Farmer change:

Dairy farming in Northland:

the past, the present, the future, and implications for change

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The times they are a changing - Bob Dylan 1964

Come gather 'round, people
Wherever you roam
And admit that the waters
Around you have grown
And accept it that soon
You'll be drenched to the bone
If your time to you is worth savin'
And you better start swimmin'
Or you'll sink like a stone
For the times they are a-changin'

Come writers and critics
Who prophesize with your pen
And keep your eyes wide
The chance won't come again
And don't speak too soon
For the wheel's still in spin
And there's no tellin' who
That it's namin'
For the loser now
Will be later to win
For the times they are a-changin'

Come senators, congressmen
Please heed the call
Don't stand in the doorway
Don't block up the hall
For he that gets hurt
Will be he who has stalled
The battle outside ragin'
Will soon shake your windows
And rattle your walls
For the times they are a-changin'

Come mothers and fathers
Throughout the land
And don't criticize
What you can't understand
Your sons and your daughters
Are beyond your command
Your old road is rapidly agin'
Please get out of the new one
If you can't lend your hand
For the times they are a-changin'

The line it is drawn
The curse it is cast
The slow one now
Will later be fast
As the present now
Will later be past
The order is rapidly fadin'
And the first one now
Will later be last
For the times they are a-changin (Dylan, 2020)

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Executive Summary

Bob Dylan's prescience comments from some 60 years ago capture today's environment exceptionally well with 'the times they are a-changin' and you'd better start swimmin' or you'll sink like a stone' (Dylan, 2020).

The dairy sector is a significant contributor to Northlands regional economy and has a vital role to play in the regions social, economic, and environmental prosperity. However, change is coming down the tracks like a freight train and is likely to shape the nature of the industry for years to come, change at a scale and pace arguably not seen for over a generation.

To develop an understanding of the implications of this change – the scale and breadth of it along with the potential opportunities this report looks to develop context, perspective and a deep understanding of the subject by exploring the past, present and future of the industry, understanding what influences farmer change, work through current strategies in place and then consider some of the potential pathways ahead and finally discuss some conclusions and recommendations.

This is approached via a mix of in-depth interviews, selected readings, and critique to develop the context, perspective and deep understanding desired.

It is apparent the region and sector have already experienced significant change and, in many ways, has proven to be stubbornly resilient and adaptative. Nevertheless, there are challenges ahead with the scale and pace of change significant, more far reaching and very different from what's been experienced before. Amongst this change there appear to be multiple trigger points that potentially provide the opportunity to move beyond simple adaptation of a specific technology or practice towards a much deeper and enduring change of hearts and minds.

For Northland farmers, the industry and the region opportunities will exist amongst this change and a pertinent challenge for leadership is that it intentionally contributes to help shape and influence the direction of the response. Strategy, programme and project development, research and development extension, demonstration and design are all urgently needed.

The potential opportunity this change offers will not necessarily be easy and will require grit, determination and innovation, but the status quo is no longer an option.

Introduction

Change has been a constant feature in the Northland dairy industry for - well ever really. Farmers have needed to be able to deal with change, to be resilient, innovative, adaptive, and resourceful - indeed change is arguably a critical part of Northland farmers DNA. However, the pace, the magnitude and the scope of change seems unrelenting, is only expected to increase and it would seem that there's no rest in sight. The nature of change also appears different with the laisser-faire largely market driven approach of the last 30 years being replaced with increasing regulatory and legislative expectation driven by wider market and societal changes and industry and central government's response to this.

So where do farmers go, what are these changes that face them, how do they change and what are the implications for the region and the sector?

To develop our understanding of this report will work through the last 20 years, the current situation, and the next 10 years in the Northland dairy industry – the past, present and the future. Critically noting this report doesn't set out to be an exhaustive history of the region, rather a way to understand something of the history and legacy of the sector upon which to build and present a view from the

perspective of interview participants, supporting readings and authors own experiences. Of particular interest are the interviews and questions raised by the participants.

Discussion then shifts on to better understand what drives farmer change and draws on relevant literature to assist this, before moving on to looks to provide an overview of current extension and research programmes in the north.

Finally, what does this mean and what are the implications and opportunities ahead for the region and sector, not so much as a prescriptive recipe but rather as the start of a road map or a conversation.

The report spends some time working through method, the key approaches taken and an integral part of this are the interviews undertaken during the project and its appropriate to acknowledge the contribution participants made with their candour, insight and reflection.

The prescience of Dylan's lyrics written some 60 years ago continue to resonate …. 'the times they are a-changin' … and you'd better start swimmin' or you'll sink like a stone' (Dylan, 2020).

Study question and objectives

The reports study question of 'Farmer change - dairy farming in Northland: the past, the present and the future and implications for change' was developed over the course of 2020 against a backdrop of Covid19, lockdowns and an environment of sector change and uncertainty. An environment which for many farmers has often seemed bewildering in its breadth and pace. The study question was also formed with an intent to understand how we as an industry, and region and in particular the farmers themselves can begin to firstly make sense of this change and then where and what to start addressing and adapting.

The desire to make sense of the past, present and future of industry and potential change had an underlying farmer focus which lead the approach of series of in-depth interviews with participants who were either farming or deeply engaged within the industry and supported by a wider range of readings.

The intent to look beyond a narrative of popular thought and conclude the report with recommendations lead to the review of literature on farmer change that in turn supported the recommendations. The recommendations are by design relatively high level and further work is required to develop strategy programmes and specific projects.

Methodology

Approach

To develop breadth and depth of understanding a three-tiered approach was designed consisting of:

A. Semi structured in-depth interviews of 10 participants regarding the Northland dairy industry and farmer change
B. A relatively brief literature review on farmer change to further develop understanding of the topic, the background and current research and thinking
C. As part of a wider written survey of 15 farmers involved in the Northland Extension 350 project a specific question posed to understand what drives farmer change.

