FMG
Advice & Insurance

THE FUTURE OF FARMING AND GROWING IN NEW ZEALAND

www.fmg.co.nz

Table of Contents

Date: July 2019

Authors: Pete Frizzell, Angela Hogg, Jason Rolfe, Mike Lange

1

Summary

This document covers a broad change agenda based on a full market scan using the ESTEMPLE framework.

Over 30 agri-industry leaders and influencers were interviewed to provide a qualitative and human element to understanding the change and impact on farmers and growers. From these interviews we were compelled to add a Leadership section to the ESTEMPLE framework. This is because of the amount of change that requires a new leadership style of collaboration to clearly articulate the vision for all farmers and growers to buy into and benefit from.

The overwhelming driver for change in farming and growing's future is that of the ethical consumer. The ethical consumer appears—ably supported by an eager media—as a voter and customer to propel political, legal and business model change. The ethical consumer wants to see a transparent and natural form of farming. New Zealand farmers and growers will engage well with the ethical consumer by changing their business models to be more sustainable and be rewarded with more incentives to deliver 'naturally' farmed products.

Technology and economic models will transform to support farmers to connect with consumers, reward and make compliance easy, access premium pricing and more diverse business operations. The farmer of the future will have strong business acumen. They will be focused on maximising the value (not production) of their farm business and will look to strategic advisors and partners to propel them forward. They will also seek to be recognised and rewarded for the unique business that they are.

Rural organisations that create a 'business for one' approach by organising data, products, services, incentives and rewards to advise and support the individual farmer grow, will be best positioned for the future.

2

Introduction

FMG exists to provide a better deal for rural New Zealand. This report has been developed to support the Mutual's strategic planning process intended to ensure that FMG will remain sustainable for another 114 years. We are also hopeful that this report will contribute to the on-going discussion about the future direction of farming and growing in New Zealand.

This work is important to FMG, because it creates a window into what the future looks like so the Mutual can respond to, lead within and create a future where it and its farmer and grower members can succeed.

With a timeframe looking out to 2025, we used the ESTEMPLE framework and FMG's Farmers' Code to Happiness framework to keep the work grounded and structured. We took a human design approach to test our thinking and gain insights into the pathways likely to emerge in the future for farmers and growers.

In completing this wide-ranging review we interviewed over 30 key industry influencers and leaders. Common amongst all our interviewees was a strong sense of optimism about the future of farming and growing in New Zealand. There are many challenges and some significant choices for New Zealand to make, but there are also many opportunities for growth and continued wealth creation.

Four major areas have been identified that will drive the most change. The first three are Ethics, Technology and Economics. We also felt compelled to create a fourth that didn't fit inside the ESTEMPLE framework, being Leadership. This emerged as a significant issue to be discussed in more depth.

We were inspired by the depth of passion and optimism held by these leaders and influencers for New Zealand's farming and growing future. Included in this is a sentiment that New Zealand farmers and growers will adapt and have a strong history of moving with the advancement of technology and economic signals.

The future is bright for New Zealand farmers and growers, but it will be different and so will its people. We see the advancement of technology, compliance and required financial sophistication driving a farmer that is more business and goal focused. On the flipside, we see traditional farming having less capital appreciation, continued price volatility and higher compliance leading to a future with fewer farmers 'in it' just for the lifestyle.

The pace of change is likely to be faster, but more importantly, diversity of change will be greater than the homogenous pastoral farming growth of the last three decades.

Aquaculture, horticulture, forestry and niche brands will grow fast, while the traditional powerhouses of dairy and meat will have minimal to no growth. In fact, they will geographically (and sustainably) shrink their footprint.

Within this report we have deliberately sought to form an opinion and take a position that reflects our interpretation of the interviews and research insights. We welcome further discussion and challenge of these opinions.

3

Current environment

The current environment is relatively stable and provides a good basis for economic and social growth. New Zealand is experiencing above average commodity prices in our traditional markets, along with enjoying strong trade relationships and access in particular with Asia. New Zealand enjoys low government debt levels and a history of managing macro shocks well, low unemployment, historically low interest rates (albeit higher than global comparisons), low inflation and we have a stable government.

