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NEW ZEALAND



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Partners Networking To Advance North Island Dairying

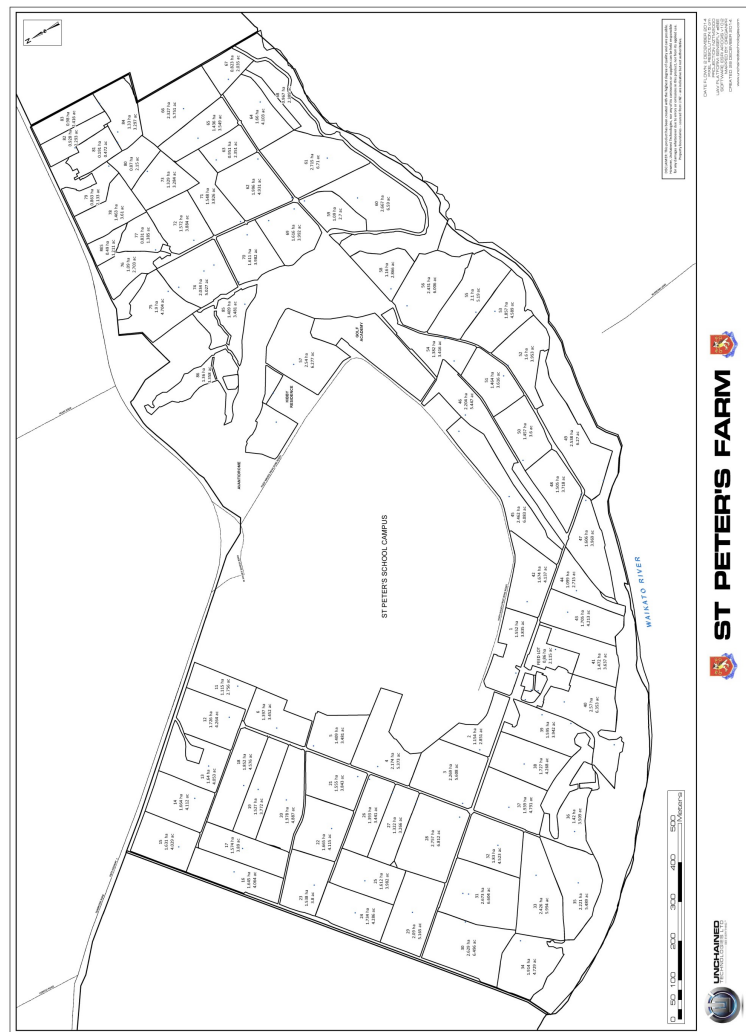


Phone: + 64 7 827 9899

Fax: +64 7 827 9812

Email: demofarm@stpeters.school.nz

ST PETER'S SCHOOL & LINCOLN UNIVERSITY DAIRY FARM FOCUS DAY 2nd April 2015



Staff:

Doug Dibley - Demonstration Manager

Frank Keoghan - Farm Manager

Chris Sclater (from 20 April) - Assistant Manager

Brent Heslop - Assistant Manager (Temporary)

Farm Assistant - Advertised

St Peter's Hazards Notifications:

1. Children are the responsibility of their parent or guardian
2. Normal hazards associated with a dairy farm
3. Other vehicle traffic on farm roads and races
4. Races may be slippery



DATE: 14 JAN 2024 08:14
 PROJECT: ST PETER'S FARM
 USER: JAMES BROWN
 CREATED BY: JAMES BROWN



ST PETER'S FARM



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ST PETER'S SCHOOL LINCOLN UNIVERSITY

DEMONSTRATION DAIRY FARM

Goal

To apply proven research, utilising good on farm practice and scientific monitoring for the farm to become an exemplar in dairy production, economic performance and environmental footprint.

Strategic Objectives

Work in collaboration with the wider dairy industry and community to maximise sustainable profit embracing the whole farm system by:

- Increasing productivity;
- Achieving an acceptable farm environmental footprint;
- Meeting or exceeding animal welfare targets;
- Providing leadership to dairy farmers by demonstrating practices that can be achieved by progressive farmers;
- Demonstrating career opportunities to students;
- Provide educational opportunities for students.

