KELLOGG
RURAL LEADERSHIP
PROGRAMME

Projection of beef forward marketing; building partnerships between dairy farmer and beef finishers.

Kellogg Rural Leadership Programme

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I wish to thank the Kellogg programme's investment partners for their continued support.

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Foreword

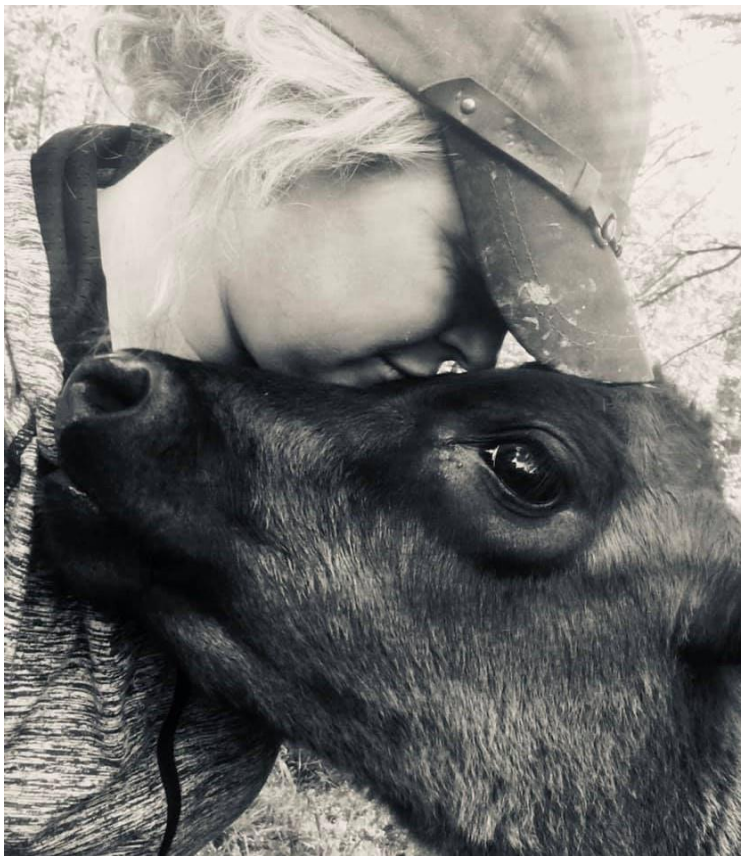
This Section explains my motivational journey. How my mindset has changed from being a city girl with no farming background to adopting a mindset passionate about New Zealand agriculture with a realistic view. My belief growing up was if meat didn't come from a supermarket, it was no good. I never appreciated the meat quality, I could be given $100 worth of meat and still give it away because it had no packaging and wasn't from a supermarket. When I went farming I took it on with a realistic view and adapted my mindset to understand what may seem harsh to the urban folk, is genuinely at the animals best interest at the time. Farmers have a wealth of knowledge when it comes to animal health. Undeniably there was always one niggle I didn't like, the bobby calves that went on the trucks at 4 days old to slaughter. My genuine love for animals has driven my focus towards, how can we reduce the pressures that are focused on the bobby calf. I have been a dairy farmer for the last 7 years, currently adapting to the sheep and beef industry as my partner is a finisher and together we are rearing surplus calves from local dairy farms. I believe the bobby calf is an issue frequently swept under the carpet and its time for revolution.

Growing up in town I was never exposed to the rural life. The closest I got was through family friends who lived on lifestyle blocks and owned pet cows. I loved to just sit and admire the stock out in their pastures. I longed to be like the kids with ponies and calves. So, this animal deprived child fed her goldfish and gazed into his bowl day in day out. I had a strong love for animals but sadly the goldfish was all I had. I started horse riding at the age of 12, on friends` ponies that reared, bucked and bolted. But I never gave into my fears. I dusted myself off and got back on. Because when the going was good – you appreciate that. When you get knocked down you just got to get back up and keep trying.

Heading to a station for the first time aged 16, taking in the beautiful atmosphere and telling myself this is not a dream – this could be my life if I wanted it to be. Based in the Mackenzie Country, sun beaming, mustering in all the lambs ready for tailing. It was a fantastic experience that found myself invested in the agricultural world. However, the evening ended with the boss supplying me a box of fresh mutton to take home for Mum to say thank you. I didn't appreciate the value of this meat and I felt uneasy about it as it had not come from a supermarket with nice packaging. I had never had farm fresh meat. Meat came from a supermarket Mum ended up giving the mutton to a grateful friend, uninformed of the value of this meat.

I embarked on my farming career mainly focused in calf rearing, Calves are well cared for (even the bobbies). I took on the industry with a realistic view, as we all do as farmers. I knew while these calves were in my care, they would get the best care possible. I had a good stint farming, calf rearing to running my own 85 ha block with 270 cows. Due to family commitments I felt it was time for a change in career

I began a new career in Media, My heart would break as I read opinion pieces slandering my fellow farming friends. Farmers and agricultural businesses were trying to do the best by their animals, family and businesses. Farmers were taking hits of highs and lows. I began to think where is this Dairy Industry heading? Grateful for networking, I took a new approach on farming. I expanded my views to outside the farm gates. I became involved with evolving corporate farms and dealt with NZ innovators. I was constantly fascinated by what everyone was achieving around the world, these businesses were taking risks and adapting.



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Executive Summary

It is time for the dairy industry to stop sweeping the bobby calf issue under the carpet. Approximately 2 million calves are surplus to dairy requirements intended for human consumption and pet food (MPI, 2015). The bobby calf numbers are trending upwards since 2000 and is causing a lot of welfare concerns from animal activists.
I believe there is significent potential for the bobby calf to be reared as quality beef, beef farmers are struggling to source good quality calves that will finish with a profitable value, calf rearers are vulnerable within the markets volatility. Globally beef demand is rising, and Its becoming more harder for beef finishers to purchase quality young stock to carry through. I put together a questionnaire and had a reply from 30 dairy farmers. The dairy farmers are referring the issue to being to hard and to much risk.

The following was researched

- How to create a pathway to reduce significant numbers slaughtered at 4 days old in New Zealand.
- History, Driving force and building trust to form relationships and succesful businesses.
- Dairy beef genetic solutions for quality milk production, ease of calving traits, high carcase weights and quality marbeling.
- The new generation beef , the dairy- origin steer slaughtered at 10 -12months.
- Forward marketing beef agreements, connecting producer, rearer and finisher with marginal prices to allow profitability, build incentives to share risks and gains throughout the production line till processing.

I`ve considered the relevance of all factors and there is an oppurtinity for a beef finisher to provide to order with a dairy farmer and a contracted calf rearer. Building relationship with incentives along the production line, the calf to be sold at a margin price to the calf rearer at 10 days old, the calf rearer to sell onto the beef finisher at agreed marginal price at agreed weight. Below or under weight the price will differ, this embeds management procedures throughout till finishing. At finishing every share holder will receive a percentage of the carcase.
I believe zero bobby farm systems are achievable with carefull thought and planning into genetics, a focus towards building relationships. However there may still be a small percentage of bobby calves amongst our country.
"An increasing proportion of our beef is coming from the dairy industry and there is a growing demand coming from asia where beef is prepared and consumed in ways that are different to our traditional markets," Nicola schreurs – Massey University.

