

Lifting Farmer Engagement Within the Australian Dairy Industry:

**Encouraging Australian dairy farmers
to focus on profitability**

A report for



By Shannon Notter
2018 Nuffield Scholar

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Executive Summary

Profitability is critical to creating sustainable dairy farm businesses. Business operating environments are constantly changing and facing challenges, whether these be social, political, economic, environmental, or technological. To stay abreast of these challenges and maintain profitability, dairy farmers need to continually embrace educational opportunities to manage changes that affect their business. The key objective of this report is to provide industry leaders with examples of what other countries are doing well to successfully engage farmers in activities that ultimately upskill their business and lift capability of farm business management. In turn this will demonstrate what the dairy industry in Australia can do to encourage its farmers to engage with industry bodies and adopt the latest research and development that will aid in maintaining profitability within their businesses.

A main challenge identified for increasing engagement is that personal factors such as risk appetite, attitude and motivation, financial pressure and differences in long-term goals differ greatly between farm businesses and are ultimately major drivers for whether decision makers have a strong focus on financial performance. The state of the industry also has a major effect on the outlook of dairy farmers and whether they see available opportunities or large challenges ahead. Consistently, top performing farmers around the world are looking to upskill or adopt new research that may have an impact on their business. They also share common characteristics such as setting a budget, knowing cost of production, having a fertile herd, being proactive, being an employer of choice and setting goals. To get more farmers to engage and focus on these factors, that create consistently profitable businesses, encouraging them in a time of stress will have the greatest impact. Recently the Australian dairy industry has faced many challenges. Many businesses are under financial pressure which could allow the industry to increase farmer engagement.

Recommendations for increasing farmer engagement include:

1. Focusing on key decision makers, with emphasis on upskilling and lifting capabilities of women in dairy businesses.

2. Promoting the role of key influencers, particularly by developing more farm advisors who have trusted knowledge and experience along with involving opinion leaders, who are high performers in their region and well regarded by peers.
3. Creating an information rich environment by disseminating information in multiple forms. Acknowledgement that people have become time poor needs to be made, and videos, podcasts and other media are becoming a focus for information delivery to farmers.
4. Developing a long-term strategy for the Australian dairy industry to enable farmers the confidence to reinvest in farm businesses and continue to see opportunities in the sector.

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Foreword

I was not raised on a dairy farm and the opportunities that have been made available to me through the dairy industry globally have been overwhelming. I studied agriculture and agribusiness after leaving high school, and then had the opportunity to work in dairy businesses in New Zealand and the United Kingdom (UK). After this, I became an agribusiness manager for a bank in the South Island of New Zealand and this is where my passion and focus on business profitability, as well as encouraging others to do the same, developed.

I have been farming in Australia since 2013 and have seen significant changes in the outlook of farmers in the industry as we have faced huge market and climate challenges during this time. I wanted to travel overseas to see what other countries were facing and see what other industries were doing to encourage their farmers to focus on profitability, in a time where at home I could still see many farmers flourishing even with noise and negativity surrounding them.

My Nuffield travel took me through 11 countries over 17 weeks. I had the opportunity to meet 75 Nuffield Scholars from around the world at the Contemporary Scholars Conference in the Netherlands which set the scene for the rest of my travel that I believed would add to this experience. Being part of the Africa Global Focus Program took me and eight other Scholars to Oregon, Washington DC, Czech Republic, Ukraine, Kenya and South Africa where we were able to see such contrasting businesses and operating environments. I spent my personal travel in New Zealand, Europe and the United States of America (USA) where I had invitations to learn from successful businesses and industry leaders who all challenged my way of thinking. I still can't believe the hospitality of the global dairy community and it makes me appreciate being part of an industry that is so open to encouraging others to be the best they can be.

Acknowledgments

Firstly, I would like to thank the Gardiner Foundation. Without their generous support of the Nuffield program this opportunity wouldn't have been available to me. I would also like to thank them for their continued support of people and communities in the Victorian dairy industry.

A big thanks to the team at Nuffield Australia, for the organisation of the program and support throughout the journey.

I faced a number of challenges throughout the past two years and I'm extremely grateful to all my friends in the local dairy and Carlisle River community that gave up their time to help me out. The knowledge that they were on call at short notice when needed was a huge weight off my shoulders while I was away. A big thank you to Adam (2011 Scholar) and Cath Jenkins for the time spent chewing the fat and discussing all things industry and Nuffield.

To my Global Focus Program group, I couldn't have asked for a better bunch of people to spend six weeks with. You really helped create an unforgettable experience and something that I feel was a once in a lifetime opportunity.

Thank you to my family for their continued support. Most importantly, I would like to thank my mum Audrey. You have been my biggest supporter through this whole journey, and the time that you have given will never be forgotten. We got through it, even with the challenges that kept getting thrown our way. This truly would not have been achievable for me without you. Lastly, I would like to thank my husband Andrew who got me over the finish line.

Abbreviations

ABARES – Australian Bureau of Agricultural and Resource Economics and Sciences

EBIT – Earnings before interest and tax

EU – European Union

GFP – Global Focus Program

kgMS – Kilograms of milk solids

p/l - Pence per litre

UCD – University College Dublin

UK – United Kingdom

USA – United States of America

Objectives

The objectives of my research were:

1. To gain an understanding of the global dairy industry and the opportunities and challenges different countries face.
2. To understand the drivers that affect business profitability of dairy farmers.
3. To learn about different farmer mindsets and how it can affect the dairy industry.
4. Identify the approaches taken in other countries, that have been successful in shifting farmers mindset, which could be adopted in Australia.

Introduction

The Australian dairy industry has been in decline, with production in 2018/19 falling to 8.8bn litres, down 5.7% from the previous year, and forecasts for the 2019/20 season indicating a further decline of 3-5% (Dairy Australia, 2018). Currently, Australia is the fourth largest exporter in dairy trade, accounting for 6% of global trade, behind New Zealand (40%), the European Union (EU) (28%) and the USA (14%). However, the relevance of the Australian dairy industry, as a global player, has been questioned as not only has production decreased, but domestic consumption has increased, leaving less product available for export.