This approach was then supported by:

1. Readings to understand current industry perspectives, legislation and inform on future industry forecasts and trends

2. Attendance at a range of field days, seminars, and workshops to further develop understanding
3. Unstructured conversation to continue to test thinking and responses

The rationale of this three-tiered approach was to develop a broad context, a richness of wide response and extensive perspectives from interviews and surveys. Supported by a level of rigour from readings and literature

Overarching this was the desire to ensure a wide range of voices heard and to challenge any potential bias whether intentional or otherwise.

Of these approaches while satisfied with depth of literature review and supporting readings, and pleased with the semi structured interviews, the poor response to the survey conducted (with only 5 out of 15 received back to date with a total of 4 lines of commentary) unfortunately lead to this survey approach being discontinued.

Nevertheless, there was a deep level of resource available to draw on and time and capacity constraints proved to be limiting as opposed to availability of material.

Method

A series of semi structured interviews were conducted with a total of 10 participants, of these three are hands on farmers with direct farming experience, five rural professionals working in supporting industries within the region and the final two, while have more limited direct agri sector experience are professionals in their own fields and provided the opportunity for an alternative, wider view.

Semi structured interviews were designed and utilised to enable the development of a deep understanding of participants views, opinions, and perspectives. Participants brought a broad range of experience and roles from across the region and their respective industries to the discussions. They engaged deeply with the subject matter (as demonstrated by the interview duration of up to 1.5 hours), with insight and integrity and the author acknowledges this and is genuinely thankful for the candour and openness demonstrated.

The interviews proved to be an explorative, engaged process that provided context and depth to responses that would have been unlikely to be achieved via alternative methods such as surveys or a structured interview.

<u>Participant selection</u>

All participants were asked in advance and agreed to be interviewed and were selected on their merits, relevant expertise, and experience in subject area.

Interviewees were identified via two routes; 1) contacts of author know through networks and their professional practice and 2) referred by another participant. The three hands-on farmers were selected to reflect a range of roles, demographics and experience within the industry and region at farm, leadership, and governance levels. As noted in appendix experience ranged from 6 to 50 years and roles included farm management and farm ownership, along with industry leadership, representation, and governance.

Rural professionals were selected from a range of sectors to provide a broad breadth of perspectives. Industries represented included banking, accountancy, farm consultancy and industry management with relevant experience typically ranging from 20 to 30 years.

The final two participants were selected to bring an element of out of sector perspective and with one an out of region view. Both of these participants have deep experience and leadership roles within their relevant sectors along with a high-level understanding of the primary sector.

All views expressed are the participants personal view and are not reflective of any organisation they may work for or represent. Interviews were conducted both in person and over the phone over a four-week period concluding late October. Duration ranged from 30 to 90 minutes with a medium of 55 minutes.

As noted interviews were semi structured with a series of key question followed by supplementary questions as appropriate. Key questions were by design open and relatively simple:

1. Changes you've seen in the Northland dairy industry over the last 20 years?
2. Thoughts on the current situation of Northland dairy farming?
3. Thoughts on changes facing the Northland dairy industry/farmers over the next 10 years?
4. What drives farmer change?
5. How have these drivers for farmer change, changed over the last 20 years?

Participants were advised that while they would be referenced as participants all responses were to be anonymised. Notes were taken during from all interviews and then summarised and collated to enable reference and analysis. Collated interviews were tabulated and analysed for both trends and to enable reflection for ideas that surprised, conflicted, and aligned.

Results

A wide range of participants responses were clearly apparent, and the depth of perception, transparency and analysis was evident across all interviewees. Despite the broad range of views and ideas some consistent themes emerged. However, the balance has been between managing an exhaustive transposition of results to fully understand and develop the richness of responses and truncating the process to an overly simplified view. The authors' response has been, despite the constraints of time and resource to develop a deep understanding of the material and convey these throughout the report.

<u>Improvements to the process</u>

On reflection the method employed could have been improved in a number of ways:

1. Interview participants could have been further strengthened with:
    a. The addition of another farmer with a different subregional perspective – for example from the far north.
    b. The inclusion of an intentionally Maori perspective of farming and Maori farming in Tai Tokerau - whether from a hands-on farmer or a relevant agency like Te Puni Kōkiri.
2. More follow up work on survey results to capture a meaningful level of responses

Nevertheless, overall a strong method was undertaken with rich and robust results achieved.

A Northland Overview

Stretching some 350 kms from Warkworth to Cape Reinga Northland is bounded by the Tasman Sea to the west and the South Pacific Ocean to the east and is characterised not only by beaches, sunshine and the promise of Christmas holidays but also by economic and social underachievement.

Along with tourism and manufacturing, primary industries are in the top three contributors to the regional economy. With the impending changes announced at the Marsden Point refinery and associated fall in contribution, tourism and primary industries are forecast to become the regions two key economic contributors from 2020 on (pers comm Northland Inc GM Infrastructure).

Northland is characterised by broken topography, varied soil types and a strong coastal influence. On average rainfall ranges from 1500 – 2000mm/annum but is subject to high seasonal variability with droughts and subtropical storms common features of the region. The regions subtropical climate, wet winters and predominately poorly drained soil types are often at odds with temperate farming models and farming systems need to be adaptive.

Northlands is relatively sparsely populated with 180,000 residents, Whangarei largest town with 9,000 residents (NZ Govt, 2020) and smaller towns of Dargaville, Kerikeri and Kaitaia spread across the region.

Strong regional population and economic growth over the last five years has been encouraging but concerns are now building regarding the forecast impact of Covid pandemic on the region's economy (pers comm Northland Inc CEO 2020).

The past - 20 years of dairy farming in Northland from 2000 to 2020

The last 20 years has seen change as a consistent feature at every level of the Northland dairy industry.