Key recommendations

- A mutual support platform, engaging individual dairy and beef interests.
- Online auctions with forward marketing beef agreements
- Rearing calves for profit – An online platform to connect contracted calf rearers with farmers

Introduction

In NZ we are fortunate to have many pathways with dairy, sheep, beef, horticulture and so much more but it seems the industrys are isolated and working against one another apose to working together. I fear this is letting down the quality within the New Zealand primary industries.

> World beef production is making up 22% of the total, 2.8 billion dollars that is contributed to the New Zealand economy with total beef exports per year.
>
> (BEEF + LAMB NEW ZEALAND, 2019)

It's a constant battle for farmers planning ahead, trying to supplement incomes and then incorporate the influence of consumers. Consumers are requesting greater transparency on animal welfare issues in their food supply chain. The bobby calf trade does seem to be less than acceptable to the majority of the public and totally unacceptable to animal rights activists. The challenge is to create a pathway for the bobby calf to become a more niche product. This has encouraged me to focus on how we can meet the needs of consumers as well as offer a new perspective to dairy farmers, calf rearers and beef finishers and to share a formula on forming partnerships to achieve a valued product with a Beef Forward Marketing strategy.

I spoke with 30 dairy and beef farmers and it was mutual for dairy farmers to fear additional expense and further hard work, while beef farmers fear bio security issues, calves with a poor start to life and not true to type breeding, leading to disadvantaged end results for the beef finisher.

With the population of consumers increasing in NZ let alone the rest of the world, overall demands for dairy and beef are high (statistics New Zealand). Our country is already giving up achievable potential that needs to be unlocked. New Zealand also has less risk with pests killing stock, this is a big advantage for our country.

Farmers need to be persistently thinking long term strategies. Technology and genetics are enlightening us with a platform of sophisticated data for productivity and is offering new perspectives. Technology in Australia at the Lakes Creek processing plant in Rockhamton is one of many shaping the future. They recently launched a Dexa (Dual, Energy, X-Ray, Absorptimetry) This is offering a new perspective on payment per carcass, as farmers can look into value based Beef Forward Marketing and pay people based on the product. Targeting what consumers want and allowing flexibility to continously improve. Automation will extract more value and offer more feedback and details back to help drive productivity (Gidley – Baird, A. 2019).

Can New Zealand create a patghway for the bobby calf? Lets not forget what inspires profitable growth and a sustainable future for farmers. I believe it starts with actively involving individual interests, developing ideas for the future while doing what we love. Opening our farm gates for establishing marketing arrangements and creating roles and links between contracts. It is connecting producer, processor, finisher and consumer together.

Aims

The aim of this research was to understand the possibility of:

- Creating a pathway for the bobby calf – Prolonging its life span longer than 4 days and supplying the demands of Asia as the new generation beef.
- Identifying compatible genetics for both dairy and beef industries.
- Then lastly looking into a forward marketing agreement approach between New Zealand dairy farmers, calf rearers and beef finishers partnering up to produce more quality beef, reducing numbers of the bobby calf.

Objectives

- Explore different alternatives for dairy and beef industries to work together, with a sustainable approach that provides consumers with quality products.
- Reviewing oppurtunities for the bobby calf market, taking out the hard work for dairy farmers and implementing incentives through the value chain.
- To identify all parties and incentives to share the possible risks and gains from working together and continously improve bobby calf products and systems.

Method

I have based my literature review on considered beef breeds and potential for the new generation beef. I worked closely with informative interviews with Genetics production manager Craig Mckimmie from Samen NZ offering new dairy and beef oppurtunities and beef researcher from Massey University Rebecca Hickson. During this research I conducted semi structured interviews with farmers that have started the transition to the zero bobby calf system, or are already achieving it. I had a questionnaire for 30 dairy farmers in New Zealand, 10% of this group are achieving zero bobby calves. Discussions were had with beef farmers, Corporate farmers, calf rearers, processors and local butchers to identify how this proposition could benefit the beef quality within New Zealand.

1.History

This section shares the story and the success of Samuel Marsden building relationships formed by trust. Due to Marsdens relationship and trust earned with the maori, he was able to lay the foundations of agriculture here in NZ. Samuel Marsden introduced the first shorthorn dairy cows to the Bay of Islands. Dairy became popular and added extra protein and fat to the pioneers limited diet. Shorthorn were an ideal multi purpose cattle as they had excellent oppurtunities for both dairy and meat.

1.1 Early 1800s Driving force and building trust

Samuel Marsden was born in England and based in New South Wales. (ENZB) Marsden built trust with the Maori through being a member of the church missionary society, he was then appointed as an official crown presence in New Zealand.
Due to Marsden's relationship and trust earned with the Maori, he was able to lay the foundations of agriculture here in NZ. In 1814 Samuel Marsden introduced the first shorthorn dairy cows to the Bay of Islands from New South Wales.
Some settlements had farms with shorthorn dairy cattle, most pioneers kept a few cattle to be self sufficient with dairy products. Milking routines were done in a paddock as they sat on a stool and hand milked the cow. Dairy became popular and added extra protein and fat to the pioneers' limited diet. Butter, cheese and yoghurt stayed a lot fresher than the milk and cream. The shorthorn cattle were an ideal multi purpose cattle as they also had excellent meat; it was an animal that offered diversity. Due to no refridgeration the only real oppurtunity within the NZ market was butter, by the 1800s refridgeration was available and made it possible to export butter and cheese to Australia and also meant dairy factories were opened for whole milk. Farmers took their milk in horse driven carts to the local factory and farmers would gather together for a chat, they would work together on the wasted land and began to redevelop by importing grass and legumes from Europe, ensuring production could meet expectation. 600 factories by 1920 – roughly 85% of which were cooperatives.

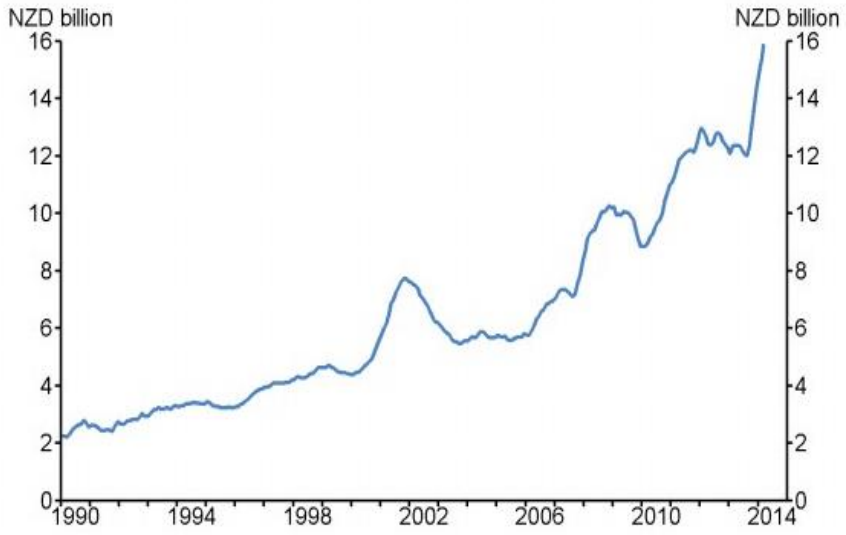
The industry was evolving more efficient transport and economies of scales in processing led to larger factories and closure of the smaller ones. In the 1984 the farmers diversify and are more efficient and responsive to market in response to dramatic changes in government policy

Pioneers to co-operatives

Fonterra Co – operative was formed from a merger of two major dairy co – operatives, Kiwi Co-operative Dairies and New Zealand Dairy Group, with the New Zealand Dairy Board. New Zealand Dairy industry had become well established. NZ was exporting $ 8 billion by 2002 as farms were expanding, sheep and beef and arable land was being converted to dairy, Stock numbers were increasing and added supplements were helpful in generating increases of farm productivity a (statistics NZ) and production growth (measured by production per hectare)of 1.9 per cent per annum. Volume of per kilogram per solids were increased by a third as Dairy processors became more efficient and land use had been redeveloped as there was oppurtunity to remove wastage and shifted towards profits

Figure 1: Dairy export intensified dramatically when the co-operative was formed, generating increases of farm productivity.