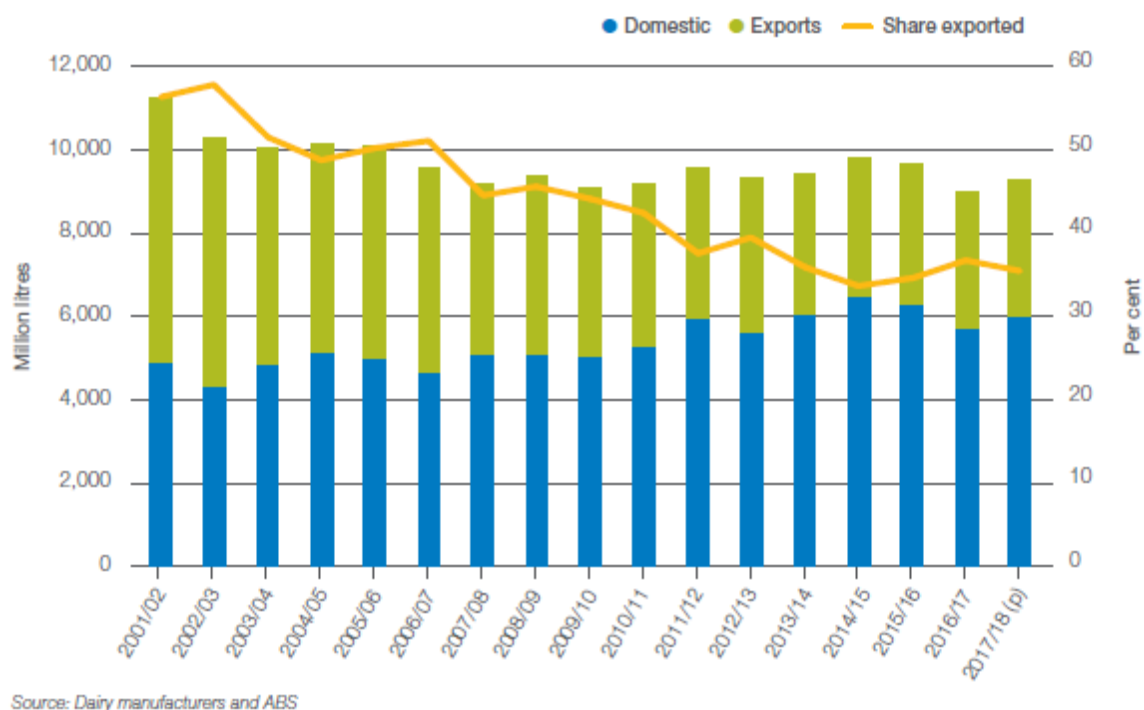
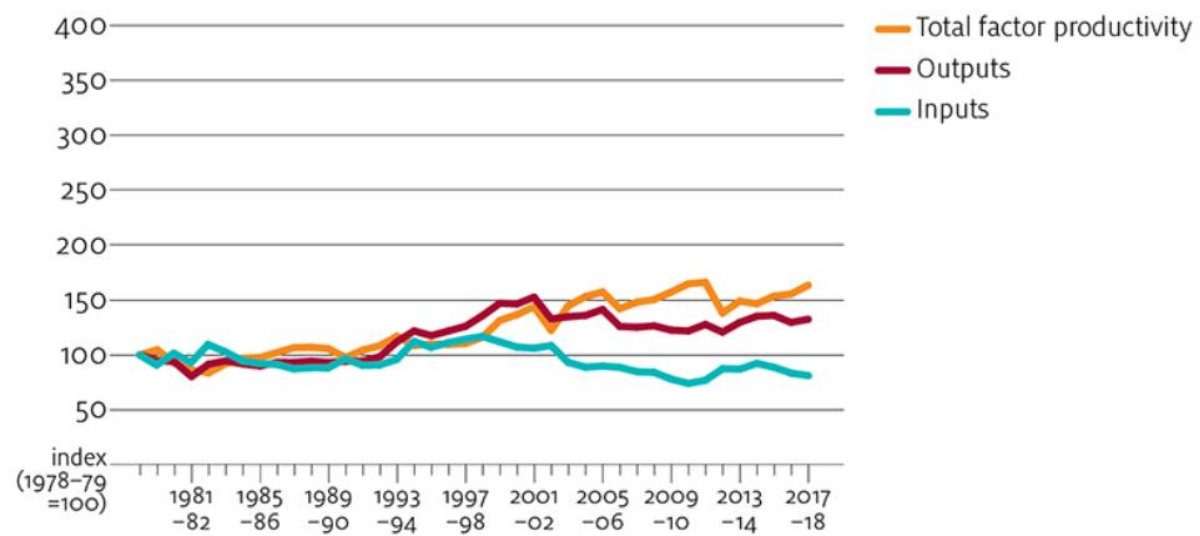


Figure 1: Australian milk production: domestic and export share (ABS)

The dairy industry is experiencing significant farm consolidation with registered dairy farms declining from 12,896 in 1999/00 to 5,699 in 2017/18. Since 1985 the average herd size of Australian dairy farms has increased from 93 to 273 cows, with large herds over 1,000 cows becoming more common. Lower return on assets has caused farmers to aim for greater efficiencies and economies of scale. Despite some farmers being able to make gains from growing their scale, many dairy farms have been unable to remain financially viable or achieve acceptable return on assets. The Australian dairy industry has seen output and input prices

rise at a similar rate. However, productivity gains have remained stagnant resulting in a reduction to the overall profitability of Australian dairy farms.



Source: ABARES Australian Dairy Industry Survey

Figure 2: Total factor productivity, output and input, Australian dairy industry

An 'earnings before interest and tax' (EBIT) of \$1.50/kgMS is considered the level that maintains enough profit to service debt and reinvest in farm businesses (Agriculture Victoria, 2019). The Dairy Industry Farm Monitor Project shows that average performance is below this in many regions, particularly where climate related variability has created challenges within individual businesses. Climatic pressures and drought throughout the country have increased pressure on dairy farms with margins in both domestic and export regions being challenged. From 2000/01 to 2017/18 feed costs contributed over 30% of dairy farms total costs (Frilay et al, 2018). This is largely dependent on supply availability with persistent drought conditions over recent years creating supply volatility and increasing the cost of grain and fodder. Additionally, the increasing frequency of extreme heat days and a decrease in winter rainfall is reducing the ability of Australian farmers to grow low-cost feed. The April to October rainfall in South Eastern Australia for the period 1999 to 2018 has decreased by around 11% when compared to the 1900 to 1998 period as shown in the State of the Climate report.