However, some dark clouds are appearing:

- Trade is getting difficult (with opportunities).
- Concern that global economies are slowing (China).
- Technology will disrupt food production.
- Ethics are driving pressure on factory and traditional farming methods.
- Uncertainty over retail business models with disruption and global domination by a few.
- A series of new legislation, regulation and compliance aimed at farming. For example, capital gains tax, carbon zero, water rights, nutrient management and animal welfare.

But, there are silver linings to these clouds.

Optimism for New Zealand remains at the centre of where the future of farming and growing is heading. New Zealand is well placed to face the key challenges with a skilled workforce, good trade relations, a stable government and a business community embracing change. However, navigating the change to a world where the consumer drives ethical decisions into the media, political and legal environments takes skill and requires new business models.

New Zealand agri-leaders of the future will not be able to sit back and default to previous pathways to success. The future needs leaders who are more collaborative in establishing and leveraging the New Zealand clean-and-natural agri-brand, and who move from an on-farm model focused on land value appreciation, to a model focused on what farm businesses can do for consumers.

4

Areas of focus

The ESTEMPLE framework is used to provide a consistent approach to reviewing the farming and growing environment. Based on the in-depth interviews conducted with industry leaders and influencers, we have placed emphasis on Leadership, Economics, Technology and Ethics as areas that are significantly shaping the future. While we were tempted to add Legislation to the areas of focus, we found that the rise of consumer ethics is driving the political and legislative change agenda.

From these interviews, a significant Leadership theme developed. We have taken the liberty to add this to our review given it has a key role to play in shaping our future.

Leadership

The current agri-leadership model is under pressure. A number of organisations have identified governance depth as a key concern and agri-leaders are struggling to keep ahead of significant changes to their industry. Particular challenges that agri-leaders will need to get ahead of, are the rise in power of the ethical consumer and the clear need to collaborate on industry issues. The broader range of challenges are detailed below.

Governance depth

Governance development pathways were once clear from small regional organisations that produced leaders for national roles. However, with the mergers and acquisitions over the last 20 years (Fonterra, Farmlands, PGW, etc), that training ground has disappeared. Those who make it to governance levels have shallow experience of governing beyond regions. National politics and national needs of an organisation are very different to regional ones. International experience is beyond most and for farmer-elected boards it's extremely rare. Broadening governance beyond the farmer base is often suggested as the way forward for co-ops, however, we believe it is the overstretching of capability that will need to be addressed. For example, boards will take less risk in international areas and allow more joint venture/ partnerships. This requires agri-leaders to recognise and embrace their capability constraints and not try to be things they have no strength in for example, global consumer brands.

Compete or collaborate

New Zealand agri-industries have a history of competing on all parts of the supply chain, versus defining and collaborating in the pre-competitive space. However, we have good examples of the future including New Zealand Tourism, Zespri and the New Zealand wine industry who defined a brand promise (PureNZ, Premium Fruit, Regional Quality Wines) and supported competition based on the risk appetite of suppliers. For example, which wine brand to sell to, through, or to create own.

We see a future where pastoral-based leaders will work much closer on the nationwide and global issues such as climate change and develop the New Zealand Natural farming brand.

NEW ZEALAND AGRI-LEADERS WILL NEED TRUE COLLABORATION TO SEND UNFILTERED SIGNALS TO FARMERS AND CUSTOMERS THAT THERE IS A 'NATURAL' NEW ZEALAND FARMING AND GROWING BRAND.

New Zealand's food is highly sought after for its clean, safe, sustainable and naturally farmed origins

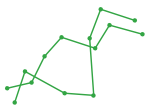
All industry players agree to collaborate on 'pre-competitive' areas
- Carbon Zero NZ.
- Water quality.
- Data storage and sharing.
- Animal welfare.
- Labour welfare.
- Natural (non-factory).

