

Kellogg Rural Leaders Programme

2017

Releasing our Future

What would a lease agreement need to look like to
make it a viable replacement for herd owning
sharemilking in terms of land ownership transfer?

Rhys Roberts



Table of Contents

Table of contents	2
1.0 Executive Summary	3
2.0 Introduction	4
3.0 Literature review	5
4.0 Methodology	6
5.0 Trends	7
5.1 Milk price	7
5.2 Land price	9
5.3 Herd owning sharemilking Analysis	9
5.4 Farm ownership pathways	11
6.0 What is lease farming?	13
6.1 Items to include in a lease agreement	14
7.0 Financial Outcomes	16
7.1 How was this lease example structured?	16
7.2 Lessor	17
7.3 Lessee	19
8.0 Lease agreements outcomes	22
9.0 Sensitivity analysis	24
10.0 Improvements to contracts	26
11.0 Conclusions	27
12.0 References	28

1.0 Executive summary

This report aims to identify a pathway for dairy farmers to move from land farmers to land owners. In this report, I single out a pathway known as lease farming and analyse the feasibility and financial pathway to farm ownership over a ten-year time frame.

To begin I set the scene on trends formed over the last decade in our dairy sector. I analyse milk price, land price, debt levels and track the statistics behind the decline in Herd Owning Share Milkers or HOSM.

Within this report is the numerical and financial data of an example lease contract I have created. This example has been designed for this report and is not currently in use. I have analysed varying examples of 'in use' lease contracts and have created a contract that suits the objectives I have set out.

The key fundamental to this report is for land ownership transfer from lessor to lessee. This can be measured by the lessee's equity level being greater than 25% of the total dairy business at year ten. I have factored in the ability to maintain relationships with farm owners as well as rural professionals, being an underlying benefit to the lessee to take ownership at year ten.

I conclude by addressing the need to look towards the future when determining our next pathway through the dairy industry and how we can make the current environment work for ourselves.

We produce food in an ever-changing world but one thing remains the same, we need to retain our land in our hands because we are the only ones who do kiwi.

2.0 Introduction

With the continued drop in Herd Owning Share Milking positions available in New Zealand the traditional pathways to farm ownership look bleak. Our traditional path worked well for many years as New Zealand chased the commodity market, largely in whole milk powder. This is where the HOSM pathway worked so well. The farmer was incentivised to produce milk and as much as possible. Today's markets are different. We are faced with fragile commodity markets along with social pressures unseen before in New Zealand. The shift from quantity to quality has begun and this has started to affect our pathway options with a decrease in HOSM positions. Further to the operational matters facing the dairy industry, we are faced with foreign buyers snapping up our land at a rate unseen before in New Zealand. Foreign ownership brings new philosophies to how land is managed and funded. Low debt levels and lower expectations on return on investments creates opportunities we need to explore.

Table 1: Trend in the number of dairy farms and share milking positions over the past 20 years

	1995	2005	2010	2015
All farms	14,597	11,883	11,691	11,970
All sharemilkers	5016	4260	4041	3879
Herd-Owning Sharemilkers	3614	2719 (-90/yr)	2303 (-80/yr)	2050 (-50/yr)

Source – Dairy progression pathway and impact of volatility.

This report aims to investigate if leasing dairy farms can generate the equity required to get into farm ownership whilst maintaining ROI for the current land owner to manage and service debt levels. The outcome would be forecast over a ten-year time frame.

Researched questions

- 1 Can the lessee buy the farm over a ten-year period with 25 – 35 % equity in the purchased dairy farm?
- 2 Can the farm owner make a realised 5% gain per annum?

3.0 Literature review

The search for relevant literature was implemented on how lease farming has been structured in the past and views on the future. Themes were very evident throughout this process including a type of ratchet clause to create a variable payment scheme. I also noted strong emphasis on controlling the inputs and outputs of the said property from fertiliser inputs to fencing requirements. I have identified one piece of literature that is of relevance to my topic and allows me to review and refine.

25 % leasing. Fraser, D. (2016).

This article explains the need for a new model of lease farming to diversify away from our traditional fixed price lease contracts. It discusses how the increases in payout at the time was causing issues to the current lease model and was a relevant time to look at the structure of lease agreements.

A point I noted was that items identified in the article are based around increasing the return on investment for the land owner, however there was no reasoning around the long-term effect that by increasing the income to the land owner, this could have a detrimental effect of our next generation building the equity required to become land owners. I acknowledge that the ROI in my example lease agreement does not respect the level of owners invested equity.

A ratchet clause was adopted so that there was minimal risk to the owner regarding payout drops whilst maximising the effect a high pay out had on his bank account. My proposed lease agreement will take this method into account by setting a minimum price whilst limiting the high increase of payment at peak milk payout seasons.

An issue Fraser resolved was how the payment was made. This was addressed by both parties receiving payment at point of sale; in this case from the milk company. This method will be highly effective at limiting poor administration and communication break downs. I see this method as being a great and effective way to make payment but see some limitations around how the variables of milk payout are apportioned.

4.0 Methodology

A variety of methods have been used to collect data needed for this report.

- Survey
- Literature review
- Interviews
- Numerical budgets

Survey

A survey was developed to generate data on how current farmers see their progression pathways unfolding. This was done via Survey Monkey. The following social media platforms were used to raise awareness and gather responses to the survey. I received 69 Responses to this survey.

- Facebook
- Twitter

Rural professionals

Meetings and interviews were held with rural professionals to gather insight into issues and solutions.

- Bankers
- Accountants
- Lawyers
- Rural valuation agents
- Real estate agents
- Consultants

Interviews

Interviews conducted with past and present dairy farm lessors and lessees.