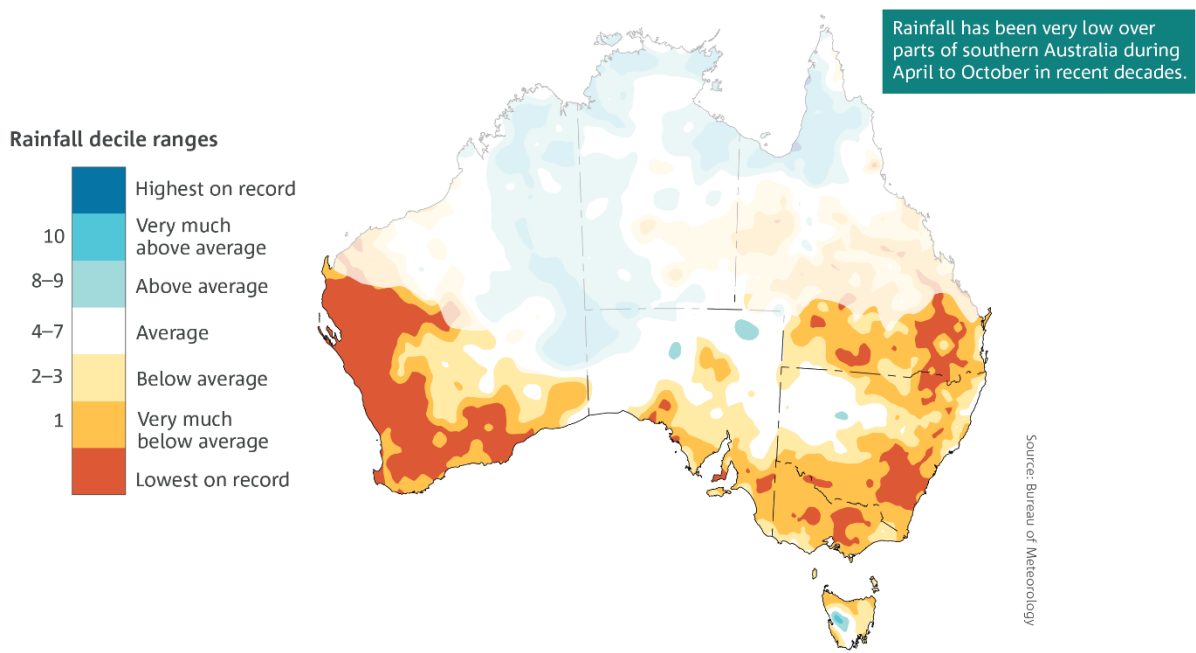
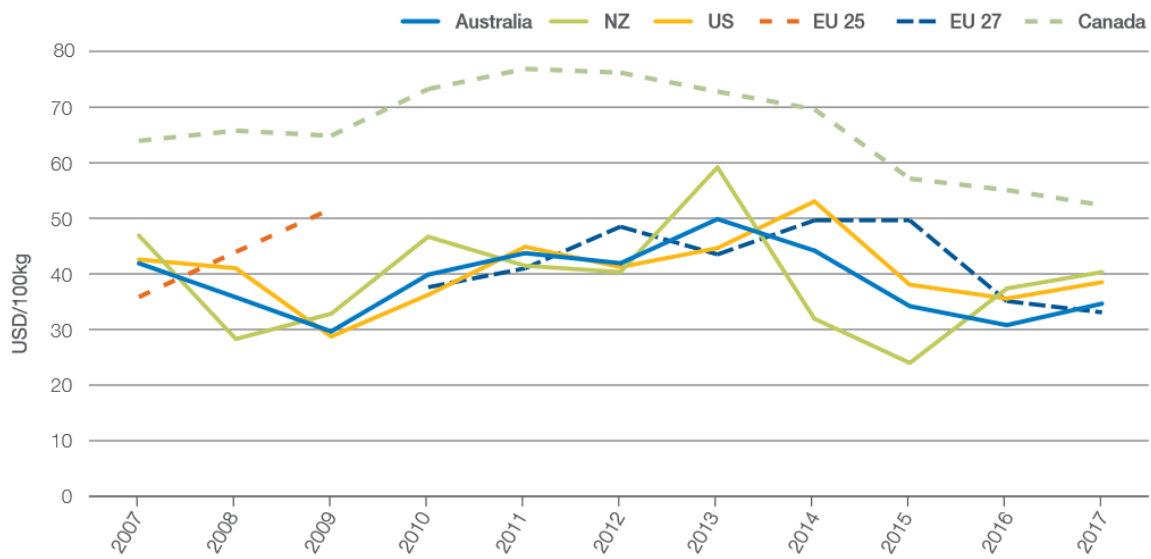


Figure 3: April to October rainfall deciles 1999-2018 (BOM)

Costs have also risen in response to milk processors developing milk pricing structures that encourage farmers to supply milk out of season. Out of season milk production is being encouraged to improve processing efficiencies so plants can run closer to capacity more evenly throughout the year. As a result, this has resulted in a shift from the traditional seasonal systems that produce milk at a low-cost structure, to production systems that have an even supply of milk throughout the year. However, due to high feed demands at times of the year when feed supply is not available, overall cost of production has risen and in turn reduced Australia's competitive advantage in the global dairy trade.

The milk price in Australia is strongly linked to international trends with Australian farmers often receiving lower prices due to the low levels of government support in comparison to farmers in many Northern Hemisphere countries (Dairy Australia, 2018). Since industry deregulation in 2000/01, Australian dairy farmers have been faced with higher volatility in milk prices (Dairy Australia et al, 2019).



Source: Dairy Australia

Figure 4: International farmgate milk prices (USD/100kg) (Dairy Australia)

Rising input costs and lower milk prices, relative to other countries, has led to lower return on assets and overall profitability in Australian dairy businesses (Dairy Australia et al, 2019). These low levels of profitability have seen farmers exiting the industry and a perceived negative outlook for the dairy industry. In addition to lower returns, 2015/16 saw the collapse of Australia's largest dairy cooperative, Murray Goulburn. Farmers were given a forecast milk price of \$6.00/kgMS, which was then revised downwards in April 2016. Fonterra, the second largest milk processor in Australia, also reduced milk price at this time. Farmers were required to repay money to processors which put many of them under significant financial pressure. These actions have all contributed to a negative outlook on the industry and an unwillingness for many farmers, to invest back into their businesses. Increased volatility, due to climate variations and global milk prices, along with increasing farm consolidation, has required farmers to develop new capabilities to manage their business and remain financially viable.

The Australian dairy industry has a strong research and development corporation. In the 2018 financial year, \$56.7m was invested into the industry, with a focus on three strategic directions:

1. Profitable dairy farms
2. Capable people
3. Trusted dairy industry

The current trend of declining production in the Australian dairy industry would indicate that these three strategic directions are not being achieved. The Australian Dairy Situation Analysis commented that *“industry is well served in RD&E capability, providing innovations to lift overall performance, however uptake of RD&E outcomes more broadly in the industry could be significantly improved.”*

Given the challenges the Australian dairy sector is facing in relation to increasing cost of production, climate variability and commodity price volatility it is vital to identify where Australian dairy farmers can improve so that the Australian dairy industry can remain competitive as a global player. As part of this research, and to identify ways that farmer engagement can be improved in Australia, it is first important to understand what challenges the global dairy industry is facing and how other regions have overcome these. This will allow Australian producers to learn from these examples and implement strategies that have proven to be effective.

Chapter 1: Challenges facing the Global Dairy Industry

The dairy industry faces many challenges, some of which are specific to certain regions with others applying to dairy farmers globally. In Australia, the state of the dairy industry is largely dependent on global supply and demand with growth in global dairy consumption expected to continue (Ledman, 2019). The global population is currently 7.7 billion people, and this is expected to reach nine billion by 2050 with much of the growth expected to occur in less developed regions including Asia and Africa (Figure 5).