Farm Development Stages

The development of farming systems and demonstration activities of the farm will proceed in two stages:

Stage 1

Establish credibility by addressing current issues and performance, whilst setting up the farm for future development (Years 1-3; 2014/15-2016/17).

Specific objectives during stage 1.

- To establish the St Peter's School Lincoln University Dairy Farm so as to develop and demonstrate good practice in pasture based dairy farming systems and to transfer them to dairy farms
- To generate profit through tight control management with appropriate reinvestment
- To appoint a Farm Demonstration Manager
- To delineate areas of farm assigned to milking platform, dairy support and wintering
- To include the farms full environmental footprint, land requirement and resource efficiency in system decision making and reporting
- To use good environmental management systems in the development and implementation of farm practices that achieve sustainable growth and profit and protect the wider environment
- To engage with WRC and WRA staff to accelerate progress towards their goals relating to the environment and Waikato River.
- To develop a communications plan (including photos of the journey to establish and develop the demo farm).
- To implement optimal use of all nutrients on farm including, effluent, fertilizer, nutrient imported from supplements.
- To implement nutrient recycling so that there is no significant contamination of water and that the farm meets all resource consents.
- To show leadership in establishment of biodiversity management practices relevant to the Waikato.
- To implement a staff training matrix.
- To implement a Health & Safety plan.





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- To implement a time and motion study for staff with associated rosters.
- To optimise pasture growth and pasture management so that cows consume as much metabolisable energy as practical from grazed pastures and supplements.
- To achieve industry targets for mating performance with a 10 week mating period, including a 6 week in calf rate of 78% and 10 week in calf rate of greater than 90% (empty rate < 10%).
- To assist St Peter's school and Lincoln University to attract top quality domestic and international students into their organisation and into the New Zealand Primary Sector.

Stage 2

Develop in conjunction with partners, higher risk strategies to lead sustainable profit (Years 4-6; 2017/18-2020-2021). The farm system will be developed over years 1-3 and reflect demonstration requirements of industry that are relevant and appropriate at that time point.

Specific objectives during stage 2

- To push boundaries of sustainable profit through increasing productivity without increasing the farms environment foot print.





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PARTNERS

St Peter's School Trust Board and Lincoln University have formed a joint venture to operate the St Peter's School- Lincoln University Demonstration Dairy farm using the existing St Peter's Dairy Farm.

Together we have sought partners to assist the farm achieve the goals Grant has outlined.

We are extremely pleased to confirm seven quality organisations have signed up as partners.

These partners are:



DOUG DIBLEY,

DEMONSTRATION FARM MANAGER



Doug Dibley has been appointed Demonstration Manager starting on Monday (30 March). Doug's role is to plan, direct, control and review all demonstration farm activities to sustainably optimise its performance.

Doug is the 5th generation of a family dairy farm within the environmentally challenged Lake Rotorua catchment.

Having boarded at St Peter's for 5 years Doug moved South to the University of Canterbury where he studied Geography focusing on resource and environmental management, after which he achieved a Bachelor of Science with 1st class Honours.

Doug briefly worked for Bay of Plenty Regional Council as a Dairy Environmental Liaison before taking up a role with Fonterra as a Sustainable Dairy Advisor. After two and a half years in this role Doug took up an Environment Programme Lead role looking after Fonterra's effluent management programme. After a further two and a half years Doug moved to Opus Rural where his focus was on farm environmental management plans as a Senior Rural Consultant.

Doug is incredibly passionate about the continued success of the dairy industry and sees the St Peter's Lincoln University Joint Venture as a key piece to ensuring dairy can continue to be economically profitable while remaining environmentally sustainable.





