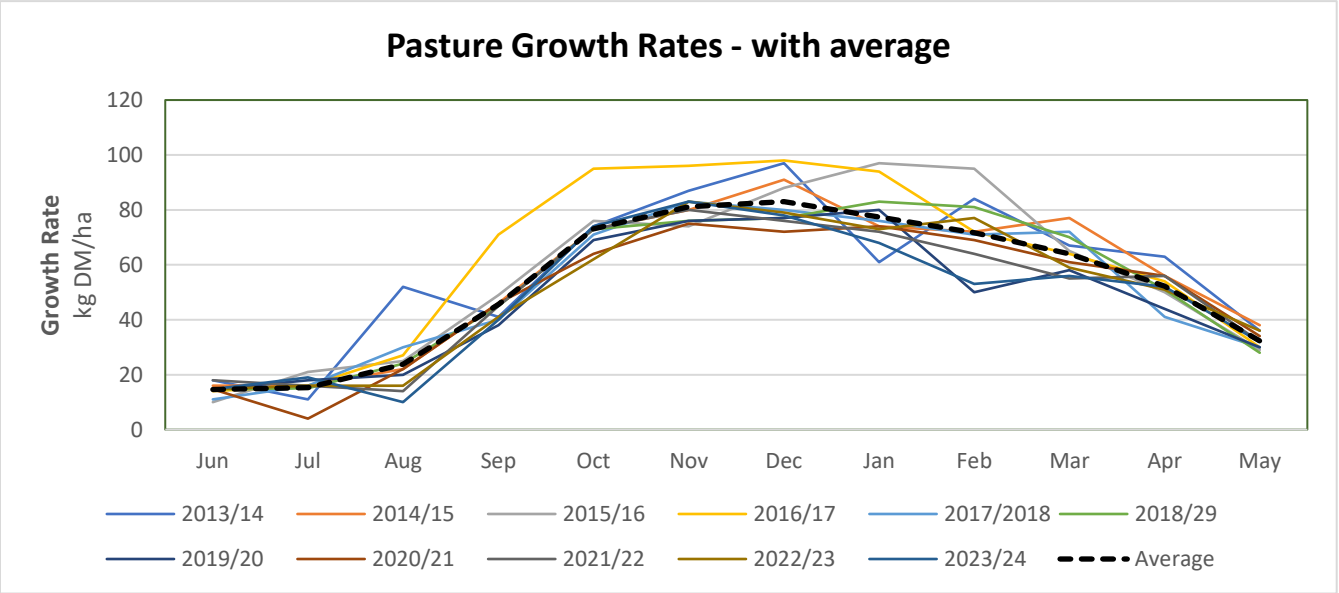
Feed - Pasture & Supplement

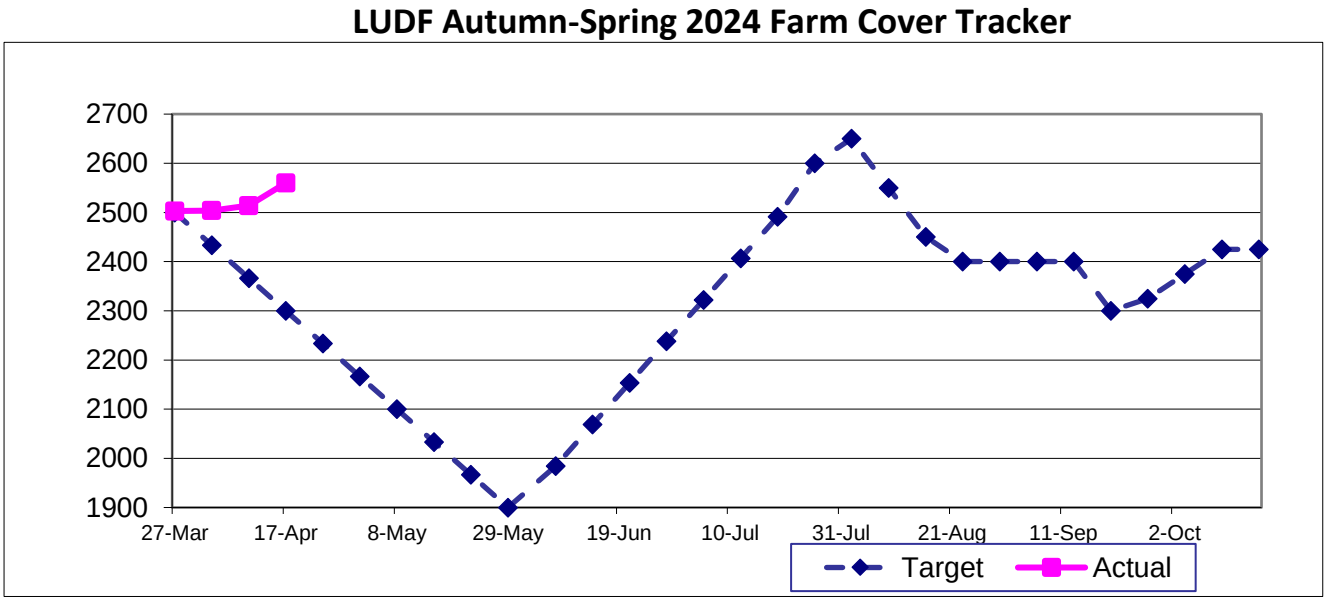
- January, February & March growth rates were down compared to average, (this season: 77, 53 & 56 compared to 10-year average: 68, 71 & 64).
- Cow demand has exceeded growth rates through Feb-Apr which has resulted in higher level of supplementation being fed.
- Drier conditions along with an irrigation development over January/February which resulted in 15 ha (9.4%) of the farm losing water for 2 weeks, whilst having 8 ha out for regrassed compounded this.

Month	**Avg Growth Rate** kg DM/ha (10-yr avg)	**Growth Rate** kg DM/ha	**Cow Demand** kg/cow/kg DM/ha	**Pasture Fed** kg DM	**Supplement Fed** kg DM
January	68	77	18.7 / 68	17.6	1.1
February	72	53*	18.0 / 66	10.5	7.5
March	64	56	17.9 / 62	10.2	7.7
April	52	52	17.6 / 60	10.7	6.9
May *(forecast)*	32	32	16.5 / 40	16.5	0

*Februarys average growth rate is on average is 72 kg DM/ha, however this season was 53 kg DM/ha.

- Farm policy is to feed low to no silage in May. This is because LUDF can be very wet in May and feeding silage can result in a drop in utilisation, and there is also risk of pugging if it becomes very wet, particularly on South block.
- Season supplement forecast was 648 kg DM/cow, reforecast is now 840 kg DM/cow. T
- 24/25 supplement budget is currently 650 kg DM/cow.
- Round length was extended in March to 35 days to build cover, our 1 May targets are an average cover of 2,400 kg DM/ha with pre-grazing of approx. 3,300 kg DM/ha.
- Dry off APC target is 1,900 kg DM/ha. Winter growth rates average 15 kg DM/ha.
- Target APC for 1 August is 2,700 kg DM to hit a balance date APC of 2,400.
- Cows are grazed off farm from June to mid-July.

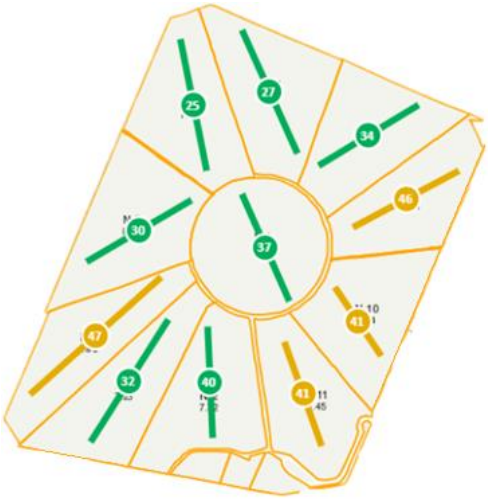




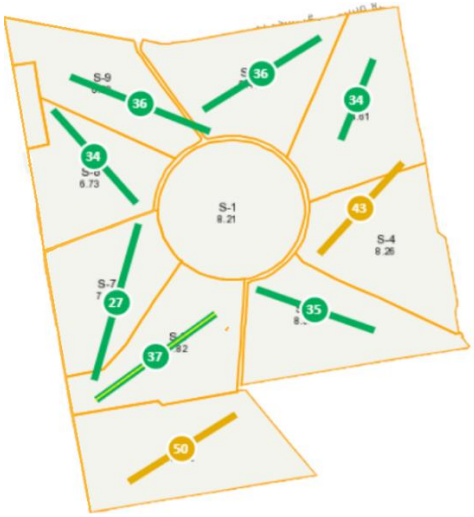
Fertiliser / Nitrogen

- Average Nitrogen spread to date: 182.7 kg N/ha.
- Nitrogen target was up to 190 kg N/ha. Highest rate to date is 196* kg N/ha and lowest is 88 kg N/ha. **this was a silage paddock.*
- Effluent and non-effluent area is treated the same now that effluent area has been extended.
- Effluent is now applied to 60.9 ha and can be applied at a rate of 1.5mm/day.
- Super applied in spring. Rates based on Olsen P results.
- All paddock testing will be completed over winter for Spring fertiliser plan.

July 2023 Olsen P Levels

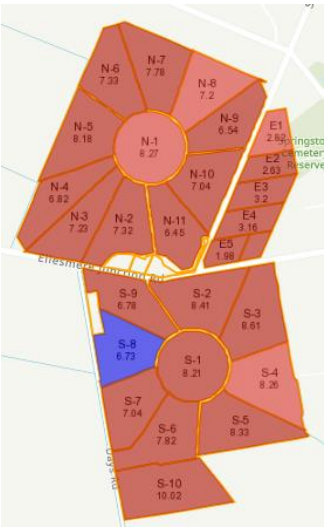


North Block



South Block

Nitrogen Heat Map

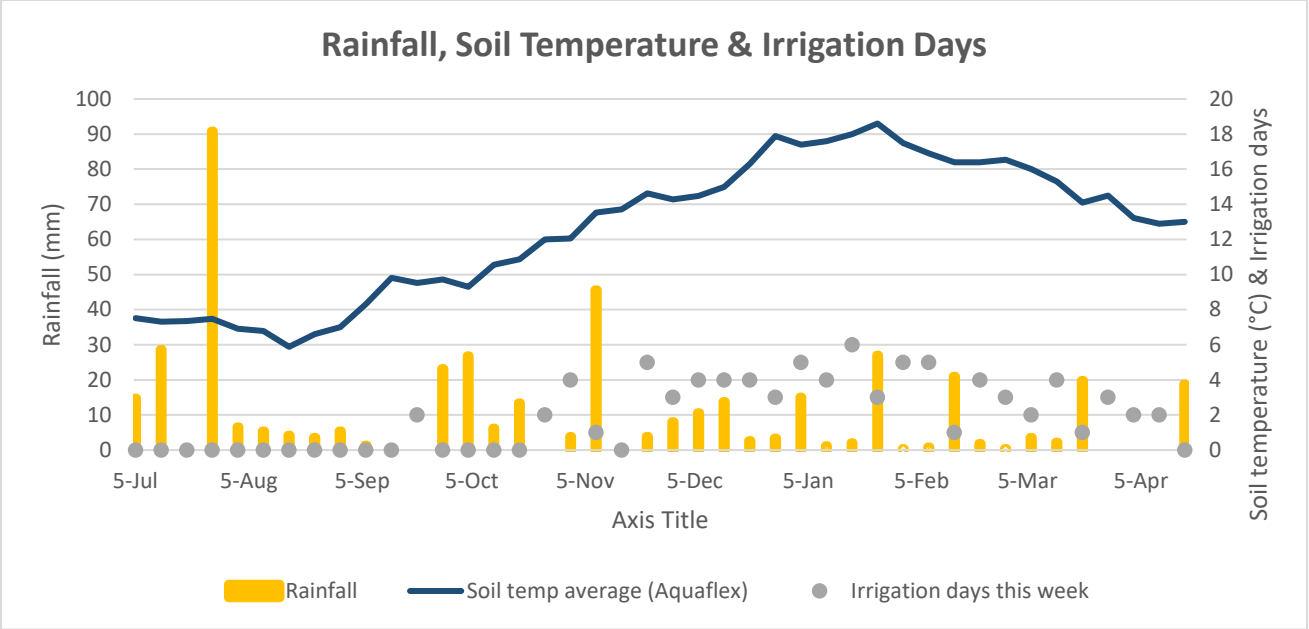


Re grassing program

- 10% regrassing strategy, 16 ha - 8 ha early November and 8 ha late January.
- The poorer performing paddocks have been selected, will be sprayed, and direct drilled. This will be a sown into a ryegrass, white clover and plantain mix.

Irrigation

- Irrigation days for the season currently stands at 82 days.
- Rainfall season Jul-Apr to date is 436.6.2 mm.
- Pivot – 125.7 ha; fixed grid – 22.1 ha; K-line 9.5 ha.
- Soil temperature has averaged 12.6°C for Jul-Apri and 15.0°C for Feb-Apr.



Farm Plan – 2024/25 – to be finalised

Physical Summary for LUDF DSM

Jun 23 - May 24

Category	Description	Value	Units
Farm	Effective Area	160	ha
	Stocking Rate	3.5	cows/ha
	Potential Pasture Growth	17.2	t DM/ha
	Nitrogen Use per total ha	189	kg N/ha
	Feed Conversion Efficiency (eaten)	11.3	kg DM eaten/kg MS
Herd	Cow Numbers (1st July)	560	cows
	Peak Cows Milked	560	cows
	Days in Milk	276	days
	Avg. BCS at calving	4.9	BCS
	Liveweight per total ha	1,754	kg/ha
Production	Milk Solids total	264,724	kg
(to Factory)	Milk Solids per total ha	1,655	kg/ha
	Milk Solids per cow	473	kg/cow
	Peak Milk Solids production	2.19	kg/cow/day
	Milk Solids as % of live weight	94.4	%
Feeding	Pasture Eaten per cow *	3.9	t DM/cow
	Supplements Eaten per cow *	0.7	t DM/cow
	Off-farm Grazing Eaten per cow *	0.8	t DM/cow
	Total Feed Eaten per cow *	5.4	t DM/cow
	Pasture Eaten per total ha	13.6	t DM/ha
	Supplements Eaten per total ha	2.4	t DM/ha
	Off-farm Grazing Eaten per total ha	5.0	t DM/ha
	Total Feed Eaten per total ha	21.1	t DM/ha
	Supplements and Grazing / Feed Eaten *	27.1	%
	Bought Feed / Feed Eaten *	15.6	%

(*) feed eaten by females > 20 months old / peak cows milked

Farmax Dairy 8.3.1.13

Financials

- Milk price $7.80
- FWE expected to be on budget at $5.69/kg MS, compared to $5.89/kg MS for 2022/23.
- EBIT expected to be $2.51/kg MS or $4,151/ha, compared to $2.29/kg MS and $3,790/ha for 2022/23.

