



Future Farm Management Options for Smaller Dairy Farms

Victoria Westbrooke¹

November 2013

¹ Centre of Excellence in Farm Business Management, Lincoln University

Copyright

Copyright in this publication (including text, graphics, logos and icons) is owned by or licensed to DairyNZ Incorporated. No person may in any form or by any means use, adapt, reproduce, store, distribute, print, display, perform, publish or create derivative works from any part of this publication or commercialise any information, products or services obtained from any part of this publication without the written consent of DairyNZ Incorporated.

Disclaimer

This report was prepared solely for DairyNZ Incorporated with funding from New Zealand dairy farmers through DairyNZ and the Ministry for Primary Industries under the Primary Growth Partnership. The information contained within this report should not be taken to represent the views of DairyNZ or the Ministry for Primary Industries. While all reasonable endeavours have been made to ensure the accuracy of the investigations and the information contained in the report, OneFarm, Centre of Excellence in Farm Business Management expressly disclaims any and all liabilities contingent or otherwise to any party other than DairyNZ Incorporated or DairyNZ Limited that may arise from the use of the information.

Date submitted to DairyNZ: **November 2013**

This report has been funded by New Zealand dairy farmers through DairyNZ and the Ministry for Primary Industries through the Primary Growth Partnership.

Ministry for Primary Industries
Manatū Ahu Matua



DairyNZ

Abstract

In the last thirty years the size of the average New Zealand dairy herd has almost tripled (Dairy Statistics, 2013). Despite this growth, 36% of herds are considered small with less than 250 cows. It is important to develop an understanding of the goals, future business and farm management strategies of owners of small farms. In the Waikato region of New Zealand owners of small farms (n=13), were interviewed using a semi structured qualitative approach.

The main research questions and scope for this project were:

1.1 To develop an understanding of the goals and objectives of small to medium sized dairy farms in New Zealand,

1.2 To describe the strategies that farmers plan to use to achieve their goals, and why farmers selected their particular strategies,

1.3 Within the strategy identified by individual farmers, where relevant, identify the particular farming system that the farmer wishes to use to achieve their strategy and to explore why the farmer believes that farming system is the optimum for their strategy.

The farmers' two key goals were flexibility and time for non-farming activities, and sufficient funds for the family and business. The business strategy was to generate a strong annual cash surplus and reduce debt to a low level by retirement. Then funds previously used to repay debt could be used to employ staff to milk the cows.

Farmers' future preferred farming system was one which could be managed by the family and a maximum of one staff member. Farmers didn't specify a farming system, but were balancing workload, capital requirement and production/profit when considering any changes to their current farming system.

The key lessons were that farm owners with small herds have objectives centred on time and sufficient cash for the family. They follow a business strategy that focuses on generating a strong cash-flow and debt management or minimisation and prefer a system that can be comfortably managed by a family and a maximum of one employee. The workload, capital cost and production/profit were all important factors when farmers were considering their future farm management system. This information will allow extension programs and commercial products and services to be tailored to the needs of owners of small herds.

Keywords: *small dairy farms, capital, debt, survival, business strategies.*

Contents

1.0	Introduction	5
2.0	Methods	6
3.0	Results	6
3.1	Description of interviewees' farms, and farm system	6
3.2	Farmers' goals and drivers	7
3.3	Farmers' business strategies	7
3.1.1	Farm intensification	9
3.2.1	Farm expansion	10
3.3.1	Farm diversification	10
3.4	Farmers' preferred future farming system	11
3.4.1	Future farm management options considered by farmers	11
4.0	Discussion	13
3.5	Drivers of farmers' business strategies	13
3.6	The farmers' business strategies	13
3.7	Farmers' preferred future farming system	14
5.0	Conclusions.....	15
6.0	Acknowledgements	15
7.0	References.....	16
8.0	Appendix	17

1.0 Introduction

There has been a dramatic increase in the average dairy herd size in New Zealand in the last thirty years. In 1981/82, there were on average 130 cows per herd, by 2011/12 this had increased to 393 cows per herd (Dairy Statistics 2013). There were pronounced regional differences in average herd size. Canterbury had on average 776 cows per herd, whereas the traditional dairying areas of Taranaki and the Waikato have small herd sizes of 279 and 312 cows, respectively (Dairy Statistics 2013). Thirty six percent of New Zealand's dairy herds are considered small-scale with less than 250 cows. Given the high proportion of small herds in New Zealand, it is important to understand the goals, business strategies and preferred future management systems of farm owners with these sized herds. Extension agents can then tailor programs specifically to meet the needs of small scale dairy farmers in New Zealand.