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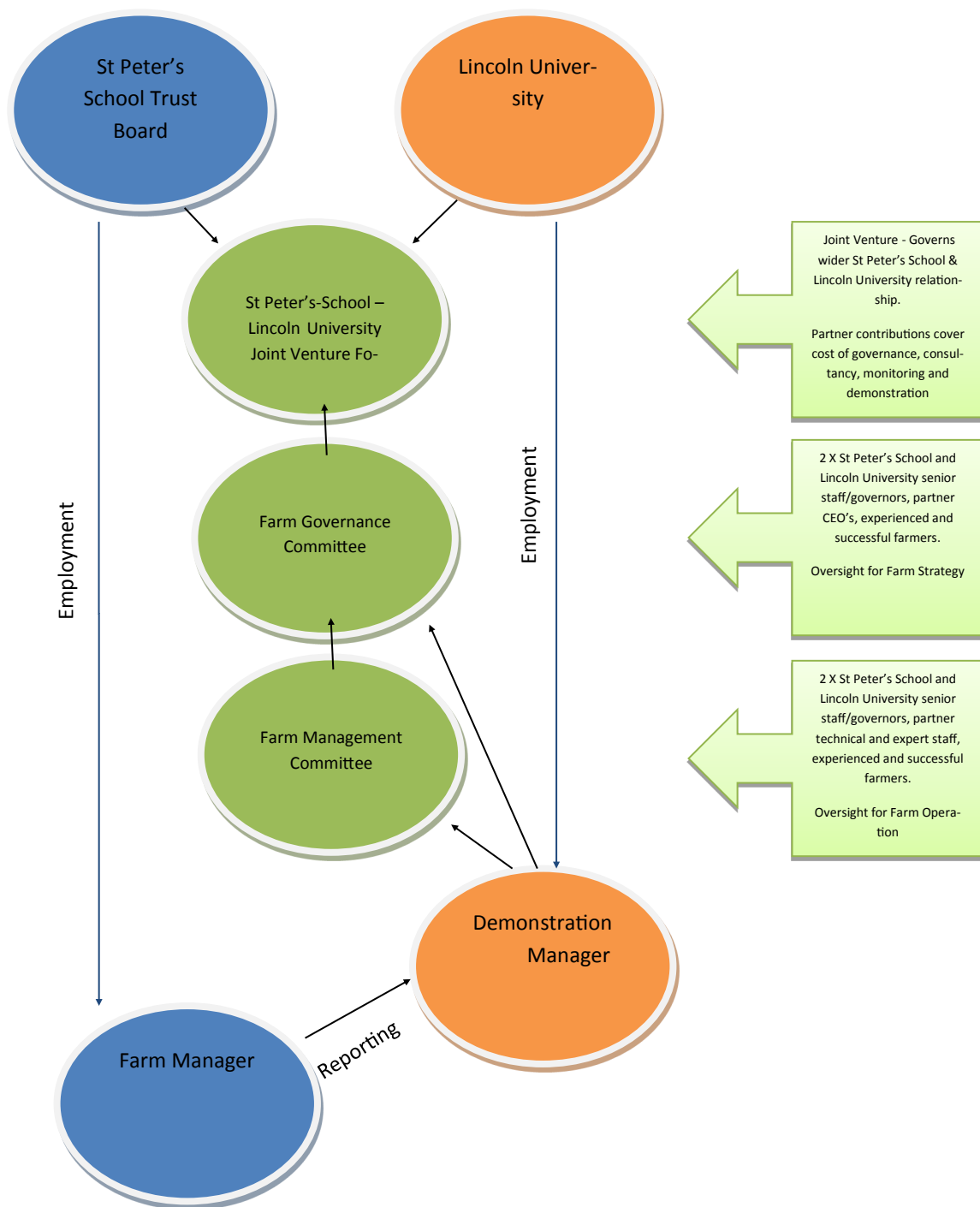


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ORGANISATIONAL STRUCTURE



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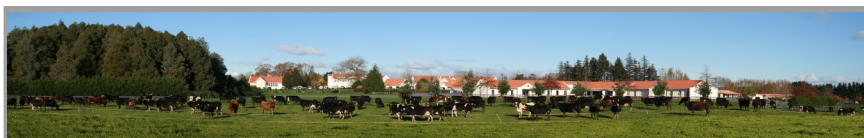
CURRENT COMMITTEE MEMBERSHIP

JV Forum:

- ⇒ David Heald, St Peter's Trust Board (Chair)
- ⇒ Andrew West, Lincoln University
- ⇒ Cameron Holmes, St Peter's Trust Board
- ⇒ Steve Robb, St Peter's Principal
- ⇒ Grant Edwards, Lincoln University
- ⇒ Stefanie Rixecker, Lincoln University
- ⇒ John Fegan, St Peter's Trust Board
- ⇒ Marc Scott, St Peter's Business Manager
- ⇒ Tony Moffat, Lincoln University