Dairy exports (annual, New Zealand dollar terms)

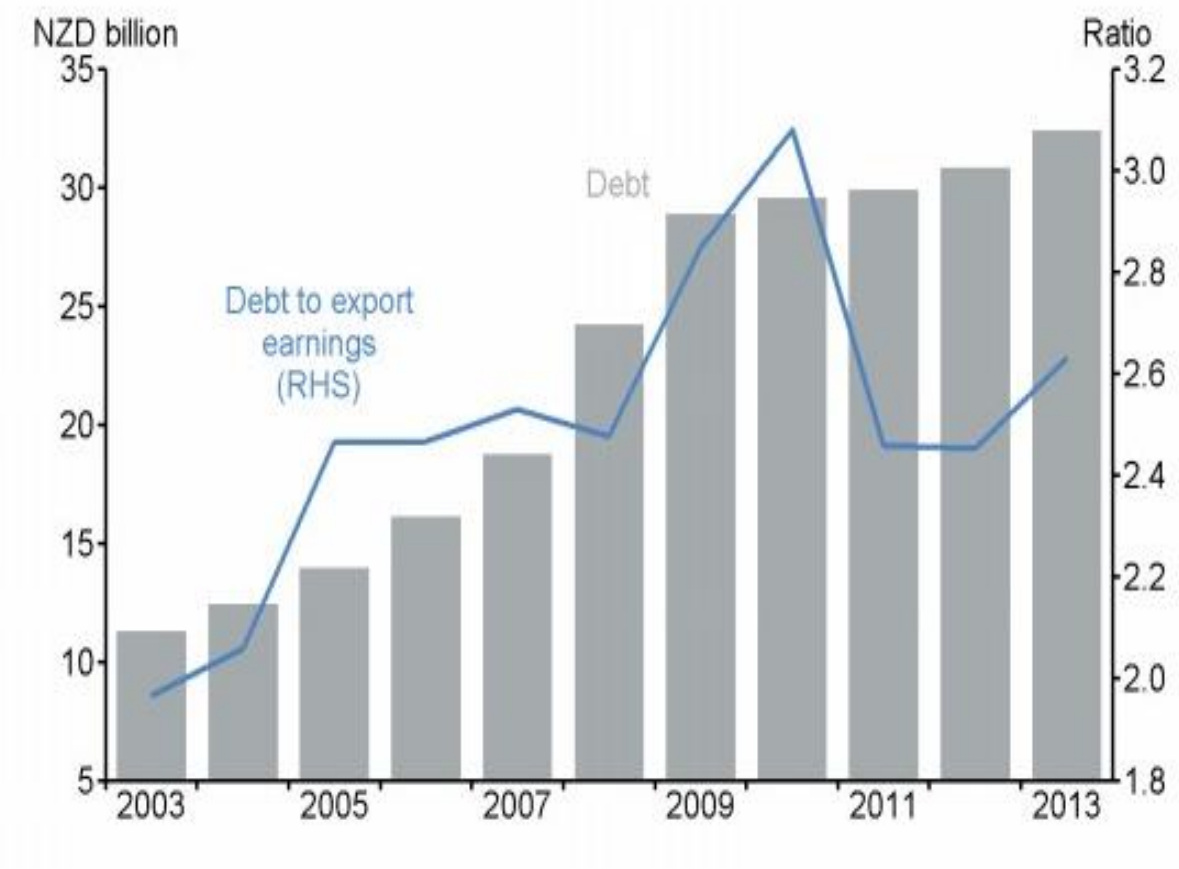


Source statistics NZ.RBNZ

1.3 Breaking even through the 21st century

Debt levels elevated as dairy techniques elevated and became intensive with increasing cost structures. Significant declines in the industry had placed farmers under financial strain, the higher debt levels mean farmers are exposed to higher levels of interest rates. Dairy export revenue has grown dramatically and dairy farmers have experienced some of the greatest prosperity, and also some of the most difficult adjustments that our economy has seen to date. For farmers trying to save their land. Relationships started forming with alternative ways of reducing and gaining profitibility. 50/50 Share milking, VOSM, and Contract milking were the recommended options for farm owners to continue to grow their businesses and keep up with the global demands (statistics NZ). With the evolving industry land and stock prices were high, share farming was pathway for a number of people moving through the industry to get into a financial position to afford the farm.

Figure 2: Debt to export earnings Dairy farmer indebtedness Relationships started forming with alternative ways of reducing debt and gaining profitibility.
Dairy Debt, June years



Source: Statistics NZ.RBNZ

2. Beef benefits

Bobby calves continously trending upwards since the year 2000, the risk to the dairy industry in New Zealand is its reputation and uneducated consumers. (Julie McDade)

"Its time to protect the past and embrace the future".
Craig Mckimmie, Samen NZ

In the 1800s the target market was butter due to no refrigeration, the butter held its value and the shorthorn cattle was a diverse animal with high fat and protein, farming intensified to supply more milk with greater quality. In New Zealand the global milk supply is well established in 2019 but we are behind with driving the meat market forward. Its not going to be a silver bullet fix and the same system is not going to be the same solution for everyone. This is what farming is about "incremental change". Beef holds majour health benefits, animal protein is of high quality, containing all nine essential amino acids needed for growth and maintanace of each individuals body (Craig McKimmie). Eating meat is particularly important after surgery or for recovering athletes in combination with strength exercise, it helps to maintain and build muscle mass.

Protein assists in producing the enzymes and hormones that are required by your body to prevent illness, it also has been linked to weight loss due to its abillity to satisfy hunger, reducing appetite after being consumed. This Is due to the conjugated lineolic acid (CLA) which is found in beef, lamb and dairy products and has been linked to a number of health benefits. Vitamins and minerals are rich in beef, the Australian Dietary Guidelines reccommends 65g/ day. Iron is well known for assisting our bodies in avoiding anemia, anemia is when the body has insufficient healthy red blood cells the Iron assits our bodies in providing immune strength.Womens bodies require twice as much as men but women don't want to eat twice as much as men. Iron deficiencies can lead to fatigue, weakness, peptic ulcers.(William, Bastyr Center for natural health).