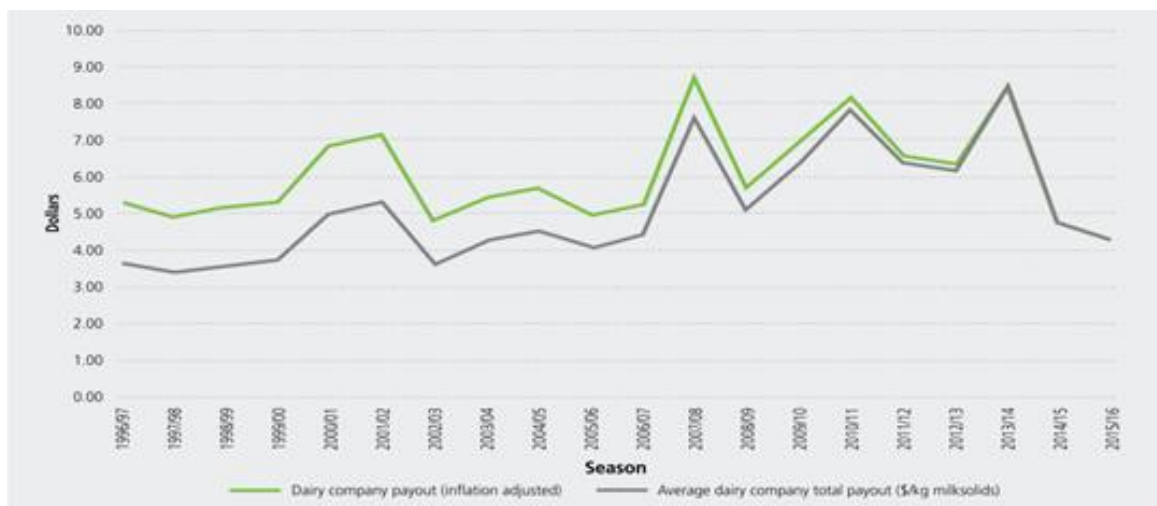
5.0 Trends in our dairy sector

This chapter examines the trends over the last ten seasons within the New Zealand dairy sector. This will provide the data that is used later in the report to analyse the financial viability and provide background context to this report.

5.1 Milk price

Milk price data over the previous two decades in New Zealand on inflation adjusted data have been tracking upwards. Although the later years have a severe drop in pay out to farmers. This volatility has been a contributor to the slowing in HOSM positions coming available and stagnated equity growth.

Figure 1: Trend in milksoilds payout to farmers over the last 20 seasons



Source – DairyNZ New Zealand Economic Survey 2015-16.

The last ten years, Fonterra farm gate milk price has been an average of \$6.08. This has played a significant role in reducing HOSM positions nationwide. The volatility that has been created in our pay out system is largely due to our commodity based approach. Our largest milk company in New Zealand started the Global Dairy Trade auction system in 2008 and this has since caused pay out volatility. The high payout years of 2010 – 2011 and 2013-2014 have spiked land values whilst the low payout years have made it near impossible to reduce or pay interest and debt. Dairy farm owners have looked for cheaper options of management to reduce farm working expenses and minimise risk. The trend that has been a constant is that for every high payout we have two lower payout the subsequent years after.

Table 2: Fonterra farm gate milk price over the last 10 seasons

Year	Farm gate milk price
2007-08	7.59
2008-09	4.75
2009-10	6.10
2010-11	7.60
2011-12	6.08
2012-13	5.84
2013-14	8.40
2014-15	4.40
2015-16	3.90
2016-17	6.15
Average	6.08

Note: 2016-17 farm gate milk price accurate at time of printing.

Source – interest.co.nz.

5.2 Land price

Over the last five years land prices have been tracking up at around 3.1% per annum on the average sale price per hectare. Prior to the 2015-2016 season greater than 8% increase in land value year on year had been recorded. Whilst land price has been increasing the cost of weighted average sale price, per kilogram of milk solids has stayed relatively similar due to the increase of farm production productivity, driven by the increased levels of debt servicing required.

Table 3: Average sales price and number dairy farms sold

	2011-12	2012-13	2013-14	2014-15	2015-16
Farms sold	157	197	312	244	192
Average \$ sale price/KG MS	40.46	35.61	42.19	44.78	39.33
Average \$ sale price/ha	32,376	33,557	36,369	39,557	36,557
Average \$ sale price/ha (real 2015-16 dollars)	33,402	34,385	36,673	39,742	36,557

Source – DairyNZ Economic Survey 2015-16.

5.3 Herd Owning Sharemilking analysis

The trend in HOSM positions over the last 20 years has seen an average 3.1% drop in HOSM positions per annum this is highlighted in my below figure. My projection is that by 2030 there will be 1200 HOSM positions within New Zealand. This is based on using our 3.1% historic drop in HOSM positions. I would note that in my findings I notice that this trend is compounding and the percentage could increase and in turn decrease HOSM positions quicker than expected.

Table 4: Trend in the number of dairy farms and share milking positions projection to 2030

Year	1995	2005	2010	2015	2020 (est)	2025 (est)	2030 (est)
Farms	14597	11883	11691	11970	11000	11000	10500
Sharemilkers	5016	4260	4041	3879	3500	3200	2900
HOSM	3614	2719	2303	2050	1800	1550	1200

Source – Dairy progression pathway and impact of volatility.

The following table gives a breakdown of the management structures employed on farm in the 2015/2016 season. It is estimated that contract milkers run 1400 dairy farms throughout New Zealand. We currently have 2548 farmers with the next step possibly being HOSM. With my projection of 1800 HOSM positions available by 2020 we need to find another avenue for equity growth within our industry to support farm purchase.

