

DAIRY BUSINESS OF THE YEAR



1.0 FARM PERFORMANCE REPORT

Dairyland Ltd
Jack & Jill Farmer

848 Dairy Lane Way, RD 1, Farmland

Report Issued July 2020

Analysis completed for the 2018/19 Season

Disclaimer: The analysis is based on information provided which has not been verified by DBOY. DBOY holds no responsibility for any changes made on the basis of this analysis. Implementation of any recommendations should only be considered in consultation with your professional advisors.



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**DAIRY BUSINESS
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1.1 Vision and Purpose

Dairy Business of the Year focuses on profitability, risk and resilience, human resources and environmental management within your business. The purpose of this report is to provide an analysis of your farm performance and compare through benchmarking other dairy enterprises in your region to assess and define those strengths and weakness within your business. This report should provide some guidance as to where additional focus should, or could, be placed within your dairy business in order to improve overall performance.

Vision & Purpose Statement

The strategic purpose of Dairy Business of the Year (DBOY) is to contribute to dairy farmers and the dairy industry in New Zealand by:

1. challenging paradigms to bring about ongoing improvements in farm profitability;
2. developing resilient and sustainable farming systems;
3. recognising and reinforcing the value of motivated and innovative people within farming enterprises;
4. increasing the awareness of dairy farming practices that minimise dairy farming impact on the environment.

To bring about positive change across these four core objectives Dairy Business of the Year activities and events encourage dairy farmers of every scale and business model to benchmark profit, people management and environmental practices to identify gaps and implement solutions.

When implementing new strategies or refining your existing dairy farm system in order to optimise your business, care should be taken to ensure your current areas of strength within the business are not compromised or diluted. Please contact your agri advisor, a Headlands consultant or one of the other DBOY sponsors for further advice or support with implementation. For human resources advice please contact No8HR on 07 870 4901

For help with interpretation of the report or any other queries contact the DBOY team on 0800 735 588 or directly via the details below;

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1.2 Business Goals

Before reviewing your analysis it is important to understand your personal and business goals. Use this space to jot down your short and long term goals, including business, environmental and people management.

	Short Term	Long Term
Personal / Business Direction		
Profitability / Resilience		
People Management		
Environmental		

1.3 Business Performance Overview

An overview of your business performance gives you a quick insight of what areas you are performing well in and others where attention may be required, in comparison to the other Dairy Business of the Year Entrants.

Profit

Your Profit Performance is in the middle 50% of the DBOY Entrants

People

Your People Performance is in the middle 50% of the DBOY Entrants

Planet

Your Planet Performance is in the middle 50% of the DBOY Entrants

DAIRY BUSINESS OF THE YEAR



2.0 PROFITABILITY

PHYSICAL AND FINANCIAL ASSESSEMENT

Dairyland Ltd

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2.1 Industry Overview

The DBOY analysis for the 18/19 season highlighted a clear contrast between Canterbury and the other dairy regions of New Zealand, although milk price had the final say on overall profitability. Comparing the 18/19 season to the 17/18 season the following changes occurred across regions:

- The amount of grazed feeds (i.e. pasture and crops) per milking ha was broadly similar except for Canterbury, which managed to increase the amount of dry matter/ha grazed
- Concentrate prices increased in all regions other than Canterbury
- Fodder eaten per cow (e.g. silage, hay or straw) increased except in Canterbury
- Milksolids per cow was lower than the 17/18 season except in Canterbury
- The amount of concentrate purchased per cow decreased, although Canterbury had only a slight reduction, presumably reflecting a different farming system

The overall outcome of these changes led to the Cost of Production/kg MS (COP/kgMS) increasing for all NZ although Canterbury bucked the trend again with a reduction in COP/kgMS. However, the market had the last word with the lower payout driving Return on Total Assets (ROTA) down across all dairy regions, particularly in the Waikato.

For the first time this year, DBOY is using Global Dairy Farms (GDF) instead of Red Sky to analyse your financial and physical data. Because of the transition to GDF caution needs to be applied when directly comparing certain financial KPIs within this report with previous DBOY reports, as some of the calculations are slightly different. However, where applicable we have replicated previous Red Sky data into GDF and it will appear in the GDF reports section. This 'apples with apples' comparison will enable you to track your business performance progress over time. You may also notice that the names of some KPIs have changed (e.g. Return On Capital or ROC is now Return on Total Assets or ROTA), and in some cases we are using different KPIs compared to previous DBOY reports. If you have any questions relating to these changes, or require further assistance to interpret the information, please don't hesitate to contact me.



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2.2 Summary of Strengths

Key Strengths of the Business

Your farming system has a very high percentage of homegrown feed. This enhances resilience by controlling the supply and cost of the majority of your feed.

Your equity is above average, providing a buffer for drops in performance or unexpected events. This is reflected in lower than average financing costs/kg MS which further enhances your resilience.

Your cows are producing an above average amount of milksolids as a % of their liveweight. Highly productive animals are more biologically efficient and tend to have lower environmental impacts.

In general your farming system is performing well, but your high asset value makes obtaining an adequate ROTA difficult.

2.3 Opportunity and Target Planning

Dairy Business of the Year have highlighted some key opportunities within the business. To fully utilise these opportunities it is important to prepare a business plan that will assist you to meet your goal or target. By adding a timeframe to the target it is much more likely to be achieved.

Opportunity for Improvement

Plan & Timeframe for Improvement


Your Overhead Costs/kg MS are high, particularly R&M and Depreciation. Either reduce these costs or look to increase milk production to dilute them over a larger base.


In general your income and costs seem well balanced, this leaves increasing milk production even if feed cost/kg MS increases somewhat, as your best option to lift profitability.


Your Cost of Conserved feed is above average and makes up a reasonable part of the diet. Can you find a way to lower these costs?

Continue to monitor your farm performance - this allows the effect of management changes to be detected easily and directs focus applied where it is most valuable.

2.4 Key Performance Indicator Summary Table

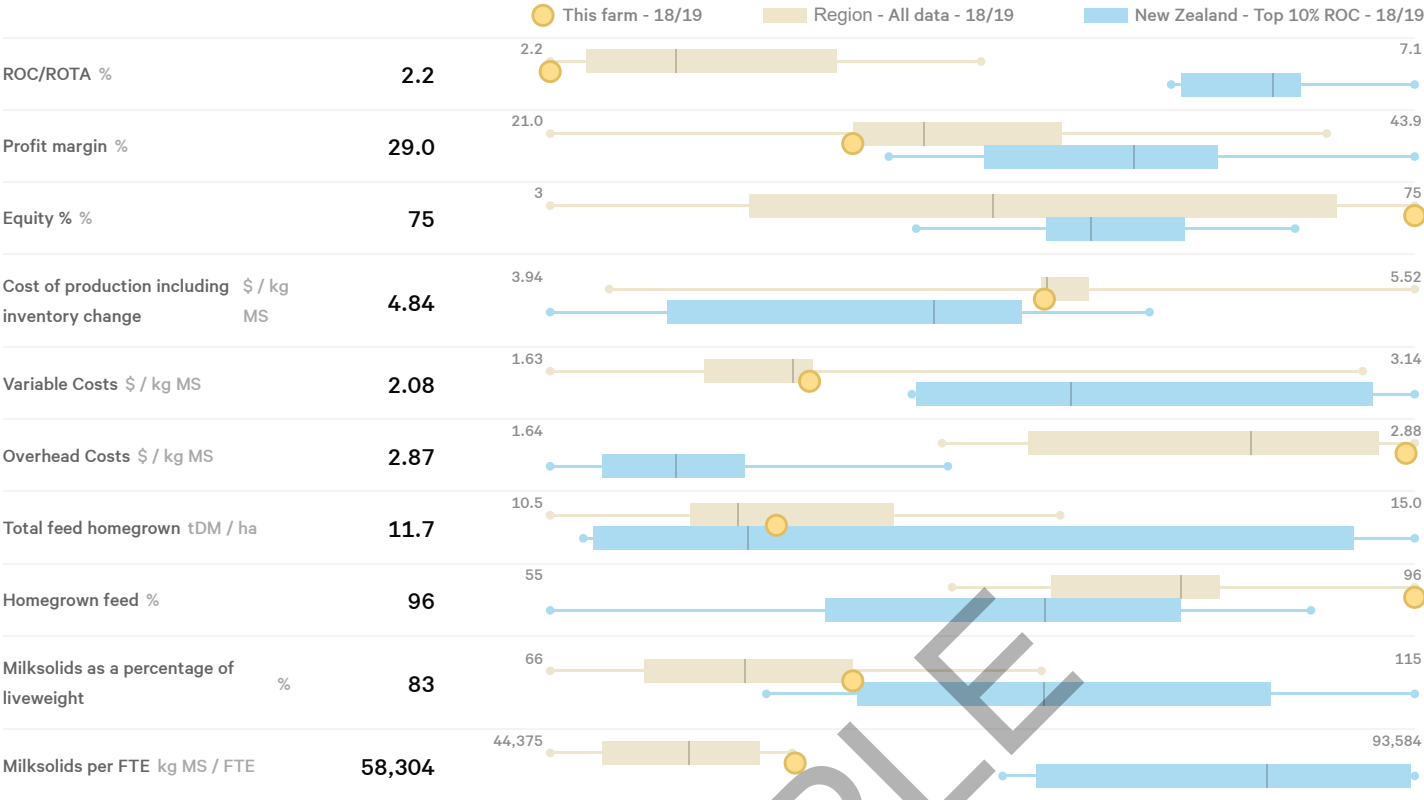
PROFITABILITY 		18/19 Dairyland Ltd	18/19 Region Average	18/19 New Zealand Top 10%
Milk Income per kgMS	NZD / kg MS	6.39	6.35	6.67
Total Assets Managed per Hectare	NZD / ha	100,994	74,468	63,430
Gross Farm Income per Hectare	NZD / ha	7,633	7,449	11,095
Operating Costs per Hectare	NZD / ha	5,420	5,200	7,165
Earnings Before Interest and Tax per Hectare	NZD / ha	2,212	2,248	3,934
Return on Total Asset	%	2.2	3.1	6.3
Return on Equity	%	0.9	12.5	8.1

RESILIENCE 		18/19 Dairyland Ltd	18/19 Region Average	18/19 New Zealand Top 10%
Operating Profit Margin	%	29.0	31.3	36.3
Equity Percentage	%	74.9	40.8	48.9
Gross Farm Income per kgMS	NZD / kg MS	6.98	6.86	7.05
Operating Costs per kgMS	NZD / kg MS	4.95	4.70	4.48
Finance Cost (Interest & Lease) per kgMS	NZD / kg MS	1.37	1.80	1.03
Cost of Production per kgMS	NZD / kg MS	4.84	4.82	4.52
Cost of Production + Financing per kgMS	NZD / kg MS	6.21	6.62	5.55

EFFICIENCY 		18/19 Dairyland Ltd	18/19 Region Average	18/19 New Zealand Top 10%
Livestock Management				
Milksolids per Cow	kg MS / cows	365	377	477
Milksolids as % of Cow Liveweight	%	83	78	95
Milksolids per Milking Hectare	kg MS / ha	1,094	1,086	1,579
Pasture and Feed Management				
Annual Stocking Rate - milking area	cows / ha	3.00	2.86	3.25
Homegrown Grazed Feed as % Diet	%	84	75	63
Total Feed Fed tDM/cows	tDM / cows	4.80	4.84	5.58
Grazed Feed Fed tDM/cows	tDM / cows	3.84	3.70	3.60
Homegrown Feed - Direct Costs	NZD / tDM	80	62	96
Grazed Feed - Direct Costs	NZD / tDM	46	37	64
Conserved Feed - Direct Costs	NZD / tDM	288	232	251
Fodder Purchased - Direct Costs	NZD / tn	500	342	307
Concentrate Purchased - Direct Costs	NZD / tn	399	357	352

2.5 Global Dairy Scorecard

EXAMPLE



2.6 Profitability Measures

PROFITABILITY		18/19 Dairyland Ltd	18/19 Region Average	18/19 New Zealand Top 10%
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Return on Total Asset	%	2.2	3.1	6.3
Return on Equity	%	0.9	12.5	8.1

Milk Income per kgMS

6.39

Milk price is largely uncontrollable by the farmer, however there are some strategies that can be implemented to lift milk price without changing milk company. Options include winter milk or spreading production outside of the peak flow when milk price is higher. There is also the option of converting to certified organic supply, which has a higher milk payout. If macro changes aren't an option for this business, then focusing on producing good clean milk and avoiding penalties does help to improve profitability. Encouraging staff to get involved with targets can really help with achieving milk quality objectives.

Total Assets Managed per Hectare

100,994

Assets per Hectare is the market value of all owned assets for the year based on an average of opening and closing. This includes; milking platform and support block, dairy shares, cattle, vehicles, plant and machinery. The value of any of the above that is leased is added in for the ROTA calculation.

Compared to the benchmark, your business has above average assets per hectare.

Gross Farm Income per Hectare

7,633

Gross Farm Income per Hectare (GFI/ha) is calculated from the operating income plus livestock income (+/- adjustments for changes in livestock on hand). A high gross farm income could indicate high milk production, a high milk price, higher livestock income or high dividends.

Income is around the district average; if costs are well-controlled then this is an adequate position for your business, however more attention to cost control is required to improve profitability and resilience.

Operating Costs per Hectare

5,420

Operating Costs per Hectare (OC/ha) includes all cash costs plus or minus adjustments which include, changes in feed/supplements on hand, imputed labour and management, depreciation, and other manual cost adjustments such as payments made in another season. Costs should be relative to income, and margins between the two as large as possible. For example, if increasing costs slightly improves income significantly then increasing costs is beneficial. Conversely, if production or income is limited (maybe a stocking rate restriction) then lowering costs should be an objective.

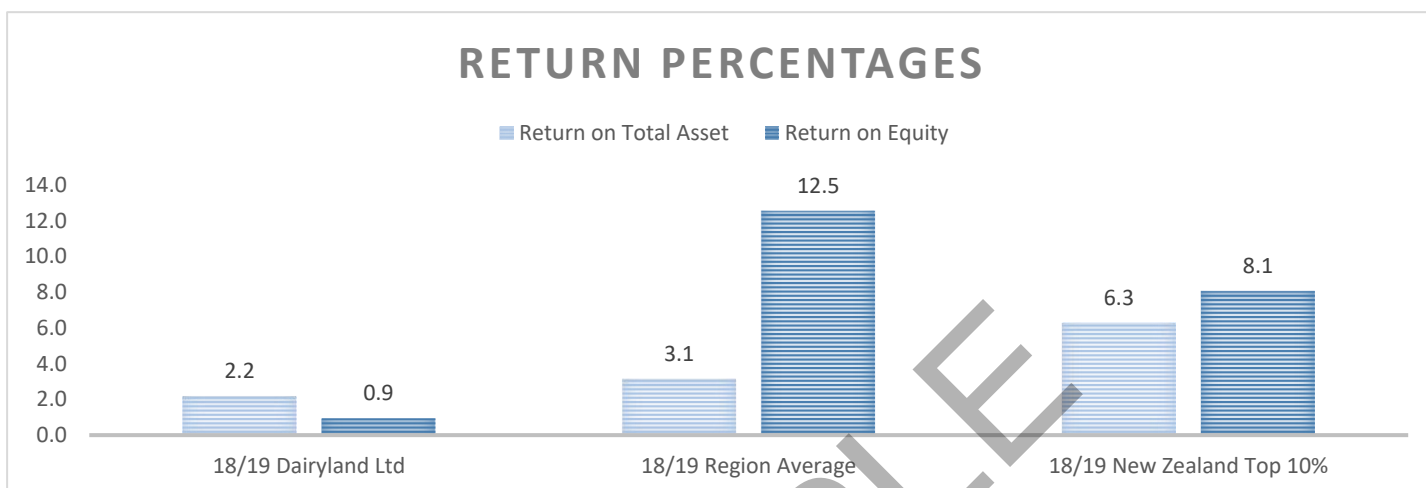
OC/ha is in line with the district average; if the business is generating a high income then this is a good position to be in. If income is low consider assessing options that will increase income even if costs increase slightly. Where income is below average reassess costs and explore if increased spending could lift profit further.