LUDF Financial Analysis
2023/24 Budget and YE Forecast & 2024/25 Draft Budget

DRAFT BUDGET 2024/25		Description	Budget 2023/24		YE Forecast 2023/24		STD Variance	Notes
$/kg MS	$		$/kg MS	$	$/kg MS	$	$	
265,000		Milk Production kg MS	264,479		264,900		421	
$8.00		Milk Price kg MS	$7.80		$7.80		0	
		Income						
0.03	9,000	Sales - Bobby Calves	0.04	9,321	0.04	9,321	0	
0.02	6,000	Sales - R2 Heifers			0.02	5,595	5,595	
		Sales - Bulls	0.06	16,000			-16,000	No bulls purchased
0.38	100,000	Sales - Cows	0.47	123,709	0.25	66,097	-57,612	Culls not yet realised
0.04	11,000	Sales - Surplus heifer calves						
0.10	27,500	Sales - Calf sales weaned	0.15	38,500	0.16	43,306	4,806	
0.58	**153,500**	**Total Stock Sales**	**0.71**	**187,530**	**0.47**	**124,319**	**-63,211**	
		Sales - Feed, Silage, Other Crops						
8.00	2,120,000	Sales - Milk Solids Current Season	7.80	2,062,936	7.80	2,066,220	3,284	
		Income - Rent						
		Income - Other						
8.58	**2,273,500**	**TOTAL REVENUE**	**8.51**	**2,250,467**	8.27	**2,190,539**	**-59,927**	
		Expenses						
1.12	297,000	Labour - Perm & Fixed Term	0.93	246,065	1.07	283,143	-37,078	
0.04	10,000	Other labour: ACC, Super, H&S, Clothing	0.02	6,091	0.04	10,971	-4,880	
1.16	**307,000**	**Total Labour Expenses**	**0.95**	**252,156**	**1.11**	**294,114**	**41,958**	
0.27	72,000	Animal Health	0.33	86,955	0.26	69,484	17,471	
0.28	74,000	Breeding	0.20	53,321	0.27	70,532	-17,211	Heifers synched not budgeted, lease bulls
0.03	8,000	Dairy Shed Operating Expenses	0.06	15,080	0.03	7,345	7,735	Inventory on hand
0.08	22,000	Electricity - Other	0.08	22,102	0.08	21,503	599	
0.23	60,000	Electricity - Irrigation	0.16	41,046	0.23	60,908	-19,862	Seasonal
0.93	247,000	Feed Made/Purchased	0.89	236,026	0.93	247,612	-11,586	
0.74	195,000	Grazing - Winter	0.67	178,000	0.73	194,593	-16,593	Increase $/hd
0.06	15,000	Freight - Livestock	0.06	15,008	0.05	13,546	1,462	
0.42	112,000	Youngstock Grazing	0.47	125,000	0.42	112,018	12,982	
0.18	47,940	Calf Rearing	0.23	60,000	0.18	47,834	12,166	Reared less calves to 100kg than budget
0.26	70,000	Fertiliser -Nitrogen	0.29	77,000	0.27	72,469	4,531	Less /t
0.11	30,000	Fertiliser - Other	0.13	34,176	0.12	30,700	3,476	Less /t
0.08	20,000	Fertiliser - Spreading	0.07	18,000	0.06	16,985	1,015	
0.02	4,500	Seed	0.04	10,583	0.05	11,946	-1,363	Additional seed - plantain
0.08	20,000	Contractors - Cropping	0.08	21,428	0.08	20,677	751	
0.00	1,000	Weed & Pest Control	0.04	11,673	0.00	697	10,976	Moved to contractor
0.08	20,000	Vehicle Expenses	0.07	17,362	0.07	18,624	-1,262	
0.07	17,500	Vehicle - Fuel	0.06	16,000	0.06	15,729	271	
0.11	30,000	R&M - Land & Buildings	0.11	30,000	0.08	22,450	7,550	
0.08	22,000	R & M - Irrigation	0.14	38,000	0.08	20,434	17,566	
0.25	67,000	R & M - Plant, Machinery, Other	0.35	91,577	0.24	64,372	27,205	
0.01	2,000	R & M - Farm Houses	0.01	3,688	0.03	7,972	-4,284	
0.00	500	Freight	0.00	0	0.00	579	-579	
0.04	10,000	EcoPond	0.00	0	0.02	5,000	-5,000	New technology not budgeted
0.09	25,000	Administration inc consultants	0.05	13,170	0.05	12,753	417	
0.05	12,000	Fixed Charges - Rates	0.05	12,931	0.04	10,252	2,679	
0.04	10,000	Fixed Charges - Land Rent	0.03	7,800	0.04	9,599	-1,799	
0.09	24,000	Lease - Techonology (Collars)	0.00	0	0.04	10,120	-10,120	Now BAU farm cost
0.06	15,900	DairyNZ Levy	0.06	15,869	0.06	15,894	-25	
5.89	**1,561,340**	**TOTAL FARM WORKING EXPENSES**	**5.69**	**1,503,952**	**5.69**	**1,506,741**	-2,789	
2.69	**712,160**	**CONTRIBUTION PROFIT**	**2.82**	**746,515**	**2.58**	**683,798**	**-62,717**	
0.07	19,600	East Block Adjustment - Support block	0.07	19,600	0.07	19,600	0	
5.97	**1,580,940**	**Total Operating Expeneses inc East Block**	**5.76**	**1,523,552**	**5.76**	**1,526,341**	-2,789	
		Financial Ratios						
$8.00	$2,120,000	Milk Gross income	$7.80	$2,062,936	$7.80	$2,066,220	3,284	
$0.58	$153,500	Stock Gross income	$0.71	$187,530	$0.47	$124,319	-63,211	
$8.58	$2,273,500	Total Gross income	$8.51	$2,250,467	$8.27	$2,190,539	-59,927	
$5.97	$1,580,940	*Less* Farm Operating Expenditure	$5.76	$1,523,552	$5.76	$1,526,341	2,789	
$2.61	**$692,560**	**EBIT**	**$2.75**	**$726,915**	**$2.51**	**$664,198**	**-$62,717**	
	$4,328.50	**EBIT/ha**		**$4,543.22**		**$4,151.24**		

Flexible Milking Review

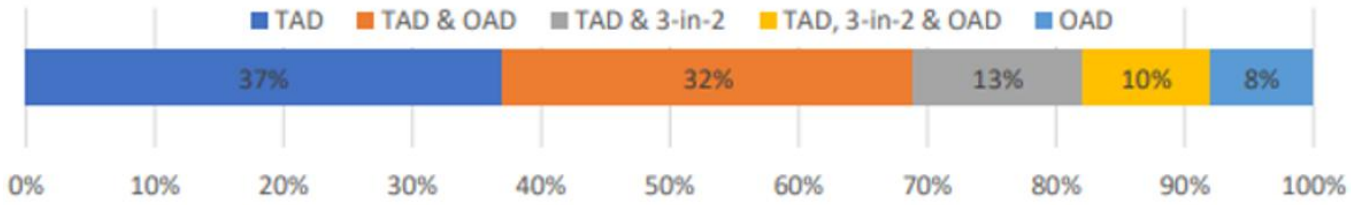
Flexible milking regimes have become more common for many New Zealand dairy farmers for a multitude of reasons. Some reasons include improved body condition score which may lead to improved reproductive results, reduce walking and therefore improved lameness, along with benefits to the team (hours worked, number of early starts, recruitment and retention). Flexible milking also reduces some costs due to a reduced number of milkings. It was expected that fuel, electricity, shed costs and labour demand would reduce.

LUDF implemented this system due to recent science that was completed by DairyNZ, "Flexible Milking for Healthier People & Cows." This project was to give farmers the confidence of using flexible milking regimes to promote better work-life balance and improve the economic sustainability of farms. This research did show reduced milking times, had a limited effect on production, improved BCS and lameness was reduced.

Data from Fonterra farmers, through vat telemetry, that the number of farmers that use flexible milking within the season is increasing.

The below is the change from 20/21 to 22/23 season. Each segment utilized the introduced milking frequency for at least 4 weeks.

20/21 Season



Number of milkings for milking regime

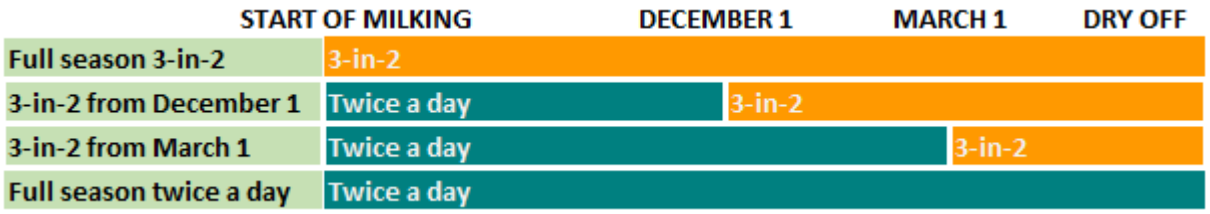
Regime	Milkings per fortnight	Milkings per year	Reduction in milkings	% drop
TAD	28	600	0	0%
OAD	14	300	300	50%
3 in 2	21	450	150	25%
10 in 7	20	429	171	29%

DairyNZ's flexible milking research compared three variations of 3-in-2, compared to a twice a day (TAD) system. This looked at different start dates: from calving, 1 December and 1 March. This was to compare a traditional TAD system, to a mating/summer dry decision and an end of season/BCS decision.

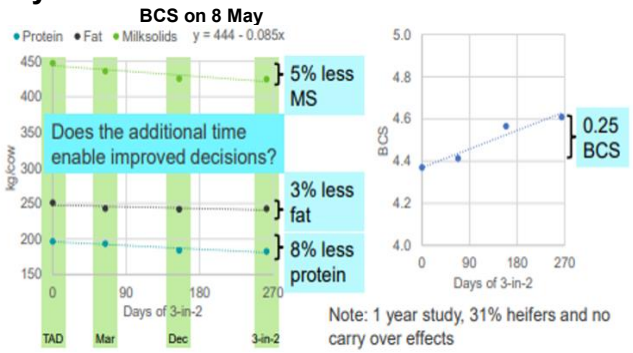
Milking times were:

- TAD: 6am – 4pm (10-14)
- 3-in2: 5am – 5pm – 11am (12-18-18)
- Stocking rate: 3.5 cows/ha (29 cows/herd, 31% heifers)

Lincoln University Research Dairy Farm



Key farmlet results



Results

- No significant difference between groups
- Possible to use more attractive 3-in2 milking times

Key findings from research:

- Milk solid production drops 5% from the date that 3-in-2 was implemented.
- Fat production drops 3% from the date that that 3-in-2 was implemented.
- Protein production drops 8% from the date that that 3-in-2 was implemented.
- BCS increased 0.25 for the full season 3-in-2. All treatments had a linear increase in BCS from the date that that 3-in-2 was implemented.
- There is no significant difference in milk production in spring and summer between different milking intervals in the 3-in-2 milking times.
- There was no noticeable difference in the amount, quality or composition of pasture grown.

For more information please visit https://www.dairynz.co.nz/milking/milking-intervals/flexible-milking/

Flexible Milking Comparison

	Highveld Pastures - 37225			LUDF - 37581			Waimak Dairies Ltd - 37777		
Season	**2021/22**	**2022/23**	**2023/24**	**2021/22**	**2022/23**	**2023/24**	**2021/22**	**2022/23**	**2023/24**
Milking regime	3 in 2	3 in 2	3 in 2	10 in 7	10 in 7	10 in 7	TAD to 3 in 2	TAD to 3 in 2	TAD to 3 in 2
Area - milking platform	306	306	210	160	160	160	343	343	343
Stocking Rate	3.6	3.6	3.8	3.5	3.4	3.5	3.5	3.4	3.4
Production	439,251	446,065	360,000	258,851	247,291	265,000	554,637	535,193	560,000
Production/cow	399	406	450	464	452	473	467	464	487
Production/ha	1,435	1,458	1,714	1,618	1,546	1,656	1,617	1,560	1,633
Farm System	2	2	2	4	4	4	4	4	4
Stock Numbers - Peak milk numbers	1,100	1,100	800	558	547	560	1,188	1,154	1,151
Liveweight	450	450	450	500	500	500	490	490	490
kg MS/LWT	89%	90%	100%	93%	90%	95%	95%	95%	99%
R2 including carryovers	190	190	190	150	136	129	302	285	259
R1	260	270	205	136	129	114	189	190	190
N applied		155		144	158	189	183	184	190
Imported supplementary feed		330,000		418,000	321,000	474,600	985,000	875,000	860,000
Imported supplementary feed per cow	0.0	300.0	0.0	749.1	586.8	847.5	829.1	758.2	747.2
Purchased Nitrogen Surplus		88		73	82.0		135	143	
GHG Emissions per kg MS		12.8		9.5	9.8		11.2	11.2	
Biological GHG emission per ha		16,106		13,938	13,574		15,832	15,399	
Farm grown feed		99%		100%	100%		92%	93%	
Farm Working Expenses ($/kg MS)	$4.28	$4.86		$4.86	$5.55	$5.46	$3.57	$4.00	
6 week in-calf rate	68%	73%	77%	68%	75%	75%	73%	74%	75%
Not in calf rate	20%	16%	13%	21%	9%	7%	12%	11%	12%
Mating length - weeks	10 + 3 days	10	9 + 3 days	10	12	12	10	10	10
Days in milk				270	274				
BCS - March/April	4.3	4.3	4.5	4.4	4.4	4.6	4.5	4.6	4.6
SCC	172,000	186,592	139,000	142,485	140,252		97,486	82,759	68,000
Mastitis rate		14%		16%	10%		5%	10%	7%
Lameness		12%	10%	26%	12%		20%	9%	7%
Team - FTE	5	5	5	3.5	3.5	3.5	5.5	5.5	5.5
Roster	6/2	6/2	6/2	5/2	5/2	5/2	6/2 - 4.5/3.5	6/2 - 4.5/3.5	6/2 - 4.5/3.5
Hours	40-45 / 35-40	40-45 / 35-40	40-45 / 35-40				50-55 / 35	50-55 / 35	50-55 / 35
Cows/FTE	220	220	160	159	156	160	216	210	209