There is concern in the United States for the survival of the small farm, with large farms outperforming them on all economic indicators (Nehring et al. 2009). In New Zealand, the economic farm surplus per hectare (EFS/ha) for small (<50ha) farms was greater in the mid 1990's than the EFS/ha of larger farms, however fewer hectares meant a lower total cash surplus for small farms (Allen 1998).

It has been suggested that small farms will continue to amalgamate in the future, and the average farm size will continue to increase (Allen 1998; Parker et al. 2000), but this will lead to a loss of social capital (Parker et al. 2000). The definition of how many cows or hectares constitute a small farm is arbitrary and has increased over the years. Allen (1998) used a farm size of 40 hectares and Parker (2000) used a farm size of less than sixty hectares or supporting fewer than 180 cows. This study used farms with fewer than 250 cows, the level initially used by the organisation Smaller Milk and Supply Herds (SMASH), although this group now prefers not to specify a farm or herd size to qualify as small (J Brown pers comm).

A number of strategies have been put forward for owners of small dairy farms, by researchers and farm consultants, in order that they be seen as viable. These include increasing farm productivity and profitability, amalgamation, move to a larger farm, generate off-farm income, diversify or leave the dairy industry (Allen 1998; Parker et al. 2000), invest 'off-farm' (Allen 1998; Anderson 1999), erode equity in the farm or do nothing (Allen 1998).

There has been a trend to intensifying dairy farming systems over the last ten years from predominantly all grass, to systems incorporating increased supplementary feed (Greig 2012). According to Hein and Roth (2007), farmers reported the key drivers for their intensification were to increase profits and to gain personal satisfaction from maximising returns from the land. Researchers have also noted that more intense systems can be more complex to manage (Headly 2006). There is, however, agreement in the literature that the level of farm intensification by itself is not a good or reliable indicator of farm profitability (Shadbolt 2012; Newman and Savage 2009).

Expansion is another potential farm business strategy. Expansion could involve increasing the size of the home farm or relocating to a larger property in another district. Many Waikato farmers have relocated to Canterbury, to purchase cheaper land and to have the opportunity to develop a large farm, employ staff and adopt new technology (Pangborn 2012). Challenges for relocating farmers included distance from friends and family and employing staff (Pangborn 2012). Farmers could also expand their business without moving or altering the size of the home farm by investing in an equity partnership. Equity partnerships are a relatively new option where investors pool their funds and expertise to purchase a farming business (Reekers et al 2007). The critical factors for a successful partnership centre on the interpersonal relationships between the partners (Reekers et al. 2007).

Diversification is another possible strategy. In the United Kingdom, small dairy farms have been encouraged, by the government, to diversify to non-food producing activities, such as renting out farm buildings. However, this strategy has had mixed success at increasing farm incomes (McNally 2001). Diversification of the dairy farm business could involve investing off-farm, for example investing in shares or a non-agricultural property. Investing off-farm has the potential to enhance the farmers' income and diversify their risk. However, in order to invest off-farm, the farms cash-flow has to be able to meet expenses such as debt servicing and provide funds for initial investments (Anderson 1999).

The aim of this research was to investigate the goals and objectives, business strategies and preferred future farming systems of owners of farms with small dairy herds in the Waikato under current economic conditions.

2.0 Methods

A group (n=13) of small dairy farm owners in the Waikato region were interviewed for this research. The aim was to interview dairy farmers who were at different stages in their farm ownership career, and operated a variety of farming systems in a range of environments within the region.

The farmers were identified through a snowballing method. Several initial contacts were asked to suggest farmers who operated different farming systems in diverse environments, as potential interviewees. Hence, farmers in a range of situations could be interviewed. In terms of stage of ownership, it was relatively easy to interview farmers who were in the mid and later stage of their careers, but more difficult to locate farmers in the early stages of their career.

The farmers were interviewed using a semi-structured, qualitative approach with question probes, as shown in the Appendix. During the interviews, farmers were asked to describe their current farming system, then their future farming goals and the strategies they were using or planned to use to achieve their goals. In particular, farmers were asked to comment on the farming system, or attributes of a system they thought best suited to achieving their objectives.

The majority of interviews (n=10) were recorded and transcribed, while detailed notes were taken during the other interviews. The interviews were then reviewed, looking for common themes relating to farmers objectives and business strategies. Several clear and common themes emerged from the material which were summarised.

3.0 Results

3.1 Description of interviewees' farms, and farm system

The interviewees' farms ranged in both farm size and number of cows milked, as shown in Table 1. The topography of the farms also varied from steep hill to rolling and flat country. Several farmers commented that their farms were also wet and prone to pugging in the winter. The amount of purchased supplement fed per cow ranged from 60 to 1500kgDM/cow/year, and the level of milk production varied between farms, as shown in Table 1.