Farmers lift their 'game' to ensure premium placement of products
- Traceability of inputs.
- Animal welfare.
- Labour welfare.
- Quadruple bottom line.

Industry competes on market niches and value not against each other
- Coastal lamb.
- Organic dairy.
- High country steak.
- Grass based products.
- Carbon Zero farms and production systems.

Consumers pay a premium for 'NZ country of origin' due to its inherit 'goodness'

NEW ZEALAND FARMERS AND GROWERS WILL FACE MORE UNCERTAINTY AND PERIODS OF 'SHOCKS' TO SYSTEMS THE FUTURE WILL HAVE RISKS, VOLATILITY AND UNCERTAINTY. HOW WELL PREPARED IS NZ AGRI?



New Zealand products are highly exposed to commodity price fluctuations. The future is likely to see more volatility.

New Zealand is a free market that is subject to global trade environment and FX positions. The future is likely to see more 'protectionism' barriers to trade.

New Zealand farming and growing is highly geared to climate, pest, disease, weather and seasonal variations. The future is likely to see more variation and risks too.

History: NZ agri suffers significant events every decade

1950	1960s	1970s	1980s	1990s
• New Zealand Wool boom and bust.	• Synthetic fertiliser doubles arable crop output. • Prices drop.	• UK joins EEC and New Zealand loses free market access.	• Major economic reforms with negative impact on Rural New Zealand.	• Major storms and droughts. • Economy stalls.

2000s	2010s	
• Lower North Island floods. • Global Financial Crisis.	• Kiwifruit PSA disease. • Dairy debt crisis. • M.Bovis. • Earthquakes.	**Farmers and growers must prepare for major events. There is a particular concern over climate change, biosecurity and high levels of debt. Resilience is crucial.**

A key change required for the future is to send market and vision signals early to farmers for them to respond and create value.

Defining the promise will require key decisions on farm inputs (PKE, GE, antibiotics) and environment (water, nutrients, carbon, stewardship).

Ability to send the right signals

A key change required for the future is to send market and vision signals early to farmers for them to respond and create value:

a. **Commodity to value pricing**
An example of commodity pricing is the Fonterra Milk Price model, which sends commodity signals only to farmers, with very little differentiation based on what type of farming systems consumers prefer. While we acknowledge the challenges Fonterra face, due to the co-operative structure combined with current DIRA legislation in this area, we believe this is an area for focus. We are starting to see value based pricing emerge, including Synlait's Lead With Pride, but not yet at the scale to move the majority of farmers mind sets by incentivising changes to farming systems.

b. **Working with local consumers to solve their problems**
Agri-leaders will work much closer with communities to fix their problems. Examples include water access and quality, waste management, power generation, tourism support, carbon trading and employment. For example, Irrigation New Zealand and irrigation companies have recognised that they have been very poor to-date at communicating the wider benefits of fresh water storage to communities. This includes recreational use, minimum summer flows, recharging aquifers, urban access to fresh water, renewable energy, local jobs and using real stories from communities who have already benefited, such as Timaru from the Opuha dam. Yet, the current conversation is largely one of irrigating land to increase farmer wealth, while they degrade the environment. Other areas for agri-leaders to work with local consumers include supporting their community transition to 'future of work' scenarios, carbon sequestration, tourism infrastructure and localised power generation.

c. **From protect the past to creating a clear vision and pathway for the future**
Agri-leaders of the future will collaborate much more with each other and their local communities, to drive a vision that supports a New Zealand farming and growing brand, as well as reflecting strong values of their community and what it means to be a 'good' farmer. Until recently, the approach has been to try and minimise the amount of change on farmers with the perception that these things will 'go away'. However, it is now apparent to all leaders that the rise in power of the ethical consumer cannot be ignored and that it will continue to drive change. The future leader understands this and will develop and commit to a joint vision and values set that all farmers and organisations can navigate to. This is no small task and requires a whole-of-industry approach. For example, companies who sell low cost/highly profitable options with underlying consumer concerns, are not going to be easy to change.