To better understand and develop further context a series of interviews were conducted to provide richness, texture, and perspective and to support wider readings and authors own knowledge and experiences. As noted, this discussion doesn't set out to be an exhaustive, authoritative history but rather a reflection of key themes and influences, drawing on participants' perceptions, experiences and views. The range and depth of conversations were notable and again demonstrated the deep understanding and engagement participants had with the subject at hand. While there was a broad alignment of key themes all participants held specific areas of interest and contributed accordingly.

Broad themes were developed around industry ownership, the changing nature of Northland farms, farming as a business, farming systems, and compliance and regulatory expectation.

Industry ownership

The later part of the 20th century witnessed relentless industry change as a series of dairy cooperative mergers saw Northland Dairy Cooperative merge with Kiwi, and in turn Kiwi merge with NZ Dairy Group to form Fonterra in the winter of 2001. The accompanying DIRA legislation that enabled this merger also saw the demise of the New Zealand Dairy Board as a legislated single desk seller and the fate of the farmers shareholder fortunes were now to be held and controlled by farmers themselves.

While the benefits of scale were apparent the loss of local farmer ownership, input and engagement was marked as farmers felt disenfranchised and lost their sense of identity and connection to the cooperative along with the historical leadership pathways and relationships with local directors.

Perception persists that local ownership of Northland Dairy had been part of leading a wave of regional innovation from irrigation through to technology uptake and winter milk regimes. That the Kiwi merger was well negotiated with differential milk payments a thing of the past and the Northland chair was now leading Kiwi. Fonterra however was a different story, one of unrealised ambition as poor performance, loss of shareholder equity, and the lack of farmer engagement eroded farmer confidence. Issues that continue to plague and challenge Fonterra today as evidenced by discounted share values, continuing erosion of market share and the October 2020 shareholder council review.

This progression of industry changes while at one level has been a driver of business confidence has also contributed a 'the loss of farmer identity' (farmer interview).

The changing nature of Northland farms

On the formation of Fonterra in 2001 Northland had in the vicinity of 1800 farms supplying. The last 20 years has since seen a 50% fall in these numbers with less than 900 dairy farmers now operating (~880 Fonterra and ~10 Fresha Valley) (pers comms Fonterra). While scale remains lower than national averages it has increased considerably as smaller farms have progressively exited the industry with landholdings either going into alternative land use or amalgamated into existing farms.

The impact of falling farm numbers and increasing scale on rural communities has been pronounced and taken in conjunction with wider regional changes (such as afforestation) has contributed to a hollowing out of rural communities with banks and schools closing along with a lack of diversity creeping in and employment opportunities falling (farmer interviews).

Drivers behind this changing nature of farms is of considerable interest to interviewees and analysis unsurprisingly sees no one cause but rather an amalgamation of factors that includes:

- Aging demographics as aging farmers exit the industry (pers comms DairyNZ and Fonterra)
- Alternative land use:
    - Lifestyle blocks on the hinterland of towns or properties with coastal proximity
    - Horticulture – for example North of Awanui seven of the once thirty suppliers now remain as balance have converted to Avocado orchards.
    - Drystock as farmers have retired or de-intensified.

Participants also commented that Northland missed the huge growth in the industry that occurred from the 1990's through to 2010 with large scale dairy conversions in the South Island and central North Island. The region also missed, or avoided depending on perspective, the escalation of large-scale dairying, degree of intensification, and the corporatisation of ownership – due to topography, historical land holdings, management complexity and inherent risk of climatic variance.

Farming as a business

The relative importance of dairy farming as a business shifted through this period from a lifestyle and opportunity to provide for your family's livelihood to a more business orientated model.

The impact of 2009 Global Financial Crisis (GFC) and dairy downturn in 2014/15 and 2015/16 on farm values, levels of capitalisation, bankability and the accompanying demise of capital gain drove an industry wide shift in emphasis to a more profit driven model.

Farmers became more focused on business orientated KPI's (like return on investment and free cash), featured more business thinking and recognised the importance of year on year profitability to enable ongoing investment and critically principal payments to supporting financial institutions.

With the sector wide capital gains of the pre GFC era now a historical aberration the need to strengthen balance sheets, fund investment (whether infrastructure, compliance, or environmental sustainability), weather variable markets and adverse climatic events as well as continue to provide a return to owners and a return on investment has seen a systemic lift in focus on viability and the recognition of the importance of business acumen. Nevertheless, despite the lift in focus and recognition of acumen the industry still sees a wide range of profitability – irrespective it would seem on system, demographics, or scale (pers comms DairyNZ and Extension 350).

Changing farm systems

Farm system change across the region has been pronounced with the shift from a relatively homogenous DairyNZ system 2-3 to the current wide 2-5 spread and accompanied by an overall lift in intensification.

The late 1990's on saw significant regional and sector wide innovation. Northland Dairy championed initiatives around irrigation, winter milk, spilt calving, and technology uptake. Wider regional innovation saw focused pasture renewal, the Kikuyu/rye/annual pasture species management debate, and Kikuyu action group trialling effective management. Alongside this regional change wider industry innovation was also underway with ongoing gain in dairy genetics, new pasture species and utilisation of synthetic nitrogen fertiliser. These were heady times of change and opportunity – white gold as it were.

The 2009 drought was a significant regional catalyst for system change as it helped usher in the widespread and relatively higher use of alternative non pasture based supplementary feed (initially Palm Kernel Expeller (PKE) and more latterly Dried Distillers Grain (DDG), Soya etc) and accelerated the use of Maize silage.

The Northland Dairy Development Trust and Northland Agricultural Research Farm (NDDT/NARF) role in trial work, demonstration, research, and extension on Northland specific issues has been of note and made significant contribution to sector through this period.

While all farm systems are evident in Northland it would appear performance and profitability is not constrained to any one system and while wide variances are observed it would appear good operators can and do make any system perform well (pers comms DairyNZ, NDDT).

Compliance and regulatory expectations

'The pace and change of this change unrelenting – as soon as you finish one thing need to start the next' (farmer interview).