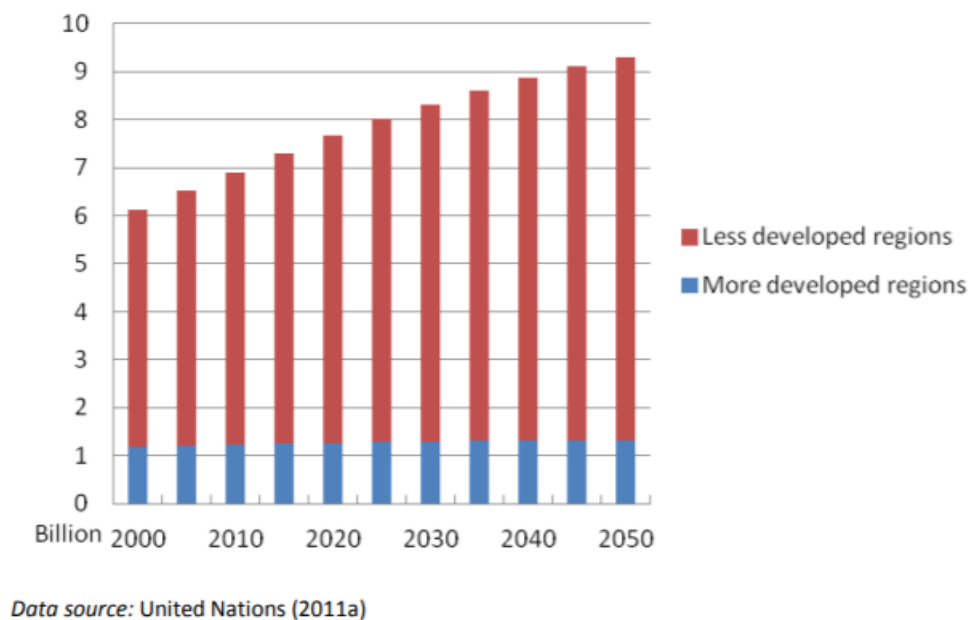


Figure 5: United Nations population estimate

Per person, incomes are also rising and consumers are shifting their demands from low cost staple products to higher priced products such as fruit, vegetables and animal products (Linehan et al, 2012). Despite the outlook for an increased demand for dairy products, many challenges face the dairy industry. The following section will explore the most common challenges worldwide including social licence, increasing regulation, price volatility and increasing pressure on gross margins.

1.1 Social licence

Consumers in developed countries are now demanding more transparency from producers for the food they are purchasing, and the social licence of dairy is under question. In part this

is due to the perceived impact of animal agriculture on the environment but also due to the moral views of consumers around the consumption of animal products and animal welfare. Large numbers of cattle globally are contributing to methane in the atmosphere with the impacts of this being heavily debated. The dairy industry is coming under increasing scrutiny as a result of the climate change conversation. Plant-based diets are becoming increasingly popular in developed regions that have higher incomes, with the number of consumers in the USA that identify as vegans growing from 1% to 6% between 2014 and 2017 (Forgrieve, 2018). Not only are consumers demanding higher animal welfare standards from their products but there is a growing movement of people that believe that animals should not be farmed at all, as they feel they can fulfil all dietary requirements without animal protein. This has led to demand for plant-based alternatives outstripping the growth in demand for dairy. Despite this, global demand for dairy continues to increase, particularly in developing regions, and it is important for the Australian dairy industry to be in a position to take advantage of this moving forward.

Australian dairy is well placed to take advantage of the population and demand growth due to the proximity with Asia and having a reputation for producing safe, high-quality products. This is particularly important to consumers in China after the 2008 melamine scandal which involved chemical substances being added to milk formula, giving the appearance of higher protein content (Huang, 2014). This led to a protein deficiency resulting in six infant deaths. Prior to this, there had been 12 infant deaths attributed to malnutrition resulting from milk formula produced from diluted milk. These incidents have both contributed to increased consumer demand for traceable, safe and high-quality dairy products which Australia is well positioned to take advantage of.

1.2 Increasing regulation

Many countries are seeing significantly higher levels of regulation, particularly in relation to farming practices. In California, dairy farmers are experiencing restrictions on water usage due to the negative impact overuse is having on natural water systems. This, along with competing land uses, are causing farmers to question the long-term viability of dairy in this region. The detrimental effects of having low levels of regulation was clearly seen in the Texas panhandle, where there are few water restrictions and poor compliance, with farmers having

to lower their pumps each year to continue using irrigation water (Schilderink, 2019). New Zealand's farmers are currently facing regulations around nutrient losses, stocking rates, fertiliser, and water use. The issues facing farmers are largely due to the deteriorating water quality of New Zealand river systems, attributed to runoff from dairy farming activities. Should the proposed regulations be passed, overall profitability will be negatively impacted and the long-term viability of dairy farmers in the affected areas will come under question (Scott, 2019). Additionally, this issue is negatively impacting the social licence of New Zealand dairy farmers, adding further scrutiny to the industry with the potential to negatively impact consumption.

Farmers in the Netherlands are also facing increasing regulation in the form of phosphate quotas. A large portion of farmland in the Netherlands was developed using dykes to drain land below sea level. Similarly, to New Zealand, Dutch dairy farmers can farm very intensively because of a climate favourable to growing pastures with high yields per hectare. Many properties have animals farmed indoors, and as such produce large quantities of effluent which must be disposed of. The high nutrient levels of effluent are believed to negatively impact natural ecosystems hence the need for phosphate quotas limiting the size of dairy farms to the amount of land available to dispose of the effluent.

In comparison to other regions, Australia does not yet have these types of environmental regulations due to its less intense nature. However, due to climatic variability and water shortages, access to water for dairy farmers that in part rely on irrigation is becoming increasingly restricted. This restriction has reduced supply and in turn lifted the cost of water in these regions. This along with increased demand from higher value crops, has subsequently led to many dairy farms being unsustainable due to the rising costs of production (Dairy Australia, 2018).

1.3 Pressure on profit/gross margins

Around the world dairy farmers have seen pressure put on profit margins, making profitable farming harder to achieve. The USA has seen many family farms become unviable and exit the dairy industry as larger commercial farms continue to expand. In states like Wisconsin, which have traditionally been dairy producing states, dairy farmers are feeling the "get big or get out" message. With a global oversupply of milk, farmers have been receiving

approximately \$15 per one hundred pounds of milk, with cost of production being between \$17 and \$22. Larger farms have the ability to produce milk at a lower cost due to economies of scale they are able to generate. It is emerging that the only viable strategy for smaller operations is to focus on adding value to their product to increase revenue.

Bryan Voegeli, dairy farmer at New Glarus, Wisconsin, explained that the only way that their 300-cow family farm had been able to survive was through the ability to add value to their product. This was achieved by producing a Swiss style yoghurt from Brown Swiss cows and differentiating the product by telling the story of their Swiss heritage. With the increased revenue they were able to continue investing in their business, whereas other farmers were not able to produce at a sustainable level that allowed for capital improvements on their farms. The milk processing companies in the Mid-West had also stopped collecting milk from suppliers that were unable to completely fill a truck. Farms now had an empty tanker dropped off, which was collected once full. This is creating efficiencies in the logistics for the milk companies. Mary Ledman, Rabobank Global Dairy Strategist based in Chicago, believes that this push for companies to only pick up full truckloads of milk will start being seen in more countries than just the USA.

Dairy farmers in the EU were also seen to be under pressure to create viable businesses. Co Daatselaar, researcher from Wageningen University, showed that in 2014, (which was a high milk price year for Dutch farmers), many farmers did not achieve a positive return on investment. As Figure 6 demonstrates, total revenue (Revenues Dairy) was less than total costs or close to breakeven for most dairy producing countries in the EU.