Zinc supports normal development during infancy, childhood and adolescence, zinc is required to "maintain a steady state" (USA. Gov,2016)

To promote healthy skin and eyes B- vitaminins is for a healthy nervous system, which aids our bodies digestive system.(Pellegrini,Livestrong2015)

Its time to utilise the greatest platform we have here in New Zealand, dairy and beef farmers intergrating for health benefits to empower consumers. Consumers are interested in where their food comes from. I believe a forward marketing agreement will evolve a platform for producers, rearers and finishers to connect incorporating versatility, nutrition, provenance, welfare, sustainability and eating quality.

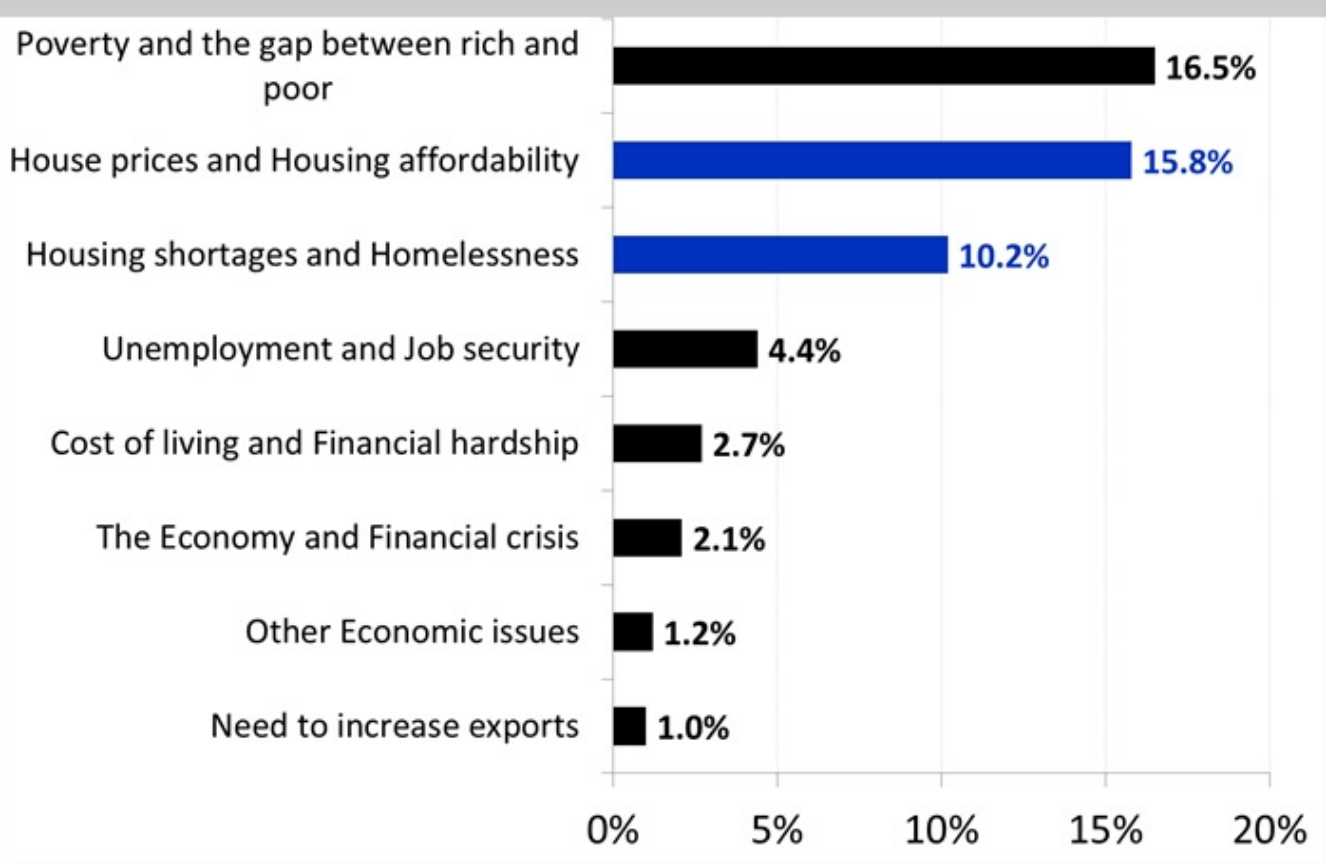
Feeling worn out and low is generally due to low iron levels, it is particularly important for kids to be eating plenty of red meat. Many New Zealanders struggle with the price of meat. It

is reccomennded to struggling families to buy the cheapest red meat they can find, there is a lot of concerns that children are being raised without red meat due to the expences.

Each bobby calf sent on a truck could help produce a specialised beef affordable for struggling families in New Zealand, then supplying the demands of Asia such as The new generation beef.

- Important economic issues are poverty within New Zealand, the gap between the rich and the poor is 21% (down 1 %) and the need to increase exports 9% (up 4%)

Figure 3: Important issues facing New Zealand: Economic and housing-related problems dominate.



Source: **Roy Morgan interviewed a representative cross-section of 1,003 New Zealanders in August 2017.**

2.1 Rearing beef calves with a twist

Current barriers farmers are facing is sourcing low birthweight, easy calving bulls that are`nt too pricey, bull calves that do not have the preferred markings are considered no good, crossbred herds that don't have the beefy looking calves, sexed semen being expensive and conception rates are not convincing farmers just yet. Farmers are still struggling with reproduction so there is still a requirement for heifers.

Change of mindset is needed to build our herds aimed at potential oppurtunities for alliances with calf rearers and beef finisisher, intended for greater profit, happier staff as calf rearers do struggle and Industry perception would be a lot more contented, less expences on trucking to a sale yard and vast bio-security advantages. SamenNZ have a dairy and beef solution especially chosen to optimise what would have been a `bobby calf` Reducing bobby calf numbers and creating a viable dairy beef animal for the beef and dairy industry. There are many options from short gestation designed to give extra days in milk, then beef that produces high quality marbled meats. Samen NZ are introducing a quality range of dairy beef solutions to benefit the dairy farmer, calf rearer and beef finisher.

Mating strategy will benefit Dairy farmers, calf rearers and beef finsihers. There is a variety of proven genetics and the beef industry is heavily relaint on calves sourced from the dairy farms, but often the sire of these calves are poor or unkown genetic.

Profitability and sustainability Focus It provides confidence for calf rearers as early weaning weights make finishing quicker and gains trust back from a satisfied beef finisher. The animals are higher growth rates and more of quality products, wether it be a surplus heifer lines or beef calf. The proven genetics will be more appealing to a farmer and provide oppurtunities for a partnership allowing a provide to order system that will benefit the dairy farmer before the first milk cheque. It is essential that farming systems are sustainable and continously allowing room to improve to meet consumers demands.

2.2 Genetics to consider

Norwegian Red is a breed of dairy cattle developed in Norway, since 1970`s, breeders strongly emphasized production traits. 40 % of the calves in Norway are born polled. The Norweigan red is characterized as a breed with a low frequency calving difficulties.Health traits have been in the net merit index since 1978. Mastitus and other diseases are included in the breeding program reducing, milk fever, ketosis and retained placenta)(Craig Mckimmie,2019). Trials run around the world have shown Norweigan Red and their crosses have outperformed Holsteins on a profit per cow and per hectare basis with more moderate size, high fertility and low levels of health problems. Norwegian red have also excelled in beef trials globally, the individual bulls are selected due to their calving ease, fast growth rates and carcase quality traits. The bulls represent a great oppurtunity for dairy and beef calves to both be improved quality while maintaining dairy production.