*From Fonterra Farm Insights Report

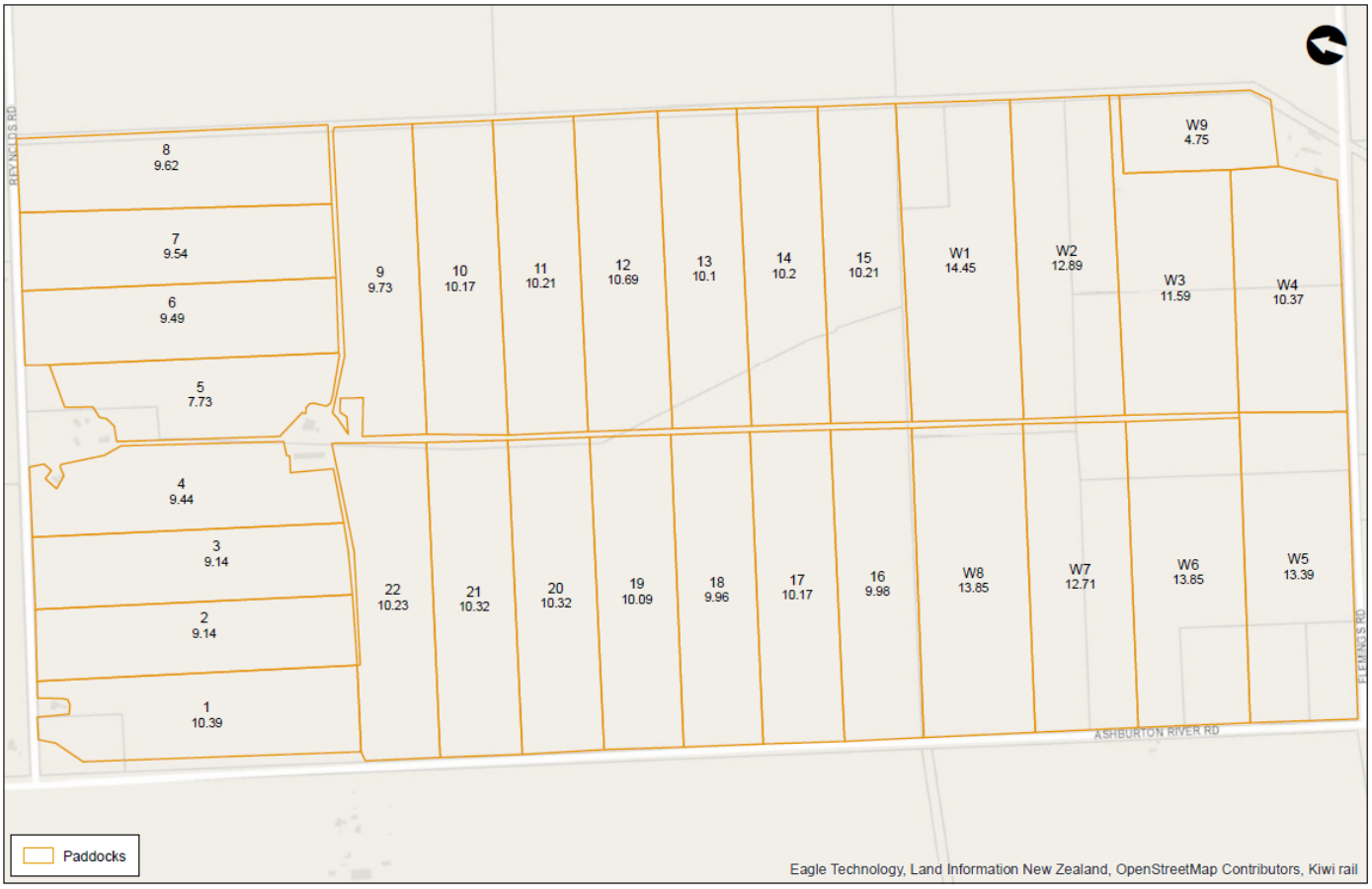
Repro results

	2021/22				2022/23				2023/24			
	HP	LUDF	WD	BM	HP	LUDF	WD	BM	HP	LUDF	WD	BM
6 week in-calf rate	68%	68%	73%	68%	73%	75%	74%	68%	77%	75%	75%	70%
Not in-calf rate	20%	21%	12%	16%	16%	9%	11%	16%	13%	7%	12%	14%

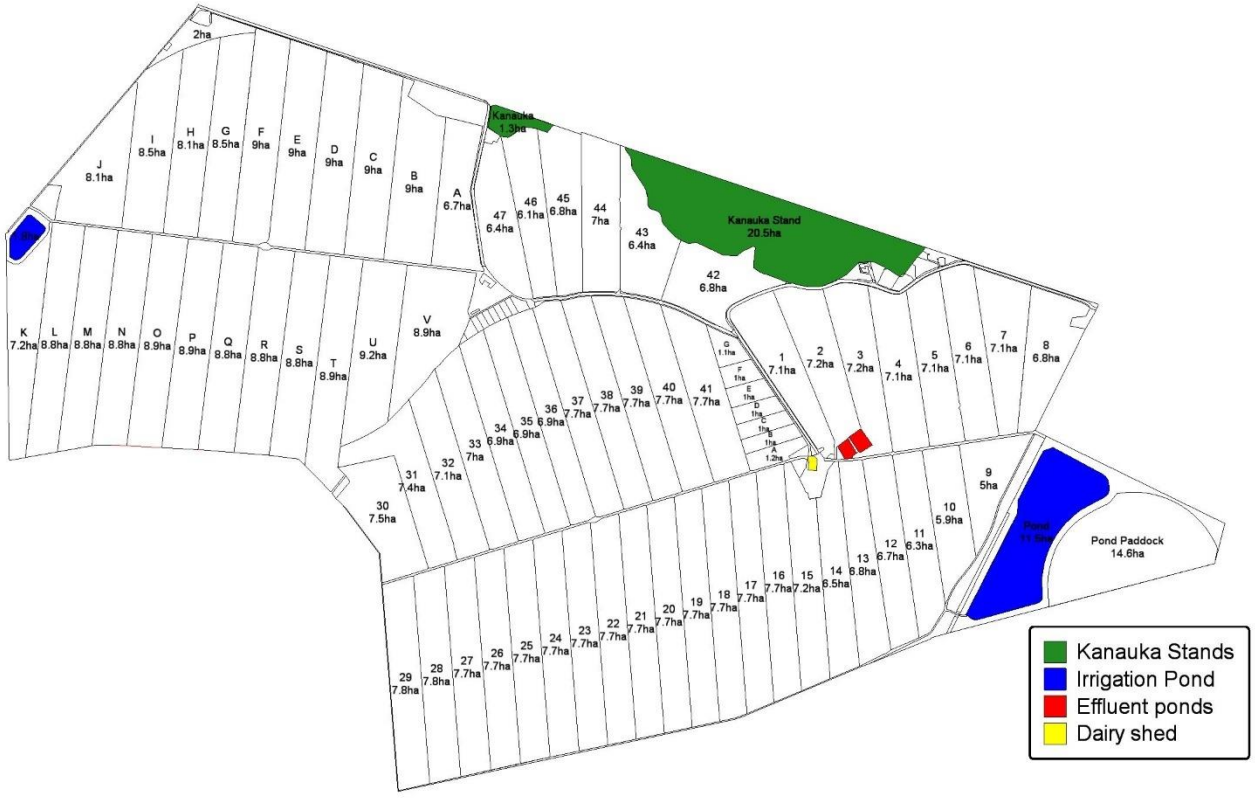
MythBusters

- You're going to make me work late
- You must milk at 5PM on the TAD day
- My cows will tank if I go 3-in-2 or 10-in-7
- 3-in-2 will help me save feed
- You feed your cows less … you have to feed your cows to capacity
- Flexible milking will affect my conception rates
- Milkings times will be longer
- You can't go change milking frequency if you are doing more than 1.7 kg MS/cow

Farm Maps:



Highveld Pastures



Waimak Dairies

10-in-7 at LUDF

LUDF is now in its third season of full-time flexible milking with a 10 milkings in 7 days strategy, known as 10-in-7. Early season discussion of short-term TAD, but decision to stay with 10-in-7.

The anticipated impact at LUDF was:

- 5.7% decrease in lactation curve, with one less milking per fortnight that 3-in-2. TAD - 500 kg MS/cow therefore 10-in-7 - 475 kg MS/cow.
- 25% decrease in petrol and motorbike R&M.
- 13% reduction in power consumption.
- 25% reduction in shed cleaning costs,
- Winter feed costs to reduce by $1.80/week. This is based on feed cost $0.29/kg DM and a BCS of 0.23 higher at dry off.
- Lameness targets were 0%. Based on $40/cow, this equated to a decrease in animal health by $4.80/cow.
- Labour requirement reduced from 19% less time milking. This equated to a 0.33 drop in FTE - $19.5k p.a.

Farm System:

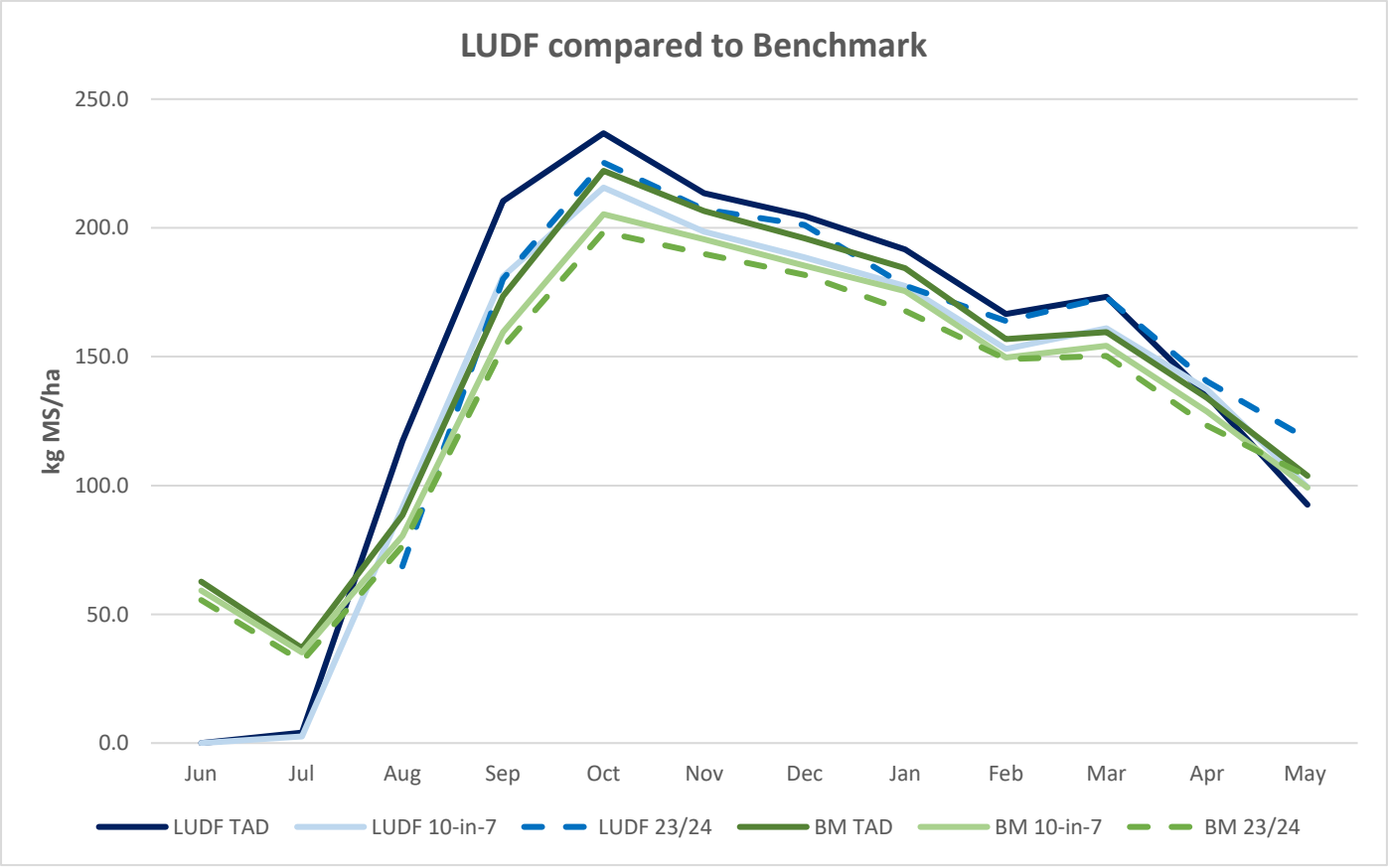
- Stocking rate to remain at 3.5 cows/ha – 560 cows, peak milk 555 cows.
- Culls to be removed in April, as per current farm policy, this is to mitigate risk of autumn leaching of N.
- Nitrogen fertiliser use to remain at 160 kg N/ha.
- Spring/early summer surplus taken as silage and fed in autumn.
- Production target 263,625 (475 kg MS x 555 cows) down from TAD 277,500 (500 kg MS x 555 cows).
- Reduction of 13,875 kg MS.

So how has it gone:

KPI	Projected	3 season avg	This season	TAD avg	10in7 avg
Total production	263,625	-8%	-5%	279,266	257,014
Number of cows		-5%	-4%	580	554
Production per cow	475	-4%	-2%	481	464
Production per ha	1,648	-8%	-5%	1,745	1,606
Petrol Use	25% drop	28%	19%	2,288	1,650
Bike R & M	25% drop	NC	NC		
Power consumption	13% drop	15%	21%	165,366	141,011
Shed cleaning costs	25% drop	23%	23%	2,752	2,124
Winter feed costs	-$1.80/week	-$1.96	-$1.96		
Lameness Numbers	0	NC	NC		
Animal health	$40/cow	NC	NC		
Labour	$19.5k drop	NC	NC		
Hours milked - total		21%	20%	1,142	898
Hours milked - per day		21%	19%	3.7	3.0

Production:

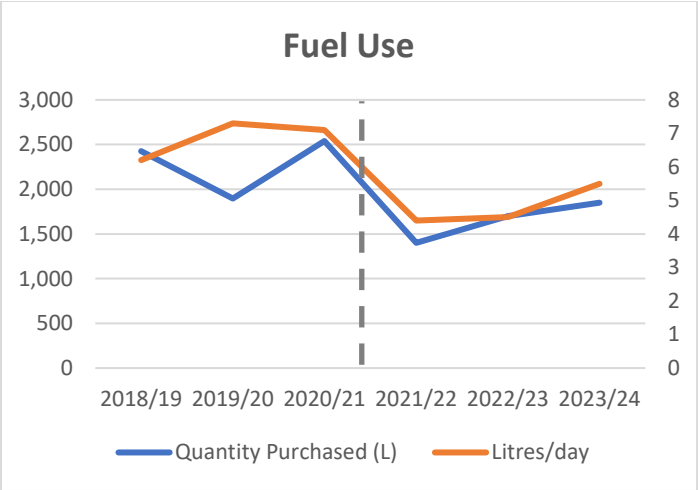
- The first two seasons for 10-in-7 were wet compared to average, which caused a drop in production across Canterbury.
- We were forecasting a 5-6% drop off our average production of 280,000, which would be 263-264,000 kg MS.
- With these wet seasons, LUDF drop was 7.5% in the first season (21/22) and 11% in the second season (22/23). However, the region experienced a 3.5% drop followed by a 5% drop.
- On the assumption that LUDF would track with the region, the 10-in-7 drop was 4% and 6%, respectively.
- One thing to note is that feed grown, and pasture eaten has reduced over this period which has resulted in an increase in supplement fed, which has had an impact on profitability. This is not attributed to 10-in-7.
- For comparison to benchmark all production data is calculated on kg MS/ha basis.
- The graph below compares LUDF to a Canterbury benchmark.

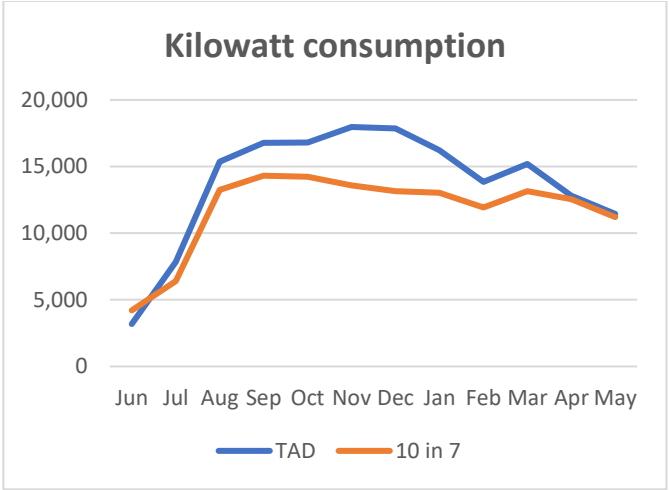


	LUDF TAD	LUDF 10-in-7	LUDF 23/24	BM TAD	BM 10-in-7	BM 23/24
TOTAL	1745	1606	1656	1725	1628	1582

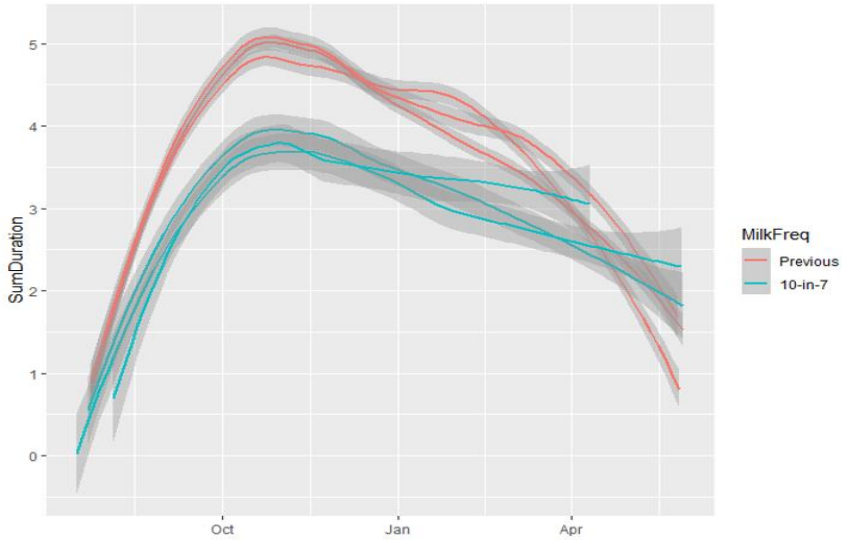
There is an assumption that the benchmark is proportionally TAD farms. We are working to pull a more accurate regional benchmark which we will report at the completion of the season.