Table 1: Descriptive statistics for interviewees' farms

	Minimum	Maximum
Effective farm area (ha)	40	72
Number of cows milked	110	225
Purchased supplement (kgDM/cow/yr)	60	1500
Per cow milk production (kgMS/cow/yr)	275	454
Per hectare milk production (kgMS/ha/yr)	775	1428

Of the farmers interviewed, a third (31%), were in the latter stage and half (54%) were in the mid and two percent were in the early stage of farm ownership. When it became apparent that there were few farmers in the early stage of their farming career to interview, other farmers were asked for possible reasons for this. They commented that there were now fewer smaller, inexpensive farms for first time farm owners to purchase, as these farms were often brought by neighbouring farms looking to expand. Farmers also noted the difficulty in building the amount of equity required to purchase a farm; this led to few farmers purchasing small farms outright, while others purchased a portion of a farming business.

One farmer explained:

A bigger farm can just leverage off its existing size and buy it up, and for someone one coming in can only offer less because the security is just not the same and [the neighbouring] big farm can just cash-flow the losses.

3.2 Farmers' goals and drivers

Two key goals become apparent during the analysis of the interviews. These were firstly, the desire to generate sufficient income for the family and secondly to have spare time and flexibility for other non-farming activities. In addition farmers did not want to become 'people managers'. The importance of time for activities other than farming is illustrated by the following quote:

There are other things to do apart from milking; its lifestyle first, cows give security of income, although I'm not passionate about the cows.

Stage of life influenced farmers' goals. A farming couple, for example, had taken substantial business risks to accumulate sufficient capital to purchase their first farm. The arrival of children meant that they were no longer prepared to accept the same level of risk in their business, one of their key goals was to spend time with the family, they commented:

Once upon a time I wanted five farms, but kids and time changed that.

Farmers in general also commented that they weren't motivated to generate additional wealth or capital *per se*. The motivation was for a sufficient, but not necessarily maximum income, and the farmers interviewed often cited this reason for not targeting the purchase of a larger farm. One farmer said:

...I didn't see the need to go bigger, if we can make good money on a small farm, why have the hassles of going bigger, it is fairly simple. There is no point about being greedy about it, we have enough and don't need any more.

The main goals and objectives were relatively similar across all farmers interviewed. These were the desire to generate sufficient but not necessarily maximum income, and the time and flexibility for non-farming activities, without becoming people managers.

3.3 Farmers' business strategies

The farmers interviewed were able to purchase their farm with their own funds and a relatively large mortgage from a bank. During the initial stages of farm ownership the key strategy of the majority of farmers interviewed was to generate a cash-surplus from the farm business, each year, even in difficult times.

Borrowing extra funds, in addition to the existing mortgage during the early stage of farm ownership for many of the farmers was not an option. The farmers focused their spending on parts of the business that they believed generated a profit, yet were frugal in other areas of spending. Typical comments regarding attitudes to spending money were,

we prioritised everything..... if we couldn't afford it we didn't do it....

Financial discipline was really the key to it; I used to count the dog biscuits.

Some of the farmers used formal budgets and cash-flows to assist with their tight financial control, yet others relied on "gut instinct" and spent as little as possible. Several of the farmers ran their business with the business bank account in credit and therefore did not need an overdraft facility. This was done to minimise the interest cost to the business.

The next key strategy following generating a cash surplus was to meet debt servicing requirements and to complete essential capital development. Essential capital development was defined as bringing basic farm

infrastructure such as stock water, races and fencing to a standard at which the farm could be managed efficiently. Most of the farms required moderate to significant spending on essential development. The challenge faced by the interviewees during the early phase was meeting debt repayments yet 'getting the farm up and running'. To minimise the cost of the essential capital spending, farmers talked of doing as much of the work themselves and recycling as much material as possible. Typically it was said,

You would get a little bit when you could afford a little bit, virtually all the fencing was just re-arranged rather than much new stuff.

The majority of farmers' prioritised the essential work to be done and undertook the capital development as funds allowed. In some cases this led to extra work on the farm such as running two herds.

Following the initial stages of farm ownership, farmers continued to focus on generating a cash surplus. They fell into three key groups with regard to their business strategy, as shown in Figure 1.

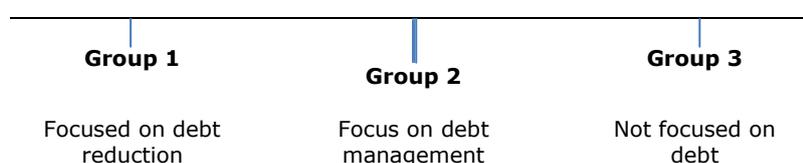


Figure 1: Interviewees focus on debt

The first group of farmers focused heavily on debt reduction. One farmer commented,

when you are farming there is enough stress with either pay-out or the weather, so you don't want the bank up as well.