Compliance whether from local government (Northland Regional Council), central Government or industry (Fonterra) has been seemingly relentless and consistently commented on and referenced by participants as a key catalyst for change.

The last two decades has seen a myriad of measures introduced by local and central government and industry including:

> Local government (Northland Regional Council) with environmental sustainability – especially effluent management
>
> Central government with employment, health and safety, Fresh Water policy and Greenhouse gas emissions legislation
>
> Industry - Fonterra with on farm practice, food quality and assurance (dairy diary), waterway fencing, effluent management, food safety and milk quality regulations.

Many of these changes have required relatively significant capital investment along with changing mindsets, management, behaviours, and new skill sets.

Some more limited comment from interviews has been that while these changes reflect (to some extent anyway) shifting societal and market expectations, concerns were noted that the industry is heading towards being overregulated with this encroachment of land owners rights and that they push back at the very attraction of farming – the opportunity to be independent, your own boss, and answerable only to yourself and your family.

For at least the last 20 years, 'prevailing sentiment has been to let the market decide and this has led to splintered, incoherent and short term decision making both in the private and government sectors ' (Rose, Keating, & Morris, 2018).

In many ways given the range and depth of feedback this short summary is far too brief to do participants' insights the justice or service it deserves and key elements like succession, progression (or lack of it), rapid advancement of technology, rural communities (with rural support trust established 2007), changing social licence to farm (dirty dairying debate), Fonterra's performance (the erosion of shareholder equity and impact on depth of farmers capitalisation, winter milk premiums etc) and changes in Maori farming have all been almost inexcusably barely mentioned. Nevertheless, the intention has been that this discussion sets a foundation on which to reflect and recognise that change has been a constant companion of the Northland dairy industry and that the industry has continually adapted and proven to be remarkably resilient.

So where are we now - the following section will discuss the present before heading onto the changes ahead and implication of these.

The present – 2020 - a snapshot of Northlands dairy industry

Kilpatrick et al 2003 comments remain arguably even more relevant today that 'Primary production operates in a context of continual change and requires up to date, complex and varied skills of primary producers and land managers. Farming now requires access to good information and demands not only sound business management skills but a higher level of skills than before, including the ability to work with farmers and others' (Kilpatrick & Johns, 2003).

Participants responses were not unsurprisingly wide and varied and while challenging to group into themes, some key areas of interest were apparent around have broadly grouped these as background, regulatory compliance, Fonterra's relevance, viability, and other issues.

Background

While the challenges, concerns and opportunities of the Northland region are not entirely dissimilar to the rest of New Zealand dairy industry neither are they entirely the same. Sector wide issues include ongoing change, increasing industry compliance and regulatory demands, improving environmental sustainability and the expectations around freshwater legislation and greenhouse gas emissions. Along with aging demographics, changing societal expectations/perceptions, the impact of Covid19, farmer resilience, wellbeing, the volatility of market returns and viability these are all impacting farmers and the dairy industry across New Zealand.

In conjunction with these factors there are also some more Northland centric issues to consider around competing land use, changing climatic conditions (with the subtropical north arguably at the forefront of climate change), relatively low levels of capitalisation, wide variance of viability and profitability, along with the relative importance and contribution to the wider regional economy. Perception also persists, and not without validity, of Northland as an isolated region with significant indicators of social and poverty depravation, a region that is susceptible to and hard hit by adverse environmental events.

The Northland dairy industry also makes a significant contribution to Northlands regional economy, social structure and environment and through Covid impacted year of 2020, the industry has proven to be resilient and done its fair share of heavy lifting through pandemic (pers comms Northland Inc CEO 2020).

Overall primary industries contribute significantly to Northlands economy and alongside tourism and manufacturing has historically been one of the region's top three contributors. With the current repositioning of Marsden point and associated decline in manufacturing economic output the tourism and primary sectors are forecast to emerge as the top two contributors. As dairying contributes ~40% of the primary industries contribution it is a key player in Northlands economic prosperity.

Made up of some 890 dairy farmers spread across the region, of whom 99% supply Fonterra with a small number supplying independent processor Fresha Valley, boutique manufacturers (like Mahoe cheese) or whole milk sold direct to market. Peak milk production runs at ~ 4.9 million litres/day processed through Fonterra's Kauri and Maungatoroto sites and annual production is relatively steady at 80 – 85 million kg Milk Solids/annum (pers comms Fonterra & DairyNZ 2020).

Compliance and regulatory expectation

Significant changes in compliance and regulatory expectation continues across the sector.

At industry level this includes milk quality (telemetry vat monitoring and milk temperature), effluent management, and environmental sustainability (waterway fencing and completion of farm environment plans) all requiring ongoing investment of people and capital.

Regional and central Governments expectations are also shifting with:

> Fresh water legislation while final details and implications are yet to be fully worked through the industry is beginning to recognise its significance and the potential that it has to impact the sector for a generation. Rigid synthetic nitrogen levels, land intensification and land use change by resource consent, riparian fencing requirements, and winter management expectations are all key considerations.
>
> Reduced farm level greenhouse gas emissions are rapidly approaching with He Waka Eke Noa sector agreements in place and Fonterra providing farm level reporting from October 2020 on.

Fonterra relevance

The critical importance of Fonterra as a cooperative to a relatively isolated region with no competition, delivering national returns and the relevance of underlying DIRA legislation regarding entry/exit provision and right to supply, milk price formula (where all suppliers receive same milk price irrespective of location, scale etc) and the absence of transport differentials were of interest.

Viability

As comments from the last 20 years viability are varied across farm systems, scale and the region with concern expressed that 'the poorer operators are steadily eroding their equity'.

There was a strong consensus that focus on viability and profitability will only increase. The lower than ideal depth of capitalisation, need to strengthen balance sheets and generate free cash remains evident with ongoing pressure for consistent returns to fund debt repayment, infrastructure, and compliance. Related to these are concerns regarding risk levels and the resilience to withstand repeated and protracted adverse environmental events with the 2020 drought of particular relevance.