Earnings Before Interest and Tax per Hectare

2,212

Earnings Before Interest and Tax per Hectare (EBIT/ha) should not be used to compare one business against another because it would assume that all land has an equal value, which of course it does not. However, it is a great way to evaluate your financial progress between seasons.

Your earnings before interest and tax is comparable to the group average, which may or may not be partially influenced by your land capability. Analyse your business to see where refinements can be made to improve resilience.



Return on Total Asset

2.2

The most important measure of profitability is Return on Capital (ROC) or Return on Total Asset (ROTA). This is calculated by dividing Earnings Before Interest and Tax (EBIT) by the total value of all assets (both owned and leased). This generates a profitability value which can be compared across all business types, and accounts for farms with a lower milk production capability against those with a high milk production capability. To maximise ROTA it is important to not over capitalise as this in turn would require an increase in EBIT to achieve the same ROTA. The capital includes; all land (milking and support), livestock, vehicles, plant and machinery, dairy company shares, and other current farm assets.

Your business has a ROTA which is below average. It is very important to thoroughly review the business to identify where improvements can and should be made.

This is an outcome of average earnings before interest and tax, that is divided by a relatively large amount of capital invested in your business.

Return on Asset

Return on Assets (ROA) is calculated by dividing operating profit by the total value of all owned assets, any leased assets are not included in this equation. ROA is also not comparable between farms as some businesses may lease large amounts of land and other dairy enterprises lease nothing.

Return on Equity

0.9

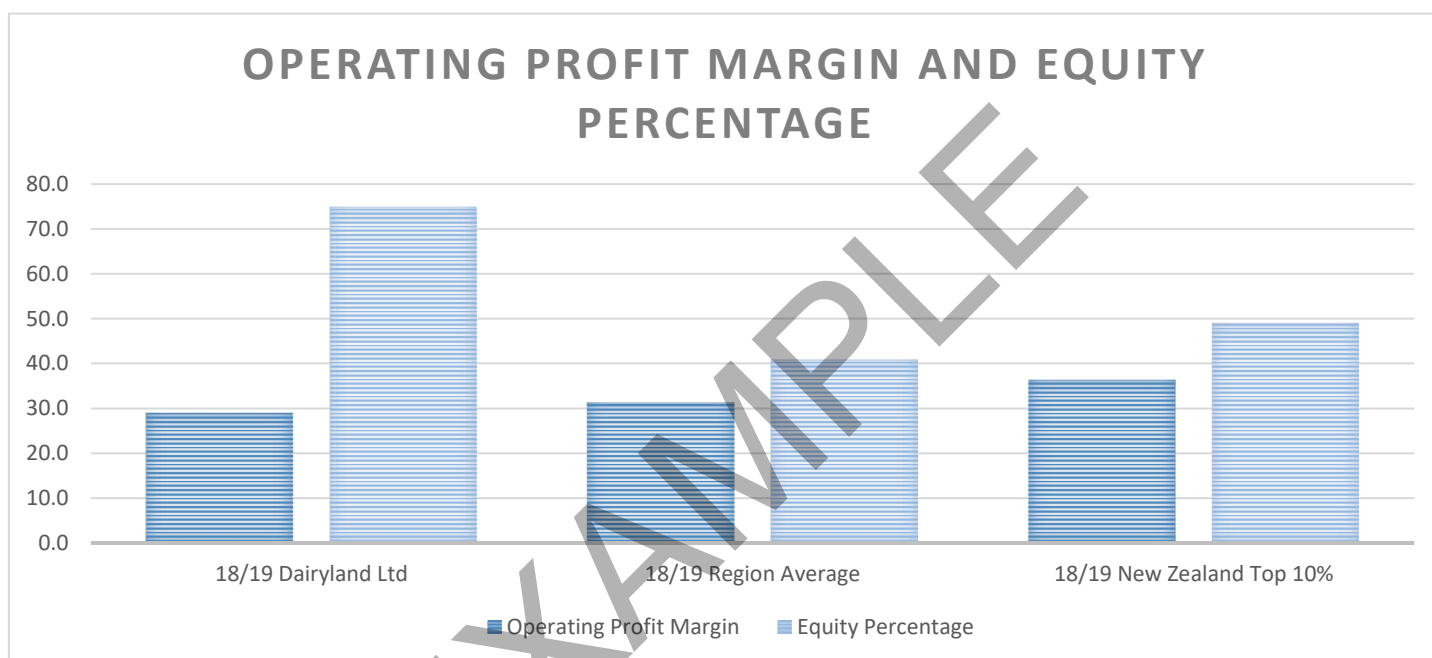
Return on equity (ROE) is the most important indicator of net wealth growth but it cannot be compared with other farmers as it includes debt servicing, which is a farm-specific measure. In general your Return on Equity can be improved by increasing operating profit; and/or decreasing finance costs (i.e. borrowing at a lower interest rate). When equity is suboptimum or in decline and at a certain lower return on capital the business is likely to be in financial decline, e.g. if ROTA is less than 3% and equity is less than 30%, the business is unlikely to be able to remain sustainable placing it in a financially stressful position.

ROE is less than ROTA. This means cost of borrowing is greater than the return generated, however the nett effect is still positive so the business is continuing to grow equity.

2.7 Resilience Measures



RESILIENCE		18/19 Dairyland Ltd	18/19 Region Average	18/19 New Zealand Top 10%
Operating Profit Margin	%	29.0	31.3	36.3
Equity Percentage	%	74.9	40.8	48.9
Gross Farm Income per kgMS	NZD / kg MS	6.98	6.86	7.05
Operating Costs per kgMS	NZD / kg MS	4.95	4.70	4.48
Finance Cost (Interest & Lease) per kgMS	NZD / kg MS	1.37	1.80	1.03
Cost of Production per kgMS	NZD / kg MS	4.84	4.82	4.52
Cost of Production + Financing per kgMS	NZD / kg MS	6.21	6.62	5.55



Operating Profit Margin

29.0

The Operating Profit Margin (OPM) represents the percentage of gross farm income retained as profit for interest payments, principal repayments, tax and true 'profit' (e.g. a 25% margin would mean 25c for every dollar is considered profit). The higher the OPM the more secure and resilient the business is.

Your operating profit margin is in a very risky position. This is concerning and provides little to no cash available for debt servicing and to cover tax payments.

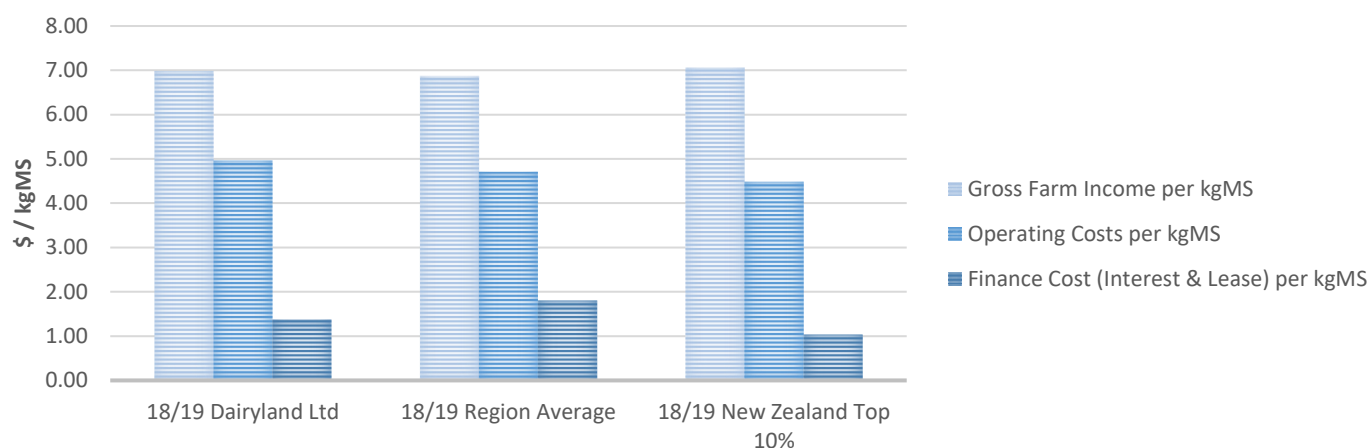
Equity Percentage

74.9

Equity is calculated based on total assets of the business (land, stock, shares, etc.) against total liabilities. It is an essential business principle to define and monitor the equity position of the business. For example, if the business is in a growth phase and generating an adequate and sustainable return then low equity in the short term may be appropriate, whereas if the business is generating lower returns then low equity would place the business in a higher risk position.

Your equity position is adequate, providing some buffer for fluctuations in milk price, climatic conditions, land prices and interest rate changes.

INCOME AND EXPENSES PER KGMS



Gross Farm Income per kgMS

6.98

Gross farm income per kgMS is calculated from the milk income generated (milk price x total milk solids) plus livestock income (+/- adjustments for change in livestock on hand) plus other farm income and divided by every kilogram of milksolids produced. A high gross farm income could indicate higher livestock income or a higher milk price and, unlike gross farm income per hectare, is not influenced by stocking rate.

Income per kgMS is in line with the district average.

Operating Costs per kgMS

4.95

Operating Costs per kgMS includes all cash costs plus or minus adjustments which include: changes in feed/supplements on hand, imputed labour and management, depreciation, and other manual cost adjustments such as payments made in the wrong season, divided by the total kgMS. Low costs per kg milksolids are achieved by either reducing costs relative to the milksolids produced, or increasing milksolids while maintaining low costs (e.g. increasing kgMS/cow while maintaining costs).

Higher than average operating costs per kgMS places your business in a risky position, leaving a small margin for debt servicing and only a slight buffer for any reduction in milk price.

Finance Cost (Interest & Lease) per kgMS

1.37

This is the interest and lease costs for the farm business divided by milksolids production. As there is generally little flexibility in these costs year-to-year it is important to ensure an adequate margin over production costs to meet financing needs.

Cost of Production per kgMS

4.84

Cost of Production per kg milk solids (COP/kgMS) is the net cost of producing one kilogram of milk solids. This is a key indicator of resilience, as having a low COP/kgMS will enable a business to withstand fluctuations in milk pay-outs. A low cost of production per kg milk solids is achieved by either reducing costs relative to the milk solids produced or increasing milk solids while maintaining low costs (e.g. increasing kgMS/cow while maintaining costs). If gearing is high (e.g. high level of debt) then there should be a significant gap between cost of production and the milk pay-out to ensure there are sufficient funds for debt servicing and tax payments. COP/kgMS can also be compared across years for an enterprise and against other farmers, with caution, at varying milk prices, as this metric is not influenced by milk income.

Average cost of production/kgMS places your business in a reasonable position with a degree of risk, leaving a small margin for debt servicing and only a slight buffer for any reduction in milk price.

Cost of Production + Financing per kgMS

6.21

The cost of production/kg milk solids plus financing cost is effectively the milk solids price the business requires to break even, as it combines both COP/kgMS and debt servicing costs. Managing debt is also as important as controlling costs. Ensuring there is an adequate margin between COP/kgMS + debt servicing and the milk price will influence the profitability and resilience of the business, which then allows for debt reduction or business expansion.

EXAMPLE

2.8 Efficiency Measures

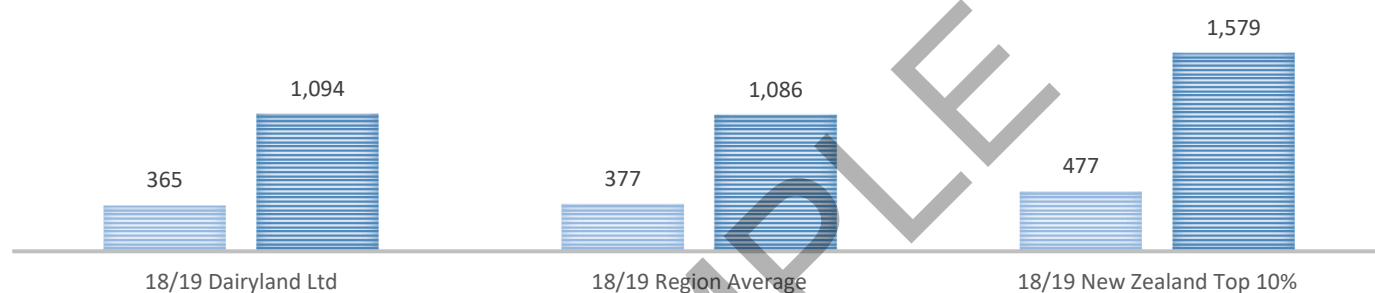


Livestock Management

		18/19 Dairyland Ltd	18/19 Region Average	18/19 New Zealand Top 10%
Milksolids per Cow	kg MS / cows	365	377	477
Milksolids as % of Cow Liveweight	%	83	78	95
Milksolids per Milking Hectare	kg MS / ha	1,094	1,086	1,579

MILK PRODUCTION

■ Milksolids per Cow ■ Milksolids per Milking Hectare



Milk Production

131,301

Increasing milk production is often a goal for most farmers. However this does need to be done with some caution as higher production does not always equal greater profits, which is the main objective of increasing production. Improving profitability from an increase in milk production is determined by the cost of that additional production.

Milksolids per Cow

83

365

Milksolids (MS) production per cow defines the level of efficiency being achieved from the milking herd. It is important to factor in the size of the cow, therefore measuring MS as a percentage of live weight is the most accurate and comparable efficiency measure. Milksolids per cow can be influenced by feed conversion efficiency and total feed consumed per cow. For that reason, ensuring the farms stocking rate is set to a level where the cows are able to consume a high level of home-grown feed per cow relative to the total amount of feed consumed will help to increase total feed consumed per cow while minimising the dependence on supplements.

Your milk production per cow is below the district average.

Your herd is producing 80-90% of their liveweight as milksolids. This indicates good efficiency with some opportunity for improvement.

Milksolids per Milking Hectare

1,094

Milk production per Hectare is often limited by land capability, environmental landscape, and climatic conditions. Knowing the optimal stocking rate will allow the farm to focus on increasing per cow efficiencies to optimise the production per hectare.