Cost comparison:

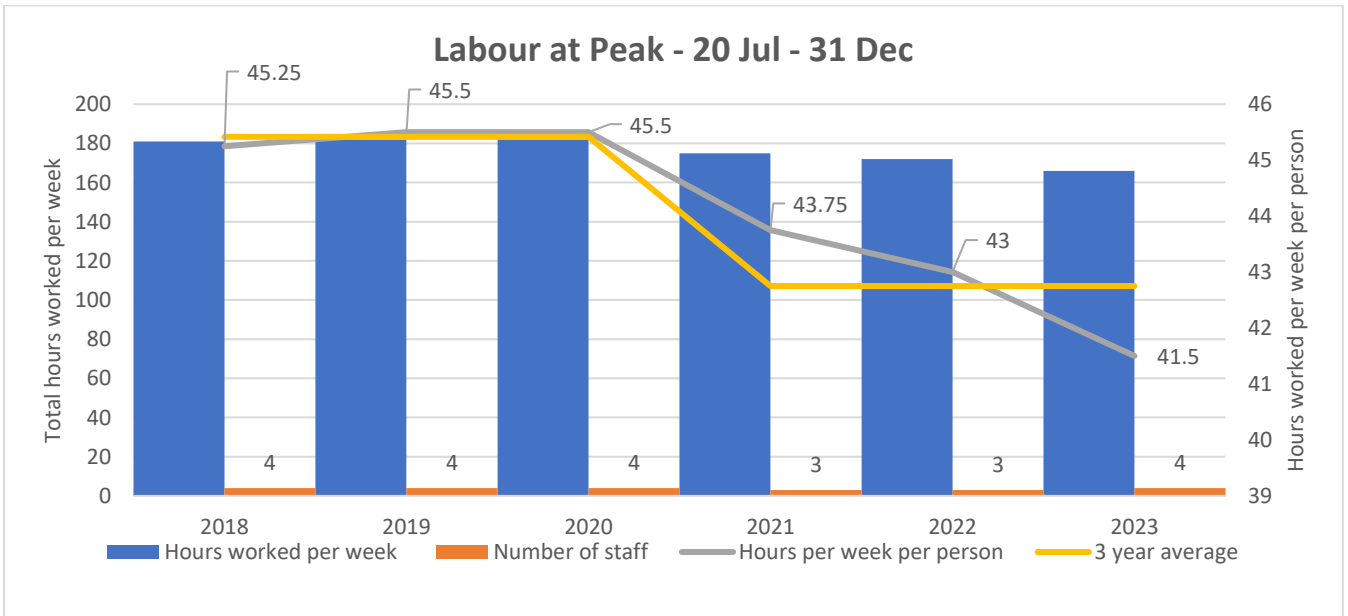




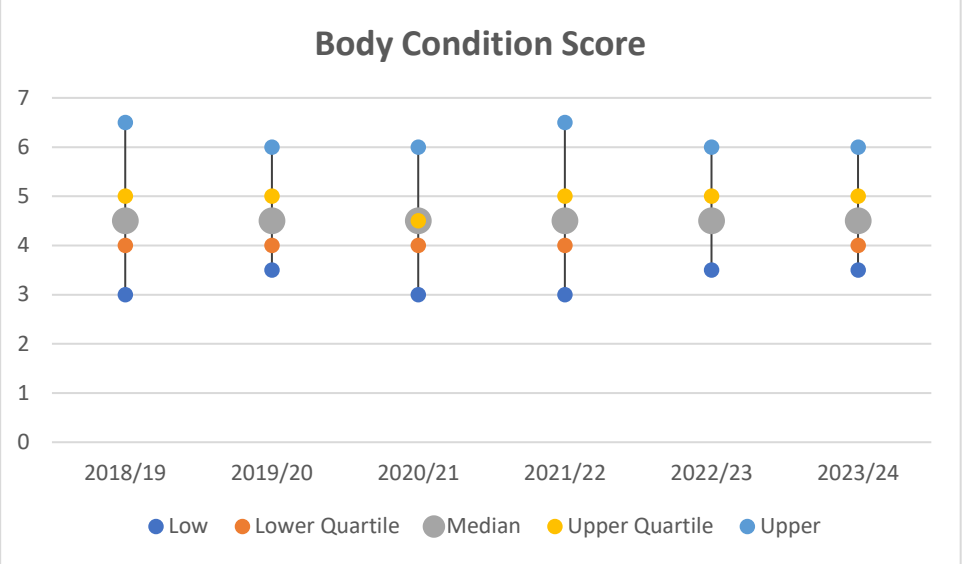
Hours milked per day from Halo data:



Labour:



Body Condition Score:



BCS is trending up, however the main driver here is BCS at dry off and winter feeding, however we have noticed cows holding condition better, particularly at the tail end of the season, and the spread, particularly the lower quarter, has improved. Is this from flexible milking? Or better transition feeding, or seasonal?

Collar Fertility Overview Report

LUDF 2022/23 vs 2023/24 Comparison

April 2024

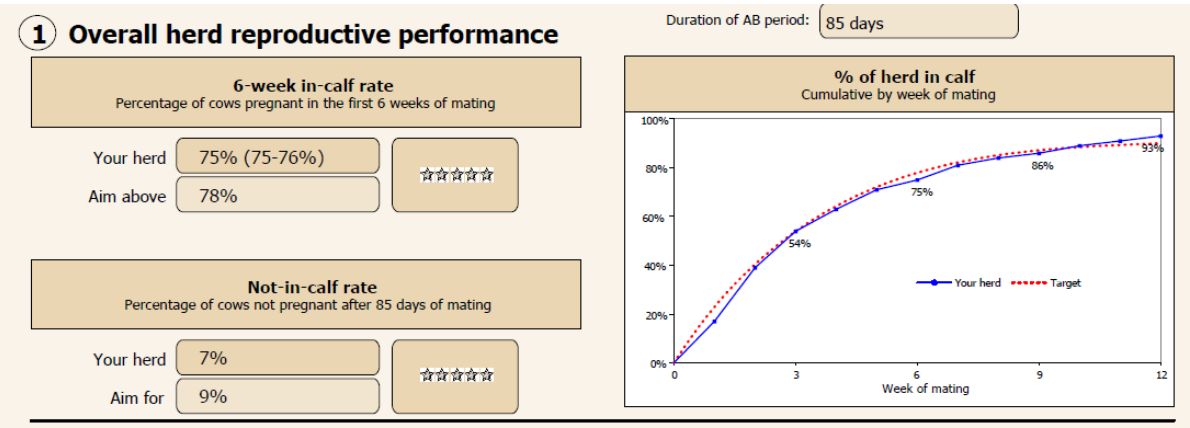
LUDF. Peter Hancox. 541 cows, 160 Ha farm, Lincoln.

Overview

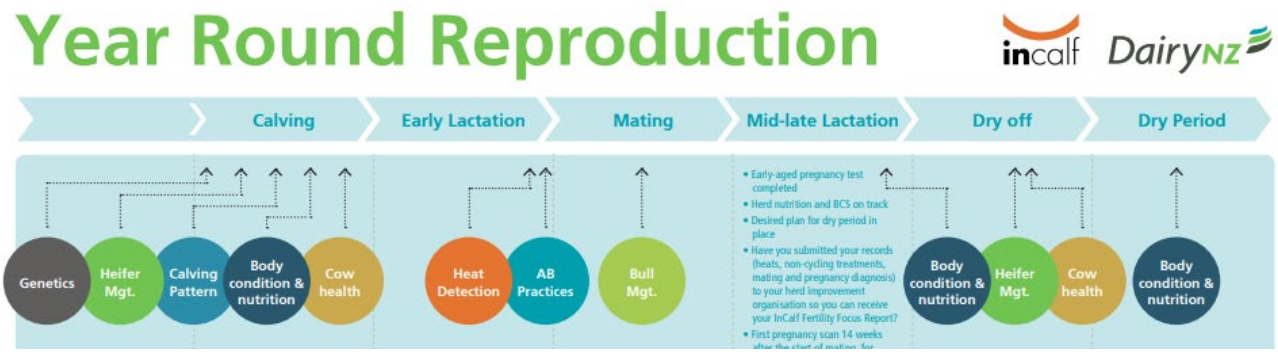
Typically LUDF has had an 18-20 % Not In calf Rate, for 2022 Mating it was 12%, for 2023 Mating it has been 9%. A significant improvement, utilising technology and applying best practice.

Attributing NICR Drop:

- Phantom scanning initial glance shows a 4.8% improvement in not in-calf rate, however it is likely ~ 20% of intervention cows would have got pregnant without intervention (VC data), so impact on drop = 3.4%.
- Extending mating, using short gestation semen resulted in 4.2% (24) cows in-calf in weeks 11 and 12. These cows will still calve within the 10 week window.
- This leaves a further herd level drop in NICR of ~ 3.4% (attributable to improved performance in areas like BCS, transition, and mating energy levels)



Farm reproductive performance is multi-factorial, and top performance requires hitting targets in multiple areas over an extended time period. The infographic below (in calf model DairyNZ) captures the breadth of areas to consider from calving through to the dry period.



SIDDC South Island Dairying Demonstration Centre | LUDF Tomorrow's farming, today

SELWYN RAKAIA VET SERVICES

VETERINARY CENTRE

Historically there are a number of tools available that we have used for traditional Repro Review analysis. Things like Fertility Focus Reports, Infovet/MINDA Graphs, Milk Protein Data, and Animal Health data offer a valuable insight into potential areas of improvement or areas of success on farms.

The addition of Allflex SCR Collars further enhances the data available to analyse performance, and fills in many of the blind spots of knowledge.

The following report will take a timeline based approach over the season, combining Allflex SCR Collar data with the other metrics that were captured as part of the benchmarking project to highlight areas of difference between LUDF and Alderbrook's performance (in 2022/23). For this year's analysis the focus is on LUDF only, looking at recommendations that were put in place after the 2023 season end review, and subsequent 2023/24 season performance.

The key timeline areas of focus will be:

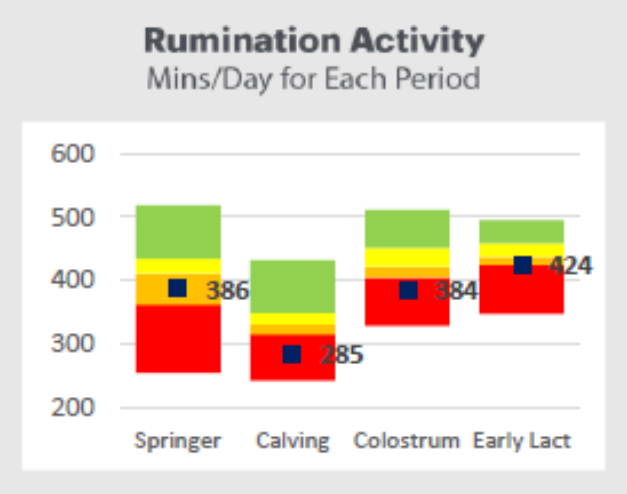
- Transition (Springers to Early Lactation)
- Pre-Mate Period (Pre-Mate Cycling + Feeding)
- Mating Period

Transition (Springers to Early Lactation)

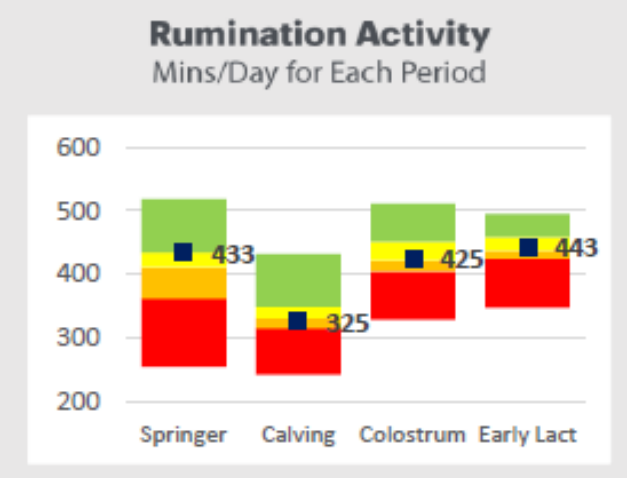
Transition Rumination Rates:

TRANSITION

2023

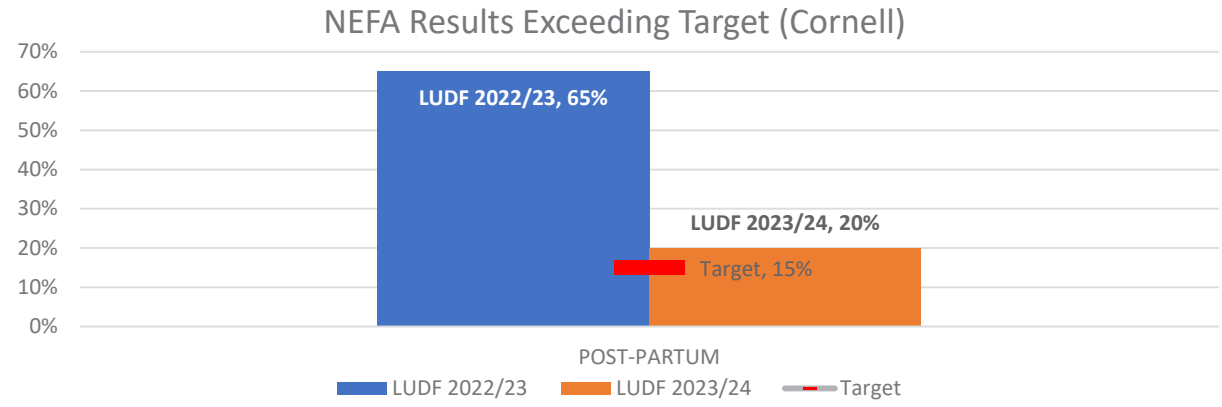


2024



Period	Change
Springers	+47 mins/day
Calving	+40 mins/day
Colostrum	+41 mins/day
Early Lactation	+17 mins/day

NEFA Blood Test Results:



Feeding:

Diet for Period	LUDF 2022/2023	LUDF 2023/2024
Springers (Day -1 to -7)	Grass = 4kg Baleage = 6kg (Ad-lib) *Calving on cropping dirt*	*Grass = 6kg* *Silage = 6kg* *(Pre grazing 3,500 cover)*
Colostrum (Day 1-4)	Grass = Ad-lib (1700-1800 residuals) *OAD Milking, Skip-a-day on Day 1 if Required*	*Grass = 6kg (pre-grazing 3,300)* *Silage = 6kg* *OAD Milking*
Early Lactation (Day 8-10)	Grass = Typically 100% of diet. Silage more likely to be added in later round when ground drier (1600 residuals)	Grass = 14kg Silage = 2-3kg

Summary

- The transition rumination of LUDF sat in the lower quartiles of performance vs the reference data (and much lower than Alderbrook) in the 2022/2023 season. This tracked across Springers to Early Lactation.
- Changes made have markedly improved rumination levels by around 40 + minutes per day in the critical colostrum and early lactation period.
- The blood NEFA levels have showed far less fat mobilisation with these changes – just 20% exceeding a threshold of 0.7 vs 65% in the 2022/23 season.