Associate with viability were observations that Bank competition agri business appears to be falling with little desire for new business and margins rising across the region (in part as response to increasing reserve bank capital requirements but also heavily influenced by banking sectors sentiment in rural sector)

Other

Aging demographics of farm owners with average age now approaching 60 – 65 years old, alongside this succession, innovation, energy, and concerns regarding progression for next generation with good farms traditionally tightly held all remain in the mix of challenges.

However, there is optimism the 'dairy industry is a great industry to be part of with a great future, why? Because we produce quality food, are addressing issues like the environment, animal and people welfare in a positive and constructive way. We are as efficient producers as anyone in the world, exposed to international marketplace and not competing against one another. We're working with nature and that's a pretty special place to be' (pers comms farmer comment 2020)

Participants also had a significant number of questions they were themselves grappling with and these have been captured below to help illustrate thinking that's underway:

Questions for the next 10 years:

- What does success look like and from what and who's perspective?
- What's the impact of our farming systems on environmental sustainability?
- What's the impact of environmental sustainability on our farming systems and inherent viability?
- As industry and farmers what's our response to global warming and what's our contribution to global warming?
- What's our response and leadership to compliance and regulatory demands?
- What does succession and progression look like?
- The importance of Maori farming and participation in Northland dairy farming?
- Impact of changing land use on and within farm systems?
- How do we attract and retain a vibrant workforce, develop career pathways, enable support and progression so people don't leave the sector or region?
- Is viability still all about scale?
- How do we develop resilient systems that embrace profitability, farmer well-being and environmental sustainability?
- How do we support development of robust sector and regional infrastructure – whether telecoms, supporting industries, processor capacity, roading, port and rail?
- How do we enable quick uptake of new technology?
- How do we develop the reputation of Northland as a great place to farm, work and live?
- How do we farm as environmentally sustainably and profitability as anywhere in NZ?
- How do we develop a wide and deep sense of collaboration across sectors and industries as well as between local and central government?
- How do we shift away from short term answers to long term questions?
- How do we help equip farmers for change of intergeneration scale and significance?

Easy to see the wide range and diversity of questions raised. Questions that reflect the complexity facing farmers, facing Northland, and facing the industry.

Complex interrelated questions with no simple answer or solution necessarily available but that nevertheless have a common thread of change and adaption running through them. Questions that need to be grappled with at farmer, sector, regional and national levels and ultimately addressed. A process that will require energy, collaboration, and resource along with grit, patience, and time – characteristics all too often in short supply.

So, what does the next 10 years look like and how do you respond to these questions? How do Northland dairy farmers confront the issues facing them, make sustainable long-term changes that achieve stakeholder expectations of a vibrant, profitable, sector that looks after the environment and people in a sustainable way?

The Future – the next 10 years in the Northland dairy industry

Sir Peter Gluckman and team at Auckland University's Koi Tu: The Centre for Informed Futures in The future of food and the primary sector discusses

'as a rule, farmers and food producers are far more entrepreneurial, innovative and proactive in adapting green solutions within their businesses than their image suggests. Traditionally, farmers have been highly adaptive, flexible, and resilient, especially with respect to land use-use changes. Given the right information, incentives and encouragement, this trend will likely continue. Food

production will remain a mainstay of our economy and partnerships rather than discord will be needed to navigate the major changes ahead. It is impossible to look at farming and food production in isolation from the environmental, economic, cultural and social implications associated with change.' (Bardsley, Coates, Goldson, Gluckman, & Kaiser, 2020, p. 12).

In 2020 the Ministry for Primary Industries in association with The Primary Sector Council published their vision for the future 'Fit for a Better World - Accelerating our economic potential' ambitiously calling for an additional $44 billion in export earning over the next decade along with improved sustainability and greater inclusiveness (MPI, 2020).

Alongside these NZ Inc styled visions sit central Government response to Covid, regional aspirations, and changing societal and political expectations. He waka eke noa the sectors commitment to reducing greenhouse gas emissions and recent freshwater legislation drive a recognition that farm systems are likely to change and an expectation of a de intensification of parts of the industry. While not all entirely aligned there's a strong realisation that the farming in 10 years' time will look very different from today.

While there's already a level of complexity in these broader considerations it's also appropriate to provide a level of focus on Northland issues and consider participants responses around these.

Northland focused issues

Impact of and likely hood of investment into key regional infrastructure (roads/rail/port/telecoms) as a facilitator of both regional growth and sector opportunity and the time frames, high levels of capital investment required, and political expediency demonstrated over the last 20 years.

Technology will continue to accelerate and will change the nature of farming 'agriculture has yet to see the revolution that tech will bring like we've seen in the banking industry' (pers comms farmer 2020) and the relative impact across an isolated region.

Level of compliance and regulatory demands – from industry and regional and central government will continue to lift and require ongoing investment and a fundamental shift in mindset. Land use will continue to change, will see impact of climate change occurring at farm level and farm systems will need to adapt and change – with sustainability wellbeing and profitability embedded. Demographics will also change as a younger generation enters and women carve out a greater role.

Despite the challenges all respondents expressed a sense of optimism, that 'it's a great industry to be part of' and an ambition for 'Northland dairy to be successful'.

Alongside the relatively positive short-term forecasts for Fonterra's 2020/21 milkprice forecasts (Fonterra, 2020) and the cautiously optimistic participants views there was some commentary on longer term forecasts that are less optimistic 'the sector has years of largely slow growth to come' (ANZ Bank, 2020) and brought an higher level of caution to the conversations.

The importance of infrastructure was widely commented on from a regional perspective and given the scale and nature of investment is and will remain a central government led strategy - clouded as it is by politics - and focused on highways, port and rail networks. The relevance and influence is marked and the impact wide reaching, implications on land use change is just one example. Does 10 years see the emergence of Ruakaka as the Tauranga of the North, with an associated shift in land values as land use changes to residential, lifestyle blocks and smaller scale horticulture blocks and a shift of capital north?