Figure 4:Carcase weight, marbling and percentage choice of steers produced in

	Age constant (471 d) basis				Fat constant (0.39 in) basis		
Sire breed	HCW (lb)	Fat (in)	Marbling[1]	% Choice	HCW (lb)	Marbling[1]	% Choice
Hereford	836	0.46	509	60	810	492	53
Angus	823	0.52	579	89	774	548	75
Norwegian Red	785	0.31	543	71	838	577	86
Swedish Red and White	774	0.30	518	61	832	555	77
Friesian	772	0.33	514	52	805	536	62
Wagyu	735	0.36	559	85	755	572	91

[1]400 = Slight 00, 500 = Small 00

Source: (Wheeler et al.,2004)

Fleckvieh is a strain of simmental.The greatest opportunity to produce enough food while at the same time reducing the environmental impact, can only be achieved through improved productive efficiency (Capper, et al. 2009). Higher milk production not only reduces the

number of cows but also reduces the nutrient requirement of the population for a given amount of milk being produced (Capper et al., 2009). This implies that today's intensive milk production systems produce considerably less manure (24%), methane (43%) and nitrous oxide (56%) per unit of milk than the 1944 system.
In New Zealand the domestic market is over supplied with lower grades of beef that are being exported at reduced prices to the rest of the world. This breed allows an oppurtinity for beef quality while not risking milk production and holding a sustainable image, not only relying on just the bull calves but offering more for cull cow. Rearing the calf to 3 months, then weaning onto pasture and supplements the steer is marketed for beef at only 18 months of age. Health benefits for Fleckvieh milk and meat has 30% more CLA an omega 3 fatty acid also known to promote heart health and reduce the risk of cancer. Fleckvieh was the highest performance breed in NZ on meat quality parameters aswell as growth parameters so it truly is a super dual purpose breed.

Normande Dual purpose dairy cattle excellent for making, milk, butter, cheese, Carcase yield and marbeling are superior. The milk is charachterised by a high level of percent protein at 3.73% and 4.26% fat. The breed also shows docility which makes handling bulls easy. Normande also presents exceptional grazing abilities on grass and rough forages.

The meat from Normande cattle is high in oleic acid the same good fat found in olive oil makes the butter spread from the fridge and makes for superior heart health for consumers.

Very few metabolic issues and Normande is also the best suited milk for cheese top 1% for milk production. Normande also has high daughter fertility, outstanding udders, all bulls are A2.

Figure 5.This table shows the carcasse weights and meat yield, Normande is a high quality meat recognised for its marbelling and the only dairy breed sold as a premium.

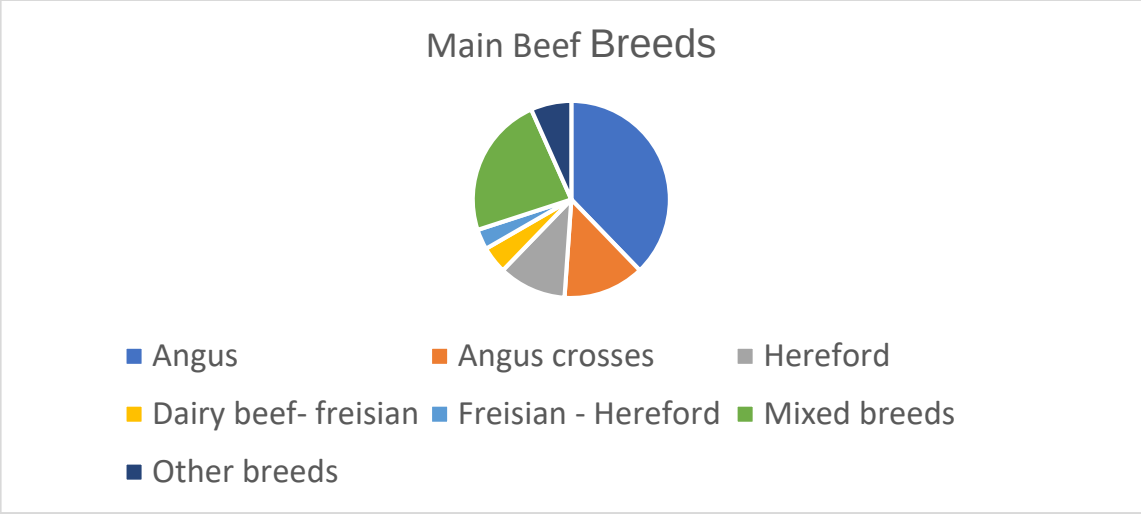
	Young bulls	steers	Cull cows
Carcass weight	**377 kg ± 43**	**399 kg ± 44**	**376 kg ± 43**
Meat yield *	55%	55%	53%
Average age for slaughter	21 Months	36 Months	6.4 years

Source:Institue de lelevage

2.3 The new generation beef

The new generation beef is a new concept developed and researched by Massey University. The new generation beef provides a new avenue to utilise light weight, yearling steers of dairy – origin. Innovation has allowed beef growth between 1978 and 2011 contributing to a growth of 2.8% per year. Currently mixed breeds, other breeds and dairy and beef freisian are contributing 34% this is the same total as New Zealands prime Angus beef, Angus crosses contribute 12% and Hereford following behind at 10%.

Figure 5: Main beef breeds in New Zealand



Source: Beef and lamb, cattle farming, statistics New Zealand

The beef industry contributes to the primary sector with beef and veal exports at 2.3 billion per year. New Zealand is internationally recognised as 95% of the beef industry is grass fed beef. The number of New Zealand beef cattle has declined from a peak of 6.3 million in 1975 – 76 to 3. 6 million in 2014 – 15 and dairy cattle have increased 3.0m in 1975 – 76 to 6.7m in 2014

The year ending 30 September 2018, 1.80 million bobby calves and 1.03 million cull cows were processed. Then In spring 2017, an estimated 0.62 million calves were retained for dairy beef production

Source: Beef + Lamb New Zealand Economic Service, Statistics New Zealand

The new generation beef-production system prolongs the bobby calf to live longer. This will benefit staff moral and perception from consumers. The beef is a smaller cut which is attractive for the ladies needing to source extra iron in their diets and kids to consume smaller portions of quality tender beef to help them gain their optimal growth benefits. The yearling beef is tender and likely to be of high quality. (Hickson,R. 2019) I believe The new generation beef is a step in the right direction to reduce bobby calf numbers. These calves born to low-genetic merit parents they will not be suitable as dairy replacements. The new generation beef offers a new proposed beef system in which cattle are slaughtered at approximately one year of age. There are some differences within the meat-quality, they weren't large enough to impact on the eating quality mostly for men and the older generation who really enjoy a good steak.(Hickson,R. 2019) Farmers are scared of the risk transitioning to a bobby free farm. Meat-quality attributes of Hereford x Friesian-Jersey steers trying to maximise growth rates. Meat colour became darker as animals became older. The consistencies in meat-quality from steers grown lower than conditions designed to maximise growth rates and slaughtered between eight and twelve months of age were small. Feeding levels during the process were to achieve a liveweight gain of 1.0kg/day. Steers were slaughtered and processed in May, July and September 2018 at eight, ten and twelve months of age respectively, at Feilding Venison Packers Ltd. (Hickson,R.2019)

There is a potential to identify sires that allow for better production of beef using dairy-beef cattle. The New Generation beef research will also consider other potential products and they are working with the Leather and Shoe Research Association (LASRA) to do pelt quality measurements. There are benefits for calf rearers to become less vulnerable, dairy farmers to have a little more diversity on platform and beef farmers to have a quicker turn around for stock. Processing calves before one year of age offers benefits to farmers such as being able to get the animal's off-farm before winter.