Table 5: Herd analysis by operating structure 2015/2016

Operating structure	Number of herds	Percentage of herds	Average herd size	Average effective hectares	Average cows per effective hectare
Owner-operators	8315	69.8	420	148	2.84
Sharemilkers					
Less than 20%	152	1.3	657	212	3.10
20-29%	821	6.9	444	154	2.88
30-49%	174	1.5	405	144	2.82
50/50	2001	16.8	383	134	2.86
Over 50%	421	3.5	446	153	2.92
All sharemilkers	3570	30.0	417	145	2.89
Unknown	33	0.3	508	196	2.60
All farms	11918		419	147	2.85

Note: Contract milkers included with owner-operators.

Source - DairyNZ New Zealand Dairy Statistics 2015 – 16.

5.4 Farm ownership pathways

In my survey, I conducted via social media. I analysed the data and have found the following trends on dairy farming pathways.

The following table provides a cross section of the dairy industries response to the most effective pathway to farm ownership.

Table 6: What dairy farming pathway do you see the most effective in getting to farm ownership

Answer choices	Reponses
Manager – VOSM – HOSM -Farm ownership	26.67%
Manager – HOSM – Farm ownership	6.67%
Manager – contract milking – HOSM -Farm ownership	46.67%
Manager – VOSM – Farm ownership	13.33%
Manager – Contract milking – Farm ownership	6.67%
Manager – Farm ownership	0.00%
Other	0.00%

Note: VOSM – Variable Order Share Milking.

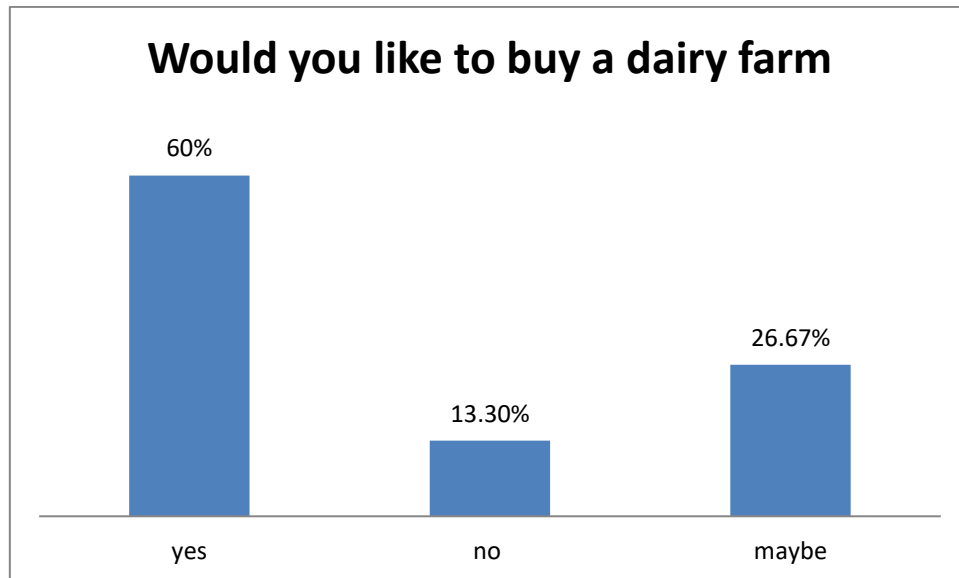
Source – Survey Monkey.

My analysis found that 46.67% of those surveyed believe that the most effective way of getting to farm ownership was to go through the Manager – CM – HOSM – Farm ownership route. Only 20% thought that you could get to farm ownership without going through HOSM pathway.

The analysis that I conducted on my data also shows that responders believed that there was a gap between the equity needed to get into HOSM and an equity gap between HOSM and farm ownership. This is explained by the pathways having a traditional equity building step prior to HOSM receiving 73.34% of the responses verses the having no traditional equity building position prior to HOSM of manager – HOSM – farm ownership only receiving 6.67% of the responses. The traditional equity building stops prior to HOSM have been either a VOSM or contract milking position.

Included in my survey was a question on whether the responders would like to buy a dairy farm or not. I added maybe to get a gauge of how many people were confused on farm ownership availability. Results are analysed and shown below.

Figure 2: Would you like to buy a dairy farm



Source - Survey Monkey.

My survey took a cross section of our industry and shows that 60% of our farmers who are currently not farm owners wanting to purchase a dairy farm. We currently have 3570 farmers in a form of sharemilking plus an estimate of 1400 contract milkers we have a total of 4970 farmers that would fall into this category. With the cross section saying we have 60% of farmers wanting to buy a farm this equates to 2982 farmers. With 80.01% of surveyed farmers wanting to become farm owners believing they need to go through the HOSM pathway to become farm owners, this equates to 2385 HOSM positions needed to fill the demand. Currently there are 2001 HOSM with a 3.1% drop year on year, Again I further emphasise the need to look for new pathways to farm ownership that better suits both farm owners and the next generation to get into farm ownership.

6.0 What is Lease Farming?

Farm Leasing can provide a fixed income and protection against the fluctuations in returns to the land owner. Leasing land is a viable option for the land owner to free up equity required to allow the owner step back from the management of the farm. The farm is retained by the owner so capital gain increases are captured. Likewise, it allows younger farmers to grow their knowledge and asset base gearing towards farm ownership.