The milksolids produced per ha is between the district average and the Top 10%

Pasture and Feed Management

		18/19 Dairyland Ltd	18/19 Region Average	18/19 New Zealand Top 10%
Annual Stocking Rate - milking area	cows / ha	3.00	2.86	3.25
Homegrown Grazed Feed as % Diet	%	84	75	63
Total Feed Fed tDM/cows	tDM / cows	4.80	4.84	5.58
Grazed Feed Fed tDM/cows	tDM / cows	3.84	3.70	3.60
Homegrown Feed - Direct Costs	NZD / tDM	80	62	96
Grazed Feed - Direct Costs	NZD / tDM	46	37	64
Conserved Feed - Direct Costs	NZD / tDM	288	232	251
Fodder Purchased - Direct Costs	NZD / tn	500	342	307
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Herd Feed Requirements

Herd feed requirements almost always exceed total feed grown within a season (including feed which is cut and carried within the farm as a result of seasonal pasture growth variations). Any additional bought in feed increases milk production but not always profit, as outsourced feeds are subject to market price fluctuations and may be more expensive relative to milk price and milk production response rates. If herd size can be matched to the pasture production potential of the farm, it is likely that overall farm profitability and resilience will improve.

Annual Stocking Rate - milking area

3.00

Stocking rates should not be compared between farms due to the variation in biophysical capabilities, and therefore the optimal stocking rate is unique to every farm. Optimum stocking rate is where the stocking rate is set at a level that feed sourced is used to fill seasonal feed gaps and does not increase COP/kgMS beyond the financial benefits e.g. if bought in feeds are more expensive than the benefits gained from those feeds COP/kgMS increases. In this circumstance it is more prudent to have a lower stocking rate with higher levels of home grown feed consumed per cow relative to the amount of purchased feeds. Therefore, it may be optimal to aim for 4.5tDM home grown feed consumed per cow. The exception to this rule is where there is readily available low cost feeds, which allow a lower COP/kgMS and higher stocking rates whilst feeding less home-grown feed per cow. Stocking rate is an important strategic decision which should be based on the historical pasture harvest averages of that farm, which in turn provides a buffer during periods of seasonal fluctuations in pasture growth rates. It is also important to monitor the farms environmental impact to ensure the farming enterprise is operating within regional council policy.

Homegrown Grazed Feed as % Diet

84.5

Higher levels of supplement feeding can provide positive financial benefits if managed well. However, in some circumstances it may increase financial risk through lower margins and higher cost of production, but can also offer increased returns especially during times of high milk prices. Farms with a higher percentage of the diet as pasture and grazed feed tend to have lower cost of production, which is strongly correlated with profitability. This also reduces risk by having more feed in your control and therefore less dependence on market price fluctuations (feed purchase costs).

Pasture as a percentage of total feed consumed is high therefore your system is considered low input.

Total Feed Fed tDM/cows 4.80

This is the total of all feed consumed including supplementary and home-grown feeds, and includes some allowance for wastage during storage and feeding. Total feed consumed per cow on average provides an accurate assessment of the feed available to the cow for maintenance and milk production. The more feed a cow consumes the higher the proportion of feed that goes to milk production relative to maintenance, assuming no other factors are limiting such as feed conversion efficiency.

Your cows are consuming an average level of feed per cow so you would expect average per cow milk production.

Grazed Feed Fed tDM/cows 3.84

Home grown feed consumed is largely pasture, but may include grazed crops.

Your herd is consuming a moderate level of home-grown feed per cow. This may indicate a need to review your bought in feed costs to determine whether this is adding risk to your business by lifting your overall cost of production. Reducing stocking rate may help to increase home grown feed per cow as a percentage of total feed and reduce overall costs.

Homegrown Feed - Direct Costs 80

Your home grown feed costs are high and greater than the district average. Review as a matter of urgency.

Grazed Feed - Direct Costs 46

Your grazed feed costs are reasonable, being in line with the district average.

Conserved Feed - Direct Costs 288

Your conserved feed costs are high and greater than the district average. Review as a matter of urgency.

Fodder Purchased - Direct Costs 500

Your purchased fodder feed costs are high and greater than the district average. Review as a matter of urgency.

Concentrate Purchased - Direct Costs 399

Your purchased concentrate feed costs are high and greater than the district average. Review as a matter of urgency.

2.9 Global Dairy Reports

EXAMPLE

NZ - XX - 122 Farm comparison	History	History	History	Region	New Zealand
	11/12	12/13	18/19	All data - 18/19	Top 10% ROC - 18/19
Physical Parameters					
Usable Area ha	140	140	155	139	288
Milking Area ha	120	120	120	120	244
Cows Milked cows	345	352	360	348	807
Annual Stocking Rate - Milking Area cows / ha	2.9	2.9	3.0	2.9	3.3
Milk Production - Litres litre	1,280,130	1,225,419	1,382,076	1,552,824	4,525,606
Milk Production - Kg Milksolids kg MS	119,711	114,867	131,301	134,185	400,347
Homegrown Feed - Milking Area tDM / ha	12.3	10.9	11.7	11.7	12.4
Homegrown Feed - Usable Area tDM / ha	12.3	10.9	11.9	11.4	12.6
Proportion of Homegrown Feed %	96	93	96	84	76
Proportion of Pasture %	87	84	84	75	63
Cows per Labour Unit cows / FTE	150	153	160	142	177
Cash					
Milk Income \$ / kg MS	6.07	5.82	6.39	6.35	6.67
Total Farm Cash Income \$ / kg MS	6.67	6.47	6.86	6.89	6.86
Total Farm Working Expenses \$ / kg MS	4.15	4.11	4.52	3.74	3.87
Farm Operating Cash Surplus \$ / kg MS	2.52	2.36	2.34	3.15	2.99
Finance Costs (Interest & Lease) \$ / kg MS	1.42	1.27	1.37	1.80	1.03
Net Farm Cash Flow Before Tax and Drawings \$ / kg MS	1.11	1.08	0.97	1.35	1.96
Profit					
Total Farm Gross Income \$ / kg MS	6.81	6.47	6.98	6.86	7.05
Total Variable Costs \$ / kg MS	1.62	1.94	2.08	2.12	2.63
Total Overhead Costs \$ / kg MS	2.71	2.86	2.87	2.58	1.85
Total Costs \$ / kg MS	4.33	4.80	4.95	4.70	4.48
Earnings Before Interest and Tax (EBIT) \$ / kg MS	2.47	1.67	2.02	2.16	2.57
Cost of Production (includes inventory changes) \$ / kg MS	4.20	4.85	4.84	4.82	4.52
Operating Profit Margin %	36	26	29	31	36
Finance Costs (Interest & Lease) \$ / kg MS	1.42	1.27	1.37	1.80	1.03
Net Farm Income \$ / kg MS	1.06	0.40	0.65	0.36	1.54
Wealth					
Return on Capital (ROC) %	4.3	2.7	2.2	3.1	6.3
Equity as % of Owned Assets %	62.2	64.2	74.8	40.8	48.9
Return on Equity (ROE) %	2.9	1.0	0.9	12.5	8.1
Change in Net Worth \$ / kg MS	2.088	3.077	4.743	-1.181	1.237



NZ - XX - 122 Farm comparison	History	History	History	Region	New Zealand
	11/12	12/13	18/19	All data - 18/19	Top 10% ROC - 18/19
Farm Area					
Usable Area ha	140	140	155	139	288
Milking Area ha	120	120	120	120	244
Leased Area ha	0	0	0	43	17
Irrigated Area ha	0	0	0	0	113
Livestock					
Cows Milked cows	345	352	360	348	807
Annual Stocking Rate - milking area cows / ha	2.9	2.9	3.0	2.9	3.3
Annual Stocking Rate - usable area cows / ha	2.5	2.5	2.3	2.5	2.8
Cow Liveweight kg	410	410	430	470	490
Cow Liveweight per Milking Hectare kg / ha	1,179	1,203	1,290	1,345	1,593
Milk Production					
Litres litre	1,280,130	1,225,419	1,382,076	1,552,824	4,525,606
Fat kg	68,927	66,124	75,363	74,721	224,177
Protein kg	50,784	48,743	55,937	59,464	176,170
Milksolids kg MS	119,711	114,867	131,301	134,185	400,347
Fat % % mv	5.38	5.40	5.45	4.95	5.17
Protein % % mv	3.97	3.98	4.05	3.89	3.99
Milksolids per Milking Hectare kg MS / ha	998	957	1,094	1,086	1,579
Milksolids per Cow kg MS / cow	347	326	365	377	477
Litres per Cow litre / cow	3,711	3,481	3,839	4,313	5,273
Milksolids as % of Cow Liveweight %	83	78	83	78	95
Homegrown Feed Production					
Grazed Feed per Milking Hectare tDM / ha	10.9	10.2	11.5	10.4	11.6
Conserved Feed per Milking Hectare tDM / ha	1.4	0.6	0.1	1.2	0.8
Total Homegrown Feed per Milking Hectare tDM / ha	12.3	10.9	11.7	11.7	12.4
Grazed Feed per Support Hectare tDM / ha	9.5	9.4	5.7	4.7	3.2
Conserved Feed per Support Hectare tDM / ha	3.3	1.5	6.9	4.6	10.7
Total Homegrown Feed per Support Hectare tDM / ha	12.8	10.9	12.6	9.3	13.9
Grazed Feed per Usable Hectare tDM / ha	10.7	10.1	10.2	9.9	10.6
Conserved Feed per Usable Hectare tDM / ha	1.6	0.7	1.7	1.6	2.0

Total Homegrown Feed per Usable Hectare tDM / ha	12.3	10.9	11.9	11.4	12.6
Pasture and Feed Consumption (Milking Area)					
Grazed Feed Fed tDM / cows	3.79	3.49	3.84	3.70	3.60
Homegrown Fodder Fed tDM / cows	0.44	0.44	0.62	0.53	0.81
Purchased Fodder Fed tDM / cows	0.00	0.03	0.01	0.04	0.05
Homegrown Concentrate Fed tDM / cows	0.00	0.00	0.00	0.00	0.00
Purchased Concentrate Fed tDM / cows	0.26	0.26	0.32	0.57	1.09
Homegrown Other Feed Fed tDM / cows	0.00	0.00	0.00	0.00	0.00
Purchased Other Feed Fed tDM / cows	0.00	0.00	0.00	0.00	0.03
Total Feed Fed tDM / cows	4.49	4.22	4.80	4.84	5.58
Feed Costs					
Homegrown Feed - Direct Costs \$ / tDM	48	34	80	62	96
Grazed Feed - Direct Costs \$ / tDM	38	30	46	37	64
Conserved Feed - Direct Costs \$ / tDM	108	90	288	232	251
Concentrate Purchased - Direct Costs \$ / tDM	468	533	443	400	391
Fodder Purchased - Direct Costs \$ / tn	-	376	500	342	307
Fertiliser Application					
Nitrogen Applied - milking area kg / ha	66.0	77.0	61.0	101.8	166.7
Nitrogen Applied - usable area kg / ha	56.6	66.0	47.4	99.6	148.4
Labour and Management					
Employed Labour FTE	1.9	1.9	1.9	1.8	4.0
Imputed Labour FTE	0.5	0.5	0.4	1.0	0.7
Cows Milked per Labour Unit cows / FTE	150	153	160	142	177
Milksolids per Labour Unit kg MS / FTE	52,003	49,899	58,304	51,916	83,423
Rainfall and Irrigation					
Area of Farm Irrigated ha	0	0	0	0	113
Annual Water Use ML / ha	-	-	-	-	5.5
Annual Rainfall mm	1,375	1,375	987	1,406	1,326
Total Water Use Efficiency tDM / ha / 100 mm	0.90	0.79	1.20	0.89	0.96

NZ - XX - 122 Farm comparison	History	History	History	Region	
	11/12	12/13	18/19	All data - 18/19	New Zealand Top 10% ROC - 18/19
Farm Area					
Usable Area ha	140	140	155	139	288
Milking Area ha	120	120	120	120	244
Support Area ha	20	20	35	28	44
Leased Area ha	0	0	0	43	17
Milking Area Irrigated ha	0	0	0	0	101
Support Area Irrigated ha	0	0	0	0	15
Irrigated Area ha	0	0	0	0	113
Livestock					
Cows Milked cows	345	352	360	348	807
Rising 2 Year Heifers heifers	76	74	89	67	142
Rising 1 Year Hefers heifers	76	68	89	78	189
Bulls bulls	5	6	6	7	16
Other Livestock head	9	6	0	0	0
Cow Liveweight kg	410	410	430	470	490
Milk Production					
Litres litre	1,280,130	1,225,419	1,382,076	1,552,824	4,525,606
Fat kg	68,927	66,124	75,363	74,721	224,177
Protein kg	50,784	48,743	55,937	59,464	176,170
Milksolids kg MS	119,711	114,867	131,301	134,185	400,347
Fat % % mv	5.38	5.40	5.45	4.95	5.17
Protein % % mv	3.97	3.98	4.05	3.89	3.99
Homegrown Feed Production					
Milking Area					
Grazed Feed tDM	1,308	1,230	1,383	1,248	2,948
Conserved Feed tDM	164	72	18	160	154
Total Homegrown Feed tDM / ha / ha	0	0	0	0	0
Support Area					
Grazed Feed tDM	189	187	197	94	193
Conserved Feed tDM	66	31	238	89	404
Total Homegrown Feed tDM / ha / ha	1	1	0	0	1
Total Usable Area					
Grazed Feed tDM	1,497	1,417	1,581	1,342	3,141
Conserved Feed tDM	230	103	256	249	558
Total Homegrown Feed tn	1,727	1,521	1,837	1,591	3,698
Feed Purchases					
Concentrates tn	114	99	128	253	1,024
Fodder tDM	0	13	5	45	175
Other Feed tn	0	0	0	0	37
Total Purchases tDM	262	296	349	475	1,668
Grazed and Supplementary Feed					
Milking Area					
Grazed Feed Fed tDM	1,308	1,230	1,383	1,248	2,948
Homegrown Fodder Fed tDM	152	156	224	210	613
Purchased Fodder Fed tDM	0	9	5	16	49
Homegrown Concentrate Fed tDM	0	0	0	0	0
Purchased Concentrate Fed tDM	90	91	115	228	905
Homegrown Other Feed Fed tDM	0	0	0	0	0
Purchased Other Feed Fed tDM	0	0	0	0	31