CORNELL University Herd Level NEFA Interpretations

Negative energy balance in dairy cows: Dairy cows in the periparturient (transition) period are always in a state of negative energy balance due to high energy demands from the developing foetus and milk production (particularly with the emphasis on selection for high milk-producers). However, this state of negative energy balance can be excessive and affected cows are at risk of gastrointestinal (displaced abomasum), metabolic (clinical ketosis), and infectious (e.g. metritis) diseases in the early postpartum period. Thus, dairy practitioners frequently monitor dairy herds for excess negative energy balance by testing for NEFAs. Results of these tests can be interpreted at the herd level (i.e. a proportion of tested cows have NEFA values over a certain cut-off value). Identification of excess negative energy balance in individual cows (and more importantly) in the herd indicates the need for changes in nutrition and transition cow management to decrease energy demands and stresses on transition cows.

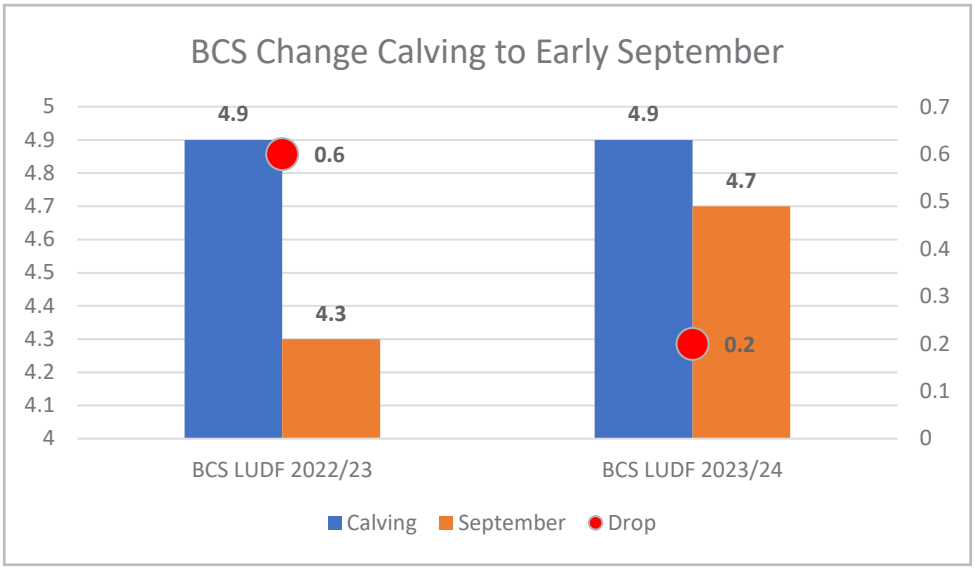
Cornell herd level target is <15% high prepartum and <15% high postpartum

Recommendations / Discussion Points

Continue with current changes in the 2024/25 season. Will be important to ensure that the management changes can be maintained in a wetter season.

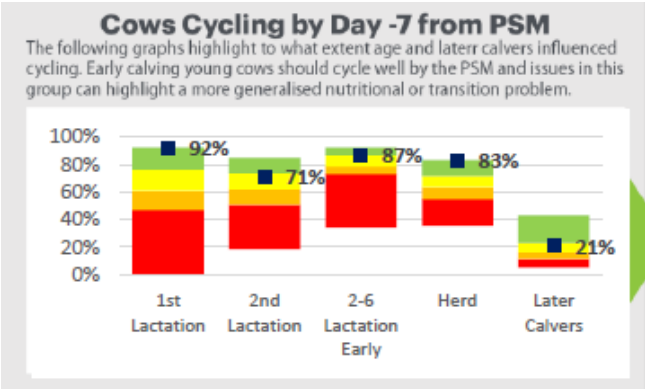
Pre-Mate Period (Cycling + Feeding)

BCS Change Calving to September

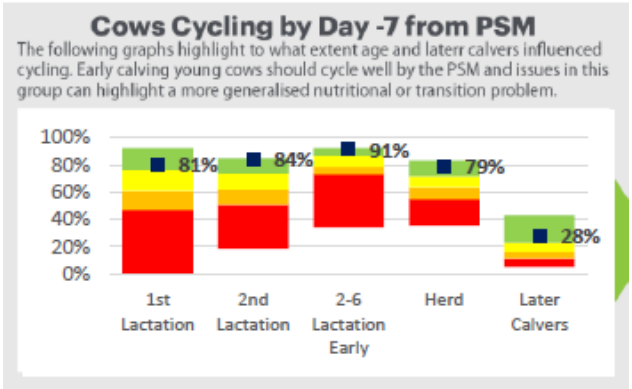


Pre-Mate Cycling Rates (Day -7 from PSM)

2022/23



2023/24



(NOTE PSM delayed 5 in 2022 season – heifers & herd calved VERY early)

Group	Change
1st Lactation	-11%
2nd Lactation	+13%
2-6 Lactation Early	+4%
Herd	-4%

Summary

- BCS loss from calving to pre-mate was just 0.2 BCS units this season, vs 0.6 units last season. NOTE however that the herd average is still under BCS target for calving.
- There were improved cycling rates in 2nd Lactation, 2-6 Lactation Early (Engine Room), and Late Calvers compared to last season. The only group to fall behind were the 1st Lactation animals. HOWEVER – in 2022 most of the heifers had calved prior to the 15th July (a result of an earlier PSM date), so had significantly longer to recover. The 1st lactation animals drove the difference in Herd cycling rate.
- The improvement of the 2nd lactation animals was promising (an area of focus from last year's report).
- It appears that the changes in management which have reduced the BCS loss this season have overall improved group pre-mate cycling rates.

Recommendations / Discussion Points

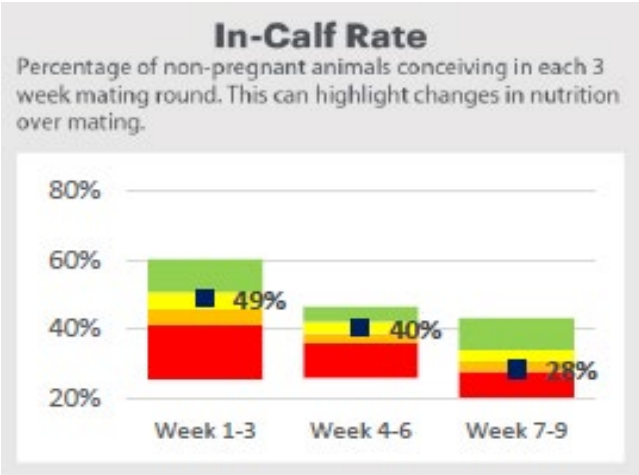
Winter BCS – Consider looking at mitigation strategies (including dry-off targets) for BCS for wet Winters. At LUDF the MA cows came out of Winter at 4.8, and Heifers at 5.0 BCS.

BCS target of 5.5 for 1st calving heifers needs to be prioritised for the 2024/25 season.