These farmers' aimed to be debt free, and to have cash reserves, when they came to retire. Other business or investment strategies would be considered when the debt reached very low levels. In later years they planned to use the annual sum used to repay debt to pay for a staff member. A sentiment such as,

If we do put a labour unit on I feel we need to be mortgage free was commonly voiced.

The second group of farmers were focused on debt management, firstly they aimed to get debt levels down to a level they considered acceptable, or manageable. Then this group of farmers actively considered alternative uses for their funds. These farmers, and those in the first group, had strict, conservative, criteria that an opportunity had to meet before they would consider investing. Firstly, the investment had to generate a cash surplus under conservative production and milk payment estimates. If not already debt free, the return would then be compared to that which could be achieved from debt repayment in the existing business.

The key differences between farmers in groups one and two was the debt level at which they would seriously consider alternative business strategies to debt reduction or management. Farmers in group one were aiming to have debt at very low to zero before they considered alternative strategies, whereas farmers in group two aimed to have debt to what they considered a 'comfortable' or 'acceptable' level, which was generally at higher level than farmers in group one.

The third group of farmers believed that debt repayment was not important. Very few farmers interviewed were in this category. A farmer in this category when asked where debt repayment fitted with his priorities, responded

We are just happy to cruise along and pay interest, rightly or wrongly..... the bank was happy to lend and we were happy to borrow sort of thing.

For most farmers any increase in capital gain of their properties was a secondary consideration. In fact many farmers were concerned about potential overcapitalisation, especially in relation to houses on their properties.

Most farmers were prepared to renovate both the owner's and staff accommodation, but were reluctant to build new houses. This led to some interesting solutions such as purchasing a house in a nearby town, or importing a re-locatable house which could, at a later stage, be removed and sold separately to the farm.

Farmers considered their personal health or that of their partners to be the greatest risk to their business strategy. Two farmers commented that they had stopped milking and employed managers for health reasons. Another farmer had continued to milk, as he believed it kept him fit and active.

The majority of farmers specified a length of time that they would continue to milk for or an age at which they aimed to stop milking by and employ staff. This then became the timeframe for their business strategy. By this time the business would have to be in a financial position to employ staff, or the farmer would have to have other options to generate income without physically milking. One farmer explained that it's not just physical health that is a risk, but the tiredness, weariness and lack of motivation after many years milking cows

...and I got tired too really I went through the Cadet Scheme, I've milked cows for 40 years now, never known anything else, done it every year....so really [my son] coming home was pretty timely really because I'd had enough.

In terms of succession, generally farmers believed that the farm business was primarily to provide retirement support for them. Farmers were keen to financially assist their children where possible, but not at the expense of their retirement. One farmer noted

...any farm succession will be by way of cash settlement when we are dead and buried.

3.1.1 Farm intensification

Once the essential capital development was completed, the next question the farmers faced was whether to invest in infrastructure to make the farm more productive, through intensification. For the group of farmers focused heavily on debt reduction, farmers in group 1, the decision was simple and clear cut. They believed that they could get a higher return from investing in debt repayment, compared to the return from on-farm productivity gains. To the question 'How good would lifting production have to be before it overtook repaying debt', a farmer from group one replied

... almost double... so I try to have as little risk as possible.

Farmers in group two, once they had the business debt down to their acceptable or manageable levels, were comparing the returns from intensification to those from off-farm investment. Farmers in this group were concerned about marginal returns from either business strategy. As one farmer explained

I don't want to do any marginal spending here because I would sooner put it all in [buy shares] the Ports of Tauranga or Auckland airport.

Improving labour efficiency or reducing workload was a key reason why farmers would consider capital spending on farm, which could also allow intensification. A common investment was an in-shed meal feeding system. This investment was selected as it allowed supplements to be fed during milking, reducing the workload on farm. Another farmer had installed automatic cup removers in the dairy shed, again for increased labour efficiency. Farmers from group two, those focused on debt management rather than debt reduction, were generally more likely to have invested in options to reduce workload.

Few farmers interviewed were interested in significant spending to improve on-farm productivity. Several farmers commented that they would intensify their system, for example install a feed pad, if it allowed their business to remain viable or allow the farm to financially support family members, returning to the farm. For example, one farmer noted,

I think it has its merits, but I would only consider it if we employ someone or my son would come and work for us.... If that is an option to keep farming in the future we need to consider it.