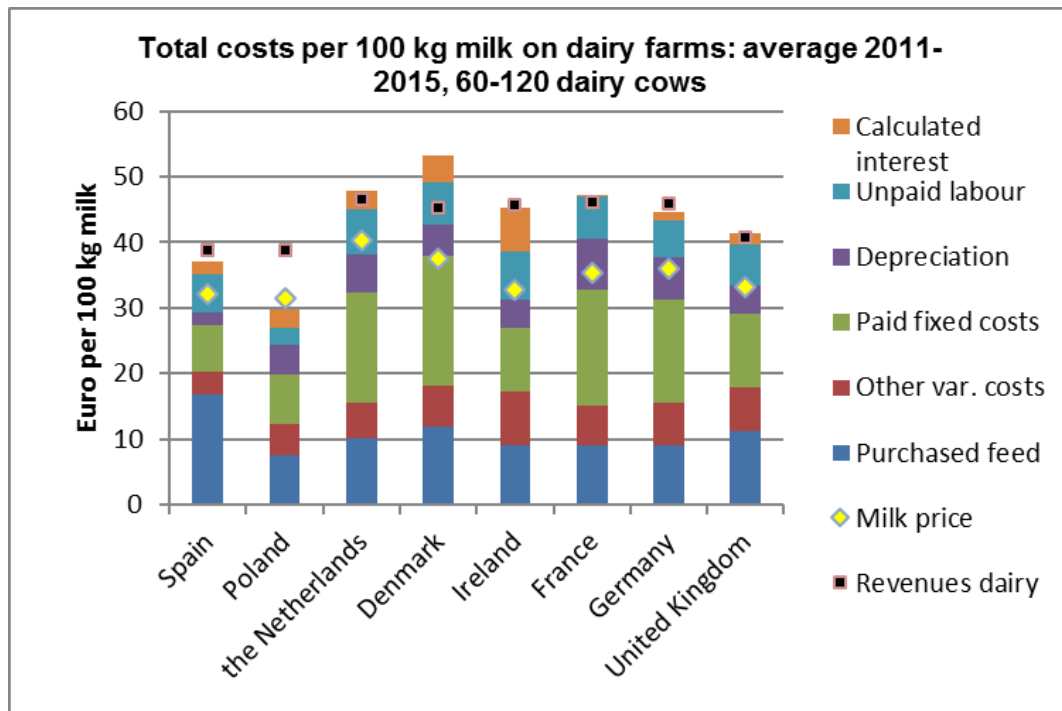


Figure 6. Total costs per 100kg milk on European dairy farms, 2011-2015, 60-120 dairy cows (Co Daatsellar, Wageningin University)

1.4 Market volatility

Since deregulation in 2000, Australian dairy farmers have noticed increased volatility in milk prices which are being significantly impacted by the level of international market support. In 2015/16 the EU bought 380,000 tonnes of skim milk powder with the aim to stabilise the market and support farmers' income. Price support from the USA government for struggling dairy farmers has also created a false economy that directly impacts on the world market due to an oversupply of milk. Volatility is not only seen in the price that farmers are receiving for their milk, but also in input prices. Much of this volatility is due to climate variability which is being seen worldwide with many regions experiencing extreme weather events.

Chapter 2: Factors affecting Business Performance

The mindset of farmers and the motivation to create profitable businesses differs between individuals, communities and regions. Industry extension organisations in dairy countries worldwide aim to set benchmarks for both production and financial targets. However, there are always some businesses that will exceed these benchmarks and others that consistently fail to achieve these targets. The following section will discuss the different factors that cause individual businesses to outperform others, even in comparative environments.

2.1 Risk appetite

The main sources of risk in a dairy farm business are business risk and financial risk. Business risk results from production risk which includes climate, input and output and personal risk. Business risk inherently affects the farm's operations. Financial risk results from factors affecting cash flow and equity.

Dairy farmers are dealing with greater levels of volatility in their businesses, and a more diverse skillset is required to operate a successful business. Higher levels of volatility are making it harder to be instinctive (McMinn, 2018). Risk management has always been a factor in dairy farm businesses but increasing volatility has made this aspect of business management increasingly vital. For every decision the risk and reward of each decision needs to be critically evaluated with the outcome largely dependent on how much risk an individual is willing to take on.

Case study: Taking a risk to provide future opportunities

Name: Laurens and Ilona Schilderink

Location: Hart, Texas

Cows: 15,000

Laurens and Ilona Schilderink have taken the risk to move from the Netherlands, to Denmark, to the USA as opportunities have arisen. This has seen them grow from a 50-cow farm in the Netherlands to over 15,000 milking cows in Texas and Kansas as well as other youngstock



rearing properties in other states. This has largely been a result of their appetite to take on risk in the knowledge that it could put the business under significant financial strain. Their success is the result of their ability to critically evaluate each decision and remove the emotional attachment that often comes with farming operations.

2.2 Attitude, motivation and benchmarking

People need to decide to go farming, but also make the decision to be a good farmer (Murphy, 2018). Attitude and motivation play an important role in determining whether farmers are aiming to be top performers. Most farming businesses are not motivated to chase the final 10-15% of profit that can be achieved particularly if they are operating with little debt and are financially stable (Pierce, 2018). The drive for an individual to be a top performer is the reason that they are focused on continuous improvement and lifelong learning.

The Irish dairy industry has a strong focus on pasture utilisation, and this is encouraged by the industry body Teagasc. Industry leaders are focused on having a singular message around low cost, pasture-based farming. However as pointed out by Karina Pierce from University College Dublin, *"not everybody gets a kick out of low-cost farming, and some farmers choose to chase production even though it may not be the most profitable use of resource"*. For example, research in Ireland shows that regularly measuring grass biomass significantly increases the amount of homegrown feed utilised in feeding programs and ultimately results in higher levels of profit (Pierce, 2018). Despite this, studies show that 50% of discussion group

participants, where farmers were trained on how to effectively measure feed on offer, stopped regular measurement after the group had concluded the training (Pierce, 2018).

Another example of the role industry is playing to improve farm business performance was the development of benchmarking tools. Approximately 70% of farmers in Ireland are not using any form of benchmarking. This is believed to be due to the fear of what the figures will tell them about their business shortcomings (Shalloo, 2018). This fear is undoubtedly impacting the long-term financial viability of some farmers. During the downturn in New Zealand dairy in 2016, which saw record low milk prices, well-regarded dairy farmer Colin Armer offered to give business and financial advice to other farmers in need. The response was only one farmer taking up the offer during a time where many businesses were unable to continue, despite having had the opportunity to take strong advice from experienced people within the dairy community.

Every business has goals, either informal or formally recorded that are measurable and regularly revisited. These can be categorised as financial, physical and lifestyle goals. Below are some of the main goals seen in businesses globally that can be benchmarked:

Financial goals:

1. Reduction in farm working expenses
2. Increased return on capital
3. Increased return on equity
4. Improved margin over feed cost

Physical

1. Increased production per cow
2. Increased production per hectare
3. Higher six week in calf rate
4. Improved calving index

Lifestyle goals are harder to quantify because for some farmers, a lifestyle goal is getting a certain amount of time off the farm, while for others it is being able to raise a family on the land. Michael Murphy, farm advisor and industry leader in Ireland, explained that the “why”

is what keeps you on track. For a farm business to be sustainable people need to be able to make a decent living whilst enjoying a social life outside of farming (Murphy, 2018).