"This means you don't need to over-winter them, which for some farms with sensitive soil would minimise pugging issues." (Hickson,R.2019)

It will also eliminate land-owners needing to source and supply extra feed, less nitrogen going into the soils and less greenhouse gasses from growing cattle to only 12 months. Young

animals are in their most efficient growth phase. And in terms of their ability to capture nutrients and retain it in their body, this period is their most efficient.

Figure 6: Trends in New Zealand sheep and cattle numbers over the past 60 years. Note scales show same relative rates of change for sheep and cattle.

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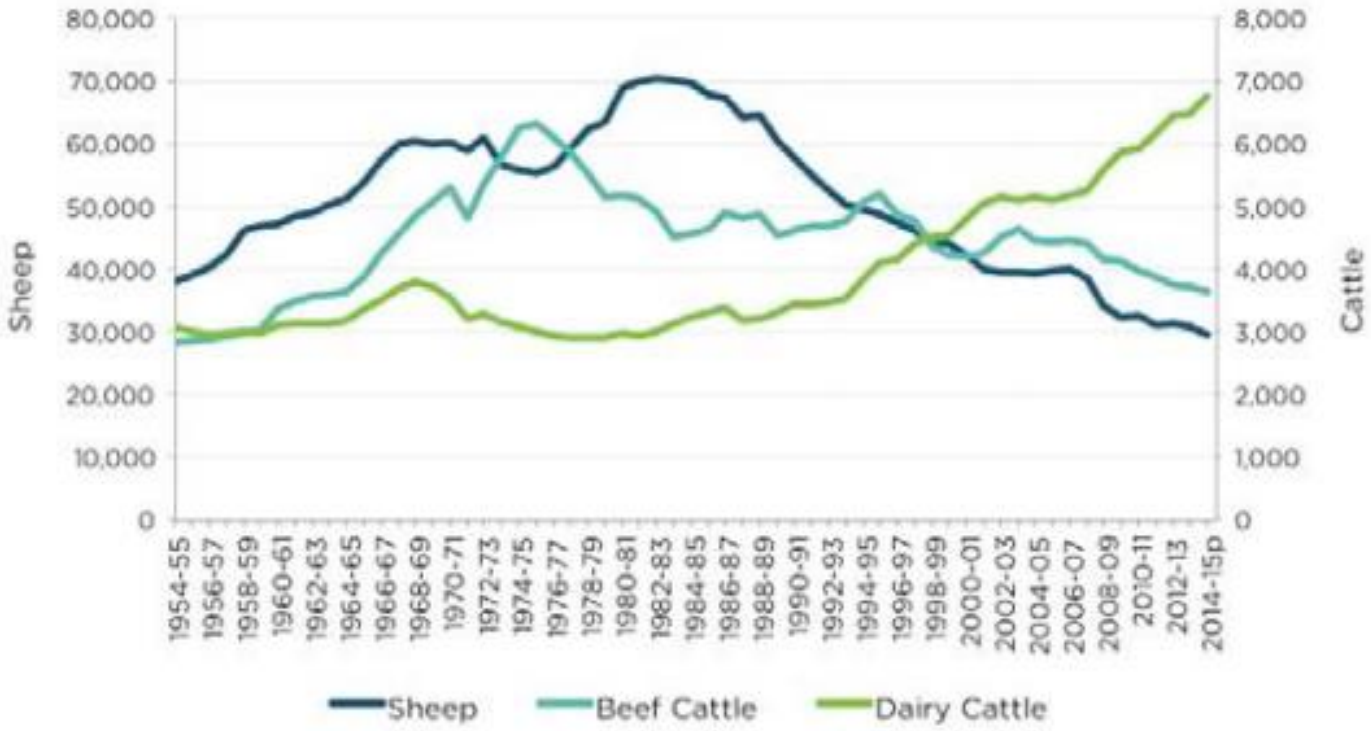


Source: Beef + Lamb New Zealand Economic Service.

3. Discussion

3.1 Declining profits and equity

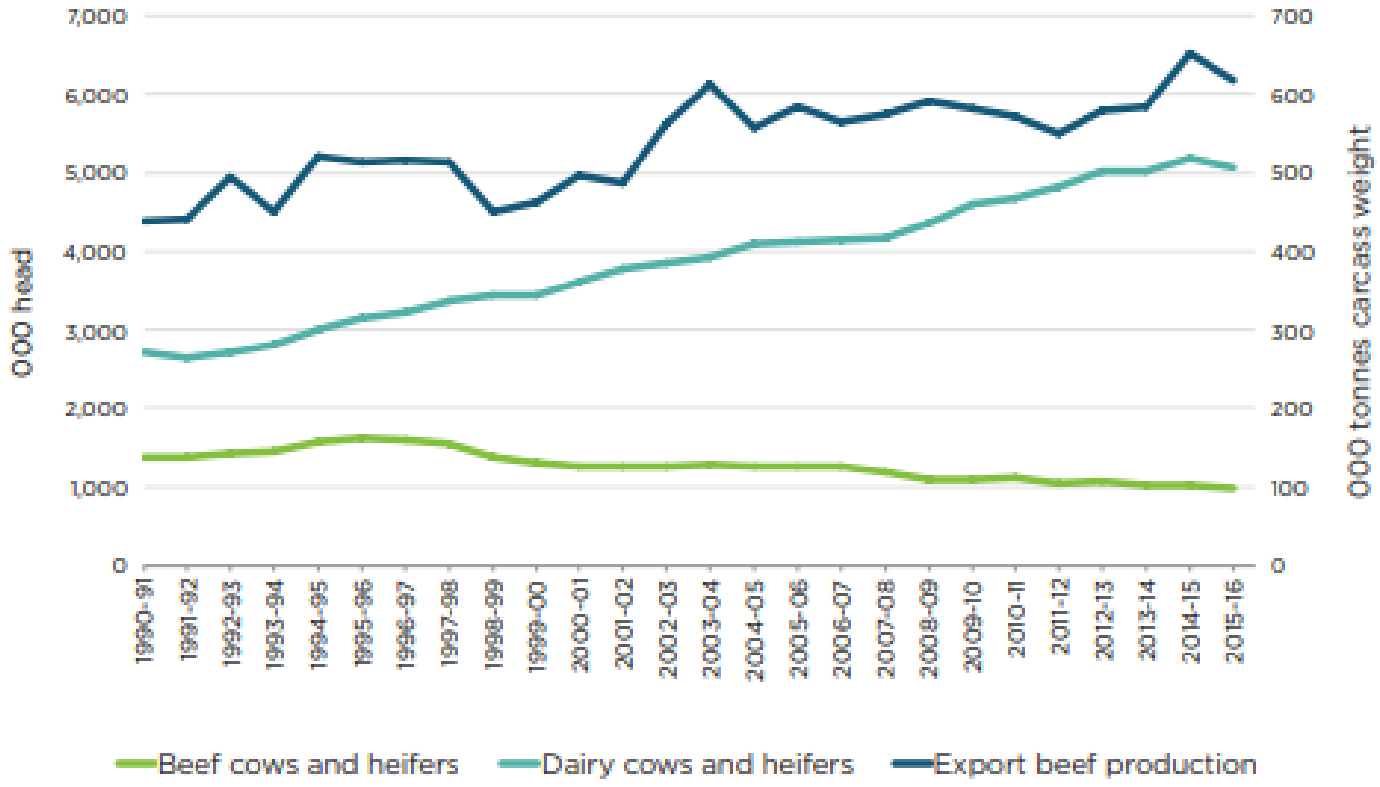
On discussions from the structured interviews it became apparent for dairy farmers and beef farmers. Majority of the farmers solely focused on dairy or beef are no longer breaking even with declining revenues due to price drops in milk payout and stock sales values falling. Some areas have also seen increasing land values, leading to higher debt levels. With volatility in the New Zealand dairy industry over the years pathways of progression have been created. It has led to good equity opportunities with a focus in balancing out gains and losses. It has also led to many farm owners reviewing their management structures, importance of timing each step in the progression pathway due to the difficulty in ensuring returns are fair for all parties.