The scale and number of dairy farms in Northland is likely to rise and fall respectively as it's hard to envision the trends of the last 20 years not continuing fuelled as they are by demographics, technology, economies of scale, labour, succession, changing land use and cost and complexity of compliance. Consensus amongst participants is there'll be a marked fall in the number of dairy farms by minus 10 – 20% to say 700 – 800 farms along with a lift in scale as land sales enable amalgamation and farm viability and capital investment continue to be assisted by economies of scale.

Overall production appears harder to estimate in addition to above fall in farm numbers and lift in scale also influenced by the likely/impending deintensification and changing farm systems. The sense of participants is it's likely to be 10 - 15% fall to 70-75m kgMS/annum.

Farm system change was of particular interest to the group and as previously commented changing legislative and regulatory requirements around environment, freshwater and greenhouse gas emissions.

Alongside these are wider conversations on sustainability (say use of imported PKE), automation, technology application, creating attractive work place environment, Once A Day milking, response to climate change, changing demographics, succession, opportunity for progression and new thinking not to be understated. Finally, there's ongoing viability linked to milk price and Fonterra's underlying performance. Along with the conversations needed around farmer wellbeing, bobby calves, Maori farming, and a GM debate.

<u>Change ahead</u>

The need for farmers to change and adapt next 10 years is evident and forms part of a wider discussion beyond Northland. Indeed New Zealand is not alone in experiencing 'shifting societal and policy expectations' as Hurley comments on UK policy as it moves towards … 'a more rational sensitive agricultural policy which promotes environmental enhancement, supports profitable food production and contributes to a healthier society' (Hurley, et al., 2020).

Will a smaller industry that's more focused on profitability, wellbeing and environmental sustainability emerge?

Based on interviews and supporting readings have looked at the last 20 years, current situation and thoughts for the next 10 years in the Northland dairy industry – the past present and the future.

In commenting on context and the implications on farmer change into the future Kook discusses *'Historically the dominant farming culture… has been based on maximising food production and maintaining the family business. However, this culture of production and family is under pressure from societal calls to increase the uptake of environmental practices in farm management. The pressure is leading farmers to adopt environmental practices, which causes a clash with the beliefs and values underlying the culture of production and family business. The clash is problematic, as it might form a barrier to sustained environmental change, for which not only practice change is required, but also a change in beliefs and values guiding farming culture'* (Kook & Turner, 2020).

Report will now spend some time understanding what drives farmer change, current responses/support, implications for our sector along some ideas for supporting and empowering regions farmers into the future.

Farmer change

What drives and enables farmer change and how do you achieve change beyond individual farmers to impact a region and an industry?

Farmer change, indeed, behavioural change at any level, is a fascinating subject with a considerable body of academic and popular work sitting behind it. To help further develop our thinking responses from interviews are complemented and supported with a review of some of the literature that addresses the idea of farmer change. In this report will not attempt an extensive literature review but rather look to briefly bring ideas from a number of articles together and develop some key themes to help focus and guide our discussion.

The existing complexity of farmers businesses, the industry and the sector is evident from the preceding discussion, this complexity appears to be increasing and both interviews and readings support the idea that 'increasing pressures for farmers to better manage complexity and risk demand greater sophistication of farm management' (Kilpatrick & Johns, 2003).

Rose et al comments that multiple influences on behaviour are noted … these are 'not mutually exclusive and include: personal factors (age, gender, experience, attitudes and beliefs), business factors, family, peer and advisor networks, feeling in control of decision making, relative advantage (incentives, rewards …viability…), market or compliance based rewards, and information provision (Rose, Keating, & Morris, 2018).

If anything, the need for farmer change over the next 10 years and the pace at which it occurs will be greater than ever. However as Kook comments that for long term, enduring change to occur, change is needed beyond the day to day farm systems towards a shift in beliefs and values and that is an essential part of the process (Kook & Turner, 2020).

Kook et al citing a number of authors further comments

'in response, communities, scientists, policy makers and industries are requiring farmers to improve environmental practices in farm management. Farmers are, therefore, under increasing pressure to adopt environmental practices aligned with 'external' societal and political expectations and good farming … to maintain their licence to farm … For sustained environmental change, not only practice adoption, but also a change in beliefs and values is required' (Kook & Turner, 2020, p. 411).

This theme of thinking about change as beyond a singular technical application or even farm systems is consistently commented on as Hurley notes the 'need to move beyond role of individuals attitudes and behaviours …. Towards considering how farmer practices, beliefs, and values together constitute the culture of farming and how these are shaped by societal and institutional mechanisms (Hurley, et al., 2020).

No small feat and the challenge would appear to be not insignificant with the whole area of farmer change and behaviour bloody difficult. So would suggest to effect change the region needs to move beyond trying to solely influence individual behaviour change to wider sector and societal change and as Kook notes 'address the cultural embeddedness of current farm practices' (Kook & Turner, 2020)

Rose also suggests that it may be 'problematic to focus on influencing individual farmer behaviour in preference to stimulating wider social change … and that it's difficult to change individual behaviour … without wider social and organisational change' (Rose, Keating, & Morris, 2018).

Indeed, the overriding message from Rose et al is that focusing on changing the behaviours of individual farmers diverts attention away from influencing wider social change, which may in fact be

a much better way to influence decisions on farm … projects should ... 'move beyond looking at the behaviours of individual farmers … towards a broader focus on the plethora of actors involved in farm decision making' (Rose, Keating, & Morris, 2018). And then goes on to argue it's easier to influence behaviour at particular points in time (Rose, Keating, & Morris, 2018) so strategies regarding the how and critically the when to engage need discussion.

Interview participants responses strongly supported this idea that need and events at a particular point in time – whether GFC, succession, or falling profitability, trigger reflection and change – as well as noting there is invariably a mix of stimulus and that everyone is different.