Case study: Wealth creation through off farm investments

Name: Gerring Partners

Location: Wiltshire, England

Cows: 500

Two dairy units, one spring calving and one autumn calving, to attract a premium payment as a result of a flatter milk curve. This business is based on leasing dairy farms and investing in off farm assets. The knowledge that the



leases are not long term had created this focus because of the risk of losing a lease after 5 years. Cost control is critical, and the aim is for a cash return as there is no ability to rely on asset growth since land is leased. Cost of production is the primary benchmark, achieving a COP 9.6p/l lower than the average in the supply group.

Financial pressure is also a large motivator for farmers to aim for top results. Figure 7 shows that farms with lower levels of equity on average, have higher numbers of cows and have a greater need to improve farm performance. The added cost of paying bank interest can motivate farmers to focus more on cost control and gaining more efficiencies compared to businesses that do not have the pressure of repaying debt.

Equity ratio	Unit	More than 90%	70 to 90%	Less than 70%
Proportion of farms	%	27	52	22
Total area operated	ha	304	290	355
Number of dairy cows mated	no.	194	252	259
Total milk production	l	1,184,900	1,374,500	1,552,200
Milk receipts	\$	512,700	578,500	629,700
Total cash receipts	\$	614,800	679,900	776,400
Milk receipts as a proportion of total receipts	%	83	85	81

Source: ABARES Australian Dairy Industry Survey

Figure 7. Dairy farm performance in Australia by equity ratio 2016-17

Case study: Providing for multiple families

Name: Thomas Steele

Location: Co. Down, Northern Ireland

Cows: 500

2012 Farmers Weekly Dairy Farmer of the Year. A family business that needs to support three families, being his parents, his brother and himself. Calving nine months of the year and aiming to produce 11,000 litres per



cow. The high dependence on the business to support the three families keeps them focused and always striving to improve. This business is known for being top employers and while others are finding it difficult to find good staff, they always have people wanting to work for them. Thomas puts part of this down to him having worked off the farm and as an employee previously.

2.3 Issues with farm succession

Jason McMinn, Farmgate Consultancy in Northern Ireland, commented that some farmers feel they belong to the farm. This was spoken about often, particularly in Ireland where there is still the expectation that the oldest son will work the land. People have a tie to the land and are focused on being able to create a business and asset that can be passed on to the next generation. This is also a key driver in the Netherlands. Co Daatselaar and Alfons Beldman, Wageningen University, suggested that many dairy farms in the Netherlands are making negative returns as costs such as family labour are not considered. These businesses often rely on subsidies from the EU and are not profitable businesses. Additionally, many Dutch farmers do not view land acquisition as a viable investment but still want to offer their children the opportunity to be dairy farmers or landowners (Beldman, 2018). Without

expansion and business growth the future of these farms is unsustainable as economies of scale are reduced and efficiencies are lost.

Case study: Growth from focus on production

Name: Neil Baker

Location: Somerset, England

Cows: 1,950

Cows on this farm are milked three times a day through one 80 bail rotary in a high input, high output system. The business has grown by 100 cows per year since 2008 with the aim of building to 2,500 cows, and his focus is on lifting



output by focusing on incremental gains through genetics, production processes and business management. Efficiencies have also been generated through economies of scale and process improvement. The business is also benchmarked against regional and national groups to ensure he is maximising the potential of his operation.

2.4 Farmer engagement with industry extension

People have different learning styles and if industry wants to get a message across to the largest number of people, the same message may need to be communicated in many ways. Some people learn best by verbal means, some by visual means and some by physical means.

Currently, the Irish dairy Industry appears to have the most engagement from dairy farmers with extension from industry bodies. Although New Zealand has good levels of engagement, this seems to be decreasing (Scott, 2018). One explanation for this trend is related to the trajectory of an industry. The New Zealand dairy industry was on a path of growth, lifting production from 12 billion litres in 2000 to 20 billion litres in 2018 (Van der Poel, 2018). Farmers could see opportunities to grow their businesses and were seeking the latest research and information to improve productivity and business returns. With New Zealand

being predominantly export focused and lacking protectionism, dairy farmers need to be resilient and deal with market volatility. The global financial crisis in 2007 taught farmers to manage volatility following a simultaneous lift in interest rates and a drop in milk price which placed them under significant financial strain. The tactics New Zealand dairy farmers learned during this period has enabled them to cope with unexpected volatility and created resilience within the business (Paine, 2018). Despite this, increasing government regulation is now creating a negative outlook for dairy, in the eyes of New Zealand farmers, which is coinciding with a drop in extension engagement. Likewise, this effect could be contributing to the low level of farmer engagement in the Australian dairy industry as total milk production is in decline with a negative outlook moving forward.

In comparison, the level of engagement among Irish dairy farmers is improving. Production in the past five years has increased from 5.6 billion litres to 7.5 billion litres (Shalloo, 2018). Prior to the removal of quotas, the Irish dairy industry was giving strong signals to farmers to increase production. Dairy farmers are finding more opportunities to build wealth with more lease farms available and new conversions to dairy from traditional beef farms. Due to the competition for lease and land sales for conversion, farmers have a mindset that they need to be better than average, or at the least better than their neighbours, so that they are best positioned for taking advantage of opportunities (McMinn, 2018). As a result, they are looking to implement best practice where possible and take advantage of industry research and extension.

2.5 Changing mindset of industry extension

The aim for industry bodies when focusing on lifting the capabilities of farmers is to lift the whole average. To do this, it needs to be decided at which level to target the message that is being delivered. Due to different goals, personality types and learning styles there is no “correct” delivery technique to encourage farmers to make changes within their business that will work for every farm business. These differences in individuals help to explain why decisions are made by farmers that may contradict the advice delivered in industry messaging. Many countries focus their messaging on the lead or top farmers in the hope that the next group are similarly encouraged to improve after seeing the adoption of different techniques. This is the technique adopted in New Zealand whilst maintaining a strong focus

on the poorer performers to ensure industry standards around animal welfare are maintained.

Timing of message delivery is also important. Jason McMinn, Ireland, suggested that the impact of messaging is greater during adverse operating conditions. Mark Paine, DairyNZ, said *“there are windows of opportunity for extension particularly when people are stressed as they are more willing to make change”*. However, it is important that producers aren’t overstressed, as this can affect the uptake of new information and cause producers to revert to ingrained farming practices. In these situations, it is important for industry to focus on mental health.

Conclusion

It was evident that dairy farm businesses that are achieving high returns on investment shared many common characteristics regardless of production system. These include:

- **Having a budget** - High performing businesses set their budget at the beginning of each season and monitor it throughout the season, although they accept that other factors cause actuals to vary from the budget. Tom and Karolina Mitchell from Dorset have taken over a lease that Tom’s parents had previously farmed. Although he felt his parents were always profitable, their focus was on not spending any money rather than maximising profit. Setting and monitoring a budget allowed them to set an expenditure plan and invest back into the business.
- **Knowing cost of production** - Michael Murphy, farm advisor and industry leader in Ireland, has worked out that cost of production is four times more important than milk yield per cow, two times more important than production per hectare, and 14 times more important than extra supplement per cow. Understanding cost of production allowed high performing farmers to benchmark their systems against others and see where improvements could be made.
- **Having a fertile herd** – Fertility was commented on by business owners of all dairy farming systems throughout Europe, the USA and New Zealand. Over time, farmers have pushed for cows with a high production potential, often at the expense of fertility. Thomas Steele, *2012 Dairy farmer of the Year, UK - Northern Ireland* believed that fertility was the biggest driver for profitability.