The relationship between the land owner in this case the “lessor” and the tenant in this case the “lessee” is governed by the lease agreement. This document tends not to be standard and there are very different models available. Lease agreements vary from payment terms like a percentage of pay out or income or a set per hectare charge these are nearly always on a per year basis. The other variable in the contracts are the permitted or non-permitted use clause. This being effectively rules to comply with around how or what you can use the land for.

Handing over full management of the property to someone is a troublesome process to start with. With employing HOSM you still govern the day to day farming of your property within reason. Signing a lease agreement is slightly different as you are allowing the lessee to farm within the guidelines set out in the lease documents. These documents are very important to get right.

There needs to be trade-offs when agreeing to lease contracts. This arises because the lessor needs to charge as much as he possible can to cover the farm from poor management, whereas the lessee wants to pay as little as possible so he can afford to manage the property to best practice and improve the asset.

During my survey, I asked the following question regarding if leasing had been considered as a pathway to farm ownership. The response was mixed with a slight favor to no.

Table 7: Have you ever considered dairy farm leasing as a pathway option?

Answer choices	Responses
Yes	46.67%
No	53.33%

Source - Survey monkey.

6.1 Items to include in lease document

When documenting or entering a lease agreement the following points are some the need to be included they are not limited to the following.

Table 8: Items to include in lease contract

Permitted use	This is one of the most important clauses in any lease contract, make sure the land use suits your farming entity. IE: Dairy or cropping.
Insurance	Insurance is generally paid by the lessee so make sure it is clear what insurance cover is needed and state the items included.
Maintenance obligations	This clause is generally to suit the land owner and their needs or desires to keep the farm up to standard. An item to be careful of is the difference between maintenance and capital expenditure.
Fertiliser	Fertiliser inputs are dictated in the lease agreement generally only for phosphate and PH requirements. Make sure this suits your farming needs. Something to be aware of is the new environmental laws and how this effects your lease agreement.
Cropping / Regrassing	This will state how many hectares can be cropped and with what type of feed. Regrassing varieties are stated for use and this needs to be addressed. The farm needs to be left when lease contract finishes in a similar cropping programme to the start of lease.
Assignment / sub letting	This clause is set to allow or stop subletting of land to another party. Ie: A lessee of a dairy farm could lease a portion of land to a potato grower for extra income. Subletting is generally allowed in consultation with land owner.
Rent review	Rent Review are put in place yearly or more to allow for fluctuations in incomes or to follow CPI.
Stocking rates and type	This clause will state the total number of animals or type of animal allowed on farm at any one point or throughout the season. Make sure it is clear how this is regulated so there is minimal confusion.
Weeds and pests	Controlling of weed and pests falls to the lessee to control and is generally stipulated by having no flowering weeds on farm.

Tress and hedges	Maintenance of trees and hedges is outlined in the lease agreement. Trimming and care is in control of the lessee. Important to have the standard of the trees at the start of the lease agreement so the outcome is clear.
Inspections	Land owner can have an inspection clause in the contract this can be done by the land owner or consultant employed by land owner. This clause is important to have to keep a healthy tension on both lessor and lessee agreement to the lease contract.
Default	The default clause is designed to set out the process of non-payment or to be in breach of the contract. This is important to have in the contract but be aware it is not to abrasive.
Quiet enjoyment	Quiet enjoyment clause is set out to control how you use the property for the likes of duck shooting. This clause is generally in good faith.

Types of lease payment structures

- Straight lease per hectare
- Percentage leasing of milk pay out, fixed or sliding scale
- Percentage of EBIT per hectare
- Increment leasing or lease with right to purchase
- Lease plus percentage of capital increase

The critical part to setting the payment structure is to keep it simple to understand what the liability is so both parties can plan and budget. The straight lease per hectare is the simplest to format and control. The downsides are that there is minimal incentive for both parties to improve the others situation. Percentage or increment leasing is a way of have both parties aligned to the direction of the property and both parties have a vested interest in the performance of the property. Having the land owner with a vested interest in performance helps with negotiating improvements to the property. Lease to own agreements need a lot of work and planning in the set-up phase but work very good in the implementation stage as lessee has an ownership interest and the end of the term.

7.0 Financial outcomes

This chapter details the lease agreement set up I created to achieve the two outcomes needed on page 4 of this report. The data used is set out in chapter 5.0 of this report.

7.1 How was this example lease structured?

- 1) Sliding scale of payment per KG Milk solids produced.
 - a) 30% of milk payment at \$6 Milk payout or \$1.80 per MS to owner.
 - b) .033% decrease in Percentage for every 1 cent increase on payout above \$6 milk payout.
 - c) Milk payout under \$6 was fixed for owner at \$1.80.
- 2) Farm was valued at entry point at \$36,557 per hectare.
 - a) Lessor and lessee split the capital increase by 50% at year ten.
 - b) un shared milk supply farm.
- 3) Capital improvements are paid for by the lessee.
 - a) Capital improvements total cost subtracted from valuation prior to 50% split.
- 4) Milk production increases were split evenly between parties.
 - a) Payments were made directly from milk company.
 - b) Apportionments were washed up on final milk payment in October.
- 5) The aim of this lease was structured for land ownership transfer at year ten.
 - a) Owner could sell out or continue to partner with lessee on new contract at year ten.
- 6) No debt repayments were accounted for by the owner – interest only for ten years.
- 7) Cows and plant are owned 100 percent by lessee.
- 8) All cost associated with the farm assigned to lessee.

This lease agreement is structured on a ten-year percentage lease to buy agreement. A ratchet clause is included on payout by having a minimum payment to the land owner to de risk his business whilst a milk payout cap in place for the lessor so the lessee can utilise the higher payout years to increase equity. The lessor was entitled to a slight increase in the higher pay out years. The aim is to transfer land ownership at year ten. This was supported by the 50/50 split of the capital increase of the land at year ten. The farm was brought a New Zealand average 2015-16 prices.