With the dairy industry mainly focused around driving milk production. My concern is, what if the taps were to be turned off tomorrow? Dairy farmers back in the late 1800s would never have imagined the growth they experienced. Which brings my views of “how is our industry setting up for if the taps were to be turned off tomorrow? Using AI and selective breeding to increase value in our MS/KG our stock value is declining – yet we have approximately 2 million surplus calves per year slaughtered for veal at 4 days old. Admittedly this drives profits into our beef sector but we could be driving this by more quality, ethical and sustainable products to increase our beef market. The bobby calf trade has become a major marketing threat and while our industry is vulnerable we need to be creating a new pathway to keep the Industry’s image positive.

While the dairy industry exports appear to be doing well, are they sustainable, cost effective systems?

It takes great leadership to bring people up beside you – I see an opportunity for dairy to start taking on leadership and to bring the beef industry into a partnership alongside to drive profits and exports higher while creating more quality within New Zealand.

Figure 7: Trends in beef and dairy cow numbers over the last 25 years



Source: Beef + Lamb New Zealand Economic Service

3.2 Can Dairy Mate to Market with the Beef Industry?

Farmers have always been great optimists, progression pathways are continously changing and new relationships seem to be repeating its cycle of forming a sence in security for taking risks, with a foundation of trust while understanding, capabilities allowing strengths and weaknesses to pull together for world domination within the markets. On the domestic front farmers should be conscious that high dairy prices can turn around quickly. From a global perspective dairy farmers are now in a prime position to diversify our export markets for greater long term oppurtunities. Since 1900`s there has been a huge increase of bobby calves. This is a huge threat to the dairy farmers market reputation due to animal welfare perception. In NZ we have the most nutricous pastures in the world our own authentic story with pasture raised animals.

“ will we continue to do what we have always done?”

Stu Taylor of Millenium Farming

It has become more common in New Zealand for farms individual goals to be achieving zero bobbys as an end goal that can be done with a realistic view.
Enablers for forward marketing agreements in the dairy / beef industry will need:

- Whole supply chain participation
- Change in mindset
- Industry standards
- Specifications and communication

(Gidley, B,A. RaboBank,2019).

There has been a decrease over the years in other land uses as farmers converted land to dairy to chase higher revenue to make farming sustainable chasing milk production. The significant numbers were cull cows as farmers were predomonatly breeding for dairy replacements there fore left a substantial number of cross bred beef animals who are worth no quality and are regarded as a waste of money for dairy farmers to raise longer than four days and more of no quality to a beef finishers to finish, the bobby calf is an unprofitable waste of time (Morrison,R.2019 – Morrison Farming)
Why do we keep doing this? The most common response to this was ease of calving for heifers and reducing the late calvers high risk of not getting milk back in the vat at the right time for the following season. Not having enough time to rear surplus calves or enough buyers to hand calves over to, staff not identifying good quality beef stock against bobbys.

4.0 Options: Forward Marketing beef agreements

Farming is a lifestyle to many not just a business. The vision going forwards is at risk of being lost by farmers, as the clarity of vision is being obscured by financial strain of individuals. We now have an opportunity to be preparing NZ for a positive market in the beef sector while offering an extra cash flow option for the dairy farmers and reducing the potential bobby calf isssue . Australia was holding the beef markets but unfortunately due to drought the spot light has now gone to Brazil, Brazil grain fed beef as its cheap, but the unlikely they'll be able to supply grass fed beef. One hot topic currently in the world is looking into health benefits and working around global proteins, Beef is being affected by a branding impact and being categorised by various attributes such as antibiotic free, grass fed and so on. Beef is the ultimate superfood and consumers are being empowered by the health benefits and fighting the industrys biggest critics (animal activists) Global proteins are marketing all around the world we have every advantage to be holding our reputations of our industries by being proactive and sharing our on farm story to the world – we havent got this far by giving up when the going gets tough. Its been character building for the resiliant, the impossible has become possible by innovative individuals working together through strenths and weaknesses to allow growth recreating new industry partnerships and pathways.

With farms its easy to seek the best financial return with consideration towards labour, facilities and profitable gains. The focus is to reach for the best price, the best cost effective strategy, or could we be more strategically thinking by securing longer term agreements with considered prices between dairy and beef farmers. While interviewing beef farmers and calf rearers it bacame apparent to me farmers are declining profits due to dairy farmers dictating the genetics for the beef industry due to their focus on cost effective systems and the need for easy calvings that hold implications on the beef sector. Being a beef farmer is creating too much risk and too much hard work. Then interviewing dairy farmers It has become to much hard work trying to on sell beef stock, unfortunately over the years the Dairy beef x calves have not been as profitable being mainly focused towards milk production, the yielding in beef carcasses are slowly deteriorating. The industries are reliant on one another, yet work against each other and it has become too risky for a beef farmer to rear stock as the situations around the world show huge volatility for example; prices dropping of 30% and increasing 50%. Revenue streams need to be thought about as theres is a 2 year stand down period before stock turnover while stock grows out and money needs to be guaranteed for the beef farmer. Forward marketing agreements is developing a long term security for dairy farmers, calf rearer and beef finisher to be complementing one anothers businesses and better control with commitments to the parties.

4.1 Partner up to produce value and success

What is a Forward Marketing Agreement. The agreements shall be based on margain prices that offers a more stable and guaranteed income, regardless of the volatity with markets. Every one shares the risks and gains together to continously improve a quality product.

Volatility is a common theme over commodity markets, beef production is increased and susequently fallen over many years. Such volatility creates business uncertainty and requires a more planned approach.The benefit of the forward agreement is that they allow parties to select future price / or volume based on expectations of market movement.