- **Being an employer of choice** - Jason McMinn from Northern Ireland said the biggest issue for dairy farms is attracting good people. Dairy farming is labour intensive and the issue of employing staff was reiterated around the world. Often the high performing dairy businesses had strategies in place for recruiting staff and low staff turnover. Thomas Steele is located in a remote part of Northern Ireland and was known for being a good employer. He had a number of people that had indicated to him that they would be interested in working on the farm if a position is available. He believed that working for somebody else had made him understand what it was like to be employed. The cost of staff turnover is hard to calculate, but the costs associated with additional training and lost staff productivity will negatively impact profit.
- **Being proactive** - Every business is going to face challenges but being proactive about making decisions puts farmers in a better position for the future. John Wilson, Fonterra Chairperson, noted that the New Zealand dairy industry is able to look objectively at business performance as a result of being exposed to the export market and the volatility that comes with this. It is important that farmers have good information to make the critical decisions and overcome business challenges. Colin and Dale Armer, New Zealand dairy farmers, commented *“that when faced with adverse business conditions, good businesses will find a way to adapt. The key is to surround yourself with good people and focus on your business”*.
- **Setting goals** - Top performing businesses had set goals for themselves. These were mostly around financial and physical performance, but often included lifestyle goals.

Chapter 3: Farmer Engagement

Australian dairy farmers contribute over \$30 million a year to Dairy Australia which provides research, development and extension for the dairy industry (Dairy Australia et al, 2019). Dairy Australia also receive a matching government contribution of over \$20 million a year. The Australian Dairy Plan Situation Analysis stated that the level of engagement and uptake of information from Dairy Australia could be improved (Dairy Australia et al, 2019). The two countries that were seen to have the highest levels of industry engagement amongst dairy farmers were Ireland and New Zealand. Both these countries are at different stages of their industry growth cycle and employed different methods that contributed to increased levels of engagement from farmers.

3.1 Talking the same language

Michael Bateman, dairy farmer in Ireland, stated that *“you need to get everybody using the same financial language, and the banks are pivotal in order to achieve this”*. Industry leaders and farm advisors from both New Zealand and Ireland made the point that using the same key performance indicators by all stakeholders including banks, accountants and other service providers helps farmers to have clearer targets and to benchmark against others in the industry. The most basic of these is the payment systems, with all farmers in New Zealand being paid on kilos of milk solids and farmers in Ireland all being paid on cents per litre. This is in comparison to Australia where some farmers quote cents per litre and others quote kilos of milk solids. The other main indicator of business performance is farm working expenses which is the focus of most conversations in these countries. If the Australian dairy industry is going to improve on farm financial performance, it is important that there is a level of standardisation around business metrics so that farmers can benchmark effectively.

3.2 Collaboration between farmers

Another aspect that was observed, particularly in New Zealand, was openness between farmers and the willingness to share information. Due to the dairy industry being exposed heavily to the export market and the absence of any government subsidies since the 1980's, New Zealand farmers need to have a strong business focus and seek to continually improve. This has led to a culture among New Zealand farmers where production and cost of

production are openly shared amongst peer groups. With 95% of farmers supplying the same company and receiving the same price for the milk that they were producing there seemed to be no negative impact associated with the level of openness between peers and this collaborative approach and the ability to learn from others has continued. This is not something that is seen to the same extent among Australian farmers and is potentially an area where the Australian dairy industry can improve.

3.3 Industry research engagement

The relationship between industry research and farmers in Ireland was also in stark contrast to the Australian dairy industry. Moorepark, the dairy research facility of Teagasc in Cork, has an open day every two years (Figure 8) with the most recent open day having over 10,000 farmers visit over two days. This research facility is on board with the message of low cost, pasture-based farming that the Irish dairy industry leaders are trying to get across to farmers. The researchers are individually known and respected by farmers, and information is released regularly through the Irish Farmers Journal. Much of the research being carried out has an economic value attributed to the findings so that farmers can clearly see the financial gain expected from adoption. A good example of this is the *Next Gen* herd which compares average cows to top 5% cows chosen by Economic Breeding Index. This index has been developed in an easy to understand system that puts a dollar figure on how much additional income can be achieved by using certain bulls. The level of engagement and relevance of research outcomes is an area where the Australian dairy industry can improve moving forward.



Figure 8. Farmers at Moorepark open day, and Next Gen Herd (Author)

3.4 Sharing knowledge through discussion groups

Discussion groups (Figure 9) were a common way for farmers to gain more knowledge, while also having the social benefit of time away from the farm. In both New Zealand and Ireland, the most successful discussion groups were facilitated by well-regarded farm advisors who expect each participant to input data prior to each meeting. This allows time to benchmark against other farmers in the region and make changes dependant on seasonal factors. The use of a farm advisor keeps the group on topic and holds individuals accountable to the targets set at the beginning of each season. The data that is collected prior to the meetings consists of basic milk production and pasture measurements. Irish dairy farmers recognise that pasture utilisation is one of the biggest strengths of their systems and by growing and utilising high yields through grazing they create a low-cost system. By discussing this regularly in a group situation it keeps farmers engaged and focused on maintaining high quality pasture. Whilst this is gaining prevalence within the Australian dairy industry it is still an area that can be expanded and improved.



Figure 9. L: Discussion group at the property of Joe Leonard, facilitated by Matthew Ryan; R: Irish dairy farmer Colm O’Leary carrying out a pasture walk (Author)

3.5 Clear career pathways

Career pathways in New Zealand, that were initially based around a sharemilking structure, have helped young farmers to develop and move into farm ownership. Landowners and sharemilkers work together to create profitable businesses for all involved. Entrants to the industry can see the success and equity growth that other farmers have had by working

through this pathway from farm employee to farm manager to lower order sharemilker to 50:50 sharemilker and then on to farm ownership. This pathway moves the risk and reward from the farm owner to the person operating the dairy as they move through this process. This sharemilking structure has been a large factor in the development of capabilities, but as land prices have risen many farmers are unable to afford giving away a portion of their profit to sharemilkers. Farm sizes have grown and the jump into farm ownership is also getting harder to achieve. This has led to a shift in aspirations of farm ownership to business ownership, especially equity partnerships, where farmers can still make day-to-day decisions and grow equity. This career pathway isn't as prevalent in the Australian dairy industry and is potentially leading to an aging demographic among dairy farmers which may inhibit industry growth in coming years.

3.6 Tertiary education

Both New Zealand and Ireland had a strong emphasis on young farmers attaining tertiary education. There are dairy specific qualifications available and farmers recognise that having a strong skillset relating to business management has become increasingly important as dairy businesses continue to grow in size and value. New Zealand has opportunities available to new graduates with positions offered as farm consultants in DairyNZ, agribusiness managers in large banks, and other service providers such as fertiliser companies. This means that experience and knowledge is not lost from the industry as more experienced professionals help to develop a younger generation. Aside from generic degrees in Agricultural Science and business, courses relating specifically to dairy are not available in Australia and is an area which can be further developed.