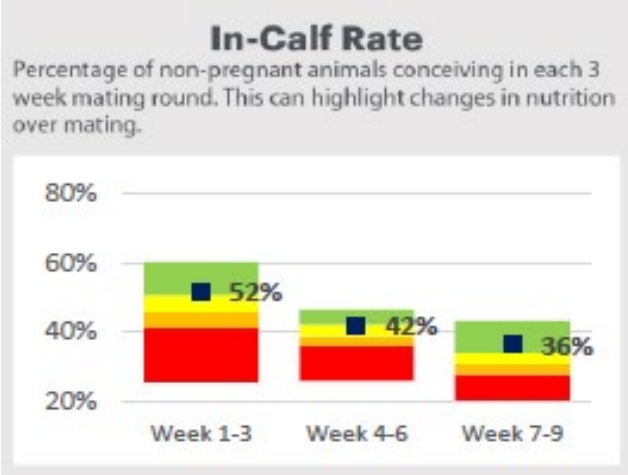
Mating Period

% of Non-Pregnant Cows Conceiving in each 3 Week Mating Round

2022/23



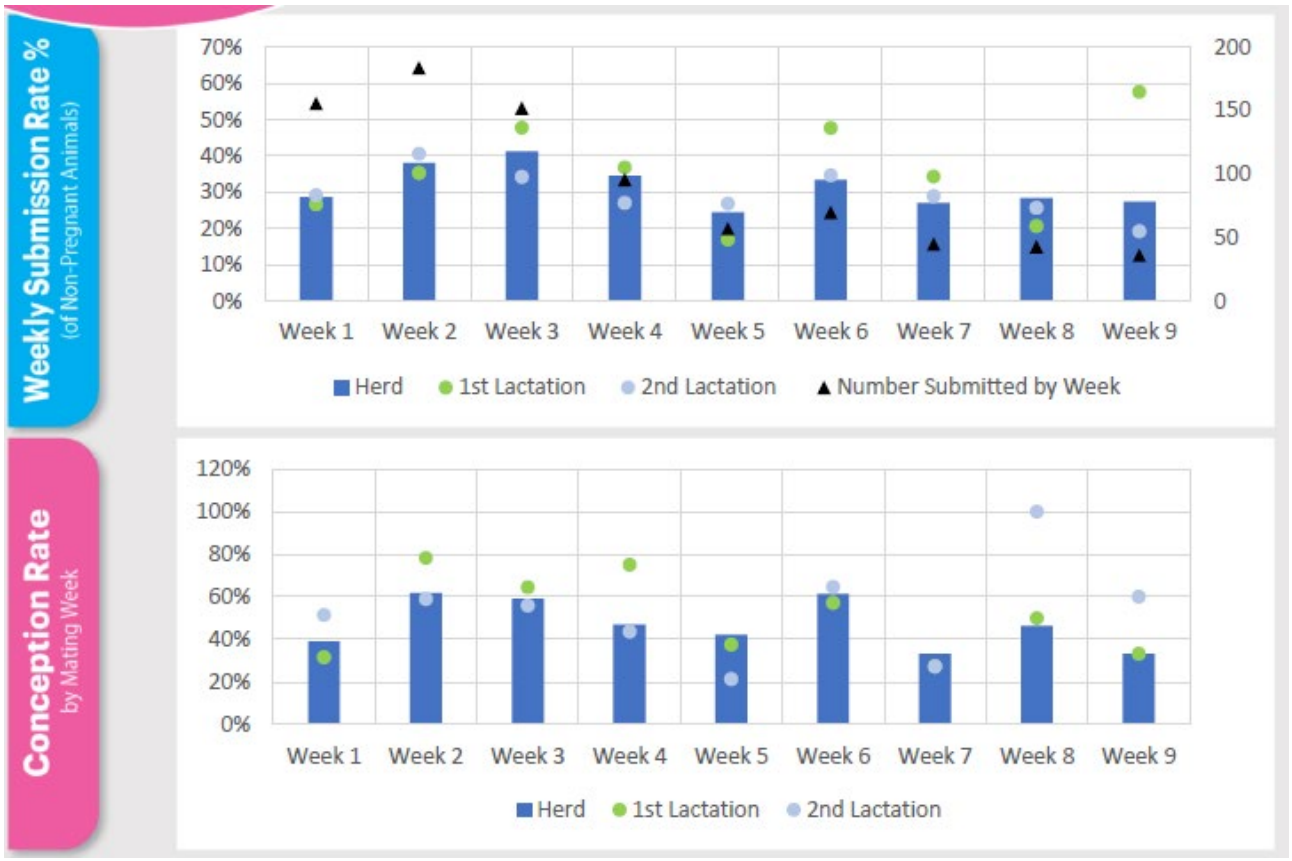
2023/24



Group	Change
Week 1-3	+3%
Week 4-6	+2%
Week 7-9	+8%

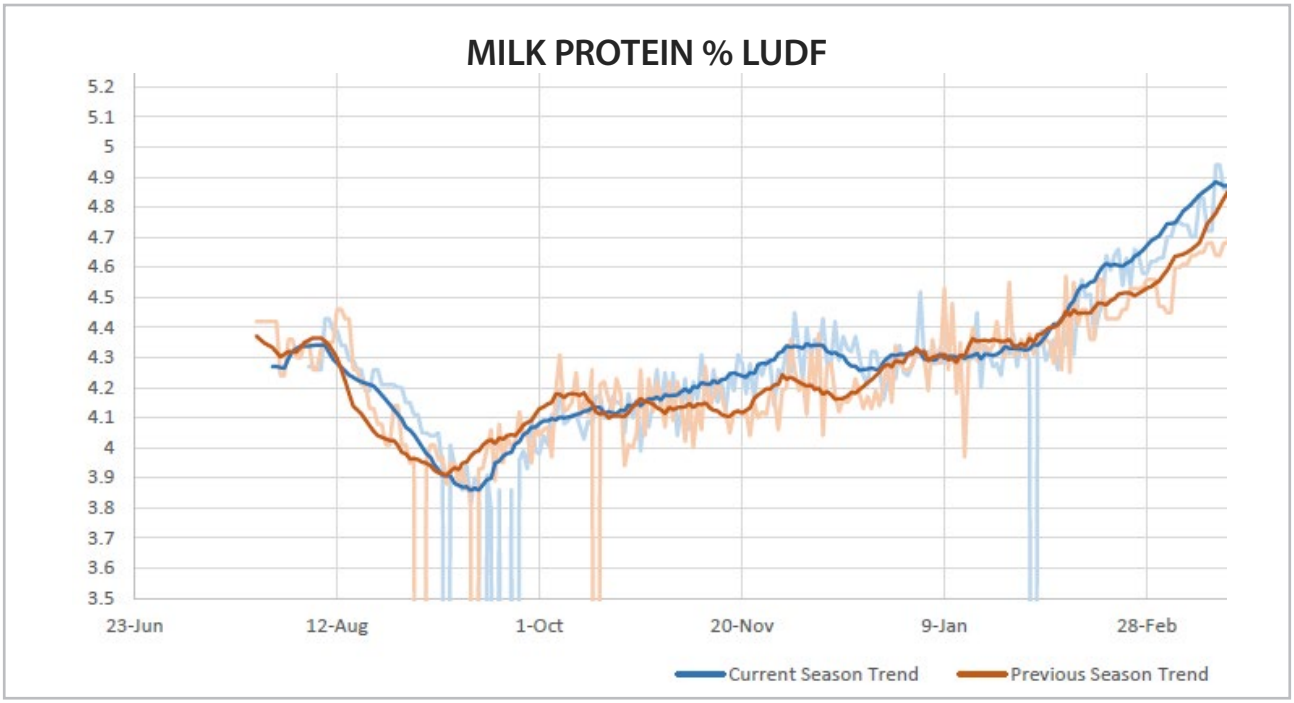
Weekly Conception Rate

2022/23

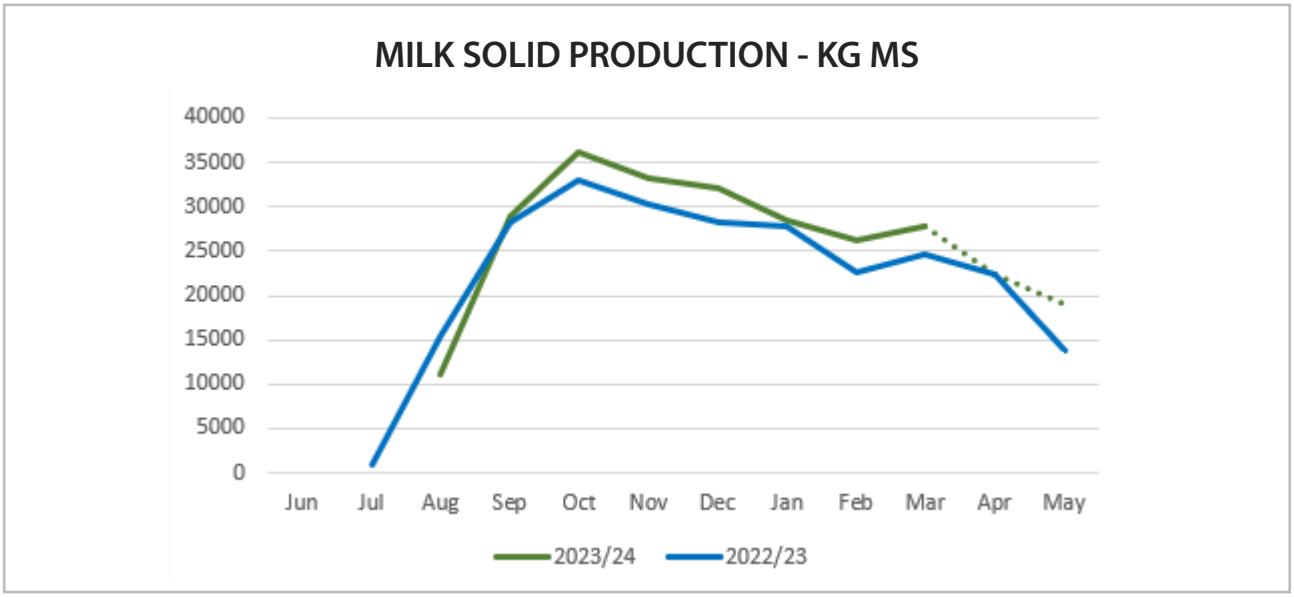


2023/24

Milk Protein Curve (the NIKE Tick) as a Proxy for Energy Balance



Milk Solids / Lactation Curve



NEFA Blood Levels (Milkers)

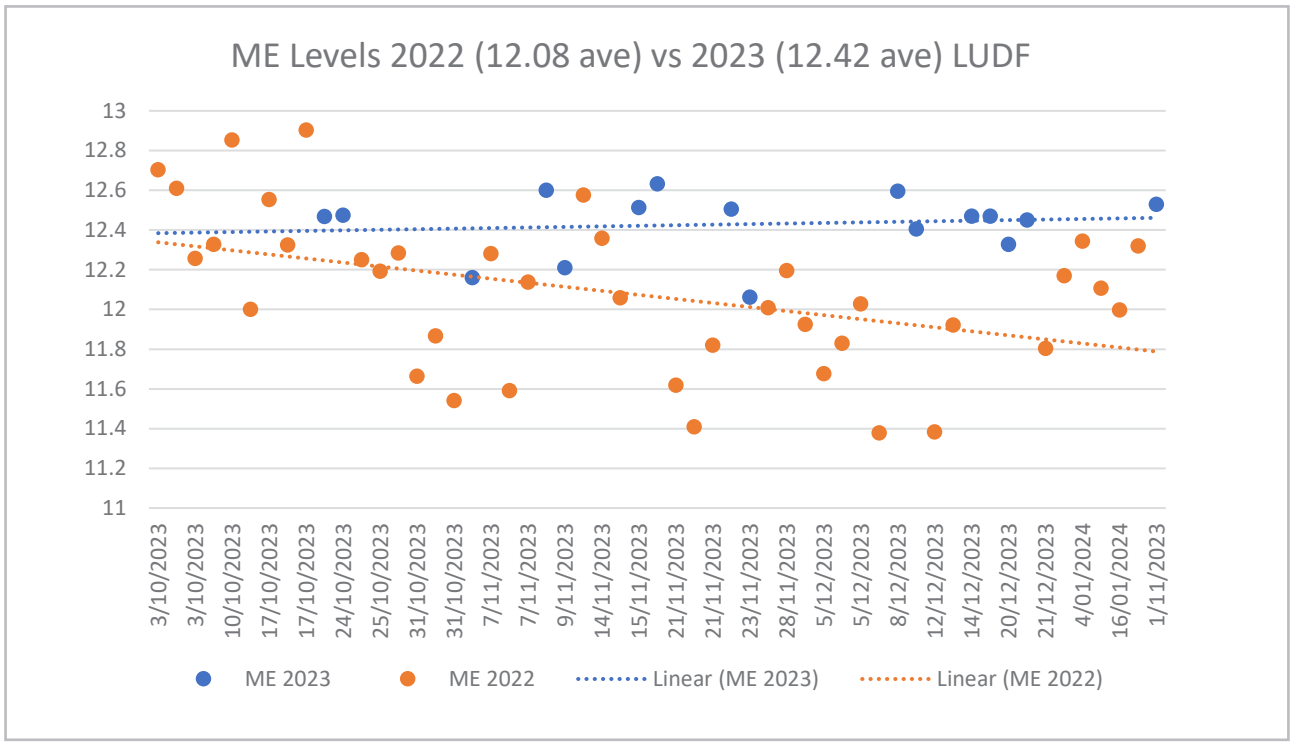
	LUDF 2022/23	LUDF 2023/24
	NEFA Levels	NEFA Levels
10th-16th Nov	0.4	0.1

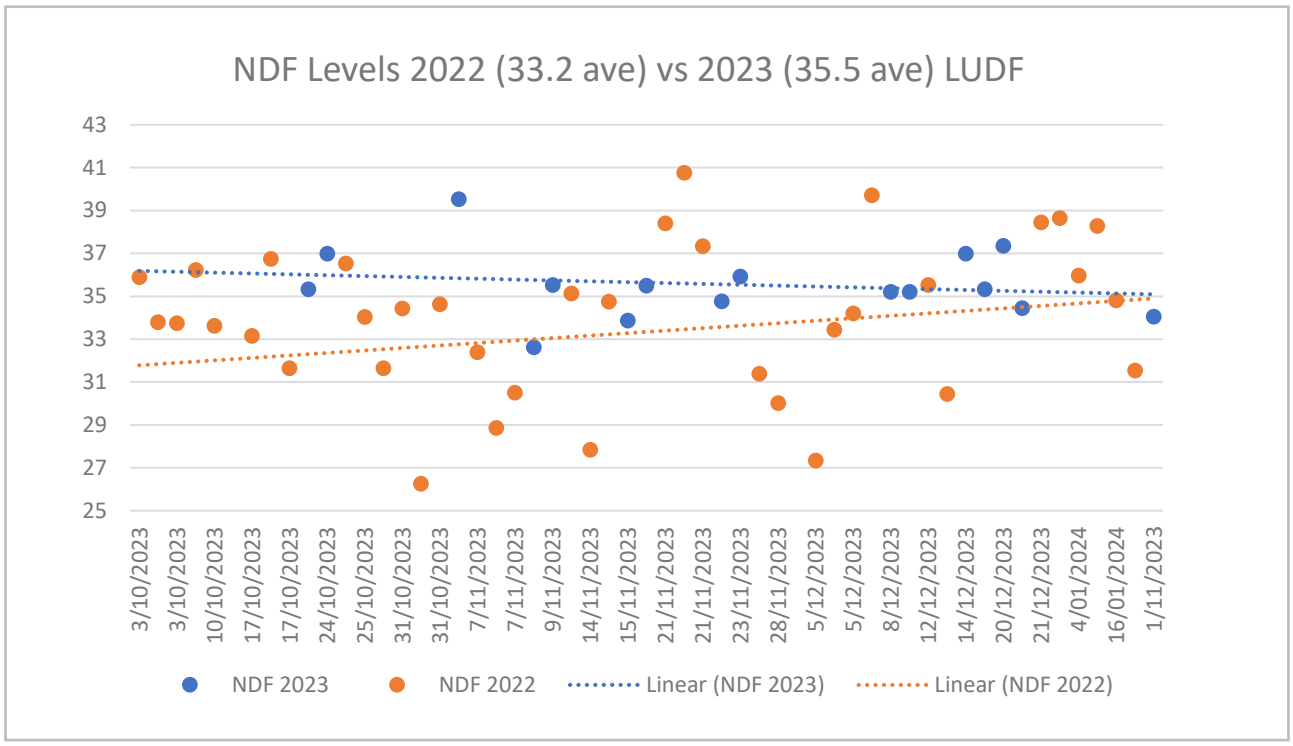
Grass Quality

Report from Peter –

"Grass quality and quantity was improved.
Good residuals and recovery/growth, was a good spring.

Less seed head through Nov/Dec, however did come through in Jan/Feb.
This is likely seasonal as observed by a few farms."





Urea Supplementation

1st Round – 25kg N/ha

2nd Round (Sept) – 46kg N/ha

3rd Round (October) – 40 kg N/Ha

Luxury nitrogen levels in the soils during the heading phase encourage vegetative growth, plus we get higher response rates. Nitrogen rates were cut Jan/Feb to keep under the 180 kgN/Ha Cap.

Date	Event	Description	Area	Rate/Reading	Operator
28/10/2023	Fertiliser	UREA Bulk	50.97	Variable	McCarthy Contracting Ltd
21/10/2023	Fertiliser	UREA Bulk	32.12	Variable	McCarthy Contracting Ltd
16/10/2023	Fertiliser	UREA Bulk	12.68	85kg/ha	McCarthy Contracting Ltd
16/10/2023	Fertiliser	UREA Bulk	36.72	85kg/ha	McCarthy Contracting Ltd
16/10/2023	Fertiliser	UREA Bulk	20.06	85kg/ha	McCarthy Contracting Ltd
12/10/2023	Fertiliser	FLOWFERT N	34.15	222L/ha	McCarthy Contracting Ltd
06/10/2023	Fertiliser	FLOWFERT N	33.37	222L/ha	McCarthy Contracting Ltd
29/09/2023	Fertiliser	UREA Bulk	35.79	85kg/ha	McCarthy Contracting Ltd
26/09/2023	Fertiliser	AMMO 31 Bulk	39.17	100kg/ha	McCarthy Contracting Ltd
13/09/2023	Fertiliser	AMMO 31 Bulk	37.64	100kg/ha	McCarthy Contracting Ltd
05/09/2023	Fertiliser	AMMO 31 Bulk	80.55	100kg/ha	McCarthy Contracting Ltd

Phantom Cows

LUDF 23/24 season phantom cow summary

4 phantom scanning visits -

05/12/2023	15 phantoms treated
14/12/2023	11 phantoms treated
28/12/2023	8 phantoms treated
08/01/2024	8 phantoms treated

Total 42 phantom treatments (38 cows), 4 cows got treated twice, after not responding to their first PG shot.

26 of the 38 cows (68%) ended up pregnant.
Drop in MT rate = 4.8%

LIKELY ~ 20% of intervention cows would have got pregnant without intervention (VC internal data set), so impact drop = 3.4%

Summary

- LUDF performed relatively well in Round 1 of mating, but performance dropped significantly in Round 2 and 3 in 2022/23. This was significantly better this season, with increases of +3,+2,and +8% for each period.
- Last season we reported:
    - Pasture NDF values began rising significantly from around the 10th November, along with rumination minutes. This coincided with;

- A fall in milk production (0.33kgMS at LUDF vs 0.2kgMS at Alderbrook over the same period).
- Marked drop in conception rate. In weeks 1-3 the conception rates for traditional semen (not sexed) was 59% at LUDF and 60% at Alderbrook. In weeks 4-6 this dropped to 39% at LUDF, with Alderbrook maintaining a 61% CR.
- Increase in fat mobilisation at LUDF (as demonstrated by elevated NEFA levels)
- NOTE: This energy pinch has been noted at around the same date in previous seasons, and doesn't appear to be a seasonal anomaly.

- This season, the conception rate held much higher to the end of the mating period (almost 10% higher conception rates in weeks 7-9). This coincided with a significantly higher ME value of the pasture fed out. NDF levels held very similarly to the previous season.
  - Will need repeating to determine the effect of N timing vs seasonal variation
  - Changes coincided with rising protein levels, no increase in NEFA's (that were seen last season)
- Phantom cows represented 7% of the total herd. Intervention has decreased the NICR by about 3.4%.

Recommendations / Discussion Points

Energy Deficit Early November – There is a consistent crunch point with an energy deficit hole in early November at LUDF. This is a common trend in the larger data set on farms that are feeding grass only during this period. This season they used nitrogen strategically in the pre-mating period to push out the reproductive state (and try to maintain quality for longer). Repetition over subsequent seasons will be required (it should be noted that Canterbury repro performance was up 2.5% for 6WICR, so this has been a good season regionally).

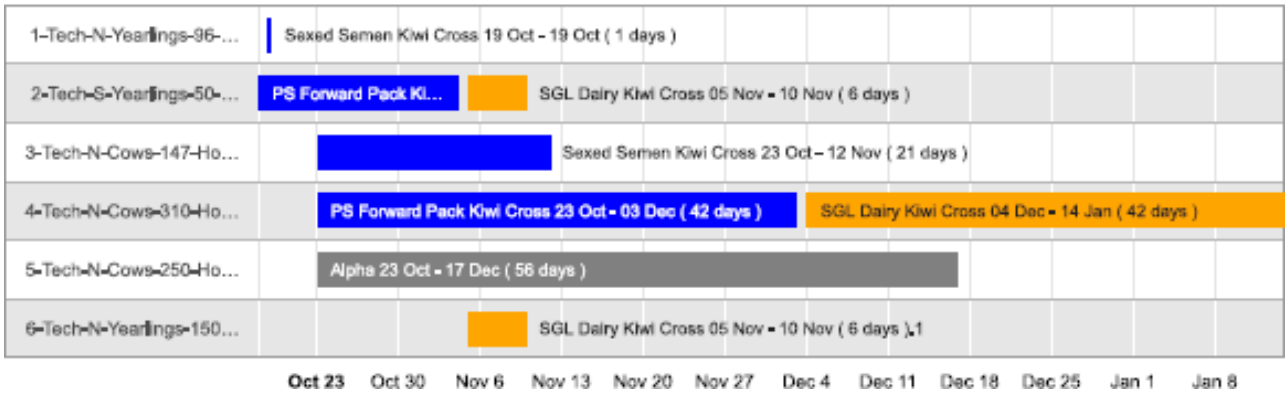
The protein curve showed a steady rise, without the flatline seen in early November in previous years.

Phantom scanning was again a critical factor in reducing the NICR.

Mating Period / SGL Semen

The mating period was extended from the traditional 10 weeks to 12 weeks for the 2023 mating period. Ultrashort gestation semen was used for the tail end of mating:

MATING PLAN DETAILS



Scanning was completed on a weekly basis through December, with a final scan in Late February. It was confirmed that an additional 4.2% (24) cows were in calf with combining the collar and short gestation technologies. Mating can be extended without collars, however we will be demanding staff do extra work (drafting) through the xmas/new year break. Collars are automated.