7.2 Lessor

The following sets out the terms of the lessor's side of the lease agreement.

- 30% of milk payout as per lease agreement on Sliding scale.
- \$6 milk payout - no shares.
- \$0.08 Per KG/MS factored in for lessor's up side to fixed price sliding scale.
- 150 hectares producing 156,672 milk solids or 1044 MS per hectare.
- Farm value \$36,557 per hectare or \$5,483,550.
- Purchased for \$35 per milk solid produced.
- 40% equity in property or \$2,193,400.
- Lease to purchase.
- Capital improvements sit with lessee and taken off purchase price, 50% split on the capital increase of the property over ten years.

With the agreement format set out we are now working on the lessor receiving \$1.80 per kg Ms produced and the lessee receiving \$4.20. The lessor's costs are debt servicing on the land and depreciation on Cowshed, Implement sheds and Houses. A minimal admin costs was apportioned to owner.

The table below shows the New Zealand average interest costs per kg/Ms per year at \$1.36 in 2015-16. This number is variable and lowers due to the cost of cow purchase sitting in the lessee business as part of the agreement. Average stock plus plant of \$.27 per kg Ms. For this example, owner does not own cows or plant.

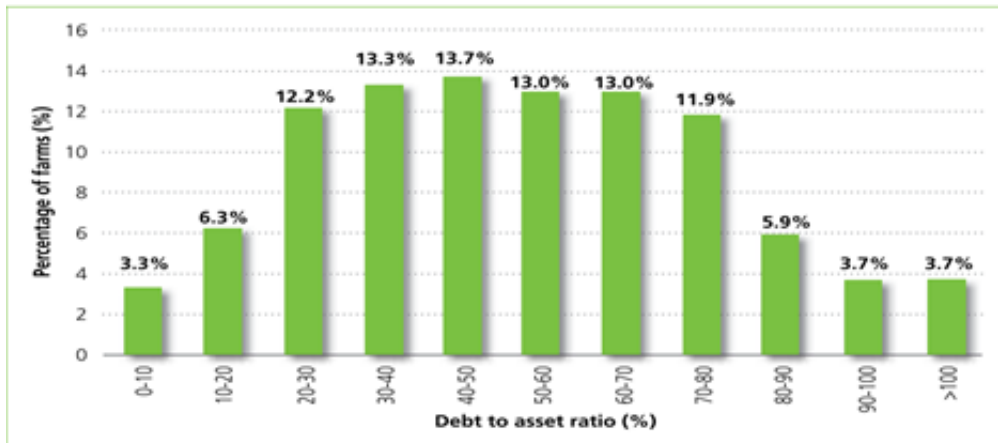
Table 9: Debt servicing ratios

	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Interest & rent \$/kg MS	1.12	1.4	1.71	1.67	1.54	1.31	1.39	1.28	1.36	1.36
Interest & rent % GFR	24.3%	17.6%	30.4%	25.5%	19.6%	18.1%	20.3%	15.5%	21.5%	30.5%
Term liabilities \$/kg MS	14.81	18.68	19.87	21.65	20.44	19.24	20.82	20.14	21.26	22.49

Source – DairyNZ Economic Survey 2015-16.

The major factor influencing the cost of the interest and rent is the debt to asset distribution. The below graph outlines how New Zealand dairy farms spread on this ratio.

Figure 3: Debt to asset distribution: 2015-16



Source – DairyNZ Economic Survey 2015-16.

From figure 3, 48.8% of New Zealand farmers are under 50% debt to asset ratio making lease farming a more viable option. As farmers increase their debt to asset ratio, interest cost per KG/MS increase, making lease farming less viable.

Lessor cost breakdown

Table 10: Breakdown of associated costs for lessor

Lessor	\$ Per KG/MS	Total (\$)
Income	1.80	282,009
Income opportunity of fixed and variable contract	0.08	12,553
debt servicing	1.09	170,772
Deprecation	0.10	15,672
Administration	0.02	3,133
Profit before tax	0.67	104,985
Tax	0.18	29,395
Profit after tax	0.49	75,589

The table above gives a breakdown of the costs associated to the lessor. With this lease agreement, the lessor has an after-tax profit of \$75,589 or a 3.45% return on asset.

7.3 Lessee

- 70% of milk payout as per lease agreement on sliding scale.
- \$6 milk payout - no shares.
- Average production increases mitigate CPI on Farm working expenses.
- 150 hectares producing 156,672 milk solids or 1044ms per hectare
- 525 Cows, \$1,050,000.
- Young stock R1s \$117,900.
- Plant and machinery \$200,000.
- Total \$1,367,900.
- 40% equity or \$547,160.
- Lease to purchase.
- Capital improvements sit with lessee and taken off purchase price, 50% split on the capital increase of the property over ten years.