Sutherland discusses the idea of trigger points as

'*a degree of path dependency is characteristic of any business particularly one based on land, commodity production and steeped in history … and argued farm managers tend to maintain steady trajectories, reflecting path dependency lodged in the business realities of commercial farming operations, as well as technological and 'knowledge lock in ' biased in both formal training and work experience … major changes to farming trajectories occur following trigger event , point to a time where the farm manager recognises that a major change to the farms trajectory is require'* (Sutherland, et al., 2012, p. 148).

As noted, interviews supported the idea of trigger points as a key contributor to change and discussion to date strongly suggest that the sector and the region is at a juncture in time where triggers abound and there is opportunity to act.

Regarding the how Kook discussed the importance of and relative merits of participatory extension programmes and that they facilitate more effective practice change (Kook & Turner, 2020). While Rose outlines some key principals to incorporate as you look to design engagement including making early stage participatory engagement at standard/key approach and don't just focus on the individual but involve trusted advisors, family and peers to also engage (Rose, Keating, & Morris, 2018).

Will now turn our discussion towards understanding some of the current strategies and programmes underway in the region and then discuss the implications of this.

Current strategies

There are a range of initiatives underway in the region that look to challenge and promote farmer and sector change. Key amongst these are Northland Dairy Development Trust /Northland Agricultural Research Farm (NARF/NDDT), Extension 350, Kaipara Kai, alternative forages, water studies and whenua Maori fund. Of these we will briefly discuss NARF/NDDT and Extension 350.

Northland Dairy Development Trust was formed in 2006 to support farmers in securing quality dairy research relevant to Northland and their objectives are:

- To raise the profile of Northland as an innovative and progressive dairying region
- To secure and conduct robust research into issues relevant to Northland pastoral farmers
- To promote the dairy industry in a positive fashion to both existing suppliers and members of the public outside the dairy industry through sound research with a focus on profitability and environmental stewardship
- To evaluate new dairying technologies in an independent robust fashion
- To utilise the valuable resource at NARF in conducting farm systems research capturing effects on environment, profit, and people.

The farm has the unique ability to run systems trials on up to three farmlets to enable robust comparisons and provides strong links to and accessibility of the science to the dairy community. Of interest is the current trial work now under way on 'Supplement Use in a Variable Climate', this project compares three farms with different supplement use on production, profit and environmental impact (NDDT, 2020).

Extension 350 a farmer led farmer focused Northland extension programme. Launched in 2016, E350 is a long-term, 5.5-year project led by Northland farmers based on farmers learning from farmers and a cluster model of target, mentor, and associate farmers. The projects focus is on-farm and for farmers achieving individual gaols and vision through three main planks of: increasing profitability, improving environmental sustainability, and improving farmer wellbeing. This approach acknowledges that being a successful famer is not just about economics and profitability, to achieve farming success we also need a focus on creating a sustainable environment and healthier farming community (Extension - 350, 2020).

Implications

As we reflect on the interviews, selected readings, literature, and wider commentary it is clearly evident that change is upon Northland dairy farming at a scale and pace arguably not seen for a generation.

That the sector is unsurprisingly somewhat uncomfortable with this impending change, the uncertainty of it and what the implications will be would be an understatement, nevertheless, it is here. Opportunity will be wrapped up amongst the challenge and pain and there remains an undeniable level of underlying optimism, passion and enthusiasm for the region and sector.

As one interview commented the vision for Northland is to be 'a great place to work, to lead environmentally and farm as profitability as anywhere in NZ … to see innovation … and that farming contributes to the economic wellbeing of the area.' The sentiment that this is a great industry to be part of and a great region to live in reverberated through the interviews.

Arguably with the multiple trigger points on farm, through the industry and in wider society we're perhaps at a once in a generation moment with the opportunity to influence the course and direction of the region and sector. That there is the need to encourage aspirational leadership and strategic thinking (Bardsley, Coates, Goldson, Gluckman, & Kaiser, 2020) at sector, regional, and national levels is undeniable.

The challenge is how do we - as individual farmers, as a sector, and as a region - respond in a cohesive, strategic manner that recognises the legacy of where we've come from, builds on what's already underway and that is courageous enough and visionary enough to plot a chart through uncertain waters and uncertain times. And do so in a manner that is able to engage with all stakeholders from farmers to industry, local and central government along with wider society and bring collaboration, resource and will together to do the mahi required to even begin to execute and then have the capacity and capability to execute at scale and at pace sufficient to influence both individuals and the region.

<u>Where to from here</u>

Alongside the existing work already underway a range of stakeholders are also beginning to address industry vision and the future of the sector and region. This includes primary sector regional economic development (Northland Inc board pers comm 2020), sector pathways, future project design and long-term funding (NRC councillors pers comm 2020) and environmental sustainability in Kaipara

catchment (KMR pers comms 2020). These then sit alongside wider national initiatives like DairyNZ's He Waka Eke Noa.

Northland Agriculture Forum is beginning strategy work - while with an inter-sector collaboration focus - there is confidence it will be sufficiently wide reaching to provide a platform for a coherent regional approach (pers comm 10/2020)

Initiatives need to link with stakeholders and the existing work from E350, NDDT, Kaipara Kai, water studies, and alternative forages to capture their learnings, build on the rich resource developed and then integrate these existing and future projects into a wider strategy.

Good and effective strategy has the opportunity to link multiple complementary projects that while discrete, overlap, are coherent, and collaborate using the best of all of us approach. While this will require significant resource and ambition it offers the opportunity for genuine partnership. These future programmes will be participatory, build on existing design work around farmer change, farmer to farmer learning and critically move beyond individual farmer change to influence societal change in a sustained long-term manner (Rose, Keating, & Morris, 2018). Will develop pathways to engage central government agencies like MPI and MBIE, and access resource through appropriate funding mechanisms – be it SFFF or other. Engage with regional government through long term plans and develop support from industry, industry bodies (DairyNZ and Beef+LambNZ), regional sector players NARF and NDDT along with individual farmers themselves.