Farm Governance Committee:

- ⇒ David Heald, St Peter's Trust Board (Chair)
- ⇒ Andrew West, Lincoln University
- ⇒ Cameron Holmes, St Peter's Trust Board
- ⇒ Grant Edwards, Lincoln University
- ⇒ Keith Cameron, Lincoln University
- ⇒ John Fegan, St Peter's Trust Board
- ⇒ Steve Robb, St Peter's Principal
- ⇒ Marc Scott, St Peter's Business Manager
- ⇒ Martin Bennett, Dairy Farmer
- ⇒ Tim Montgomerie, Dairy Farmer
- ⇒ Tony Moffat, Lincoln University
- ⇒ Bruce Thorrold, DairyNZ
- ⇒ Richard Hopkins, Ballance
- ⇒ David Green, PGG Wrightson Seeds
- ⇒ Geoff Corbett, LIC
- ⇒ Roger MacGibbon, OPUS
- ⇒ Tony Brooks, Westpac
- ⇒ Fonterra, TBC



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Farm Management Committee:

- ⇒ Cameron Holmes, St Peter's Trust Board (Chair)
- ⇒ Grant Edwards, Lincoln University
- ⇒ Keith Cameron, Lincoln University
- ⇒ Marc Scott, St Peter's Business Manager
- ⇒ Doug Dibley, Demonstration Farm Manager
- ⇒ Mark Dodd, Farm Advisory
- ⇒ Doug Storey, Dairy Farmer
- ⇒ Martin Bennett, Dairy Farmer
- ⇒ Tim Montgomerie, Dairy Farmer
- ⇒ Tony Moffat, Lincoln University
- ⇒ Bruce Thorrold, DairyNZ
- ⇒ John Elliott, Ballance
- ⇒ Charlotte Westwood, PGG Wrightson Seeds
- ⇒ Jack Hooper, LIC
- ⇒ Marc Dresser, OPUS
- ⇒ Mark Wisniewski, Westpac
- ⇒ Fonterra, TBC



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ST PETER'S SCHOOL

DEMONSTRATION FARM DETAILS

Objectives of year One and Two

The objective is to maximise our current system and dramatically improve our sustainability. It is also about getting the bench marks for the property for future comparison.

We have undertaken two modelling exercises to look at different scenarios to help set future long term strategies and we have done accounts analysis to assess our starting point.

Area: Milking 160.78 hectares effective
Free hold land 142 hectares
Lease land 38 hectares

The area that has been available has varied from year to year depending mainly on availability of lease land from the McGrath block. The area going forward will be set in concrete so that we have a fixed base and this will be the freehold area Owned by St Peters.

For the 2014-15 season the milking area decreased by 15 hectares from the previous season.

There is an additional 20 hectares of lease land which would only be in the area of 15 hectares effective that has traditionally been used for replacement stock. This area is extremely dry and burns off in the summer.

Soils: Vary dramatically from heavy clays to light sands and the topography is of flat contour over three terraces. And the farm is long and thin in nature with 3.4 kilometres bounding the Waikato river.

Soil type definition

found in what area of the farm

Otorohanga deep clay	SHI, river and centre north.
Pukehina deep sand	north of farm
Kainui deep silt clay	behind the kahikatea's
Turangi deep sand	deer block
Rotokauri deep clay loam	school grounds
Kaipaki deep peat	gully below velodrome

Fertility: pH average 6.0
Phosphate 53
Potassium 9
Sulphur 15
Magnesium 122

Nitrogen: For last three seasons around 177 of nitrogen kilograms per hectare.



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Production:

	2011/12	2012/13	2013/14	2014/15
Production kgs MS	181,625	153,049	158,207	200,000 est
Cows Milked	465	453	446	453
Calves reared	174	171	158	150
Heifer grazed	100	102	112	104
Production/ha	1,094	945	993	1,250 est

Stock:

BW 147/48 PW 196/69

Historically there has been a lot of AB mating used using DNA semen and mating all the yearlings to AB with herd now in the top 3% in NZ. The objective has been to rear as many heifer replacement animals as possible and sell surplus usually February.