Total Feed Fed tDM	1,550	1,486	1,728	1,702	4,546
Support Area					
Grazed Feed tDM	189	187	197	94	193
Total Fodder Fed tDM	20	36	5	20	70
Concentrates Fed tDM	0	4	0	0	0
Other Feed Fed tDM	0	0	0	0	0
Total Feed Fed tDM	209	227	202	114	263
Total Usable Area					
Grazed Feed tDM	1,497	1,417	1,581	1,342	3,141
Total Fodder Fed tDM	171	201	234	247	732
Concentrates Fed tDM	90	95	115	228	905
Other Feed Fed tDM	0	0	0	0	31
Total Feed Fed tDM	262	296	349	475	1,668
Feed Stocks					
Opening Stock tDM	62	130	131	115	534
Closing Stock tDM	130	38	158	159	496
Feed Costs					
Grazed Feed - Direct Costs \$ / tDM	38	30	46	37	64
Conserved Feed - Direct Costs \$ / tDM	108	90	288	232	251
Homegrown Feed - Direct Costs \$ / tDM	48	34	80	62	96
Concentrate Purchased \$ / tn	411	469	399	357	352
Fodder Purchased \$ / tn	-	376	500	342	307
Other Feed Purchased \$ / tn	-	-	-	-	84
Total Feed Purchased \$ / tDM	468	512	445	398	366
Fertiliser Application					
Milking Area					
Nitrogen Applied kg / ha	66.0	77.0	61.0	101.8	166.7
Phosphorous Applied kg / ha	0.0	0.0	0.0	2.0	17.3
Potassium Applied kg / ha	0.0	0.0	0.0	0.0	2.3
Sulphur Applied kg / ha	0.0	0.0	0.0	0.0	29.3
Support Area					
Nitrogen Applied kg / ha	-	-	-	143.0	63.3
Phosphorous Applied kg / ha	-	-	-	-	-
Potassium Applied kg / ha	-	-	-	-	-
Sulphur Applied kg / ha	-	-	-	-	-
Total Usable Area					
Nitrogen Applied kg / ha	56.6	66.0	47.4	99.6	148.4
Phosphorous Applied kg / ha	0.0	0.0	0.0	0.7	11.5
Potassium Applied kg / ha	0.0	0.0	0.0	0.0	1.5
Sulphur Applied kg / ha	0.0	0.0	0.0	0.0	19.5
Labour and Management					
Employed Labour FTE	1.9	1.9	1.9	1.8	4.0
Imputed Labour FTE	0.5	0.5	0.4	1.0	0.7
Total Labour FTE	2.3	2.3	2.3	2.6	4.7
Rainfall and Irrigation					
Area of Farm Irrigated ha	0	0	0	0	113
Annual Water Use ML	0	0	0	0	626
Annual Rainfall mm	1,375	1,375	987	1,406	1,326
Annual Average Rainfall mm	0	0	1,131	566	625

NZ - XX - 122 Farm comparison	History	History	History	Region	New Zealand
	11/12	12/13	18/19	All data - 18/19	Top 10% ROC - 18/19
Farm Cash Income					
Milk Income (net) \$ / kg MS	6.07	5.82	6.39	6.35	6.67
Milk Dividends/Quota \$ / kg MS	0.30	0.36	0.00	0.03	0.00
Livestock sales - purchases \$ / kg MS	0.28	0.26	0.46	0.50	0.18
Feed & Water Sales \$ / kg MS	0.00	0.00	0.00	0.00	0.00
Other Farm Cash Income \$ / kg MS	0.02	0.03	0.01	0.02	0.01
Total Farm Cash Income \$ / kg MS	6.67	6.47	6.86	6.89	6.86
Variable Costs					
AI & Herd Test \$ / kg MS	0.13	0.17	0.15	0.15	0.12
Animal Health \$ / kg MS	0.23	0.29	0.24	0.22	0.24
Calf Rearing \$ / kg MS	0.00	0.00	0.05	0.07	0.04
Total Herd Costs \$ / kg MS	0.36	0.47	0.44	0.44	0.40
Shed Power \$ / kg MS	0.16	0.17	0.17	0.14	0.09
Dairy Supplies \$ / kg MS	0.06	0.08	0.06	0.05	0.03
Total Shed Costs \$ / kg MS	0.22	0.25	0.23	0.18	0.12
Concentrates Purchased \$ / kg MS	0.39	0.40	0.39	0.53	0.86
Fodder Purchased \$ / kg MS	0.00	0.04	0.02	0.08	0.11
Other Feed Purchased \$ / kg MS	0.00	0.00	0.00	0.00	0.00
Agistment/Grazing \$ / kg MS	0.00	0.08	0.00	0.22	0.25
Hay & Silage Making \$ / kg MS	0.13	0.05	0.47	0.29	0.29
Crop Costs \$ / kg MS	0.00	0.00	0.00	0.00	0.00
Nitrogen \$ / kg MS	0.11	0.14	0.08	0.14	0.15
All Other Fertiliser \$ / kg MS	0.24	0.13	0.32	0.19	0.17
Irrigation \$ / kg MS	0.00	0.00	0.00	0.00	0.09
Pasture Improvement \$ / kg MS	0.20	0.13	0.20	0.09	0.16
Other Homegrown Feed Costs \$ / kg MS	-	-	-	-	-
Total Feed Costs \$ / kg MS	1.08	0.98	1.52	1.58	2.14
Fuel and Oil \$ / kg MS	0.00	0.00	0.03	0.03	0.04
Total Variable Costs \$ / kg MS	1.65	1.69	2.20	2.20	2.66
Cash Overheads					
Employed Labour Cost \$ / kg MS	1.39	1.27	1.01	0.67	0.57
Farm Insurance \$ / kg MS	0.10	0.10	0.14	0.09	0.05
Motor Vehicle Expenses \$ / kg MS	0.12	0.30	0.13	0.12	0.09
Repairs & Maintenance \$ / kg MS	0.59	0.45	0.58	0.29	0.27
Other Overhead Costs \$ / kg MS	0.29	0.30	0.46	0.37	0.22
Total Cash Overhead Costs \$ / kg MS	2.49	2.42	2.32	1.54	1.21
TOTAL FARM WORKING EXPENSES \$ / kg MS	4.15	4.11	4.52	3.74	3.87
FARM OPERATING CASH SURPLUS \$ / kg MS	2.52	2.36	2.34	3.15	2.99
Finance Costs					
Interest Costs \$ / kg MS	1.42	1.27	1.37	1.40	1.00
Lease Costs \$ / kg MS	0.00	0.00	0.00	0.40	0.03
Total Finance Costs \$ / kg MS	1.42	1.27	1.37	1.80	1.03
Capital and Principal Costs					
Other Capital Purchases \$ / kg MS	0.00	0.00	9.55	3.56	1.43
Loan Principal Repayments \$ / kg MS	0.00	0.20	-3.68	-2.42	0.24
Total Capital and Principal Costs \$ / kg MS	0.00	0.20	5.87	1.15	1.67
NET FARM CASH FLOW BEFORE TAX AND DRAWINGS \$ / kg MS	1.11	0.88	-4.91	0.20	0.29
Other Cash Items					
Net Non Farm Cash Income \$ / kg MS	0.00	0.00	0.00	0.00	0.00
Drawings \$ / kg MS	0.00	0.00	0.43	0.64	0.31
NET CASH FLOW BEFORE TAX \$ / kg MS	1.11	0.88	-5.33	-0.44	-0.02

NZ - XX - 122 Farm comparison	History	History	History	Region	New Zealand
	11/12	12/13	18/19	All data - 18/19	Top 10% ROC - 18/19
Income					
Milk Income (net) \$ / kg MS	6.07	5.82	6.39	6.35	6.67
Milk Dividends/Quota \$ / kg MS	0.30	0.36	0.00	0.03	0.00
Livestock Trading Profit \$ / kg MS	0.41	0.27	0.58	0.46	0.37
Feed & Water Sales \$ / kg MS	0.00	0.00	0.00	0.00	0.00
Other Farm Income \$ / kg MS	0.02	0.03	0.01	0.02	0.01
Gross Farm Income \$ / kg MS	6.81	6.47	6.98	6.86	7.05
Variable Costs					
AI & Herd Test \$ / kg MS	0.13	0.17	0.15	0.15	0.12
Animal Health \$ / kg MS	0.23	0.29	0.24	0.22	0.24
Calf Rearing \$ / kg MS	0.00	0.00	0.05	0.07	0.04
Herd Costs \$ / kg MS	0.36	0.47	0.44	0.44	0.40
Shed Power \$ / kg MS	0.16	0.17	0.17	0.14	0.09
Dairy Supplies \$ / kg MS	0.06	0.08	0.06	0.05	0.03
Shed Costs \$ / kg MS	0.22	0.25	0.23	0.18	0.12
Concentrates Purchased \$ / kg MS	0.39	0.40	0.39	0.53	0.86
Fodder purchased \$ / kg MS	0.00	0.04	0.02	0.08	0.11
Other feed purchased \$ / kg MS	0.00	0.00	0.00	0.00	0.00
Hay & Silage Making \$ / kg MS	0.13	0.05	0.47	0.29	0.29
Agistment/Grazing \$ / kg MS	0.00	0.08	0.00	0.22	0.25
Support block cost \$ / kg MS	0.03	0.06	0.12	0.05	0.06
Crop Costs \$ / kg MS	0.00	0.00	0.00	0.00	0.00
Nitrogen \$ / kg MS	0.12	0.14	0.08	0.14	0.15
All Other Fertiliser \$ / kg MS	0.24	0.23	0.23	0.15	0.15
Irrigation \$ / kg MS	0.00	0.00	0.00	0.00	0.09
Pasture improvement \$ / kg MS	0.20	0.13	0.17	0.09	0.11
Other homegrown feed costs \$ / kg MS	0.00	0.00	0.00	0.00	0.00
Feed Inventory Change \$ / kg MS	-0.07	0.09	-0.10	-0.07	0.01
Water Inventory Change \$ / kg MS	0.00	0.00	0.00	0.00	0.00
Feed Costs \$ / kg MS	1.04	1.23	1.37	1.47	2.07
Fuel and oil \$ / kg MS	0.00	0.00	0.03	0.03	0.04
Total Variable Costs \$ / kg MS	1.62	1.94	2.08	2.12	2.63
GROSS MARGIN \$ / kg MS	5.18	4.53	4.90	4.74	4.42
Overhead Costs					
Employed Labour Cost \$ / kg MS	1.33	1.27	1.01	0.67	0.57
Farm Insurance \$ / kg MS	0.10	0.10	0.14	0.09	0.05
Repairs & Maintenance \$ / kg MS	0.30	0.35	0.40	0.26	0.23
Motor Vehicles \$ / kg MS	0.18	0.24	0.13	0.12	0.08
Other Overhead Costs \$ / kg MS	0.29	0.30	0.46	0.37	0.22
Imputed Labour Cost \$ / kg MS	0.33	0.34	0.24	0.65	0.29
Total depreciation \$ / kg MS	0.19	0.26	0.50	0.42	0.40
Total Overhead Costs \$ / kg MS	2.71	2.86	2.87	2.58	1.85
TOTAL OPERATING COSTS (Variable & Overhead) \$ / kg MS	4.33	4.80	4.95	4.70	4.48
EARNINGS BEFORE INTEREST & TAX (EBIT) \$ / kg MS	2.47	1.67	2.02	2.16	2.57
COP - EXCLUDING INVENTORY CHANGE \$ / kg MS	4.41	4.71	5.06	4.77	4.48
Livestock Inventory Change less Purchases \$ / kg MS	-0.13	0.05	-0.12	0.12	0.04
Feed & Water Inventory Change \$ / kg MS	-0.07	0.09	-0.10	-0.07	0.01
COP - INCLUDING INVENTORY CHANGE \$ / kg MS	4.20	4.85	4.84	4.82	4.52
Finance Costs					
Interest Costs \$ / kg MS	1.42	1.27	1.37	1.40	1.00
Lease Costs \$ / kg MS	0.00	0.00	0.00	0.40	0.03
Total Finance Costs \$ / kg MS	1.42	1.27	1.37	1.80	1.03
NET FARM INCOME \$ / kg MS	1.06	0.40	0.65	0.36	1.54

NZ - XX - 122 Farm comparison	History	History	History	Region	New Zealand
	11/12	12/13	18/19	All data - 18/19	Top 10% ROC - 18/19
Income					
Milk Income (net) \$ / kg MS	6.07	5.82	6.39	6.35	6.67
Milk Dividends/Quota \$ / kg MS	0.30	0.36	0.00	0.03	0.00
Livestock Trading Profit \$ / kg MS	0.41	0.27	0.58	0.46	0.37
Feed & Water Sales \$ / kg MS	0.00	0.00	0.00	0.00	0.00
Other Farm Income \$ / kg MS	0.02	0.03	0.01	0.02	0.01
Gross Farm Income \$ / kg MS	6.81	6.47	6.98	6.86	7.05
Variable Costs					
Herd Costs \$ / kg MS	0.36	0.47	0.44	0.44	0.40
Shed Costs \$ / kg MS	0.22	0.25	0.23	0.18	0.12
Homegrown Feed \$ / kg MS	0.69	0.55	0.95	0.66	0.77
Purchased Feed \$ / kg MS	0.42	0.59	0.53	0.88	1.29
Feed Inventory Change \$ / kg MS	-0.07	0.09	-0.10	-0.07	0.01
Water Inventory Change \$ / kg MS	0.00	0.00	0.00	0.00	0.00
Feed Costs \$ / kg MS	1.04	1.23	1.37	1.47	2.07
Other Variable Costs \$ / kg MS	0.00	0.00	0.03	0.03	0.04
Total Variable Costs \$ / kg MS	1.62	1.94	2.08	2.12	2.63
GROSS MARGIN \$ / kg MS	5.18	4.53	4.90	4.74	4.42
Overhead Costs					
Employed Labour Cost \$ / kg MS	1.33	1.27	1.01	0.67	0.57
Farm Insurance \$ / kg MS	0.10	0.10	0.14	0.09	0.05
Repairs & Maintenance \$ / kg MS	0.30	0.35	0.40	0.26	0.23
Motor Vehicles \$ / kg MS	0.18	0.24	0.13	0.12	0.08
Other Overhead Costs \$ / kg MS	0.29	0.30	0.46	0.37	0.22
Imputed Labour Cost \$ / kg MS	0.33	0.34	0.24	0.65	0.29
Total depreciation \$ / kg MS	0.19	0.26	0.50	0.42	0.40
Total Overhead Costs \$ / kg MS	2.71	2.86	2.87	2.58	1.85
TOTAL OPERATING COSTS (Variable & Overhead) \$ / kg MS	4.33	4.80	4.95	4.70	4.48
EARNINGS BEFORE INTEREST & TAX (EBIT) \$ / kg MS	2.47	1.67	2.02	2.16	2.57
COP - EXCLUDING INVENTORY CHANGE \$ / kg MS	4.41	4.71	5.06	4.77	4.48
Livestock Inventory Change less Purchases \$ / kg MS	-0.13	0.05	-0.12	0.12	0.04
Feed & Water Inventory Change \$ / kg MS	-0.07	0.09	-0.10	-0.07	0.01
COP - INCLUDING INVENTORY CHANGE \$ / kg MS	4.20	4.85	4.84	4.82	4.52
Finance Costs					
Interest Costs \$ / kg MS	1.42	1.27	1.37	1.40	1.00
Lease Costs \$ / kg MS	0.00	0.00	0.00	0.40	0.03
Total Finance Costs \$ / kg MS	1.42	1.27	1.37	1.80	1.03
NET FARM INCOME \$ / kg MS	1.06	0.40	0.65	0.36	1.54