3.2.1 Farm expansion

Several farmers had purchased small parcels of land adjoining their home farm. These purchases had to meet the farmers criteria of being cash-flow positive. Purchasing adjoining land was not always seen as a viable financial option, farmers were cautious and prepared in some cases to forego the opportunity. For example, if purchasing the land would require additional cows, and hence major alterations to the shed and workload, or if they believed that the land itself was overpriced, then the proposition was not viewed favourably.

In response to the question 'why the interviewed farmers had remained on their small farms' most commented that they could generate enough money for the family's needs from the small farm, and had no need or motivation to move to a larger farm. Typically they said

When does need become greed', it's already a gold mine why go larger?

In addition, many farmers did not want the problems of employing staff, and felt more comfortable farming by themselves or their family. When it was pointed out that many of the farmers hoped to employ staff when they retired, the comment was that would be different as they would not be able to do the work themselves. Flexibility was another very important reason for staying on their small farm. There were numerous comments about the farming couple having time for other community and family activities whilst operating their small dairy farm. One said

We have done a lot of community stuff but that was a conscious decision to be on a property that it gave us a financial base and the flexibility that it didn't need the two of us here.

While the interviewees themselves were not keen on expansion as a business strategy, some commented that they would consider the option if their children wanted to join the family business. These farmers had farms in locations that were close to local amenities and were generally highly profitable farms, with a high land value. With the high land value, it was difficult to profitably purchase adjoining land to expand the home farm. This left the option of intensifying the home farm, or moving to a location where land was cheaper, so that a larger block could be purchased. Owners of small farms were concerned that this larger farm, on cheaper land could be less profitable than their current small farm.

Most farmers in a secure financial position had considered equity partnerships, three of the farmers were currently in equity partnerships, two of which were with other family members. Interviewees considered the key risk as the unknown characteristics of the other partners. Farmers also considered the equity partnerships that they had previously investigated as over-leveraged with poor returns compared to the returns from their home farm.

Farmers said they would consider equity partnerships with a small numbers of partners, who they could work with and if the partnership had an appropriate capital structure. Many farmers had also investigated moving to a larger farm in the South Island, either in Canterbury or Southland, but had not moved as family members had not wanted to move away from friends and extended family.

3.3.1 Farm diversification

The main source of income for all farmers interviewed was milk. None of the farmers' had diversified into a non-agricultural on farm business such as tourism, or diversified their source of agricultural income, for example by setting up a rural contracting business.

Two farmers had diversified their income by working off-farm. Both had employed farm managers in their stead on the farm. The farmers enjoyed their off-farm work, and considered it an opportunity to follow their interests. There was also a financial advantage, as each farmer's salary was higher than their cost of employing a farm manager. The concern or risk expressed by both farmers was that they ended up with a poorly performing farm manager, and end up managing the home farm as well as working full-time off farm. Fortunately both farmers currently had excellent managers. Another farmer explained why he and his wife had not diversified their business, or taken up off- farm employment,

So I think maybe I should go out and do something else, but it is a distraction from what you are doing. It is not going to run as well as well if I am out of it and don't have my hand on the pulse

Investing in off-farm investments was the diversification strategy used by about half of the farmers. Other farmers commenting that they would consider investing off-farm when in a financial position to do so. Several farmers had substantial share portfolios worth half as much as the farm business. These farmers had taught themselves about investing and had enjoyed the challenge. The main off-farm investments used were shares and commercial property. One investor, however, noted:

The ones we looked at in the past were primarily shares and equities... we discounted commercial property as too hard to manage and we don't have core competencies around it and its relatively high risk.

3.4 Farmers' preferred future farming system

Farmers interviewed were aiming for a future farming system that could be comfortably managed by themselves and their family. An interviewee commented

If we intensify....to go to 300 cows, its slightly too many for one man to milk, we would have to be running a split herd system, so that just recommits me.

Those farmers who were contemplating expanding their herd size in the future were aiming for a system where a maximum of one staff member was employed. One farmer said

What I can see is its those 420-450 cow units where it's still a family unit with one employee... roughly about that size they still seem to be able to create good cash surpluses, still a manageable system.

To achieve this 'family' farming system, farmers interviewed were balancing three key factors when considering their future system, workload, production/profit and capital expenditure.

3.4.1 Future farm management options considered by farmers

In their future farming system farmers were considering three main farm management options, once a day milking (OAD), cow numbers or stocking rate and the level and method of feeding supplements.

OAD for the latter half of the season was one technique mentioned by many of the farmers interviewed. The main reason for undertaking OAD was to free up time for other farming and non-farming activities. One farmer who milked OAD for the latter half of the season said,

...but that is what pushes my buttons, milking the cows doesn't, its developing this place.