> "The future is investing in people (leaders), whereas today it's about the asset (land).
>
> **Kate Dekker, PwC**

TOMORROW'S FARMERS WILL FIND A WAY AHEAD.

Banks more conservative

Farmers need $ to buy first farm or grow

Investors are looking for agri-exposure
- 7%+ return on investment.
- Retired farmers' appetite.
- Only the best farmers attract investors.
- 'Market Makers' connect and provide liquidity e.g. Syndex.
- New business structures appear to support investors and farmers.

New tools and structures are used
- 99-year lease.
- Inter-generation lending.
- Capital exchange simplified.
- Secondary debt markets.

Capital flows to best farmers who continue to grow
- Quadruple bottom line.
- Financially savvy.
- Profit focused (not capital gains).

Economics

The future is driven by new economic models where farmers and growers connect with consumers to drive value to their business. Current industry structures will evolve to allow those connections to happen. In particular, the larger processors (like Fonterra) will enable toll processing for customers, niche products and brands. On-farm wealth creation will change from a generic 'debt plus land appreciation over time' to an emphasis on business effectiveness and higher value.

Reward by consumers on ethical farming will see smart farmers move to a high value ingredient model quickly.

Commodity markets are poised for disruption, particularly those susceptible to increases in credible substitutes or significant supply increases. Agriculture has a history of substitution or supply shocks. For example, price drops occurred to wool and butter from substitutes and from supply increases of grains following synthetic fertiliser/technology/land use advancements. Cull cow beef and low-end meat cuts seem most susceptible, likewise those businesses who choose to adopt factory farming practices.

As a result, New Zealand farmers will connect with high-end consumers who value New Zealand natural products and farm systems. A key challenge to overcome will be ensuring farmers and growers receive clear market signals throughout the value chain to what consumers demand.

For example, minimising PKE use requires premiums at one end and alternative inputs/systems/advice at the other.

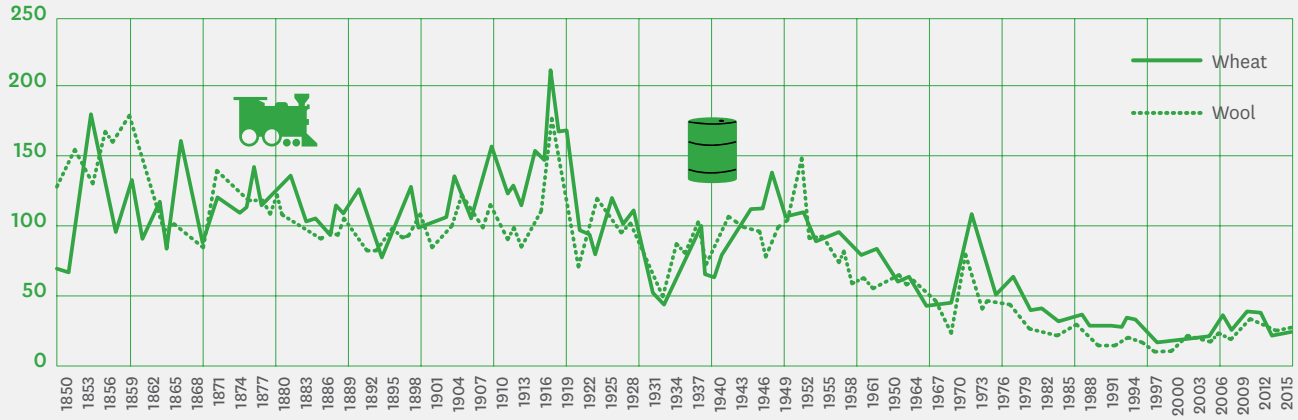
Noting that there are very few 'grass-based' sales consultants versus many 'feed-input' sales consultants.

The introduction of milk/meat protein substitutes from plant-based proteins, will open up new growing opportunities for arable farmers. However, these look likely to be commodity 'swaps' where the market swaps from a meat commodity input to a grain commodity—a zero-sum game.