NZ - XX - 122 Farm comparison	History 11/12	History 12/13	History 18/19	Region All data - 18/19	New Zealand Top 10% ROC - 18/19
Assets					
Feed Inventory \$ / kg MS	0.07	0.07	0.03	0.14	0.30
Carryover Water \$ / kg MS	0.00	0.00	0.00	0.00	0.00
Other Current Assets \$ / kg MS	0.86	1.01	1.31	0.56	0.72
Farm Management Deposits \$ / kg MS	0.00	0.00	0.00	0.07	0.00
Total Current Assets \$ / kg MS	0.93	1.07	1.35	0.77	1.02
Land & Buildings \$ / kg MS	47.53	49.54	80.53	43.00	31.71
Water \$ / kg MS	-	-	-	-	0.33
Livestock \$ / kg MS	4.44	4.87	4.65	4.79	3.96
Plant & Equipment \$ / kg MS	0.98	1.21	0.82	1.03	0.81
Factory Shares \$ / kg MS	4.23	6.09	4.83	4.02	2.84
Other Farm Assets \$ / kg MS	0.04	0.05	0.14	0.15	0.09
Total Non-Current Assets \$ / kg MS	57.22	61.76	90.95	53.49	39.45
Total Farm Assets Owned \$ / kg MS	58.15	62.83	92.30	54.26	40.47
RETURN ON ASSETS %	4.3	2.7	2.2	3.8	6.3
Leased Assets \$ / kg MS	0.00	0.00	0.00	16.89	0.62
Total Assets Managed \$ / kg MS	58.15	62.83	92.30	71.14	41.09
RETURN ON CAPITAL (ROC) %	4.3	2.7	2.2	3.1	6.3
Liabilities					
Total Current Liabilities \$ / kg MS	1.07	0.81	0.66	0.70	0.75
Equipment Liabilities \$ / kg MS	19.62	20.35	0.00	3.50	4.53
Long Term Liabilities \$ / kg MS	1.27	1.33	22.59	23.00	15.85
Total Non-Current Liabilities \$ / kg MS	20.90	21.68	22.59	26.51	20.38
Total Liabilities \$ / kg MS	21.96	22.49	23.25	27.21	21.12
Equity					
Total Equity \$ / kg MS	36.19	40.34	69.05	27.05	19.34
EQUITY AS % OF OWNED ASSETS %	62	64	75	41	49
RETURN ON EQUITY %	2.9	1.0	0.9	12.5	8.1
CHANGE IN NET WORTH \$ / kg MS	2.09	3.08	4.74	-1.18	1.24

NZ - XX - 122 Farm comparison	History 11/12	History 12/13	History 18/19	Region All data - 18/19	New Zealand Top 10% ROC - 18/19
Physical Parameters					
Usable Area ha	140	140	155	139	288
Milking Area ha	120	120	120	120	244
Cows Milked cows	345	352	360	348	807
Annual Stocking Rate - Milking Area cows / ha	2.9	2.9	3.0	2.9	3.3
Milk Production - Litres litre	1,280,130	1,225,419	1,382,076	1,552,824	4,525,606
Milk Production - Kg Milksolids kg MS	119,711	114,867	131,301	134,185	400,347
Homegrown Feed - Milking Area tDM / ha	12.3	10.9	11.7	11.7	12.4
Homegrown Feed - Usable Area tDM / ha	12.3	10.9	11.9	11.4	12.6
Proportion of Homegrown Feed %	96	93	96	84	76
Proportion of Pasture %	87	84	84	75	63
Cows per Labour Unit cows / FTE	150	153	160	142	177
Cash					
Milk Income \$ / ha	6,055	5,571	6,992	6,889	10,482
Total Farm Cash Income \$ / ha	6,658	6,192	7,503	7,472	10,795
Total Farm Working Expenses \$ / ha	4,139	3,937	4,944	4,272	6,357
Farm Operating Cash Surplus \$ / ha	2,518	2,255	2,559	3,200	4,439
Finance Costs (Interest & Lease) \$ / ha	1,412	1,220	1,500	1,803	1,529
Net Farm Cash Flow Before Tax and Drawings \$ / ha	1,107	1,035	1,059	1,397	2,910
Profit					
Total Farm Gross Income \$ / ha	6,789	6,196	7,633	7,449	11,095
Total Variable Costs \$ / ha	1,618	1,859	2,275	2,422	4,269
Total Overhead Costs \$ / ha	2,704	2,734	3,145	2,779	2,890
Total Costs \$ / ha	4,321	4,592	5,420	5,201	7,161
Earnings Before Interest and Tax (EBIT) \$ / ha	2,468	1,603	2,212	2,248	3,934
Cost of Production (includes inventory changes) \$ / ha	4,192	4,645	5,290	5,316	7,213
Operating Profit Margin %	36	26	29	31	36
Finance Costs (Interest & Lease) \$ / ha	1,412	1,220	1,500	1,803	1,529
Net Farm Income \$ / ha	1,056	383	712	445	2,405
Wealth					
Return on Capital (ROC) %	4.3	2.7	2.2	3.1	6.3
Equity as % of Owned Assets %	62.2	64.2	74.8	40.8	48.9
Return on Equity (ROE) %	2.9	1.0	0.9	12.5	8.1
Change in Net Worth \$ / ha	2,082.5	2,945.0	5,189.7	-1,235.6	1,872.3

NZ - XX - 122 Farm comparison	History	History	History	Region	New Zealand
	11/12	12/13	18/19	All data - 18/19	Top 10% ROC - 18/19
Income					
Milk Income (net) \$ / ha	6,055	5,571	6,992	6,889	10,482
Milk Dividends/Quota \$ / ha	300	341	0	25	0
Livestock Trading Profit \$ / ha	409	254	632	510	590
Feed & Water Sales \$ / ha	0	0	0	0	0
Other Farm Income \$ / ha	24	30	9	25	23
Gross Farm Income \$ / ha	6,789	6,196	7,633	7,449	11,095
Variable Costs					
AI & Herd Test \$ / ha	128	166	162	168	182
Animal Health \$ / ha	231	282	263	264	372
Calf Rearing \$ / ha	0	0	58	70	81
Herd Costs \$ / ha	359	448	483	502	635
Shed Power \$ / ha	155	162	189	143	130
Dairy Supplies \$ / ha	63	73	66	54	44
Shed Costs \$ / ha	217	235	255	197	173
Concentrates Purchased \$ / ha	390	385	425	650	1,499
Fodder purchased \$ / ha	0	42	21	108	179
Other feed purchased \$ / ha	0	0	0	0	7
Hay & Silage Making \$ / ha	134	52	517	358	456
Agistment/Grazing \$ / ha	0	80	0	208	410
Support block cost \$ / ha	33	54	134	59	106
Crop Costs \$ / ha	0	0	0	0	0
Nitrogen \$ / ha	115	133	83	149	235
All Other Fertiliser \$ / ha	240	221	246	154	218
Irrigation \$ / ha	0	0	0	0	141
Pasture improvement \$ / ha	202	122	189	92	153
Other homegrown feed costs \$ / ha	0	0	0	0	0
Feed Inventory Change \$ / ha	-73	87	-111	-81	4
Water Inventory Change \$ / ha	0	0	0	0	0
Feed Costs \$ / ha	1,041	1,176	1,504	1,698	3,407
Fuel and oil \$ / ha	0	0	34	24	56
Total Variable Costs \$ / ha	1,618	1,859	2,275	2,422	4,269
GROSS MARGIN \$ / ha	5,172	4,337	5,357	5,027	6,825
Overhead Costs					
Employed Labour Cost \$ / ha	1,324	1,213	1,105	797	1,032
Farm Insurance \$ / ha	100	93	155	98	79
Repairs & Maintenance \$ / ha	298	333	436	288	381
Motor Vehicles \$ / ha	179	227	142	136	135
Other Overhead Costs \$ / ha	290	291	503	401	331
Imputed Labour Cost \$ / ha	328	328	262	607	324
Total depreciation \$ / ha	185	249	542	452	608
Total Overhead Costs \$ / ha	2,704	2,734	3,145	2,779	2,890
TOTAL OPERATING COSTS (Variable & Overhead) \$ / ha	4,321	4,592	5,420	5,201	7,161
EARNINGS BEFORE INTEREST & TAX (EBIT) \$ / ha	2,468	1,603	2,212	2,248	3,934
COP - EXCLUDING INVENTORY CHANGE \$ / ha	4,395	4,506	5,532	5,282	7,157
Livestock Inventory Change less Purchases \$ / ha	-129	53	-130	114	53
Feed & Water Inventory Change \$ / ha	-73	87	-111	-81	4
COP - INCLUDING INVENTORY CHANGE \$ / ha	4,192	4,645	5,290	5,316	7,213
Finance Costs					
Interest Costs \$ / ha	1,412	1,220	1,500	1,434	1,482
Lease Costs \$ / ha	0	0	0	368	47
Total Finance Costs \$ / ha	1,412	1,220	1,500	1,803	1,529
NET FARM INCOME \$ / ha	1,056	383	712	445	2,405

NZ - XX - 122 Farm comparison	History	History	History	Region	New Zealand
	11/12	12/13	18/19	All data - 18/19	Top 10% ROC - 18/19
Physical Parameters					
Usable Area ha	140	140	155	139	288
Milking Area ha	120	120	120	120	244
Cows Milked cows	345	352	360	348	807
Annual Stocking Rate - Milking Area cows / ha	2.9	2.9	3.0	2.9	3.3
Milk Production - Litres litre	1,280,130	1,225,419	1,382,076	1,552,824	4,525,606
Milk Production - Kg Milksolids kg MS	119,711	114,867	131,301	134,185	400,347
Homegrown Feed - Milking Area tDM / ha	12.3	10.9	11.7	11.7	12.4
Homegrown Feed - Usable Area tDM / ha	12.3	10.9	11.9	11.4	12.6
Proportion of Homegrown Feed %	96	93	96	84	76
Proportion of Pasture %	87	84	84	75	63
Cows per Labour Unit cows / FTE	150	153	160	142	177
Cash					
Milk Income \$ / cows	2,106	1,899	2,331	2,390	3,173
Total Farm Cash Income \$ / cows	2,316	2,111	2,501	2,593	3,274
Total Farm Working Expenses \$ / cows	1,440	1,342	1,648	1,449	1,887
Farm Operating Cash Surplus \$ / cows	876	769	853	1,144	1,388
Finance Costs (Interest & Lease) \$ / cows	491	416	500	639	484
Net Farm Cash Flow Before Tax and Drawings \$ / cows	385	353	353	505	904
Profit					
Total Farm Gross Income \$ / cows	2,362	2,112	2,544	2,583	3,362
Total Variable Costs \$ / cows	563	634	758	823	1,274
Total Overhead Costs \$ / cows	940	932	1,048	969	878
Total Costs \$ / cows	1,503	1,566	1,807	1,792	2,153
Earnings Before Interest and Tax (EBIT) \$ / cows	858	547	737	791	1,210
Cost of Production (includes inventory changes) \$ / cows	1,458	1,583	1,763	1,833	2,167
Operating Profit Margin %	36	26	29	31	36
Finance Costs (Interest & Lease) \$ / cows	491	416	500	639	484
Net Farm Income \$ / cows	367	131	237	152	726
Wealth					
Return on Capital (ROC) %	4.3	2.7	2.2	3.1	6.3
Equity as % of Owned Assets %	62.2	64.2	74.8	40.8	48.9
Return on Equity (ROE) %	2.9	1.0	0.9	12.5	8.1
Change in Net Worth \$ / cows	724.4	1,004.0	1,729.9	-492.5	537.6

NZ - XX - 122 Farm comparison	History	History	History	Region	New Zealand
	11/12	12/13	18/19	All data - 18/19	Top 10% ROC - 18/19
Income					
Milk Income (net) \$ / cows	2,106	1,899	2,331	2,390	3,173
Milk Dividends/Quota \$ / cows	104	116	0	9	0
Livestock Trading Profit \$ / cows	142	87	211	175	183
Feed & Water Sales \$ / cows	0	0	0	0	0
Other Farm Income \$ / cows	8	10	3	9	6
Gross Farm Income \$ / cows	2,362	2,112	2,544	2,583	3,362
Variable Costs					
AI & Herd Test \$ / cows	44	57	54	57	56
Animal Health \$ / cows	80	96	88	89	113
Calf Rearing \$ / cows	0	0	19	24	23
Herd Costs \$ / cows	125	153	161	170	192
Shed Power \$ / cows	54	55	63	50	41
Dairy Supplies \$ / cows	22	25	22	18	14
Shed Costs \$ / cows	76	80	85	68	55
Concentrates Purchased \$ / cows	136	131	142	217	434
Fodder purchased \$ / cows	0	14	7	34	51
Other feed purchased \$ / cows	0	0	0	0	2
Hay & Silage Making \$ / cows	47	18	172	118	140
Agistment/Grazing \$ / cows	0	27	0	76	118
Support block cost \$ / cows	12	18	45	19	31
Crop Costs \$ / cows	0	0	0	0	0
Nitrogen \$ / cows	40	45	28	52	71
All Other Fertiliser \$ / cows	83	75	82	54	70
Irrigation \$ / cows	0	0	0	0	40
Pasture improvement \$ / cows	70	42	63	31	49
Other homegrown feed costs \$ / cows	0	0	0	0	0
Feed Inventory Change \$ / cows	-26	30	-37	-27	4
Water Inventory Change \$ / cows	0	0	0	0	0
Feed Costs \$ / cows	362	401	501	575	1,011
Fuel and oil \$ / cows	0	0	11	9	17
Total Variable Costs \$ / cows	563	634	758	823	1,274
GROSS MARGIN \$ / cows	1,799	1,479	1,786	1,760	2,088
Overhead Costs					
Employed Labour Cost \$ / cows	460	414	368	265	293
Farm Insurance \$ / cows	35	32	52	33	25
Repairs & Maintenance \$ / cows	104	113	145	100	113
Motor Vehicles \$ / cows	62	77	47	45	41
Other Overhead Costs \$ / cows	101	99	168	139	104
Imputed Labour Cost \$ / cows	114	112	87	229	117
Total depreciation \$ / cows	64	85	181	157	186
Total Overhead Costs \$ / cows	940	932	1,048	969	878
TOTAL OPERATING COSTS (Variable & Overhead) \$ / cows	1,503	1,566	1,807	1,792	2,153
EARNINGS BEFORE INTEREST & TAX (EBIT) \$ / cows	858	547	737	791	1,210
COP - EXCLUDING INVENTORY CHANGE \$ / cows	1,529	1,536	1,844	1,819	2,148
Livestock Inventory Change less Purchases \$ / cows	-45	18	-43	41	14
Feed & Water Inventory Change \$ / cows	-26	30	-37	-27	4
COP - INCLUDING INVENTORY CHANGE \$ / cows	1,458	1,583	1,763	1,833	2,167
Finance Costs					
Interest Costs \$ / cows	491	416	500	499	469
Lease Costs \$ / cows	0	0	0	140	15
Total Finance Costs \$ / cows	491	416	500	639	484
NET FARM INCOME \$ / cows	367	131	237	152	726

DAIRY BUSINESS OF THE YEAR



3.0 PEOPLE

NZ DAIRY - STAYING AHEAD IN THE PEOPLE GAME

Dairyland Ltd

Jack & Jill Farmer

848 Dairy Lane Way, RD 1, Farmland

Comments provided by No8HR

Contact their team for further information or assistance

www.no8hr.co.nz

Ph. 07 870 4901

No.8HR

Disclaimer: The analysis is based on information provided which has not been verified by DBOY.