Lessee cost breakdown

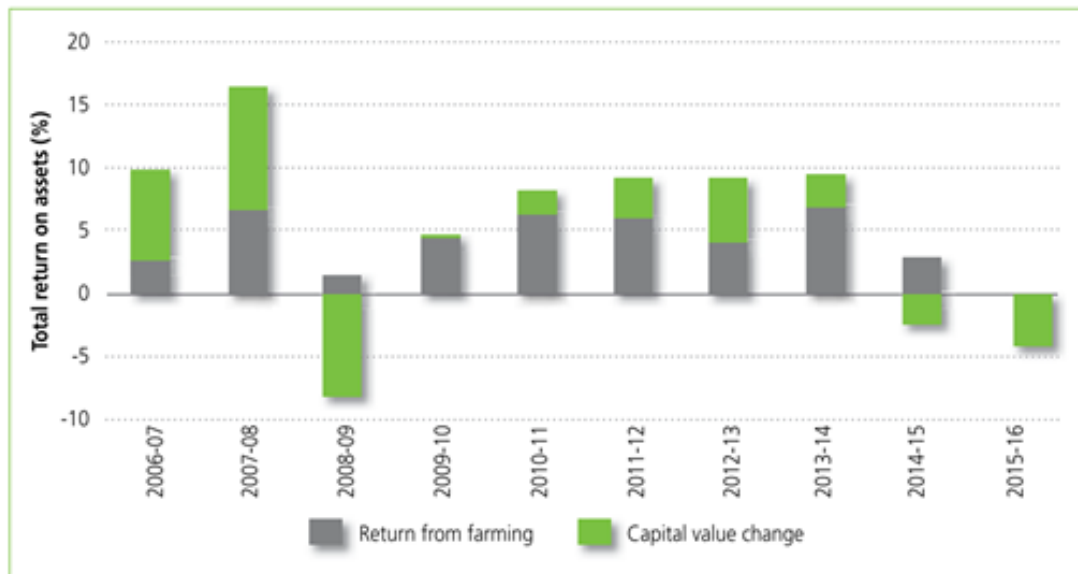
Table 11: Breakdown of associated cost for the lessee

Lessee	\$ Per KG/MS	Total (\$)
Income, milk production	4.20	658,022
Income, net stock sales	0.30	47,001
Farm working expenses mgmt. Inc.	3.64	570,286
debt servicing	0.27	42,301
Capex	0.15	23,500
Profit before tax	0.44	68,937
Tax	0.12	19,302
Profit after tax	0.32	49,634

The above table gives a breakdown of costs associated to the lessee as per contract. The lessee makes an after-tax profit of \$49,634.

The figure below shows the breakdown of return on assets for an owner operator within New Zealand dairy farming. Owner operators have been achieving positive returns of assets for eight of the ten years apart from 2008-09 with the global financial crisis causing a serve drop in payout to farmers and this had a direct correction in land and stock prices accordingly. The 2015–16 season was our lowest recorded ten-year milk payout of \$3.90 per milk solid produced. Table 12: details that New Zealand’s break-even milk payout for the 2015-16 season was \$4.93 per kg MS produced. This created a \$1.93 per kg MS produced loss for Owner operators as seen in figure 4.

Figure 4: Owner-operators total return on assets



Source – DairyNZ Economic Survey 2015-16.

Table 12: New Zealand break-even milk price (\$ per kg MS)

	2011-12	2012-13	2013-14	2014-15	2015-16
Farm Working expenses (\$)	3.95	4.13	4.33	4.07	3.64
Interest and rent (\$)	1.31	1.39	1.29	1.36	1.36
Tax (\$)	0.32	0.25	0.38	0.21	0.05
Drawings (\$)	0.57	0.65	0.77	0.69	0.49
Total cash expenses (\$)	6.14	6.42	6.77	6.33	5.53
Less livestock & other cash income (\$)	0.40	0.44	0.42	0.56	0.60
Break-even milk price (\$)	5.74	5.98	6.35	5.77	4.93

Source – DairyNZ Economic Survey 2015-16.

The figure below shows the breakdown of return on assets for a HOSM within New Zealand dairy farming. This figure shows a more volatile return on assets for sharemilkers. A similar trend in 2008-09 and 2015-16 are portrayed in this figure is much the same reasoning behind this as the owner operators.

Figure 5: Sharemilkers total return on assets



Source – DairyNZ Economic Survey 2015-16.

8.0 Lease agreement outcomes

My equity projection has forecasted using the lease agreement set out on page 14 of this report. It indicates that our lessee over a ten-year period, built up the equity in the described property of 28 percent of the total asset being the dairy farm, stock and plant.

Table 13: Breakdown of lessee's equity at year ten

Capital improvements	\$235,000
Total assets worth at year ten	\$7,452,549
Net land increase over ten years	\$1,733,999
Total equity including 50% of equity growth	\$1,847,831
Total equity	\$2,082,831
Equity ownership %	28%

The **lessor** would make an average return on equity employed of 3.45% and on top of that could make 1.55% on land price increase.

The land increase is calculated on the New Zealand average 3.1% increase per annum split 50/50 with lessee. Realised in year ten the lessor would make a total return of 5% per annum.

The **lessee** would make an average return on equity employed of 6.6% and on top could make 1.55% on land increase.

Our intention was for our lessee to finish year ten with an equity level greater than 25% of the total business. This was achieved at a level of 28%. I would note there is risk to purchasing a dairy farm with 28% equity as if there is downward pressure on payout this could result in challenging circumstances. I also note that my report is based on all average numbers and has no upside for equity growth for better than average management.

The following page is a budget to set out the ten-year forecast of equity building for our lessee. All back up data for this can be found on pages 14 - 17 of this report. The key part to follow is the net to reinvest line and the dairy farm assets capital increase. Although the net to reinvest stays relatively similar the dairy farm assets capital increase had a significant increase.