Another key reason for OAD milking was to minimise weight loss from the cows, as one farmer explained

I am sick of getting cows up to good condition and stripping off the weight off and having to spend all winter doing the same thing again....

Those not using OAD commented that they would lose too much milk production, or that the associated rise in somatic cell count with OAD would mean that they would no longer receive financial bonuses for milk quality. One farmer, who was not using OAD due to the potential loss of production, said if no staff were available in the future he would milk OAD and accept the production loss.

In terms of cow numbers, half of the farmers interviewed were reducing or considering reducing the stocking rate on their farm. Farmers commented that the cows were heavier today than they were five to ten years ago. Farmers believed reducing cow numbers would allow improved individual cow feeding, which in turn should improve cow reproductive performance and also 'make less mud' in the winter. Farmers, generally, were considering lowering the stocking rate in preference to importing additional feed. Farmers wanted to 'reduce pressure' on their farm system, one farmer who had reduced the stocking rate on his farm commented

To make life easy, I think the whole system was being pushed too hard and wasn't working and it was either that or bring in extra feed and I wasn't interested in that.

A few farmers interviewed were planning to intensify their system by importing feed, and would also increase their cow numbers at the same time.

With regards to supplementary feeding, farmers fell into two distinct groups. The first group of farmers were unlikely to use moderate levels of imported feed in their future system. This was due to a preference for cows to eat grass, the cost of supplements and the increased workload associated with feeding additional imported feed. The second group of farmers were more positive towards supplementary feed, but still emphasised the importance of pasture to their feeding system. Most farmers in this latter group were targeting extra feed to specific animals at particular times of the year.

When considering the method of feeding supplements, most farmers preferred to feed supplements in the paddock although some farmers had installed in-shed meal feeders. Few farmers had or were considering feed pads and storage bunkers. The main reason for installing in-shed meal feeders was to reduce the work associated with feeding supplements. As one farmer said

We have an in-shed meal feeding system simply because it is a one man unit, so we don't want a feed pad.

Other farmers, who were not planning to install meal feeders, commented that it was difficult to 'turn them off' as cows became unsettled without meal fed during milking. Thus more meal could be fed than planned or necessary. Another farmer commented that that it was cheaper to feed meal in the paddock and cows could consume more feed than if fed through a meal feeder.

Farmers concerns about installing feed pads and bunkers centred on the additional workload and capital required to build/purchase the infrastructure, as one farmer said

I would have to spend capital and we are firmly focused on debt reduction, plus then we have to buy machinery, then I have to go and do it.

Farmers who were considering intensifying their system and feeding more supplements were carefully planning the required capital expenditure. One farmer interviewed was planning to pay for the feed pad through retained earnings rather than debt, he said

We'll install a feed pad after a couple of year's consolidation, but it will be paid for out of cash-flow.

4.0 Discussion

All farmers interviewed met the criteria of milking less than 250 cows. In addition the farmers interviewed were at different stages of their farm ownership career, operated farms with differing environment and used different levels of purchased supplement to achieve their farms' production.

3.5 Drivers of farmers' business strategies

Two key motivators for small farm owners' business strategies emerged. The first driver was to have sufficient time and flexibility for family and non-farming activities. While previous authors have highlighted the importance of 'lifestyle' (Parker et al. 2000) this is an inadequate descriptor as many farmers interviewed talked of their values systems. This system placed a significant value on non-farming activities. Farmers wanted not only the time but also the flexibility to undertake activities that were important to both them and their communities. Farmers wanted to achieve this time and flexibility without becoming people managers, hence moving to a larger farm with staff didn't fit their drivers.

The second driver of farmers' business strategies was generating sufficient funds for their families' requirements and to maintain the farm business. The emphasis was on generating a 'sufficient return' rather than maximising the return and this finding was in agreement with the findings of Nuthall (2010) amongst others.

The cash return from the home farm was also important to provide a benchmark with which to compare returns from other potential capital investments. As reported by Parker et al. (2000), the farmers interviewed in this study preferred to use a cash surplus to repay debt and develop the farm rather than purchase farm equipment or additional land. Repaying debt was seen as a virtually risk free investment and farmers felt it provided a higher return compared to purchasing infrastructure for intensification, or purchasing a larger farm. In general farmers were not highly motivated by increasing the capital wealth of the business; they were largely interested in generating cash surpluses. Many of the farmers in this study were also conscious of over capitalising their farm.