DBOY holds no responsibility for any changes made on the basis of this analysis. Implementation of any recommendations should only be considered in consultation with your professional advisors.



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**DAIRY BUSINESS
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3.1 NZ Dairy - Staying Ahead in the People Game

As dairy farmers in NZ we need to remain ahead of the game if our businesses and industry are to continue to thrive. There are a number of issues that are affecting NZ dairy and many of them are in the 'people' space. In your HR report from the DBOY competition you will see the metrics that have influenced your HR score. Take a careful look at these as they will give you indicators of where your performance was better, similar or below that of other competition entrants.

Many of your people strategy decisions will be a result of conscious decisions you have made. Where these aren't delivering you the result you would like (either based on the metrics in this report or other indicators) take a closer look at your assumptions and what you might need to change.

Health, safety and wellbeing continues to be an industry focus area and WorkSafe believes there are opportunities to improve New Zealand's performance by putting a greater emphasis on prevention, management and improving the consciousness of work-related health risks.

Farming's continued poor record, highlighted in particular with quad bike accidents, means that we can expect the spotlight to remain on our sector. If you can answer yes to the questions below you're heading in the right direction with your Health, Safety and Wellbeing focus on farm:

1. The safety and wellbeing of the team is the number one priority of everyone in the business
2. We look after everyone's physical and emotional wellbeing
3. Everyone on the farm knows where the hazards are and how to avoid being injured
4. Everyone in the team is involved in new hazard identification
5. Everyone is trained properly to do the work they need to do, including knowing what PPE to use and how to avoid any injury or accident risk
6. People put safety before speed (or any other factor) in any work that they do
7. If anything goes wrong, everyone knows how to get help quickly
8. We keep good records of anything that relates to or impacts on the team's health, safety and wellbeing

Labour for our sector will continue to be challenging. If we want to attract talented people we will need to **think outside of the traditional 'square' of 'full-time employees living on farm.'** It is likely we will end up with two different types of employee engagement in our businesses:

1. Those who are there because we can provide them with work that suits their lifestyle
2. Those who are there because farming is a chosen career (not forgetting that these people still want a lifestyle!)

The questions we need to ask ourselves to be in front of this change include:

- How can I change the way the work on farm is undertaken to attract people from these non-traditional labour pools?
- What changes can I make to work processes that will make it easy for people to come in and work here?
- How do I set up my business so training requirements are minimised and 'anyone can pick this up and do it?'
- What do I need to change about my management style and way of working to deal with these different types of employee?
- How do I adjust or change the way I budget for labour to reflect how I need to go about hiring different types of people?

Well done on entering the DBOY competition, benchmarking your performance and looking at the hard data that contributes to your business' success. Feel free to give us a call here at No8HR if there's anything you don't understand in the report or would like further insight into.

3.2 Opportunity and Target Planning

Dairy Business of the Year have highlighted some key opportunities within the business. To fully utilise these opportunities it is important to prepare a business plan that will assist you to meet your goal or target. By adding a timeframe to the target it is much more likely to be achieved.

Opportunity for Improvement	Plan & Timeframe for Improvement

3.3 Key Performance Indicator Summary Table

		Dairyland Ltd	DBOY Group Average Benchmark
LABOUR UTILISATION	People Investment per Cow	\$434	\$487
	Cows per Full Time Equivalent (FTE)	140	176
	Milk Solids per worked hour	19.6	29.9
TRAINING SPEND	Training Spend per FTE in Monetary form	\$0	\$337
	Training Spend per FTE in Time (days)	0.00	6.24
UNPLANNED COSTS	Unplanned Costs per FTE	\$0	\$510
	Unbudgeted Days Lost per FTE	0.78	3.63
LABOUR TURNOVER	Labour Turnover - Management Staff (3yr Avg)	0%	4%
	Labour Turnover - Non Management Staff (3yr Avg)	0%	23%
HEALTH, SAFETY & WELLBEING	% Days Lost due to injury per FTE	0%	5%
	Rostered Days off per annum per FTE	5.8	63.4

EXAMPLE

3.4 No8HR Scorecard

EXAMPLE

HUMAN RESOURCES METRICS

Dairyland Ltd



SECTIONS	MEASURED BY	Lower Score		Median	Good performance		Your Farm Results	Group Average	Your Score
BUDGETED SPEND	People Investment per Cow			■			\$434.20	\$486.51	1.76
UTILISATION	Cows per FTE		■				139.99	175.92	0.37
	Milk Solids per worked hour		■				19.64	29.94	0.19
TRAINING SPEND	Training spend per FTE in \$\$	■					\$0.00	\$337.01	0.00
	Training spend per FTE in hrs	■					0.00	6.24	0.00
UNPLANNED COSTS	Costs per FTE (milk co fines, employment disputes costs etc)					■	\$0.00	\$509.75	1.25
	Unbudgeted Days Lost per FTE (i.e. sick / grievance/ suspension / breavement)					■	0.78	3.63	0.79
LABOUR TURNOVER	Management Staff					■	0%	4%	1.25
	Non Management Staff					■	0%	23%	1.25
HEALTH, SAFETY & WELLBEING	% days lost due to injury per FTE					■	0%	5%	1.25
	Rostered Days off per annum per FTE	■					5.83	63.39	0.09

OVERALL SCORE
(out of 15)

8.20

3.5 Labour Utilisation

LABOUR UTILISATION		Dairyland Ltd	DBOY Group Average Benchmark
LABOUR UTILISATION	People Investment per Cow	\$434	\$487
	Cows per Full Time Equivalent (FTE)	140	176
	Milk Solids per worked hour	19.6	29.9

LABOUR UTILISATION

In this section we consider staff efficiency. The dairy industry has for a long time considered costs per cow and cows per Full Time Equivalent (FTE) as good measures of utilisation of labour and in this section we highlight the farms score in these two important metrics against commonly accepted industry guidelines.

People Investment per Cow

\$434

This includes all wage costs for staff in the business. Whilst it is tempting to go straight to recognising low staff costs as being a measure of the most efficient businesses, this metric needs to be read in conjunction with the staff stability metric in particular, as employers not meeting the market rate for wages may adversely affect staff turnover and stability.

Your score indicates efficient people investment per cow in your business. There may still be opportunities for improvement as long as your staff retention is good along with the Labour Utilisation metrics.

Cows per Full Time Equivalent (FTE)

140

This shows the number of cows per FTE staff member. This is an effective measure of productivity as it considers how many production units (cows) can be managed by each FTE. The business can further break this down into hours worked per cow (1 FTE = 50 hours per week).

Your cows per FTE score indicates there may be some opportunities to increase efficiencies in production.

3.6 Training Spend

TRAINING SPEND		Dairyland Ltd	DBOY Group Average Benchmark
TRAINING SPEND	Training Spend per FTE in Monetary form	\$0	\$337
	Training Spend per FTE in Time (days)	0.00	6.24

TRAINING SPEND

In this category we take into consideration the investment businesses make in people in the farming operation. This includes training costs as well as time costs on training. This is where we see pro-active people leaders considering and planning for the future in their businesses and working with their staff for mutually beneficial results.

Training Spend per FTE in Monetary form

\$0

This metric measures how much is being invested in formal training for staff on farm. Prudent businesses will be allocating 2% of their wage budget for staff development (including cost of training, travel and accommodation). Businesses who invest heavily in this area are investing as much as 3% of their wage and salary budget.

Your business is spending less \$\$ on training per annum per employee than many of your peers. You may be providing more on-farm training and assistance which would compensate. If this is the case look for opportunities to ensure your staff know and recognise the development opportunities you are giving them. If you are not investing in on-farm training think about how you could build more formal or informal training of staff into your business.

Training Spend per FTE in Time (days)

0.00

Training time has to be planned and has a consequential cost of cover for the business. This metric measures how much time the business is investing in formal training.

Your business is spending less formal training time per annum per employee than many of your peers. You may be providing more on-farm training and assistance and if this is the case look for opportunities to ensure your staff know and recognise the development opportunities you are giving them. If you are not spending time training staff on farm think about building more staff development time (formal or informal) into your business.

3.7 Unplanned Costs

UNPLANNED COSTS		Dairyland Ltd	DBOY Group Average Benchmark
UNPLANNED COSTS	Unplanned Costs per FTE	\$0	\$510
	Unbudgeted Days Lost per FTE	0.78	3.63

UNPLANNED COSTS

In this category we are highlighting the unplanned costs that impact the business. This includes milk company fines and dispute costs as well as unbudgeted work-days lost from the business for sickness or any other reason. This metric can be heavily influenced by one-off occurrences (e.g. one serious either work or non-work related injury that results in significant time off work or one particularly messy employment relations issue) and should be considered in light of this.

Unplanned Costs per FTE

\$0

Milk company fines are almost always the result of systems failure (i.e. milk co fines, employment disputes costs etc.). We have included these as a measure of people efficiency because it is the people who run the systems. Employment disputes are expensive and time consuming. Although part of an employer's life, a high number and cost of disputes indicates opportunities for improvement in your business.

Your unplanned costs per FTE are less than the average of your peers.

Unbudgeted Days Lost per FTE

0.78

Unbudgeted time off is stressful for any business. According to our information, on average NZ dairy farms enjoy less unplanned staff absence than the average non-farming NZ business. This is likely to be a symptom of size as we know that smaller businesses have less unplanned time off than larger businesses. Anything less than 3% of days lost for unplanned absence is generally treated as within acceptable limits. (i.e. sick /suspension /bereavement)

Your score represents an excellent result. Well done.

3.8 Labour Turnover

LABOUR TURNOVER		Dairyland Ltd	DBOY Group Average Benchmark
LABOUR TURNOVER	Labour Turnover - Management Staff (3yr Avg)	0%	4%
	Labour Turnover - Non Management Staff (3yr Avg)	0%	23%

LABOUR TURNOVER

Staff turnover is a traditional HR metric used to measure employee and business health. Retention of management staff in particular significantly impacts productivity and the subsequent involvement required by the farm owner. It is prudent to have good processes in your business to recruit and retain staff, and we encourage you to have a strategy around how you manage staff in general. A good strategy starts with identifying what you ideally want and then creating a staff management model around this. Planned higher levels of staff turnover, particularly at farm assistant level, are appropriate if they are a deliberate part of your strategy.

Labour Turnover - Management Staff (3yr Avg)

0%

Measured over a three year average we would hope to see your management labour turnover under 20%. This indicates you are retaining key people within your business.

A management labour turnover of less than 20% indicates your business is holding onto staff at a management level which is a metric output we often see in high performing farms.

Labour Turnover - Non Management Staff (3yr Avg)

0%

Measured over a three year average your staff labour turnover will ideally sit within the 0 to 30% range unless there is a specific business strategy in place to use short term staff at this level. Such a strategy would need to be supported by strong management capability and systems to ensure the team was productive. Staff turnover in small to medium sized businesses is always difficult as staff, quite rightly, seek to develop themselves and the business is constrained by the opportunities it can offer.

A staff labour turnover of less than 20% is an outstanding result in the dairy industry. This indicates your business is holding on to staff which is a metric we often see in high performing farms.

DAIRY BUSINESS OF THE YEAR



4.0 PLANET

NUTRIENT MANAGEMENT AND RESOURCE PROTECTION

Dairyland Ltd

Jack & Jill Farmer

848 Dairy Lane Way, RD 1, Farmland

EXAMPLE

Disclaimer: The analysis is based on information provided which has not been verified by DBOY. DBOY holds no responsibility for any changes made on the basis of this analysis. Implementation of any recommendations should only be considered in consultation with your professional advisors.



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Ministry for Primary Industries
Manatū Ahu Matua



**DAIRY BUSINESS
OF THE YEAR**



2020 SILVER SPONSOR

**DAIRY
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MineralBoost
ACCURACY COUNTS



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4.1 Environmental Outlook

Considering the environment when making business decisions is an integral part of farming in any catchment. Issues of water quality, greenhouse gas commitments, and biodiversity are becoming increasingly relevant to farms across New Zealand. As industry, consumer, government, and regulatory demands change it is imperative that farm businesses understand their environmental performance and continually review the measures being taken to improve it.

The Dairy Business of the Year environmental assessment focuses on key areas of environmental risk when using land for farming. The assessment is intended to highlight good performance and bring to attention any areas where environmental initiatives may wish to be focused on going forward.

The majority of the metrics used in the assessment focus on four key contaminants; Nitrogen, Phosphorus, Sediment, and Bacteria. There is however also a greenhouse gas component to the scorecard. Improvements made in the areas highlighted by the scorecard will often improve farm efficiency at the same time. For example, converting more nitrogen on farm to product can both reduce nitrogen leaching and greenhouse gas emissions whilst improving farm productivity. The scorecard should be viewed through this lens. Areas identified as being higher risk will generally represent opportunities to improve the farm business. Any issues of compliance should be a mandatory area of improvement.

Should you have any queries regarding your assessment or wish to seek further advice, please get in contact with the DBOY team. DBOY has access to a range of advisors who can provide quality advice regarding your farms environmental performance.

EXAMPLE

4.2 Summary of Strengths

Key Strengths of the Business

1500m of waterways fenced on farm with a 4m average riparian buffer width and riparian planting. This is excellent and where present will help to reduce the amount of paddock run-off entering the water ways on farm, also reducing sediment and bacteria losses.

The estimated annual nitrogen leaching on farm is 26kgN/ha/yr. This is relatively low compared to similar farms. This reflects the moderate intensity of the farm system and to some extent the climatic conditions of the area.

Minimum till practices are utilised on farm. This assists in minimising soil disturbance and erosion risk. These practices are likely contributing to the moderate-low estimate of P loss on farm.

Effluent storage on farm allows for the deferring of irrigation when conditions do not suit. This minimises the risk of effluent contaminating ground or surface water.

4.3 Opportunity and Target Planning

Dairy Business of the Year have highlighted some key opportunities within the business. To fully utilise these opportunities it is important to prepare a business plan that will assist you to meet your goal or target. By adding a timeframe to the target it is much more likely to be achieved.

Opportunity for Improvement

Plan & Timeframe for Improvement


Because the effluent pond is not sealed, it is important that a leakage test is undertaken. This will quantify the rate at which effluent is leaking from the pond. Consider having a Dairy WOF assessment done on the farm. The assessor will be able to identify the best way to future-proof the system going forward.

Grazing crops in situ can be a high risk for contaminant loss, particularly during wet periods. Sediment loss and nitrogen leaching can often be exacerbated by this activity. Winter cropping is also included in the proposed National Environmental Standard recently released. Make sure to develop a plan to manage these risks going forward. Please discuss with the DBOY team or your trusted advisor.













It is estimated that 112kgN/ha/yr is being applied to the effluent area from effluent. However, an additional 101kgN/ha is also being applied from fertiliser. Consider whether the fertiliser applications are required or could be reduced going forward.

Look to minimise applying nitrogen fertiliser in the winter months. This period is high risk for N leaching due to increased rainfall and lower soil temperatures.