There has been six weeks AB followed by a further 10 weeks use of the bulls.

Calving Date: Cows and heifers 12th July with cows and heifers being on the same date.

Cowshed: 36 bale rotary shed with cup removers, built in 1970 and the plant is Waikato. Need to run two herds as yard has only capacity to hold 400 cows.

Effluent: Pond system with irrigation over 36 hectares using a Briggs model 10 irrigator

Staff: Has consisted of a Manager and one full time assistant and casual labour.

Cropping: Nil. But have done a lot of under sowing in some years such as last year's drought.

Supplement: The farm has made between 100 to 200 tonnes of grass silage a year depending on year and available hectares.

Palm Kernel has been used and in the 2013-14 season 460 tonnes were used and this season it was reduced to 400 tonnes.

Baseline Analysis: Undertaken by Intelact and Headlands and benchmarked with DairyBase

2013-14	St Peters	Waikato Benchmark
Cows/ha	2.89	3.1
Kgs MS/ha	993	1209
MS/cow	344	389
Gross Farm Revenue/ha	\$8,996	\$10,074
Operating Expenses	\$5,269	\$6,513
Operating Profit/ha	\$3,727	\$3,562
Operating Exp/MS	\$5.30	\$5.39
Return on Assets	5.8%	7.8%
Cows/FTE	245 **	139
Milk Prod as% live wt	74.8	
Pasture harvested	11.5	

** manage replacement stock





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1. Low expenses and lower income
2. Feed conversion efficiency and pasture harvested average.
3. Produce 70-80% of bodyweight and top 10% achieve 90%. Don't need to increase bodyweight per hectare to get more efficiency.
4. Running high number of cows per FTE and not getting efficiency there.

Computer Modelling: FarmMax and Udder

Again looking for opportunities for improvement in the future.

Current Farm Situation

Cows	400
Production	1.4 MS
Rotation	40 days
Supplement	6 kgs Maize

What has been identified

1. Reasonably large surpluses of feed in early September and excellent winter growth. Pasture covers were too high over the winter period.

Reaction: Have moved the calving date of the heifers to 1 July and the cows to 7th July. Use short gestation semen and taken bulls out on the 12th December cutting calving period to 12 weeks. Only 5-6 cows in weeks 11 and 12.

Result 10% empty with the use of 136 CIDRs

2. Heifers are not entering the herd big enough and fat enough. The reason being that the lease land is too dry over the summer and hence the stock encroach on the dairy unit and are under fed. They have been producing 70% of mature body weight with the industry target of 76%.

Reaction: We have secured off farm grazing where we will send the calves off early December. This year they went off mid-January. We will be monitoring live weights going forward.

3. Very Young herd of High BW merit, but incurring high mating costs.

Result: Large income from stock sales, but big impact on feed to milkers and high mating costs and variable returns.

Action: Not mating yearlings, cut AB back, lowering the number of replacements.





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4. Feed Surpluses: Issues with identifying surpluses and capturing them. Resulting is a lot of topping. Very difficult and time consuming to pasture score the property so our utilisation of feed has not been high.

Actions: Purchased automated pasture meter. Cut measurement time from 8 hours to 2.5 hours and takes 31 kilometres to do.

5. Very summer dry: Which has resulted is a very short lactation period – dry in March.

Actions: Have sown 13 hectares of chicory and fed PK and grass silage to fill this gap. Used three different soil types and two cultivation techniques. Would appear the direct drilling on the heavier soils gave the best results and would say over all it has worked well, but need to avoid the very light soils in future as yield could have been as low as 8 tonnes per hectare.

6. Leases: Potentially non-economic – have looked into economics and have grown some maize and changed their use to supplying feed for the milking platform. Will add that there is 9 hectares on the McGrath property that is milked on and this is charged back to the farm as a cost of feed.

Maize – 9.9 hectares – not ideally set up for this but grabbed the opportunity. Will be feeding in the paddock which is not ideal. Looking into future options. Unfortunately we have only grown 17.4 tonnes of maize and suggest that this likely to be uneconomic and looking at the costs now.

7. Supplement Wastage: PK has been stored in silage bunker and fed in car trailers. Some estimates that wastage is as high as 30%.

Action: Purchase three PK trailers and in process of building covered PK bin.