Figure 8: Motivators to increase the use of forward marketing agreements

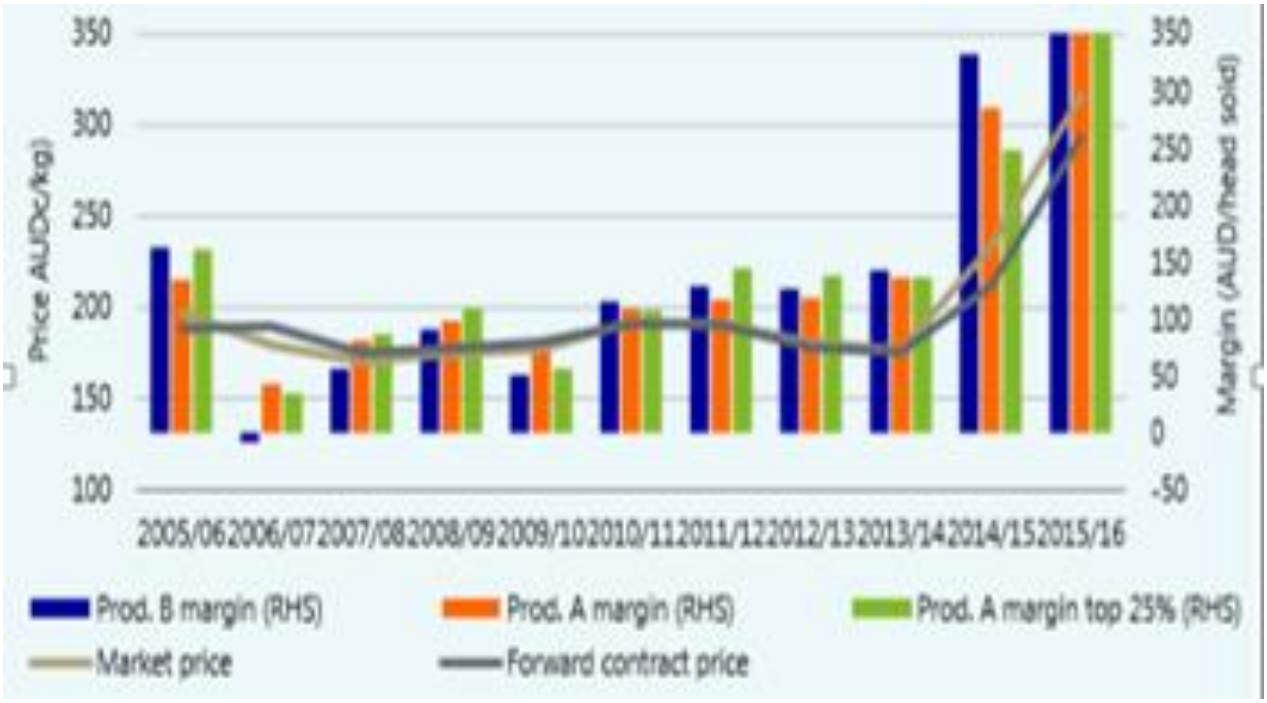
Source: Rabobank 2017

Why Its not about predicting the future its more an option that's more solid while developments are happening between industries it brings opportunities. In terms of the spotlight trade its about pushing that time frame out and reducing risks of turning up to a sales yard on the day with cattle to sell on the spot, its about thinking forwards to when the cattle will be ready, what market can I fix this price to that provides better security. It's a forward marketing agreemant and it's less focus on price as its about sharing the gains and losses, providing opprtinity for further progression. It's about securing your revenue stream over the next three years. It evens out the uncertainty regarding the markets volatility.

How a beef forward contract system could work, the dairy farmer has a secure income before the first pay check comes in for milk as the Calf is sold at a fixed price per head. By the end of slaughter an extra 10% each will be paid to both calf rearer and Dairy farmer. beef farmer purchases the semen agreed by dairy farmer for a beef partnership, calves are purchased by the agreed calf rearer at fixed price per head. The calf rearer then sells to the beef finisher at a predertimened fixed price. The beef finisher then carries through to slaughter and has the remaing 80% profit after slaughter, the calf rearer and dairy farmer receive a 10% share each from the end result.

Benefits reduces risk and enforces better managemant through the system allowing a fair cut for all parties involved. Reduces risk of missing out on a buyer regardless of high and low markets.
Beef farmer and dairy farmers work together for genetic preferances of easy calving and profitable beef sales.
Ensures higher management for the calf from birth, driving weight gains so the calf rearer has them at a weight ready for the beef farmer at the right time.
The beef finisher has a clear understanding of the potential quality his product should be by slaughter.
Control towards appropriate prices, better decisions on farm leading to better productivity and efficiency – whilst working together.

Figure 9: Forward contracts focusing on margins



Source: Rabobank 2017

Conclusions

To achieve a zero bobby system it is achievable to those willing to change their mindset. It is finding a system compatible to each individual farm, it's not a magic fix that will happen overnight but with careful planning and investigation it is possible. The dairy and beef industries are very isolated, there are some working together and establishing great results but there has been vulnerability to the calf rearer. Relationships have inspired opportunities, challenges and profitable growth. The impacts on a calf rearer is they are not as profitable depending on the markets, then dairy farmer's demands on calf prices that are of poor quality. Beef finishers are wanting calves that are weaned early as possible, guaranteeing them a bull that will finish in time, while dairy farmers are trying to breed calves with low birth weights and production quality traits.

New Zealand`s grading system isn't great and needs improvement as the meat exported is high volume to china, bulk value, low commodity products. Farmers want to drive productivity to sell high value that is ethically sustainably produced. (Hickson, R.2019) Upgrades within New Zealand processing will allow what consumers want, flexibility to continously improve. Automation will extract more value and offer more feedback and details back to offer producers information to drive productivity.

Farmers must be looking at ways to reduce debt, empowering and offering consumers new perspectives with attractive context of sustainability and health.

There are three drivers for market

- Consumers movement
- Regulators - government challenges
- Local communities – production and processor

(Rabobank, 2019)

Recommendations

- Research compatible genetics for dairy and beef
- Understand your local processing plants and grading systems
- Drive profitable growth with local farmers, discuss connecting the dots and lay the cards on the table that encourages adopting a new mindset of how can they benefit one another`s businesses.
- Review ideas to form forward marketing agreement that allows a provide to order approach for the whole production chain dairy farmer, calf rearer and beef farmer, giving a sense of ownership, sharing risks and gains together.
- Create an app and digital platform to connect farmers to build partnerships, based on systems in place and similar interests.

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Appendix 1

What does your on farm system look like?

How many cows do you milk?

How many heifer replacements?

How many beef calves?

How many bobby calves?

What returns would you like to see returned from your surplus calves` compared to your current figures?

How could you achieve this?

What current barriers are you facing?

If you already have achieved zero bobby calves, how did you make this transition work for your system?

Have you considered or had experience with sexed semen, if so were you able to achieve comparable conception rates?

If not was it recent and did you and your technician follow the correct protocol

Do you believe the bobby calf is a concern for the consumer that could pose a marketing threat to the dairy industry?

Do you see potential opportunities for alliances with calf rearers and beef finishers?

What advantages and could you see a system that involves a dairy farmer, calf rearer and a beef finisher?

Do you see any disadvantages with a conception to plate alliances?

Do you know the beef breeds that have consumer preference in the marketplace?

Is color marking important to you?

How important is short gestation?

Now that you have a reduced requirement for surplus heifers as there are not as many new conversions have you considered beef as a better option than producing surplus heifers?

Does a forward marketing agreement appeal to you and your business?