4.4 Key Performance Indicator Summary Table

 Environmental Performance		Dairyland Ltd
EFFLUENT	Lined/sealed effluent pond	Unlined / No Storage
	Percentage of the farm irrigated with effluent	29%
	N loading on effluent area kgN/ha	112
	Application Rate	10 - 25mm
NITROGEN	Kilogram of Milk Solids per Kilograms of Nitrogen Leached	42
	Kg N Leached/ha	26
	N Conversion Efficiency %	29%
	Soluble Nitrogen Use	82
PHOSPHORUS	Phosphorus Loss/ha	0.6
	Olsen P Levels	At optimum
IRRIGATION	Soil Moisture Monitoring	N/A
	Precision irrigation (soil mapping, GPS)	N/A
SOIL PROTECTION	Winter Cropping Area	0%
	Winter Stock Management (pugging avoidance)	Cows moved frequently during wet periods
GREENHOUSE GAS EMISSIONS	Total GHG (CO2 Equivalents)	1,547
	Methane (CO2 Equivalents)	1,064
	N2O Emissions (CO2 Equivalents)	302
	CO2 Emissions (CO2 Equivalents)	181

4.5a Environmental Performance Scorecard

Category	Best Management Practise	High Risk (1)	Med-High Risk (2)	Medium Risk (3)	Med-Low Risk (4)	Low Risk (5)	Result	Score
EFFLUENT	Lined/sealed effluent pond						Unlined / No Storage	1
	Percentage of the farm irrigated with effluent						29.0%	3
	N loading on effluent area kgN/ha						112	3
	Application Rate						10 - 25mm	3
NITROGEN	Kilogram of Milk Solids per Kilograms of Nitrogen Leached						42	2
	Kg N Leached/ha						26	4
	N Conversion Efficiency %						29.0%	2
	Soluble Nitrogen Use						82	3
PHOSPHORUS	Phosphorus Loss/ha						0.6	4
	Olsen P Levels						At optimum	4
IRRIGATION	Soil Moisture Monitoring						N/A	N/A
	Precision irrigation (soil mapping, GPS)						N/A	N/A
SOIL PROTECTION	Winter Cropping Area						0.0%	5
	Winter Stock Management (pugging avoidance)						Cows moved frequently during wet periods	2
*Scores for irrigated farms are out out 70 and non irrigated farms out of 70 **Numbers are extracted from OverseerFM								Raw Score Out of 60: 36
								Adjusted Score Out of 15: 9.00

Environmental Performance Scorecard Criteria

Category	Best Management Practise	High Risk (1)	Med-High Risk (2)	Medium Risk (3)	Med-Low Risk (4)	Low Risk (5)
EFFLUENT	Lined/sealed effluent pond	Unlined / No Storage	-	Claylined (untested)	-	Lined or Verified as Sealed
	Percentage of the farm irrigated with effluent	10% and below	11-20%	21-30%	31-40%	Above 40%
	N loading on effluent area kgN/ha	Above 150KgN/ha/yr.	121- 150KgN/ha/yr.	91- 120KgN/ha/yr.	61- 90KgN/ha/yr.	0 - 60KgN/ha/yr.
	Application Rate	>25mm	-	10 - 25mm	-	Less than 10mm
NITROGEN	Kilogram of Milk Solids per Kilograms of Nitrogen Leached	0 - 40 KgMS/ha per KgN leached	41- 60 KgMS/ha per KgN leached	61- 80 KgMS/ha per KgN leached	81-100 KgMS/ha per KgN leached	Above 100 KgMS/ha per KgN leached
	Kg N Leached/ha (Wairarapa, Canterbury)	Over 65 KgN/ha/yr.	51-65 KgN/ha/yr.	36-50 KgN/ha/yr.	21-35 KgN/ha/yr.	Below 20 KgN/ha/yr.
	Kg N Leached/ha (Northland, Waikato, Taranaki, Southland)	Over 50 KgN/ha/yr.	41-50 KgN/ha/yr.	31-40 KgN/ha/yr.	21-30 KgN/ha/yr.	Below 20 KgN/ha/yr.
	N Conversion Efficiency %	Below 20%	21-30%	31-40%	41-50%	Above 50%
PHOSPHORUS	Soluble Nitrogen Use (Wairarapa, Canterbury, Southland)	Above 180 KgN/ha	141-180 KgN/ha	101-140 KgN/ha	61-100 KgN/ha	0-60KgN/ha
	Soluble N Use (Northland, Waikato, Taranaki)	Above 160 KgN/ha	121-160 KgN/ha	81-120 KgN/ha	41-80 KgN/ha	0-40KgN/ha
	Phosphorus Loss/ha	Above 1.8 KgP/ha/yr.	1.4-1.7 KgP/ha/yr.	0.9-1.3 KgP/ha/yr.	0.5-0.8 KgP/ha/yr.	0-0.4 KgP/ha/yr.
	Olsen P Levels	Above optimum and increasing	Above optimum and maintaining	Above optimum and decreasing	At optimum	At optimum with a management plan
IRRIGATION	Soil Moisture Monitoring	No soil moisture monitoring system	-	-	-	Soil moisture monitoring system
	Precision irrigation (soil mapping, GPS)	Not used	-	Some used	-	System in place
SOIL PROTECTION	Winter Cropping Area	7% and above	5- 6%	3- 4%	1- 2%	None
	Winter Stock Management (pugging avoidance)	Sacrifice paddocks used	Cows moved frequently during wet periods	Cows moved to higher paddocks when wet	Cows stood off on yard	Herd home, feed pad or winter stand off yard

4.6 Effluent Management

EFFLUENT	Dairyland Ltd
Lined/sealed effluent pond	Unlined / No Storage
Percentage of the farm irrigated with effluent	29%
N loading on effluent area kgN/ha	112
Application Rate	10 - 25mm

EFFLUENT

The effluent category of the scorecard is designed to identify areas of environmental risk within the effluent system. As DBOY cannot physically look around the farm to identify specific risk areas, DBOY grades the businesses effluent management strategy on the information provided in the DBOY data forms and Overseer file.

Lined/sealed effluent pond

Unlined / No Storage

The amount of effluent seepage from storage facilities must not exceed 1mm/day. This can be achieved via a synthetic or clay liner, or a concrete lined storage system.

Unlined or unsealed storage is a high risk for nitrogen and faecal contamination to ground or surface water. This should be a priority for remediation.

Percentage of the farm irrigated with effluent

29%

The percentage of the milking platform irrigated with effluent will determine the nutrient loss risk of the system. A small area allocated to effluent disposal will likely be overloaded with nitrogen, potassium, and faecal matter, posing a significant contamination risk to the environment.

The effluent block should be further expanded to allow for more efficient use of effluent nutrients.

N loading on effluent area kgN/ha

112

It is important to manage the amount of nitrogen applied from effluent to the effluent block. High rates of N application will increase N leaching and waste valuable nutrients.

The amount of nitrogen applied to the effluent block is satisfactory, however efficiencies could still be increased.

Application Rate

10 - 25mm

Low rate application is considered good practise as it is more closely inline with the plants uptake ability and reduces the risk of full soil saturation and therefore drainage.

4.7 Nitrogen Management

NITROGEN	Dairyland Ltd
Kilogram of Milk Solids per Kilograms of Nitrogen Leached	42
Kg N Leached/ha	26
N Conversion Efficiency %	29%
Soluble Nitrogen Use	82

NITROGEN

The nitrogen section of the scorecard is designed to provide a snapshot of how efficiently your farm is utilising applied N, as fertiliser and/or effluent, and the risk N loss from your farm poses to the environment. The scores you receive in each section will enable you to identify areas where your farm could improve N efficiency and, as an outcome, reduce the nitrogen lost to water.

Kilogram of Milk Solids per Kilograms of Nitrogen Leached

42

KgMS/ha per KgN leached measures the amount of milk production gained from one unit of nitrogen pollution. Farms that produce higher amounts of production relative to the N pollution (that is, any N in excess of pasture and crop demand) produced are likely operating a more efficient system.

For your farming system, the amount of milk production produced per unit of nitrogen lost is below compliance standards. Improving nitrogen management efficiencies should be pursued.

Kg N Leached/ha

26

KgN leached/ha is an indicator how much nitrogen is expected to be lost to water from the farm. This is a measure of risk and will help identify the total amount of N lost in your farming system compared to other farms.

The amount of N leached on farm is low compared to regional averages, however there will likely be opportunity to reduce this further.

N Conversion Efficiency %

29%

N conversion efficiency is an indicator of the farms ability to convert all forms of N within the farming system (fertiliser, feed, clover) into product (meat, milk, fibre, crops, etc). The higher the conversion rate the greater the efficiency of the farm. Where efficiencies are high, there should be less Nitrogen available to be leached.

N conversion efficiency is OK, however there are opportunities to improve nitrogen conversion efficiency.

Soluble Nitrogen Use

82

Nitrogen from fertiliser represents one of the most significant import sources of N on farm. The quantity (application rate/ha) and methodology used with N application and timing management on farm will have a significant influence on the amount of N leached. To optimise nitrogen use efficiency it is important to note that the amount of N fertiliser applied to the farm be maintained at an optimal level.

N fertiliser use is moderate. Look for opportunities to reduce this further. If large amount of bought-in feed is used, make sure the effluent block covers most of the farm.

4.8 Phosphorus Management

PHOSPHORUS

Dairyland Ltd

Phosphorus Loss/ha

0.6

Olsen P Levels

At optimum

PHOSPHORUS

Soil phosphorus has the potential to impact water quality. Because much of the P on farm is bound up in sediment (soil) it is essential that soil erosion is minimised as much as practicable. This section of the scorecard will provide you with an indication of the P loss risk.

Phosphorus Loss/ha

Phosphorus combines with nitrogen to facilitate algal growth in water. It is important to minimise P loss to reduce the negative effects on water quality. The P loss scorecard helps identify this risk of P loss within your farming operation.

P loss to water on your farm is moderate. Look for opportunities to reduce this further.

Olsen P Levels

Olsen P levels will determine how much P is lost if and when erosion of soil occurs. High Olsen P levels will significantly increase farm P loss even though sediment and erosion losses may be small when compared to other farms.

Olsen P levels are at optimum which is helping minimise P loss risk on farm. Only apply maintenance P fertiliser.

4.9 Irrigation Management

IRRIGATION

Dairyland Ltd

Soil Moisture Monitoring

N/A

Precision irrigation (soil mapping, GPS)

N/A

IRRIGATION

Irrigation best practice is crucial for minimising water use and reducing the amount of N leached on farm. The use of precision technologies plays a significant part in water use efficiency. For farms using irrigation, the irrigation section of the scorecard defines the irrigation efficiency.

Soil Moisture Monitoring

Soil moisture monitoring allows the farmer to apply the optimum amount of irrigation water each day, minimising irrigation water wastage and helping prevent N leaching as a result of excessive drainage due to over application of irrigation water.

Not applicable for your non-irrigated farm.

Precision irrigation (soil mapping, GPS)

Precision irrigation technologies allow the farmer to fully optimise water use on farm, obtaining the most out of the water used and helping maximise the growth response from the application of the irrigation water.

Not applicable for your non-irrigated farm.

4.10 Soil Protection

SOIL PROTECTION

Dairyland Ltd

Winter Cropping Area

0%

Winter Stock Management (pugging avoidance)

Cows moved frequently during wet periods

SOIL PROTECTION

Soil erosion and sediment loss on farm presents a significant impact to water quality and is a vital resource on farm. Minimising the loss of soil should always remain a high priority.

Winter Cropping Area

Winter cropping increases the risk of nitrogen leaching and sediment loss on farm. Overlapping urine patches as a result of intense grazing cause greater N loss to water and the hoof damage to bare soil increases the risk of sediment loss.

No winter cropping occurs on farm. By avoiding winter crops you are minimising the impact your farm has on the environment.

Winter Stock Management (pugging avoidance)

Managing stock adequately during wet periods will help protect pastures, reduce N loss, and minimise erosion on farm. It is important to have an effective winter grazing management strategy.

Moving stock frequently during periods of higher or extended rainfall events to minimise soil/pasture damage increases work load, and varies in effectiveness.

4.11 Greenhouse Gas Emissions

GREENHOUSE GAS EMISSIONS

Dairyland Ltd

Total GHG (CO2 Equivalents)

1,547

Methane (CO2 Equivalents)

1,064

N2O Emissions (CO2 Equivalents)

302

CO2 Emissions (CO2 Equivalents)

181

GREENHOUSE GAS EMISSIONS

The release of Green House Gases (GHGs) is the primary cause of human-driven Climate Change. At present, GHGs from agriculture are not actively managed or accounted for in the Emissions Trading Scheme. However this may change in future, therefore it is important to understand the level of GHG emissions your farm releases each year and develop personal awareness in this area.

4.12 Overseer Reports

EXAMPLE



Dairyland Ltd

848 Dairy Lane Way, RD 1, Farmland



Year ending 2019

Analysis type	Year end
Is publication	No
Application version	3.0.2.2
Printed date	28 May, 2020, 8:18PM
Model version	6.3.2

Farm details

N: 4008 N/ha: 26 P: 95 P/ha: 0.6 GHG/ha: 9984 NCE: 29% v6.3.2

Total area	155 ha
Productive block area	139.00 ha
Nitrogen conversion efficiency (NCE)	29%
N Surplus	151 kg/ha
Nearest town	Farmtown

Block details

	TYPE	AREA (HA)	TOPOGRAPHY	CLIMATE LAT	CLIMATE LONG	RAINFALL (MM/YR)	TEMPERATURE	PET (MM)
EFFLUENT	Pasture	23	Rolling	-	-	1078	12.9	859
MAIN PASTURE	Pasture	97	Rolling	-	-	1078	12.9	859
MAIZE - MAIZE	Crop	0.6	-	-	-	1078	12.9	859
MAIZE - MAIZE (STORED)	Crop	3.4	-	-	-	1078	12.9	859
PLANTAIN/CHICORY - CHICORY	Crop	15	-	-	-	1078	12.9	859
CHICORY	Fodder crop	8.5	-	-	-	-	-	-
LUCERNE	Fodder crop	6.5	-	-	-	-	-	-

Soil

	SOIL	MODIFIED?	DEFAULT TEST?	ASC	OLSEN P
EFFLUENT	Allophanic	Yes	No		32
MAIN PASTURE	Allophanic	Yes	No		32
MAIZE - MAIZE	Allophanic	Yes	No		-
MAIZE - MAIZE (STORED)	Allophanic	Yes	No		-
PLANTAIN/CHICORY - CHICORY	Allophanic	Yes	No		-

Pasture/crops

	PASTURE/CROP	YIELD	GROWTH (KG DM/HA)	INTAKE (KG DM/HA)	REMOVED (KG DM/HA)	UTILISATION (%)	TOTAL
EFFLUENT	Ryegrass/white clover	-	16194	13623	38	84	2
MAIN PASTURE	Ryegrass/white clover	-	16194	13599	66	84	2
MAIZE - MAIZE	Maize silage Pasture Maize silage	42 T DM/Ha	3508	2963	0	84	
MAIZE - MAIZE (STORED)	Maize silage Pasture Maize silage	42 T DM/Ha	3508	2963	0	84	
PLANTAIN/CHICORY - CHICORY	Rape Pasture Rape	20 T DM/Ha	3637	3067	0	84	
CHICORY	Chicory Pasture	15 T DM/Ha	4233	3576	0	84	
LUCERNE	Lucerne Pasture	20 T DM/Ha	4147	3503	0	84	