Proposed Investment by leasee

Long Term Forecast Milk Payout \$6.00

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Gross Business assets	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900
Less Debt Funding 60% target	-820,740	-770,746	-720,742	-670,728	-620,703	-570,668	-520,623	-465,534	-414,040	-362,496
Net Equity	547,160	597,154	647,158	697,172	747,197	797,232	847,277	902,366	953,860	1,005,404
Dairy farm assets - capital value increase - 3.1% PA	5,483,550	5,653,540	5,828,799	6,009,492	6,195,786	6,387,856	6,585,879	6,790,042	7,000,533	7,217,549
Leasee Investment	547,160	597,154	647,158	697,172	747,197	797,232	847,277	902,366	953,860	1,005,404
Equity ownership %	40.0%	43.7%	47.3%	51.0%	54.6%	58.3%	61.9%	66.0%	69.7%	73.5%
leasee Manager Base Salary	63,000	64,701	66,447	68,242	70,084	71,976	73,920	75,916	77,965	80,070
Profit after tax	49,634	49,634	49,634	49,634	49,634	49,634	49,634	49,634	49,634	49,634
Total Farm Manager Gross Income	112,634	114,335	116,081	117,876	119,718	121,610	123,554	125,550	127,599	129,704
Less tax on manager base salary	17,640	18,116	18,605	19,107	19,623	20,153	20,697	21,256	21,830	22,419
After Tax Income	94,994	96,219	97,476	98,769	100,095	101,457	102,857	104,294	105,769	107,285
Less Living Costs plus 2.7% CPI	-45,000	-46,215	-47,462	-48,744	-50,060	-51,412	-47,768	-52,800	-54,225	-55,689
Net To Reinvest	49,994	50,004	50,014	50,025	50,035	50,045	55,089	51,494	51,544	51,596
Capital improvements	235,000									
Total asset worth at year ten	7,452,549									
Net land increase over ten years	1,733,999									
Equity including 50% of realised equity growth	1,872,404									
Total equity	2,107,404									
Equity ownership %	0.28									

9.0 Sensitivity Analysis

This chapter outlines the sensitivity of milk payout to farmers and how that effects the long-term feasibility of this lease agreement. I have used a \$.50 cent increase and decrease in payout to highlight the outcomes of each scenario. This payout is the average 10-year farm gate milk price.

Table 14: Breakdown of associated costs for the lessee at \$6.50 milk payout

Lessee	\$ Per KG/MS	Total (\$)
Income, milk production	4.66	730,091
Income, net stock sales	0.30	47,001
Farm working expenses mgmt. Inc.	3.64	570,286
debt servicing	0.27	42,301
Capex	0.15	23,500
Profit before tax	0.90	141,005
Tax	0.27	42,301
Profit after tax	0.63	98,703

Table 15 : Long term forecast of equity growth

Proposed Investment by lessee										
Long Term Forecast Milk Payout \$6.50										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Gross Business assets	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900
Less Debt Funding 60% target	-820,740	-721,677	-622,604	-523,521	-424,427	-325,323	-226,209	-122,051	-21,488	79,125
Net Equity	547,160	646,223	745,296	844,379	943,473	1,042,577	1,141,691	1,245,849	1,346,412	1,447,025
Dairy farm assets - capital value increase - 3.1% PA	5,483,550	5,653,540	5,828,799	6,009,492	6,195,786	6,387,856	6,585,879	6,790,042	7,000,533	7,217,549
Lessee Investment	547,160	646,223	745,296	844,379	943,473	1,042,577	1,141,691	1,245,849	1,346,412	1,447,025
Equity ownership %	40.0%	47.2%	54.5%	61.7%	69.0%	76.2%	83.5%	91.1%	98.4%	105.8%
lessee Manager Base Salary	63,000	64,701	66,447	68,242	70,084	71,976	73,920	75,916	77,965	80,070
Profit after tax	98,703	98,703	98,703	98,703	98,703	98,703	98,703	98,703	98,703	98,703
Total Farm Manager Gross Income	161,703	163,404	165,150	166,945	168,787	170,679	172,623	174,619	176,668	178,773
Less tax on manager base salary	17,640	18,116	18,605	19,107	19,623	20,153	20,697	21,256	21,830	22,419
After Tax Income	144,063	145,288	146,545	147,838	149,164	150,526	151,926	153,363	154,838	156,354
Less Living Costs plus 2.7% CPI	-45,000	-46,215	-47,462	-48,744	-50,060	-51,412	-47,768	-52,800	-54,225	-55,689
Net To Reinvest	99,063	99,073	99,083	99,094	99,104	99,114	104,158	100,563	100,613	100,665
Capital improvements	235,000									
Total asset worth at year ten	7,452,549									
Net land increase over ten years	1,733,999									
Equity including 50% of realised equity growth	2,314,025									
Total equity	2,549,025									
Equity ownership %	0.34									

The above scenario of a \$6.50 milk pay-out our lessee would amass 34% equity of the business up from 28% at a \$6.00 milk pay-out. The increase of \$.50 of milk pay-out, using the calculation of 1 cent increase to pay-out is a .33% decrease to percentage pay-out to the lessor. The lessor received 28.35% of the milk pay-out or \$1.84 per milk solid produced and the lessee received \$4.66 per milk solid produced.