8. Effluent: Application rates on the high side.

Actions: Have purchased a Cobra irrigator and also in the process of extending the irrigation area and have improved shed stone traps. Applications rates are currently 6.5mm.

9. Long milking times:

Looked into time management and shed performance using Pure Milk and have got substantial improvements. These include cup removal time on ACRs, changed the shells and vacuum. We need to change milk line from 50 ml to 100 ml.

10. Pastures: A lot of room for improvement, but much of it related to dryness. However there is a serious weed issue specifically Penny Royal and Hedge Mustard.

Action: Will winter spray. Also where the summer cropping program will come into play. We have seven paddocks that come out of trial work next season that will all need renovation.





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11. Fertiliser: High fertility

Action: Have applied very little fertiliser and mainly MOP to the two lower terraces. Will undertake soil testing in every paddock this coming spring trying to get a more accurate baseline on this area.

Nitrogen: Have used on the milking platform 88 kilograms N per hectare and the likelihood of using a further 40 kilograms of N per hectare.

12. Procedure Manuals: Improved- Up dated and increased. Great work has been done in this area by Fegan and Co and Frank Keoghan our farm manager.

13. Staff Management: Identified that we need three full time staff and are currently in the process of employing now. We have installed a photo time clock courtesy of Fegan and Co. Feed back seems to be positive and not difficult to use.





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DairyBase report for Waikato Owner operator

For season 2013-14

Date Printed: 23/03/2015

Disclaimer: This report and the data and information in it ("Information") is intended as general information only and is not intended as general or specific advice. All implied warranties in respect of the Information are expressly excluded. DairyNZ does not warrant that the Information is complete or accurate. DairyNZ will not be liable (whether in contract, tort (including negligence), breach of statutory duty, or otherwise) to any person who has received or relied on this report or the Information.



Benchmark Group Selected by: Waikato Owner operator

Number in Benchmark Group:	155	226	154
	2013-14	2012-13	2011-12
FARM PHYSICAL KPI's	Benchmark	Benchmark	Benchmark
Cows/ha	3.1	3.0	3.0
Kg Milksolids/ha	1,209	1,079	1,173
Kg Milksolids/cow	389	361	391
Cows/FTE	139	138	138
Kg Milksolids/FTE	53,972	49,966	53,969

PROFITABILITY	2013-14	2012-13	2011-12
Dairy			
Gross Farm Revenue/ha	10,074	7,455	8,614
Operating Expenses/ha	6,513	5,474	5,514
Operating Profit/ha	3,562	1,981	3,100
Gross Farm Revenue/kgMS	8.33	6.91	7.34
Operating Expenses/kgMS	5.39	5.07	4.70
Operating Profit/kgMS	2.95	1.84	2.64
FWE/kg MS	4.69	4.23	4.02
Operating Profit Margin %	35.4%	26.6%	36.0%
Asset Turnover %	19.2%	15.2%	18.7%
Operating Return on Dy Assets %	6.6%	3.9%	6.5%
Total Business			
Interest & Rent/Total Revenue	14.5%	19.8%	18.8%
Interest & Rent/kg MS	1.23	1.41	1.41
Total Return on Assets %	7.8%	7.0%	9.4%
Return on Equity % (excluding change in capital value)	7.2%	2.0%	6.4%
Total Return on Equity %	9.8%	8.2%	12.4%

TOTAL WEALTH	2013-14	2012-13	2011-12
Growth in Equity %	7.2%	9.4%	11.0%
Debt to Assets %	41.2%	40.7%	44.3%
Opening Liabilities/kgMS	19.27	20.90	19.70
Opening Liabilities/kgMS	19.39	21.20	19.58

Printed: 23/03/2015

Benchmark Group Selected by:	Waikato Owner operator
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	2013-14	2012-13	2011-12
Number in Benchmark Group	155	226	154
Kg Milksolids/ha	1,209	1,079	1,173
Kg Milksolids/cow	389	361	391
Cows/FTE	139	138	138