Reproduction
Jair Mandriaza
LIC

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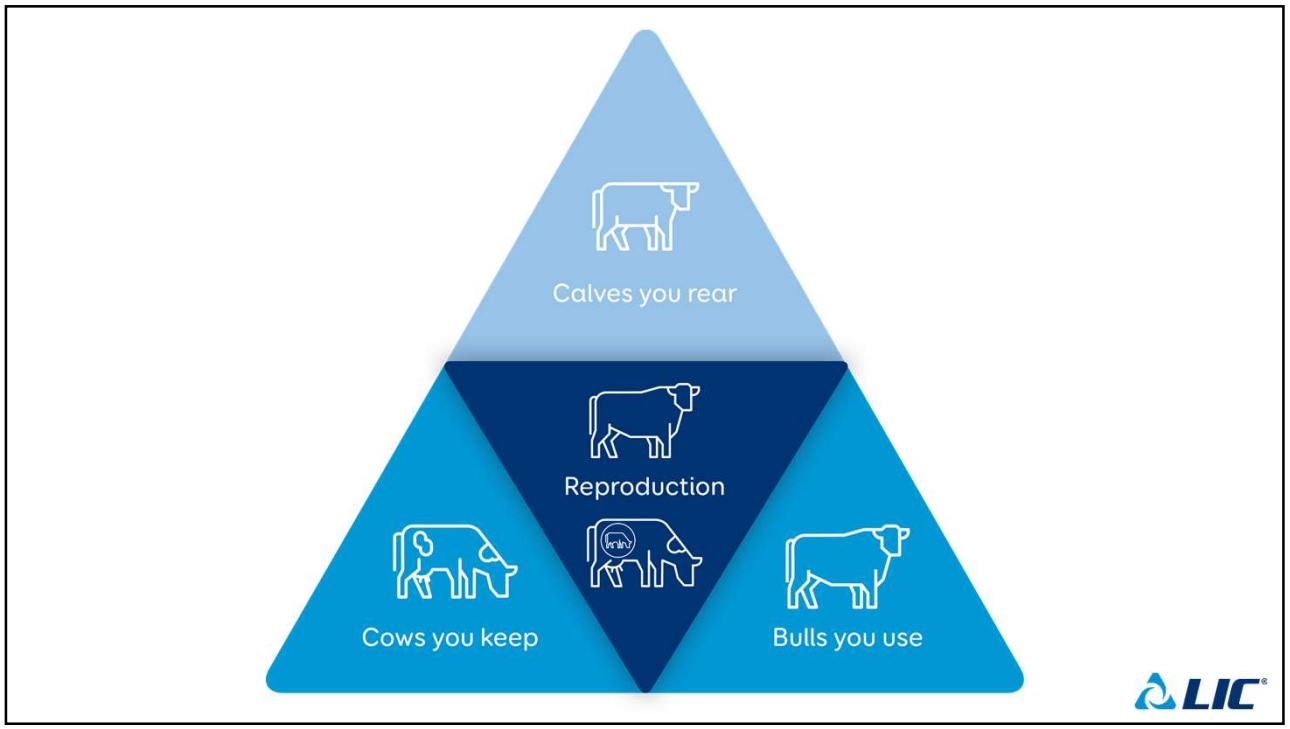
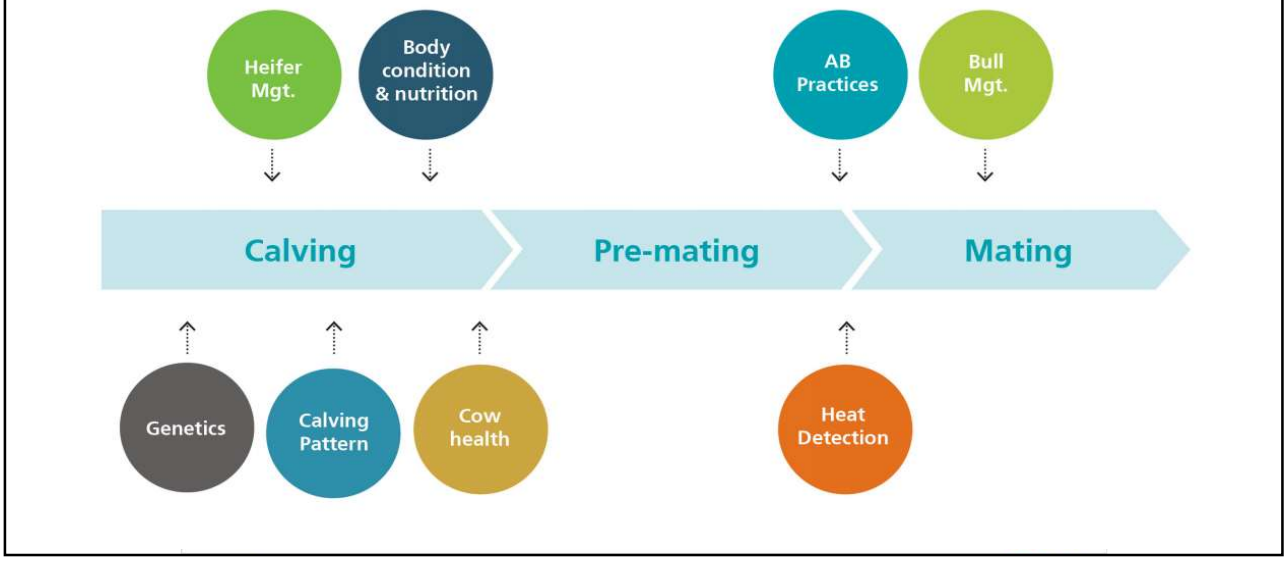

Calves you rear
Reproduction
Cows you keep
Bulls you use
LIC

2

8 Key Management Areas



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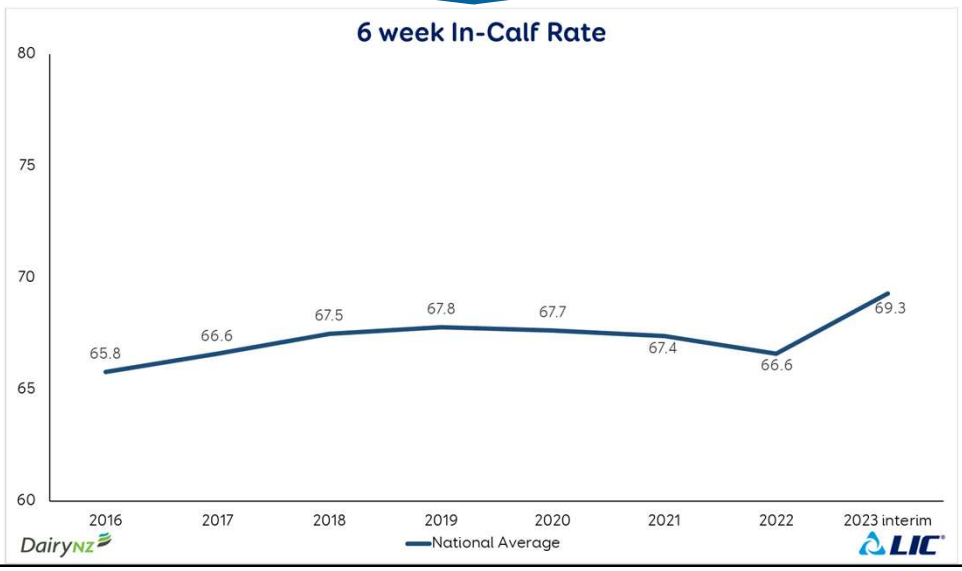
6 week In-Calf Rate - National



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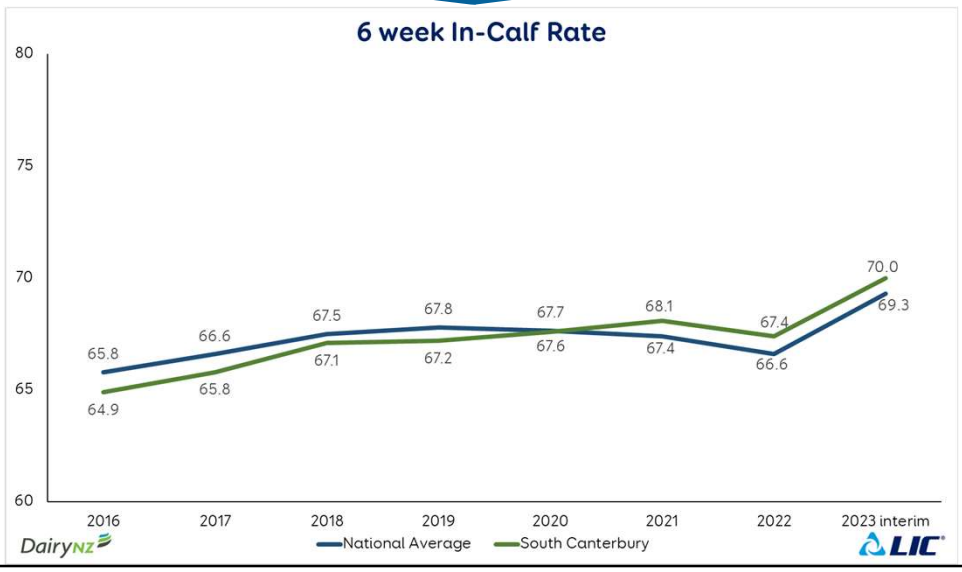
6 week In-Calf Rate – South Canterbury



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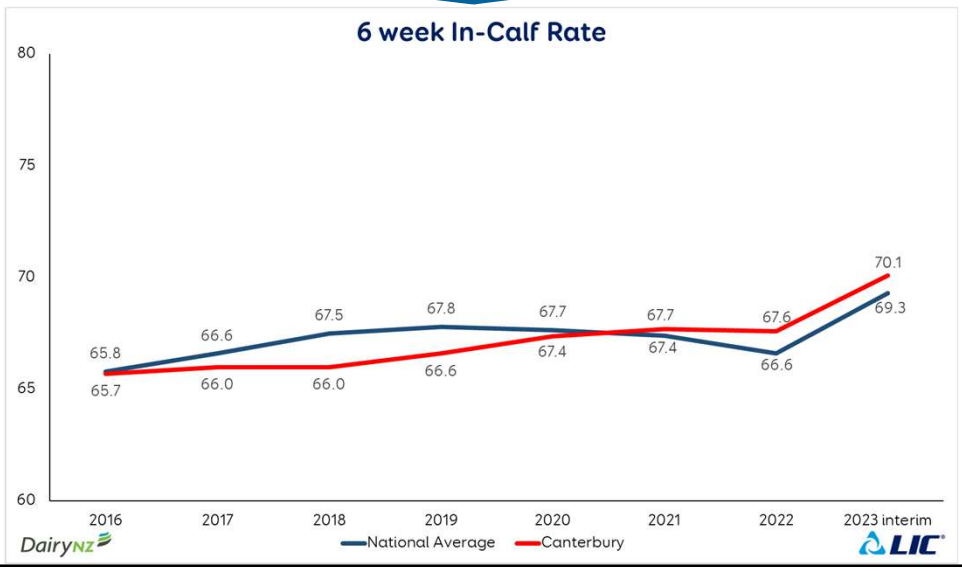
6 week In-Calf Rate - Canterbury



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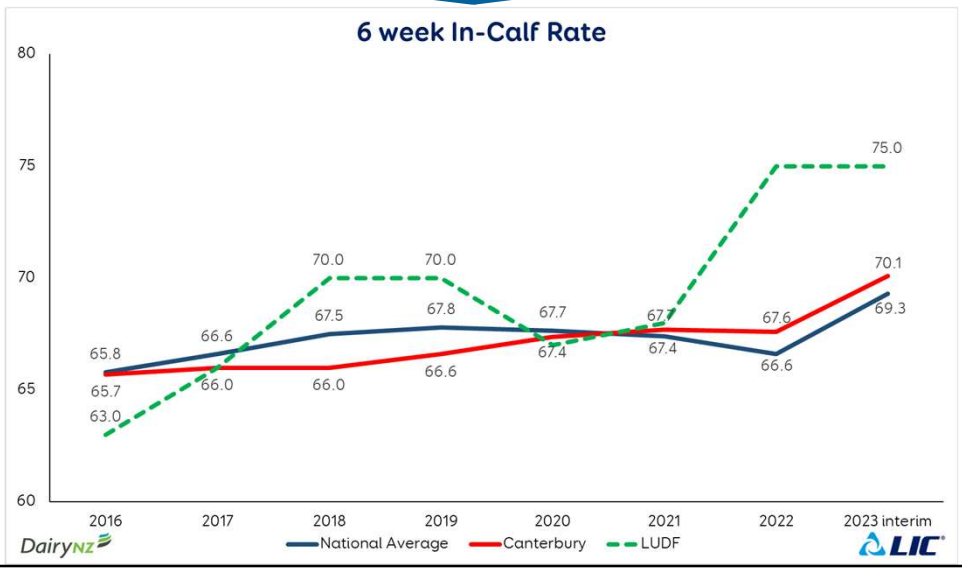
6 week In-Calf Rate – LUDF



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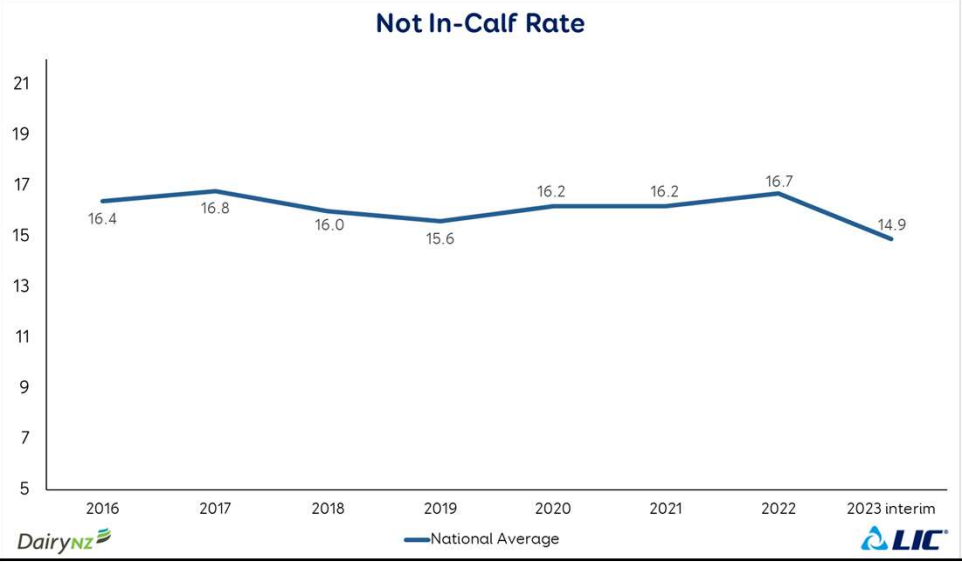
Not In-Calf Rate - National