3.6 The farmers' business strategies

The business strategy followed was remarkably similar across all of the farmers in this study. Their strategy was to focus on generating a cash surplus each year for debt repayment or management, potentially followed by intensification, expansion or diversification. To achieve this business strategy the majority of farmers' had a strong emphasis on cost-control, which is important in generating a cash surplus in low input systems (Shadbolt 2012). In agreement with Allen (1998), farmers believed that their farm with low to no debt could survive and even thrive financially in the medium term. When they came to retire, farmers aimed to have low to no debt and preferably some cash reserves and or some off-farm investments. When farmers retired, funds previously used to repay debt could be used to pay staff to run the farm. Thus farmers planned to remain on their farm, receiving an income from the business, but not milking. Farmers identified their own health as a key risk to this strategy. Employing a staff member earlier in the strategy than planned would reduce the cash surplus available for debt reduction or off farm investment and thus the financial position of the business when the farmer came to retire.

The majority of farmers commented that while they would like to assist their children financially, the farm was primarily to fund their own retirement. This attitude would allow farmers to use the retirement option suggested by Allen (1998) of eroding their high equity in the business by adding farming financial losses to the mortgage.

Intensification

In earlier research, farmers indicated that they could potentially increase milk production, by milking more cows (Parker et al. 2000) or intensifying their system. Interviewees were divided on the profitability of feeding additional supplements to cows. In agreement with the literature (Shadbolt 2012; Newman and Savage 2009) they were conscious that the level of supplement feeding is not a good indicator of farm profitability. The main concern with intensification was, however, the investment required in infrastructure and the associated increase in workload. The majority of farmers believed that they could get a higher return with less risk by repaying debt, or investing off farm. The exception was infrastructure that could reduce labour requirements on farm such as in-shed meal feeders.

Expansion

Expansion was another potential strategy for owners of small farms. The majority of farmers were not looking to expand, unless the expansion allowed for the next generation of the family to join the business. As indicated by Parker (2000), farmers were generally very happy with their current farms' location and reluctant to move away from friends and family. In addition, many farmers were generating cash surpluses on their home farm which they believed would be difficult to achieve on another, larger farm. Parker et al. (2000) commented that a lack of capital was a barrier to raising the income of farmers on small properties, yet farmers in that study did not rate capital as a limitation. In this study farmers were not motivated by increased wealth or capital, unless it was to incorporate the next generation of the family into the business, so there was little economic motivation to move to a larger farm. Moving to a larger farm meant becoming 'people managers' which, as already noted was not a goal of the farmers interviewed.

An alternative option for expansion, which most farmers had considered, was investing in an equity partnership. Despite farmers finding that earlier partnerships were over leveraged with relatively poor returns, and considering the risk of investing with other unknown partners, farmers were still prepared to consider this business strategy in the future.

Diversification

Diversification into off-farm businesses was the most popular investment option following repayment of debt. Parker et al. (2000) came to a similar conclusion. None of the farmers interviewed in this study were running a non-agricultural on-farm business, such as bed and breakfast accommodation, as is often the case in the UK (McNally 2001). This is primarily due to farmers wishing to focus on their core farming enterprise. While some farmers were working off-farm and bringing in additional income, it was seen as more of a chance to follow opportunities rather than a long term business strategy as has been suggested (Allen 1998; Parker et al. 2000). This strategy also relied on having a skilled manager to run the farm in the farmers' absence.

The most common off-farm investment options were shares and commercial property, with the final choice depending on the farmers' personal preference. The potential to reduce risk, by spreading their business over two different sectors appealed to farmers.

3.7 Farmers' preferred future farming system

Farmers' key aim was to have a future system that could be comfortably managed by the family or the family plus one employee. Rather than refer to a particular farming system on DairyNZ 1-5 scale (DairyNZ, 2013), farmers were balancing workload, capital expenditure and production/profit when considering their future system.

Workload was a critical factor in farmers' preferred future farming system, as farmers had the goal of time for other farming and non-farming activities; in addition the flexibility of time was considered important. The importance of workload is illustrated by farmers highlighting capital spending, for example in-shed meal feeders and automatic cup removers, and systems, such as OAD that reduced farming workload. Flexibility was considered in terms of a full time equivalent person (FTE) required. In many cases farmers wanted a system that could be managed by one or two FTE, but not using part FTE's. As a part FTE, the person's flexibility was reduced, they were not able undertake other farming or non-farming activities while working part-time on the farm. Some retired farmers, or those with time off work were prepared to work on the farm to cover employees leave, or reduce pressure on staff during busy periods, but were still aiming for a family or family

plus one person system. Workload and workload flexibility in a family or family plus one employee situation is critical when considering future farming systems for owners of small dairy farms.