Animal enterprise RSU from pasture eaten

	DAIRY	DAIRY REPLACEMENTS
EFFLUENT	23.02	2.05
MAIN PASTURE	22.96	2.05
MAIZE - MAIZE	5.16	0.35
MAIZE - MAIZE (STORED)	5.16	0.35
PLANTAIN/CHICORY - CHICORY	5.25	0.48
CHICORY	6.20	0.42
LUCERNE	6.10	0.42

Nitrogen summary

	TOTAL LOSS (KG)	LOSS PER HA (KG/HA)	N IN DRAINAGE (PPM)	ADDED (KG/HA)	SURPLUS (KG/HA)	FERTILISER (KG/HA)
EFFLUENT	623	27	8	214	256	101
MAIN PASTURE	1893	23	7	128	200	101
MAIZE - MAIZE	37	61	13	344	95	344
MAIZE - MAIZE (STORED)	208	61	13	344	95	344
PLANTAIN/CHICORY - CHICORY	594	40	9	24	-35	24
CHICORY	201	24	5	24	10	24
LUCERNE	185	28	7	24	12	24

Phosphorus summary

	TOTAL LOSS (KG)	LOSS PER HA (KG/HA)	FERTILISER (KG/HA)	IRRIGATION (KG/HA)	EFFLUENT (KG/HA)
EFFLUENT	12	0.5	3	0	17
MAIN PASTURE	26	0.3	3	0	6
MAIZE - MAIZE	0	0.1	0	0	0
MAIZE - MAIZE (STORED)	0	0.1	0	0	0
PLANTAIN/CHICORY - CHICORY	3	0.2	21	0	0
CHICORY	2	0.2	21	0	0
LUCERNE	1	0.2	21	0	0

Soil and irrigation results

	SOIL	IRRIGATION	PERCENTAGE	N LOSS	N LOSS/HA	P LOSS	P LOSS/HA	DRAINAGE	PAW 60CM	PAW 150CM
EFFLUENT	Allophanic	no irrigation	100	623	27	12	0.5	329	118	0
MAIN PASTURE	Allophanic	no irrigation	100	1893	23	26	0.3	329	118	0
MAIZE - MAIZE	Allophanic	no irrigation	100	37	61	0	0.1	467	118	282
MAIZE - MAIZE (STORED)	Allophanic	no irrigation	100	208	61	0	0.1	467	118	282
PLANTAIN/CHICORY - CHICORY	Allophanic	no irrigation	100	594	40	3	0.2	448	118	282



Dairyland Ltd

848 Dairy Lane Way, RD 1, Farmland



Year ending 2019

Analysis type	Year end
Is publication	No
Application version	3.0.2.2
Printed date	28 May, 2020, 8:17PM
Model version	6.3.2









Farm details

N: 4008 N/ha: 26 P: 95 P/ha: 0.6 GHG/ha: 9984 NCE: 29% v6.3.2

Total area	155 ha
Productive block area	139.00 ha
Nitrogen conversion efficiency (NCE)	29%
N Surplus	151 kg/ha
Nearest town	Farmland

Total liveweight brought (kg/ha grazed)	296	Milk solids (kg/ha grazed)	1094
Total liveweight reared (kg/ha grazed)	207	Milking herd size (peak cows/ha grazed)	3.1
Total liveweight sold (kg/ha grazed)	509	Dairy stock rate (RSU)	3343
Default calving date	25 July	Dairy replacements stock rate (RSU)	243
Milk production per cow (kg milk solids / cow)	353.9		

Blocks



NAME	TYPE	AREA (HA)	N LOSS	N LOSS/HA	N SURPLUS/HA	P LOSS	P LOSS/HA
 Effluent	Pasture	23	623	27	256	12	0.5
 Main Pasture	Pasture	97	1893	23	200	26	0.3
 Maize - Maize	Crop	0.6	37	61	95	0	0.1
 Maize - Maize (Stored)	Crop	3.4	208	61	95	0	0.1
 Plantain/chicory - Chicory	Crop	15	594	40	-35	3	0.2
 Chicory	Fodder crop	8.5	201	24	10	2	0.2
 Lucerne	Fodder crop	6.5	185	28	12	1	0.2
 Other sources	Other	-	268	-	-	51	-

Farm soils



S-MAP REF	GROUP/ORDER	DRAINAGE CLASS	MODIFIED	TOTAL AREA (HA)	% OF PROD. BLOCKS	BLOCKS
-	Volcanic/Allophanic	Well	Yes	139	100	5

Enterprises



STOCK NUMBERS

NAME	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
 Dairy	371	366	366	371	367	363	353	313	295	295	295	295
 Dairy replacements	42	73	118	118	118	118	96	96	96	96	96	-






RSU

NAME	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
 Dairy	284	338	329	330	345	351	339	258	255	230	140	145
 Dairy replacements	4	11	27	28	29	29	24	23	26	26	23	0






Structures

NAME	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
 Feed Pad - Solids: Spread On Blocks Pond: None Liquid: None												
% of dairy animals	100	100	100	-	-	-	-	-	100	100	100	100
Hours on structure per day	6	2	2	-	-	-	-	-	2	2	2	6
 Dairy Effluent System - Holding Pond Solids: None Pond: Spread On Blocks Liquid: Stir & Spray Regularly												

Supplements

CATEGORY	FEED	SOURCE	DRY WEIGHT?	SOURCED	DISTRIBUTED	REMAINING	DESTINATION
 Silage	Maize silage	Purchased (109)	Yes	109 tonnes	109 tonnes	0	All pastoral blocks (109)
 Process byproducts	Palm kernel meal	Purchased (128)	Yes	128 tonnes	128 tonnes	0	Dairy - Feed pad (128)
 Hay	Pasture good quality hay	Purchased (120)	No	120 bales	120 bales	0	All pastoral blocks (120)
 Silage	-	Effluent (2.5), Main Pasture (15.5)	No	18 tonnes	18 tonnes	0	All pastoral blocks (18)
 Silage	Pasture good quality silage	Purchased (4)	Yes	4 tonnes	4 tonnes	0	All pastoral blocks (4)

Crops

CROP/PASTURE	AREA (HA)	YIELD	GROWN (T/DM/YR)	INTAKE (T/DM/YR)	SUPPLEMENTS (T/DM/YR)
 Ryegrass/white clover	120.0	-	1943	1632	7
 Maize silage	4.0	68 T dry matter	-	-	-
 Rape	15.0	150 T dry matter	-	-	-
 Chicory	8.5	128 T dry matter	-	-	-
 Lucerne	6.5	130 T dry matter	-	-	-

GHG - Total farm emissions

METHANE GHG EMISSIONS	N2O GHG EMISSIONS	CO2 GHG EMISSIONS	TOTAL GHG EMISSIONS
1063.9 eCO2/tonnes/yr	302.4 eCO2/tonnes/yr	181.2 eCO2/tonnes/yr	1547.5 eCO2/tonnes/yr

Farm nutrient budget

LOSSES FROM ROOT ZONE


	TOTAL LOSS (KG/YR)	LOSS PER HA (KG/YR)
Nitrogen	4,008	26
Phosphorus	95	0.6

NUTRIENTS ADDED (KG/HA/YR)		N	P	K	S	CA	MG	NA
Fertiliser, lime and other	✓	82	6	54	19	8	0	0
Irrigation		0	0	0	0	0	0	0
Supplements	✓	32	7	20	5	3	3	2
Rain/clover fixation	✓	99	0	2	5	3	6	28

NUTRIENTS REMOVED (KG/HA/YR)		N	P	K	S	CA	MG	NA
Leached from root zone	✓	26	0.6	21	39	66	24	45
As product		58	10	13	3	14	1	4
Transfer	✓	0	0	0	0	0	0	0
Effluent exported		0	0	0	0	0	0	0
To atmosphere	✓	63	0	0	0	0	0	0
As supplements and crop residues	✓	5	1	2	0	1	1	1

CHANGE IN POOLS (KG/HA/YR)		N	P	K	S	CA	MG	NA
Organic pool	✓	21	3	2	-18	0	0	0
Inorganic mineral	✓	0	11	-8	0	-1	-1	-5
Inorganic soil pool		30	-15	57	0	-68	-15	-15


Effluent report

 The report shows rates and target areas for farm liquid effluent only, assuming it is all applied to pastoral blocks. It excludes any farm solid effluent or imported effluent that may be added to effluent blocks. If this occurs, then target areas may need to be increased.

CURRENT AREA RECEIVING LIQUID EFFLUENT	
Total area including crops	23 ha
Pastoral area receiving liquid	23 ha
% of farm pastoral area	22%
Average liquid effluent	111 kg N/ha/yr
Average fertiliser	101 kg N/ha/yr
Average other	1 kg N/ha/yr
AREA OF FARM TO APPLY ALL EFFLUENT TO ACHIEVE RATES OF	
150 kg N/ha/yr - Liquid	17 ha - based on the amount of effluent generated on the the farm and sprayed from sump.
150 kg N/ha/yr - Solid	15 ha
150 kg N/ha/yr - Total	32 ha
Maintenance K	135 ha
100 kg K/ha/yr	58 ha
SOURCE OF N IN EFFLUENT BLOCK(S)	
Effluent from farm dairy	60%
Effluent from Feed pad	0%
Effluent from Standoff pad	0%
Effluent from Uncovered wintering pad/shelter	0%
Solids	40%
Exported	0%

Year ending 2019

Analysis type	Year end
Is publication	No
Application version	3.0.2.2
Printed date	28 May, 2020, 8:18PM
Model version	6.3.2

 The GHG and Production footprint reports have been developed using IPCC global warming potentials. You can print this page by selecting print under the browser menu. Landscape is recommended for this report.

GREENHOUSE GASES



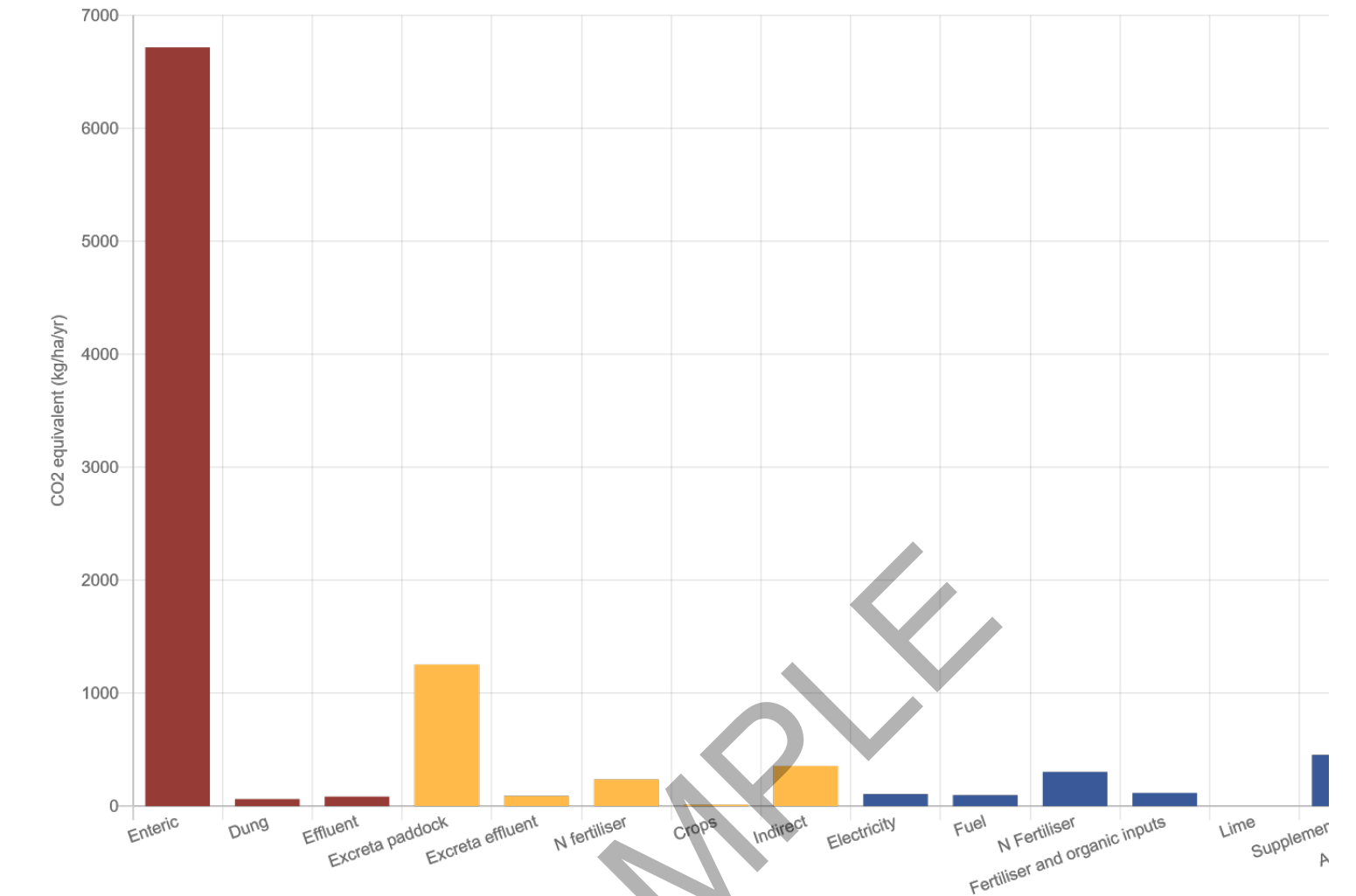
Emissions by source

EXAMPLE

METHANE		EC02/KG/HA/YR 6864
Enteric	▼	6716
Dung		63
Effluent		85

N2O		EC02/KG/HA/YR 1951
Excreta paddock		1254
Excreta effluent		91
N fertiliser		237
Crops		13
Indirect		356

CO2		EC02/KG/HA/YR 1169
Electricity		107
Fuel		98
N Fertiliser	▼	303
Fertiliser and organic inputs	▼	118
Lime	▼	0
Supplements	▼	454
Animal transport	▼	3
Other	▼	88



Total farm emissions

TOTAL FARM EMISSIONS IN TONNES			
METHANE GHG EMISSIONS	N2O GHG EMISSIONS	CO2 GHG EMISSIONS	TOTAL GHG EMISSIONS
1063.9 eCO2/tonnes/yr	302.4 eCO2/tonnes/yr	181.2 eCO2/tonnes/yr	1547.5 eCO2/tonnes/yr

PRODUCTION FOOTPRINT

The following table lists carbon dioxide equivalent (eCO2) footprints in KGs on a per production unit and per product basis.

ENTERPRISE	KG ECO2	KG ECO2/KG WOOL	KG ECO2/KG MILK SOLIDS	KG ECO2/ANIMAL WEANED	KG ECO2/KG MEAT LWT
Dairy	4,183 per cow		9.3	272.9	60.7
Exported supplements	0 per ha				

You do not have any forests set up for the carbon stock tool. Please edit your tree blocks and add forests to view details for your farm.

[+ ADD FORESTS](#)

EXAMPLE