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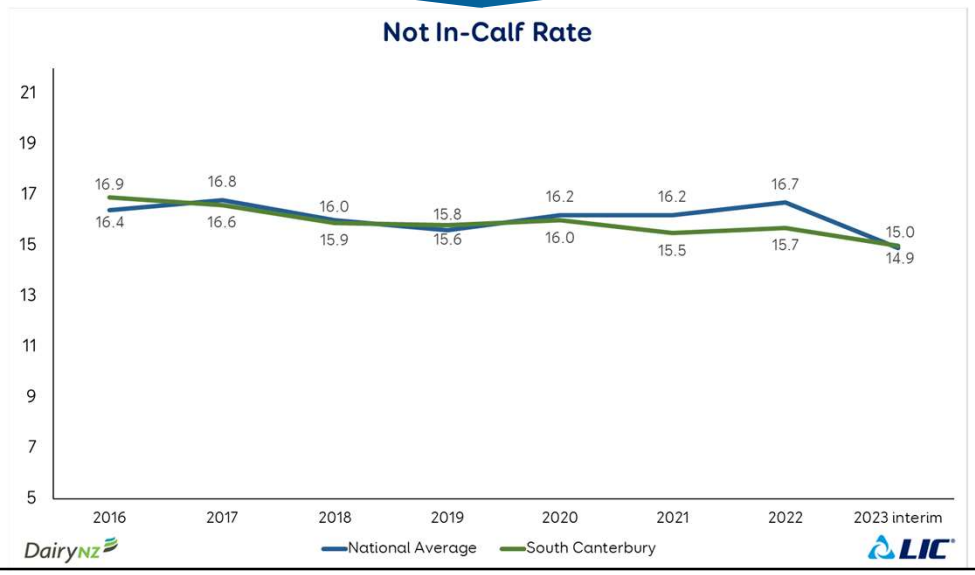
Not In-Calf Rate – South Canterbury



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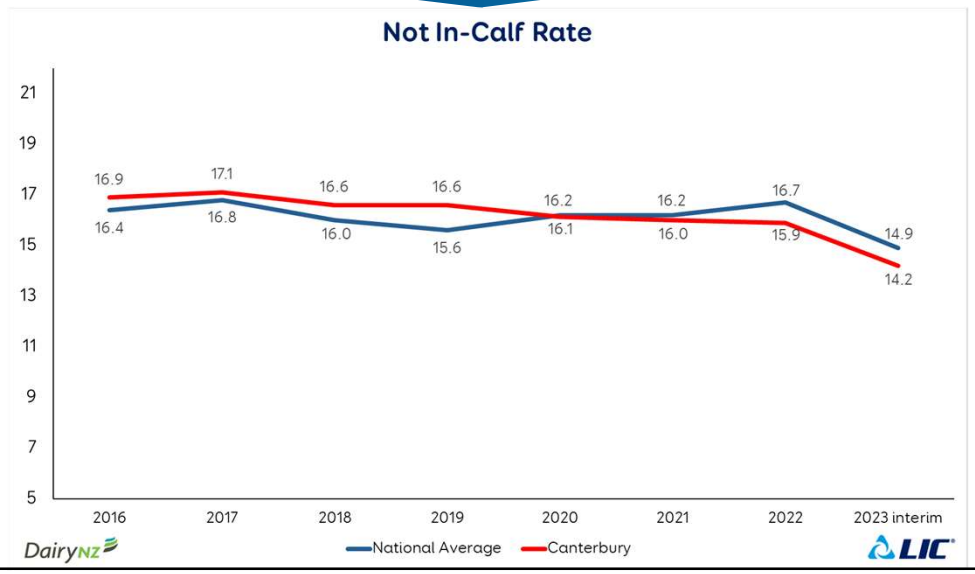
Not In-Calf Rate - Canterbury



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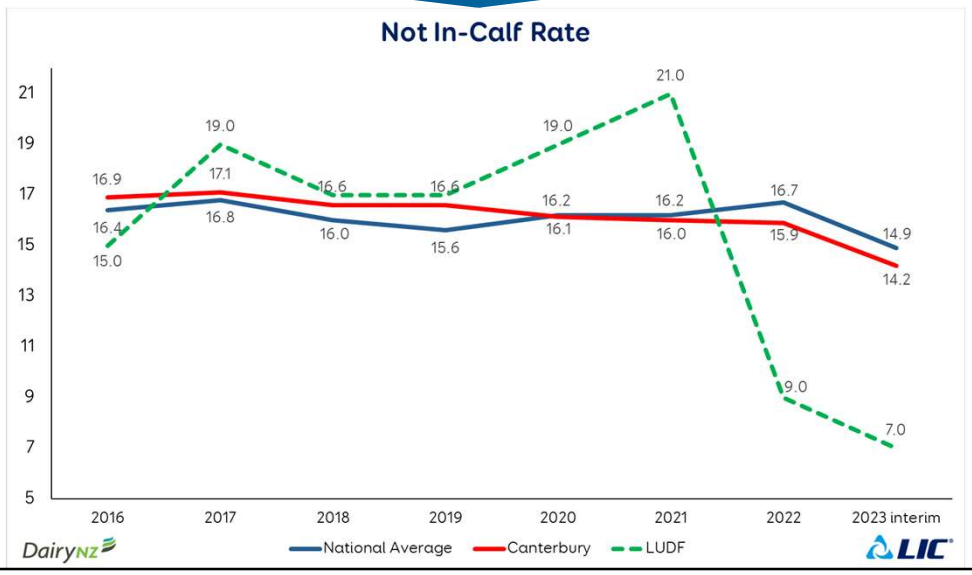
Not In-Calf Rate - LUDF



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NZ Reproductive Performance - Seasonal

National Performance 2023 Interim	6 Week In-Calf Rate	3 Week Submission Rate	Conception Rate	Not In-Calf Rate	Mating Length (weeks)
Top Quartile Average	78.0	86.2	58.9	11.2	9.9
2nd Quartile Average	72.4	83.7	55.0	13.5	10.5
Average	69.3	80.8	53.1	14.9	10.6
3rd Quartile Average	68.0	80.8	51.9	15.5	10.7
Bottom Quartile Average	58.7	72.4	46.8	19.5	11.2
Targets	78.0	90.0	60.0		

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Sexed semen conception rate – Milking cows

Conception Rate	Spring 2021	Spring 2022	Spring 2023	LUDF 2023
Forward Pack	52.7%	50.7%	52.4%	51.7%
Fresh Sexed Semen	49.9%	45.0%	53.1%	66.4%

- Conception of first 3 weeks of mating
- In herds that used Fresh Sexed Semen
- Spring 2023 is an interim result

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Sexed semen conception rate – Yearlings

Conception Rate	Spring 2021	Spring 2022	Spring 2023	LUDF 2023
Conventional	58.4%	58.5%	56.0%	68.6%
Fresh Sexed Semen	44.8%	37.7%	43.2%	34.8%

- Difference in conception rate is expected to be between **-13 and -19%**
- Compared to conventional
- 95% confidence interval
- Dispensation letter needs to be signed by farmer

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KgMS production quartiles – Mixed age cows

Ranked by Milk Solids

Quartiles	No. of Animals	Avg. KgMS	Avg. Birth Year	Avg. BW	Avg. PW	Avg. LW	Avg. DIM	Avg. Fat	Avg. Protein	Avg. Vol	Avg. Live Weight BV	Avg. Volume BV	Avg. Protein BV	Avg. Fat BV	Avg. Fertility BV	Avg. Breed F16s	Avg. KgMS/LW
Q1	69	586	2017.5	296	486	481	250	327	259	5905	8.1	486.5	27.5	29.8	1.2	10.2	1.15
Q2	69	532	2017.3	260	338	333	248	295	237	5478	5.4	347.8	22.2	24.3	1.7	10.1	1.05
Q3	69	489	2017.5	240	257	256	241	270	219	5081	3.1	302.4	19.9	20.1	2.3	9.8	0.97
Q4	70	410	2017.8	194	74	69	237	224	186	4302	2.9	169	15.9	13.5	2.6	9.7	0.82

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Liveweight BV production quartiles – Mixed age cows

Ranked by Live Weight BV

Quartiles	No. of Animals	Avg. KgMS	Avg. Birth Year	Avg. BW	Avg. PW	Avg. LW	Avg. DIM	Avg. Fat	Avg. Protein	Avg. Vol	Avg. Live Weight BV	Avg. Volume BV	Avg. Protein BV	Avg. Fat BV	Avg. Fertility BV	Avg. Breed F16s	Avg. KgMS/LW
Q1	69	508	2017.3	233	264	260	243	279	230	5296	28.2	422.4	25.1	22.1	1.6	10.9	0.96
Q2	69	504	2017.6	239	262	280	243	279	225	5205	9.8	350.3	21.8	21.9	1.4	10.4	0.99
Q3	69	511	2017.7	267	329	300	247	284	227	5190	-1.1	308.3	21.4	23.7	2.2	9.4	1.02
Q4	70	493	2017.5	250	297	296	243	274	219	5064	-17.2	223.9	17.2	20	2.5	8.9	1.02

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Repro performance – production quartiles – Mixed age cows

Mature cows

DIM: (MIN 150) 150

KGMS	avg.	COUNT		3 week Submission Rate		Pregnancy rate				NICR
						3 weeks	6 weeks	9 weeks	9+ weeks	
Top	586	71	25%	65	92%	44%	76%	86%	93%	7%
Top middle	531	70	25%	66	94%	56%	79%	87%	91%	9%
Bottom Middle	489	70	25%	64	91%	53%	70%	83%	97%	3%
Bottom	413	70	25%	59	84%	53%	67%	80%	87%	13%
Total	504	281		254	90%	52%	73%	84%	93%	7%

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Production - KgMS

National 2022 Within herd ranking - kgMS	Average kgMS	Number of cows	6 Week In-Calf Rate	3 Week Submission Rate	Conception Rate	Not In-Calf Rate
Top Quartile	497	384,507	71.1	83.6	53.4	12.7
2nd Quartile	441	391,405	72.1	82.0	55.1	12.0
3rd Quartile	404	387,955	70.5	79.6	54.6	13.5
Bottom Quartile	357	381,100	65.7	75.4	51.5	17.7

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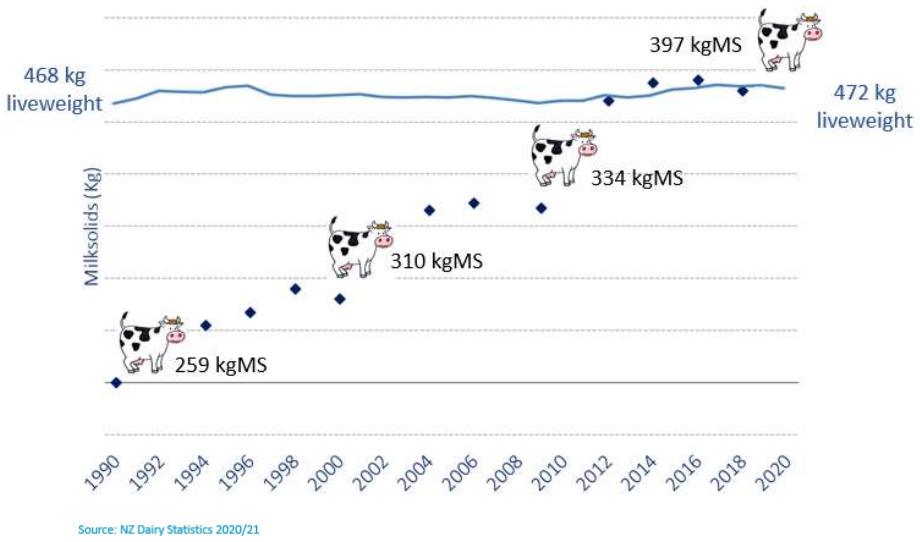
National herd – productivity improvement (kgMS/cow)



Source: NZ Dairy Statistics 2020/21

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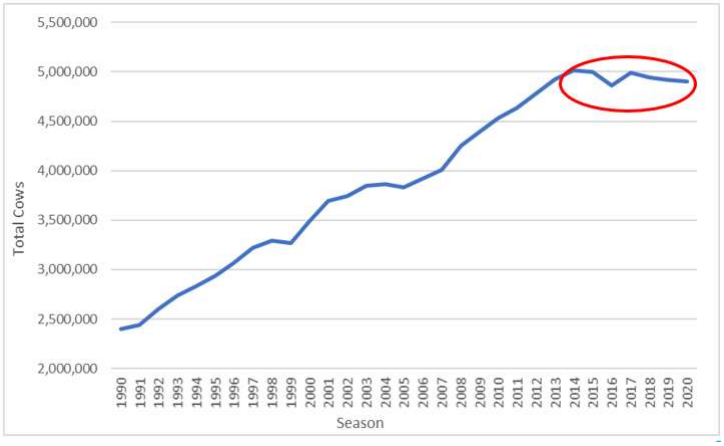
Historically cow growth has been increasing



Source: NZ Dairy Statistics 2020/21

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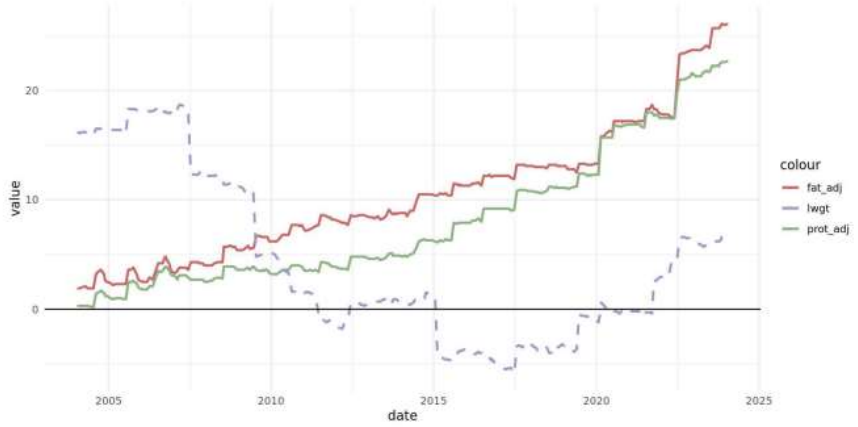
Lincoln BVs for Fat + Protein over liveweight

Fat, protein and live weight breeding values trends chart



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Gains made on farm through breeding

Gains

Avg. BW of 19.39 gained over last 10 years.
Avg. BW of 36.2 gained over last 5 years.

Avg. PW of 20.97 gained over last 10 years.
Avg. PW of 39.07 gained over last 5 years.

BW/PW Trend chart here

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Application on-farm

Production BVs	Cows	R2s	R1s
BW	277.64	361.71	406.39
Fat (kgs)	26.07	35.51	39.85
Protein (kgs)	22.67	26.9	26.38
Volume (ltrs)	311.27	379.86	230.27
Liveweight (kgs)	6.66	7.67	15.84
Fertility (%)	1.99	2.98	4.41
Somatic cell (score)	-0.01	-0.04	-0.12
Body condition score	0.04	0.06	0.12
Functional survival (%)	1.77	2.44	2.88
Udder Overall (BV)	0.22	0.35	0.42
Gestation length (days)	-3.03	-3.93	-4.2

+45 gBW gain over R2s

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Gains made on farm through breeding

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Genetic Gains Report

Participant code	BQCY
AG BP Nbr	5202030
Herd name	Lincoln University
Avg. BW/Rel	278/50
Avg. PW/Rel	315/74
Recorded Ancestry	100%

Dam gBW Split – 2022-born Replacements Reared

Dam Rank	Yrlngs Retained	Avg. Dam gBW	Avg. Sire gBW	Yrlngs BW	Percentage
gBW Q1	38	337.7	392.3	379.5	37.6%
gBW Q2	37	268.2	412.1	358.8	36.6%
gBW Q3	18	206.1	393.8	310.5	17.8%
gBW Q4	8	142.6	393.5	258.4	7.9%
Yearlings	38	334.1	399.9	392.7	-

Dam gBW Split – 2023-born Replacements Reared

Dam Rank	Calves Retained	Avg. Dam gBW	Avg. Sire gBW	Calves BW	Percentage
gBW Q1	44	367.8	439.3	438.9	46.3%
gBW Q2	36	291.3	448.1	390.9	37.9%
gBW Q3	14	235.8	464.9	345	14.7%
gBW Q4	1	192	433.2	359.4	1.1%
Yearlings	19	337.1	397	408	-

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Questions

Thank you!

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