Capital spending was another key factor farmer's considered when discussing their preferred future farming system. The long term strategy of farmers in this study was debt reduction/management and off farm investment. Any money spent on capital infrastructure would reduce the funds available for this long term strategy. The less intense systems were favoured by farmers as they required less capital expenditure, and were considered to have lower risk than more intense farming systems.

5.0 Conclusions

The majority of owners of small farms were satisfied with the income and time/flexibility currently afforded by their farm business. They were clear and confident in their business strategy, which focused on debt reduction and or debt management. This strategy is realistic given the farmers' goals, drivers and businesses.

There were several key areas where extension agents and researchers could work with owners of small farms. A major focus for small farms was debt repayment, perhaps in competition with or at the expense of capital expenditure. There could be a focus on technologies with a low capital cost relative to value delivered to farmers and an investigation of how to reduce the capital expenditure required in different farming systems.

It may be valuable for extension agents to provide up to date information on the development of equity partnerships and other business structures which allow farmers to 'expand' their business without employing staff or moving from the home farm. Some farmers also expressed an interest in off-farm investment; again this is another area where extension agents could work with owners of small farms to develop extension programs.

The average size of the New Zealand dairy farm will continue to increase over time. Small dairy farm owners interviewed in this research in the Waikato had future business strategies that would allow them to survive and thrive in the medium term.

6.0 Acknowledgements

The author would like to acknowledge the constructive comments of Dr Peter Nuthall on drafts of the paper, and thank the farmers who participated in this research.

7.0 References

- Allen J 1998, 'The viability of small dairy farms', *Primary Industry Management*, 1(3): 26-28.
- Anderson G 1999, 'Off-farm investments – are they worthwhile?', Paper presented at the SIDE Conference 1999, South Island Dairying Event, New Zealand, pp.182-189.
- DairyNZ, 2012, New Zealand dairy statistics 2011-12, retrieved March 2013 from <http://www.dairynz.co.nz/file/fileid/45159>
- DairyNZ, 2013, DairyNZ Economic Survey 2011-12, DairyNZ, Hamilton, NZ.
- Greig B 2012, 'Changing NZ dairy farm systems', Paper presented at the SIDE Conference June 25-27 2012, South Island Dairying Event, Dunedin, New Zealand, pp. 217-228.
- McNally S 2001, 'Farm diversification in England and Wales – what can we learn from the farm business survey?', *Journal of Rural Studies*, 17: 247-257.
- Nuthall PL 2010, *Farm business management; the human factor*, CABI, UK.
- Nehring R, Gillespie J, Sandretto C and Hallahan C 2009, 'Small US dairy farms: can they compete?', *Agricultural Economics*, 40(supplement): 817-825.
- Pangborn M 2012, 'Growth and innovation in the Canterbury dairy industry', Unpublished PhD dissertation, Lincoln University, Christchurch, New Zealand.
- Parker WJ, Rauniyar GP and Dooley AE 2000, 'The future for the small dairy farm: plans, priorities and constraints', *Proceedings of the New Zealand Society of Animal Production*, 60: 241-246.
- Shadbolt NM 2012, 'Competitive strategy analysis of NZ pastoral dairy farming systems', *International Journal of Agricultural Management*, 1(3): 19-27.
- Small B, Murphy-Mcintosh A, Waters W, Tarbotton I and Botha N 2005, 'Pastoral farmers goals and intensification strategies', Paper presented at the 2005 ARES Conference Aug. 26-27 2005, New Zealand Agricultural and Resource Economics Society (Inc), Nelson, New Zealand.
- Small B and Roth H 2007, 'Preferred technologies and strategies for intensified pastoral production in New Zealand: are there human resource implications?', *Extension Farming Systems Journal*, 3(1): 1-6
- Reekers L, Shadbolt NM, Dooley L and Bewsell D 2007, 'Dairy farm ownership structures and their management; case study research, in S O'Reilly, M Keane and Enright P (eds.), *Proceedings of the 16th International Farm Management Association Congress, July 15-20 2007. International Farm Management Association, Cork, Ireland* pp565-577.

8.0 Appendix

Question probes used in the interviews

- Description of the farm, overview
- Description of the farmers history and how they came to manage the farm
- Current farm management & why this system is used
 - Stocking rate
 - Feed
 - Staff
 - Aim of system
- What farmer enjoys about farming, i.e. drivers
- How is the current farm set-up i.e. business structure of the farm, sole trader partnerships, debt levels?
- Off farm investments or any other business interests, off farm income
- Farmers future plans, personally and for the farm, succession,
- What is wanted from this future plan?
- How they plan to achieve the future plan
 - Preferred farming system
 - Economic and business strategy
 - Main barriers to this plan