A challenge to the region and sector is to be in a position to articulate vision and strategy and develop a cohesive programme and then promote specific projects in order to attract the level of resourcing required which will run into the millions if not tens of millions of dollars.

A criticism of the sector over the last three years is it hasn't been particularly strategic as despite the Northland region receiving some $530 million from the Provincial Growth Fund, the agriculture and horticultural sectors attracted only $8 million – a remarkably small proportion given relative importance of the sector (NZ Govt, 2020).

'There is a need to consider the broad strategic direction for our primary sector – one that fully integrates environmental, social and economic factors. … a … holistic overlooking the interaction between the food system and the environment, tourism, health, social custom and regional development the future. (Bardsley, Coates, Goldson, Gluckman, & Kaiser, 2020)

There's opportunity but leadership, collaboration and vision are needed to navigate the changes.

Conclusion and Recommendations

Change is upon farmers, the sector, and the region and there's an urgent need to change and adapt practice, management, farm systems and mindsets. Change that needs to move beyond technical application towards a genuine paradigm change that captures hearts and minds.

To achieve this stakeholders will need to invest time, energy, and capital at multiple levels across the region and across the sector.

Opportunity will be amongst this change however it's likely to look different to how the industry has historically approached opportunity via (economies of) scale, intensification, capital appreciation, industry specialisation and a singular focus on profitability.

Change and opportunity will need address through a triple bottom line incorporating social, economic and environment factors, or phrased a little differently seen through the lens of improved

environmental sustainability, improved profitability, and improved farmer wellbeing. The strength of this being the proverbial three-legged stool – where you remove any one leg and you are in a precarious position.

The region will need to recognise the strength the industry brings economically, socially, and environmentally along with the opportunity to build on the foundations of resilience, adaption and innovation laid over the generations that have gone before us.

Recommendations

- Industry, local and central government investment in supporting:
    - Regional sector strategy development
    - Programme development
    - Project design and implementation

    Programmes that are integrated and incorporate research, effective extension, and demonstration.

    Project design based on research and proven practice that are participatory in nature, farmer led, and farmer focused. That are adaptive, long term and well evaluated to enable ongoing learning and adaptation.

- Development of partnerships that are collaborative, cross sector, and interagency - not led with central government or industry arrogance but that are and are genuine in valuing all stakeholders.
- Investment in and development of farmer, sector, and regional leadership.

Limitations

As always improvements could be made, as discussed this would include a widening of the interview panel for a broader range perspectives particularly of Maori farming in Tai Tokerau, following up on wider survey data, and finally ensuring time and resource available aligned with the writer's expectation.

Arguably the study question and approach was ambitious with a longer report than initially envisioned.

Summary

Change is coming down the tracks like a freight train, at a pace and scale that hasn't been seen since the 1980's and is likely to shape the nature of Northland Dairy industry for generations to come. While there is undoubtedly challenge and uncertainty in this, there is also opportunity and Northland dairy farmers have long proven themselves to be adept, resilient, and able to change. The need for vision and leadership is apparent and it has a unique opportunity to help influence both the trajectory and farmer adaptation as well as help shape support, extension, and collaboration over the region.

Over the course of this report we have brought together a range of perspectives to better understand farmer change and the implications for the Northland dairy industry into the future. We have reflected on the past, present and future of the Northland dairy sector to help develop a deep and rich understanding to enable better informed discussion and understanding of the implications. This has been achieved through the lens of a diverse range of stakeholders, and then complemented by a range of literature, readings and the authors own experiences. The interviews conducted over the course of this report have been of particular value and the participants' insights, candour and

transparency has been critical to the outcome. This contribution is deeply appreciated and acknowledged.

The relatively high-level approach that this report has taken is by design as its intention is to provide a foundation for discussion and enable authors and Northland Inc analysis and leadership within region. Indeed, the benefit of this is arguably already evident – at final draft stage this report has had direct application and influence in discussion on primary sector pathways and vision in Northland as it's formed the foundation for two discrete presentations to;

1) The board of Northland Inc (Northlands regional economic development agency) as they grapple with the vision of primary sector economic development in post Covid environment and their leadership in this space.
2) Northland Regional Council councillors and CEO as they review their long-term investment strategies and allocate funding to support the regions sectors.

The times they are a-changin and you'd better start swimmin' or you'll sink like a stone' (Dylan, 2020)

Appendix A

Interviewees

Dr Harley Aish

GP currently practising in Auckland, director and chair ProCare Health Ltd, graduated Auckland University MBChB ~1990

Carolyn J Beehre

Northland dairy farmer and breeder for 20 years, graduate AWDT development programme, trustee matriarch genetics, LIC SHC representative, graduated AUT dip Physio ~ 1992

Nigel Brearton

Partner Russell Turner chartered accountants, practiced in Northland over 20 years

Stuart Brown

ASB Rural Bank manager Northland 1994 to current, prior Rural Bank manager

Bruce Cutforth

Northland dairy farmer and breeder for over 50 years, current trustee of Rangihamama Omapare Inc, past president Jersey NZ, director LIC, and NDDT trustee

Brian Hughes

Fonterra area manager Northland 2001 to current, prior Kiwi Dairy Coop and dairy farming

Julie Gregson

Director AgriSpecialists, consultant re HR recruitment, research, project management and facilitation, prior Northland Dairy Co-op farm advisor

Chloe Mackle

Northland dairy farm manager past 2 years, prior to this 6 years farming in southland

Tafi Manjala

Farm advisor and director AgFirst Northland, Nuffield scholar, prior rural banker, Northland regional lead DairyNZ, graduated Zimbabwe Agriculture college ~1995

Adrian Whale

International student support NorthTech, previous habitat for humanity, graduated Victoria MA (Geography) ~ 1990

Disclaimer:

All parties known to author in either private or professional capacity

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