3.7 Supporting women in dairy

DairyNZ chairperson, Jim Van der Poel stated that if you want to get farmers to focus on profitability, start with the women within the farm business. This was reiterated in Ireland by Karina Pierce who commented that in many dairy farm businesses the women are doing the financials, but there is a disconnect between the financials and what is happening on farm. The New Zealand dairy industry has formed the Dairy Women's Network as there is a strong recognition of the important roles that women play in farm businesses. This organisation focuses on lifting the capability of women in the dairy industry. Another network is the Agri-

Women's Development Trust, both of which are well supported in New Zealand. These networks are designed to give women the tools and confidence to lead and contribute to business in positive ways. As well as building skillsets, these initiatives create support networks which are important in rural environments. Here in Australia there are several small women's groups driven by individuals which are a fantastic resource for women in dairy. However, there isn't a strong industry driven group specifically focussed on dairy in Australia and is an area that Dairy Australia could push through their extension arm.

3.8 Celebrating success

New Zealand appears to have a culture that is good at celebrating success. The *New Zealand Dairy Industry Awards* are well supported, have excellent sponsorship to encourage entrants and allow entrants to have a strong look into all facets of their business. Constructive feedback is given so that entrants can either try again or implement better management practices in their business. Young people applying for sought after job vacancies often have a better chance of reaching interview stages when they have entered the awards as it shows employers that they have a focus on continual improvement. This type of recognition is not something seen in Australia and is indicative of a different culture and mindset between the two countries. For the industry to improve, dairy farmers in Australia need to applaud and celebrate success rather than attempt to devalue achievements in order to adapt them to the average.

3.9 Collaboration

Farmers from New Zealand and Ireland have combined to create the Pasture Summit, which is held biannually in alternating countries. The Pasture Summit was first held in New Zealand in 2018 at two locations. This brought together farmers who had a focus on creating a profitable future for dairy stakeholders and added extra ways of thinking from industry leaders in Ireland. This created more networking opportunities and chances for farmers to see what practices other farmers were using to create profitable businesses and should be explored by the Australian dairy industry to expose farmers to global best practice.

Conclusion

Global demand for dairy products is increasing. Given Australia's proximity to Asia, the largest consumer growth region, the Australian dairy industry is well placed to take advantage of this growing market. Despite this, the Australian dairy industry is in decline and dairy businesses worldwide are struggling to make sustainable return on investment. Globally, the dairy industry is facing many challenges including changing consumer trends, increasing government regulations and increased volatility in both markets and climate which is altering the skillset required by farmers to operate sustainable, profitable businesses.

For Australian dairy farmers to improve their profitability, it is important to assess the main drivers of individual dairy businesses and understand ways industry can better engage with these businesses to improve profitability.

The Australian dairy industry is well supplied in research and development but the level of engagement from farmers is low. Other dairy producing countries, particularly Ireland and New Zealand, have high levels of engagement and it is important to look at what industry bodies are doing in these countries to improve engagement in Australia. In particular, the promotion of key influencers and experienced farm advisors creates an information rich environment. From this, farmers can draw new information and lift the capabilities of key decision makers within individual businesses. This has the greatest potential to lift the performance of the Australian dairy industry. Dairy Australia needs to look closely at RD&E organisations from other countries and recognise what they do well. There is an opportunity to adopt similar tactics to encourage farmers to engage more so that the focus of these farmers is to increase their profitability.

It is important that the level of engagement lifts so that farmers are getting a return on investment for the money that is contributed to research and development. It is up to each individual farm business to set their own goals and targets and take responsibility for their own financial performance. A clear strategy from the Australian dairy industry is needed that supports profitable, sustainable businesses and creates the confidence for further investment, growth and continual improvement.

Recommendations

Focus on lifting capabilities of key decision makers

Focus on key decision makers to understand the basics of successful farming systems. Set goals and targets, particularly relating to those factors that successful farm businesses consistently do to be profitable. Dairy Australia's Dairybase is well-regarded worldwide and is a great tool to benchmark against other businesses. This tool allows farmers to understand where improvements, in both production and profit, can be made and should be adopted more widely to improve performance. Many dairy farms have women as key decision makers, often controlling financial aspects of the business. Networks should be developed to encourage the skill development of more women in dairy.

Promote the role of key influencers

Make use of highly regarded farmers to co-develop programs and encourage other farmers to learn from them. These high performers will also benefit by getting access to the most recent research and development, while giving knowledge to others. In addition to farmers being used as influencers, more advisors need to be supported as it takes time for young entrants to gain experience and build a reputation. Established consultants should be encouraged to mentor younger consultants.

Create an information rich environment

People absorb information differently, so utilise a range of mediums to get information disseminated to the largest number of people. Many farmers are finding it more difficult to get away from their business and tools such as videos and podcasts should be encouraged.

Create a clear strategy for the Australian dairy industry

Currently, the Australian dairy industry is working towards implementing the 'Australian Dairy Plan' which is aiming to build a more profitable, confident and united future over the next three-to-five years. While this is important, the industry also needs a longer-term strategy that has all stakeholders on board, including farmers, processors, banks, accountants and other service providers.

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Plain English Compendium Summary

Project Title:	Lifting Farmer Engagement Within the Australian Dairy Industry: Encouraging Australian dairy farmers to focus on profitability
Nuffield Australia Project No.:	1802
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Organisation:	Carlisle Dairies Pty Ltd 175 Moomowroong Rd Carlisle River, VICTORIA 3239
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Objectives	<ol style="list-style-type: none"> 1. To gain an understanding of the dairy industry around the world and the opportunities and challenges different counties face. 2. To understand what the drivers are of farmers that affect business profitability. 3. To learn about change management and how it can affect the dairy industry. 4. Gain an understanding of what other countries have done that has been successful in shifting mindset in farmers that could be adopted in Australia.
Background	The Australian dairy industry is in decline and profitability is critical to creating sustainable dairy farm businesses. Business operating environments are constantly changing and facing challenges – social, political, economic, environmental and technological. To stay abreast of these and maintain profitability, dairy farmers will need to continually embrace educational opportunities to keep up with any changes that affect their business.
Research	11 countries over 17 weeks, speaking with farmers, advisors and other industry professionals. It led me to look at what individual high performing farm businesses are doing to maintain consistently profitable businesses and to see what other countries are doing to encourage farmers to engage and adopt new research and development.
Outcomes	<p>To encourage higher levels of engagement industry leaders should focus on:</p> <ol style="list-style-type: none"> 1. Key decision makers, with a focus on upskilling and lifting capabilities of women in dairy businesses. 2. Promoting the role of key influencers 3. Creating an information rich environment. 4. Developing a long-term strategy for the Australian Dairy Industry to enable farmers the confidence to reinvest in farm businesses and continue to see opportunities in the dairy industry.
Implications	The Australian dairy industry is well placed to take advantage of future growth opportunities in domestic and export markets. Using examples of what other countries are doing well to successfully engage farmers in activities that ultimately upskill their business and lift capability of farm business management will demonstrate what the dairy industry in Australia can do to encourage dairy farmers to engage with industry bodies and adopt the latest research and development that will aid in maintaining profitability within their businesses.