Table 16: Breakdown of associated costs for the lessee at \$5.50 milk payout

Lessee	\$ Per KG/MS	Total (\$)
Income, milk production	3.70	579,686
Income, net stock sales	0.30	47,001
Farm working expenses mgmt. Inc.	3.64	570,286
debt servicing	0.27	42,301
Capex	0.07	10,967
Profit before tax	0.02	3,133
Tax	0.00	0.00
Profit after tax	0.02	3,133

Table 17: Long term forecast of equity growth

Proposed Investment by lessee

Long Term Forecast Milk Payout \$5.50

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Gross Business assets	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900	1,367,900
Less Debt Funding 60% target	-820,740	-817,247	-813,744	-810,231	-806,707	-803,173	-799,629	-791,041	-786,048	-781,005
Net Equity	547,160	550,653	554,156	557,669	561,193	564,727	568,271	576,859	581,852	586,895
Dairy farm assets - capital value increase - 3.1% PA	5,483,550	5,653,540	5,828,799	6,009,492	6,195,786	6,387,856	6,585,879	6,790,042	7,000,533	7,217,549
Lessee Investment	547,160	550,653	554,156	557,669	561,193	564,727	568,271	576,859	581,852	586,895
Equity ownership %	40.0%	40.3%	40.5%	40.8%	41.0%	41.3%	41.5%	42.2%	42.5%	42.9%
lessee Manager Base Salary	63,000	64,701	66,447	68,242	70,084	71,976	73,920	75,916	77,965	80,070
Profit after tax	3,133	3,133	3,133	3,133	3,133	3,133	3,133	3,133	3,133	3,133
Total Farm Manager Gross Income	66,133	67,834	69,580	71,375	73,217	75,109	77,053	79,049	81,098	83,203
Less tax on manager base salary	17,640	18,116	18,605	19,107	19,623	20,153	20,697	21,256	21,830	22,419
After Tax Income	48,493	49,718	50,975	52,268	53,594	54,956	56,356	57,793	59,268	60,784
Less Living Costs plus 2.7% CPI	-45,000	-46,215	-47,462	-48,744	-50,060	-51,412	-47,768	-52,800	-54,225	-55,689
Net To Reinvest	3,493	3,503	3,513	3,524	3,534	3,544	8,588	4,993	5,043	5,095

Capital improvements	109,670
Total asset worth at year ten	7,327,219
Net land increase over ten years	1,733,999
Equity including 50% of realised equity growth	1,453,895
Total equity	1,563,565
Equity ownership %	0.21

The above scenario looked at a \$5.50 milk pay-out to farmers. As the contract has a fixed milk pay-out to the lessor this took effect in this scenario, fixing the milk pay-out to \$1.80 to the lessor. The lessee received a milk pay-out of \$3.70 per milk solid produced. For this example, I decreased the capital expenditure to .07 cents per MS produced to allow a profit to be made. The lessee finished year ten with a 21% equity ownership in the property falling out side of the criteria of between 25 – 35% equity at year ten to purchase the property.

10.0 Improvements to contracts

To better understand the issues with the current contracts I asked via my survey for comments regarding improving the current HOSM and lease agreements. Improving the HOSM contract could reignite a return of an increase in contracts available.

HOSM contract improvements.

In my survey I conducted, I asked for thoughts regarding how we could improve the current HOSM contract to better suit the end users. The common theme in the comments was to create a variable contract that de risks the HOSM payments by have a top and bottom cap system on the payout.

Variable milk price sit above a certain point, more flexibility to raise surplus young stock for profit.

Make it a true 50/50 contract. A lot of contracts aren't true 50/50 contracts they can be anything from 44% upwards but expect the sharemilkers to honor expenses of a 50/50 sharemilkers.

Not have it strictly 50/50. Maybe an upper and lower band on payout. Say below \$4 60% sharemilkers 40% owner. Above \$6.50 60% owner 40% sharemilkers.

3-year term can be terminated at any time making it not really a three-year contract

Higher income to sharemilkers as farm owner gets equity gain.

Lease contract improvements.

In my survey, I also included how we could improve the current lease agreement. The common theme in the comments was that as the owner receives all the equity gain there needs to be a lower cost of the lease to make it a viable option.

Share provision valuation of asset improvement and dividend based on increase 3yr smoothing for lease is certain pay out restrictions were enacted.

Lower lease price to offset equity gain in farm owner.

Commitment to long term capital improvements.

Length of term. Standard terms around property improvement. Some benchmarking on value of lease (it is currently very difficult to value a lease).

Leasing contract is so variable, it's difficult to answer this question as lease contract can include anything both parties agree to.

11.0 Conclusions

My research has concluded with a budget to make a hypothetical lease agreement work to allow a farmer, with half a million dollars of equity, become a farm owner within ten years. Evidence would say the traditional HOSM would get them there as well and that is a valid point. However how many HOSM will there be within the next ten years? With my knowledge of budgets through my career, one thing is certain, most budgets work on Microsoft Excel. What excel does not consider is relationships or EQ. The key factor I see to limiting this agreement from working is fostering long term relationships and a real attitude to keep New Zealand land in kiwi's hands. This could be viable option in successful family succession planning.

Prior to this report I was intrigued to understand the financial outcomes to lease farming although my findings may not hold the answer to the future they do provide a starting point to move forward.

Possibly a 5% return to farm owners may sound like a poor investment but what is our return going to be if we are only tenants on New Zealand land in the future.

Investment super funds from around the globe, especially pension funds don't structure their assets on return on investment rather than limiting the downside risk. They are acquiring assets that hold value and are safe and secure for their country of origin citizens futures. Our land is part of that.

This lease agreement could be a way to transfer land ownership via a super fund into kiwi families. Can we work with these super funds to better improve our generational obsession with land ownership?

12.0 References

Allan, J., Kloeten, N., (2016). Dairy progression pathway and impact of volatility. AgFirst.

Beef and Lamb (2016). Compendium of New Zealand Farm facts.

DairyNZ. (2016). New Zealand Economic Survey. (2015 -16).

DairyNZ. (2016). New Zealand Dairy Statistics. (2015-16).

Fraser, D,. (2016). 25% leasing.

Interest.co.nz. (2017). <http://www.interest.co.nz/rural-data/dairy-industry-payout-history>.