GROSS FARM REVENUE (GFR)	\$/kgMs	\$/ha	\$/cow	\$/kgMs	\$/ha	\$/cow	\$/kgMs	\$/ha	\$/cow
Net Milk Sales	7.74	9,360	3,009	6.33	6,834	2,285	6.77	7,945	2,651
Net Dairy Livestock Sales	0.43	523	168	0.44	479	160	0.40	469	156
Value of Change in Dy Livestock	0.11	135	43	0.08	81	27	0.11	134	45
Other Dairy Revenue	0.05	57	18	0.06	61	20	0.06	66	22
DAIRY GROSS FARM REVENUE	8.33	10,074	3,239	6.91	7,455	2,493	7.34	8,614	2,874
Total GFR (Incl non-dairy)									
OPERATING EXPENSES									
Labour Expenses									
Wages	0.68	825	265	0.65	700	234	0.60	701	234
Labour Adjustment - Unpaid	0.06	75	24	0.07	76	25	0.07	78	26
Labour Adjustment - Management	0.26	319	103	0.31	332	111	0.27	314	105
Total Labour Expenses	1.01	1,219	392	1.03	1,108	371	0.93	1,093	365
Stock Expenses									
Animal Health	0.25	306	99	0.25	268	90	0.23	272	91
Breeding & Herd Improvement	0.13	157	50	0.14	154	51	0.12	137	46
Farm Dairy (Farm dairy, Water supply)	0.06	73	24	0.06	62	21	0.05	63	21
Electricity	0.11	127	41	0.11	113	38	0.10	113	38
Total Stock Expenses	0.55	664	213	0.55	596	199	0.50	586	195
Feed Expenses									
Supplement Expenses									
Net Made, Purchased, Cropped	1.60	1,939	623	1.18	1,275	426	1.09	1,282	428
Less Feed Inventory Adjustment	0.05	56	18	-0.02	-24	-8	0.05	64	21
Calf Feed	0.04	51	17	0.03	28	9	0.02	26	9
Total Supplement Expenses	1.60	1,934	622	1.23	1,327	444	1.06	1,244	415
Grazing & Support block Expenses									
Young & Dry Stock Grazing	0.25	303	97	0.27	288	96	0.25	288	96
Winter Cow Grazing	0.00	3	1	0.00	5	2	0.01	17	6
Support block Lease	0.06	67	21	0.07	73	24	0.06	67	22
Owned Support block Adjustment	0.06	72	23	0.07	77	26	0.06	67	23
Total Grazing/Support block exp.	0.37	444	143	0.41	442	148	0.37	439	147
Total Feed Expenses	1.97	2,378	765	1.64	1,769	591	1.43	1,683	562
Other Working Expenses									
Fertiliser	0.38	462	149	0.38	407	136	0.43	506	169
Nitrogen	0.06	67	22	0.09	92	31	0.08	91	30
Irrigation	0.01	8	2	0.00	2	1	0.00	0	0
Regrassing	0.07	85	27	0.07	72	24	0.05	57	19
Weed & Pest	0.03	39	12	0.03	34	11	0.03	37	12
Vehicles	0.15	182	58	0.16	174	58	0.15	177	59
Fuel	0.05	59	19	0.05	51	17	0.05	54	18
R & M - land & buildings	0.32	384	124	0.26	278	93	0.28	328	109
R & M - plant and equipment	0.09	110	35	0.08	86	29	0.08	95	32
Freight and General	0.04	54	17	0.05	50	17	0.05	53	18
Total Other Working Expenses	1.20	1,449	466	1.15	1,246	417	1.19	1,399	467
Overheads									
Administration	0.11	137	44	0.12	129	43	0.11	130	43
Insurance	0.05	65	21	0.06	61	20	0.05	57	19
ACC	0.02	30	10	0.02	26	9	0.03	40	13
Rates	0.12	141	45	0.13	138	46	0.11	126	42
Depreciation	0.36	430	138	0.37	401	134	0.34	401	134
Total Overheads	0.66	803	258	0.70	754	252	0.64	754	252
DAIRY OPERATING EXPENSES	5.39	6,513	2,094	5.07	5,474	1,831	4.70	5,514	1,840
Total Operating Exp. (incl non-dairy)									
OPERATING PROFIT									
DAIRY OPERATING PROFIT	2.95	3,562	1,145	1.84	1,981	662	2.64	3,100	1,034
Total Operating Profit (incl non-dairy)									

Implementation Plan