New Zealand manufactured products (dairy and meat) will be positioned away from commodity and **towards premium ingredients**. Finished products like wine and fruit are (already) positioned towards a premium brand.

A key leadership change/decision is starting to emerge within our larger processors, which is a solid move away from volatile commodity products. Recently more so in dairy.

COMMODITY PRICE INDICES WHEAT AND WOOL (1900=100)



150 YEARS OF HISTORY TELLS US THAT COMMODITY PRODUCTS ARE SUBJECT TO MAJOR TECHNOLOGY DISRUPTIONS THAT INCREASE SUPPLY AND SUBSTITUTIONS. NEW ZEALAND MEAT AND MILK COMMODITIES ARE AT THE GREATEST RISK.

NEW ZEALAND PRODUCE IS POSITIONED AS PREMIUM INGREDIENTS FOR SUPER BRANDS MOVING AWAY FROM COMMODITIES

COMMODITY
Efficient, low cost,
utilise existing assets and expertise

PREMIUM BRANDS
High value products and brands
require new expertise and capital

New Zealand Zone: Support global super brands with 'premium ingredients'.
Partner with Nestlé, Danone, M&S, P&G.

This is evidenced by an increasing investment in 'ingredients and food service' assets over commodity plants. To do this, the whole 'chain' will have to demonstrate value to consumer brands i.e. where the value is in New Zealand's food safety and quality, natural, transparent and ethical farming.

Processors, including large co-ops, will enable **toll/contract processing** for niche and large consumer brands. While not expected to become a dominant part of the processor's capacity, this will allow farmers to connect with consumers in niche areas. For example, the current industry models in the New Zealand Wine and Kiwifruit industries. Some toll processing is already occurring for some brands by dairy and meat processors and we expect this to grow as large processors maximise existing assets. Failure to do this opens the processors to challenge from alternative business models.

Example

New brokers enter the cull cow market. McDonalds request their broker source 40,000 New Zealand dairy cull cows for their American beef market. All farms have to be audited and prove sustainable environmental practices, pastoral-based systems and high animal welfare standards. These are sourced directly from approved farmers guaranteeing a fixed price/ premium, with processors tendering business to 'toll process'.

Benefits for farmers include guaranteed space, guaranteed price and McDonalds can fix their foreign exchange position, margins and can show sustainable farming methods. This would appeal to large farmers like Pāmu, Ngai Tahu and Dairy Holdings.

While this example seems relatively minor, it illustrates a change in power dynamics where the buyer (McDonalds) and seller (farmers) dilute the industry structure's power and its sales channels and related assets.

LARGE PROCESSORS WILL NEED TO ALLOW SMALLER BRANDS TO USE THEIR ASSETS.

CREATING OPPORTUNITIES FOR FARMERS TO CONNECT AND INCREASE VALUE DIRECT FROM CUSTOMERS.

Connected and 'clean' farmers will demand higher financial return, even in co-ops

Co-ops and large processors need to utilise existing assets designed to match peak processing scale

Processors will respond with more options to process 'individual' produce
- Toll processing of brands.
- Joint ventures.
- Niche product.
- Hybrid co-op/partnerships.
- Primal cuts to market for finishing.

Niche markets are supported
- A2.
- Pasture only.
- Carbon Zero.
- Food as medicine.

Co-ops and large processors will innovate to keep supply
- Minimise 'stranded asset' risk.
- Connect to consumer demand.
- Nimble and innovative assets and structures required.

NEW ZEALAND LAND USE IS CHANGING. GROWTH IN HORTICULTURE AND MULTIPLE USE, BUT PASTORAL FARMING REMAINS DOMINANT (BY AREA, BUT NOT NECESSARILY VALUE).

New Zealand is good at growing grass and has lots of wilderness. Total size of New Zealand is 26.8m ha

- 10.7m ha Pasture.
- 2.3m ha Tussock grass.
- 7.0m ha Native forestry.
- 2.1m ha Exotic forestry.
- 3.0m ha Native scrub/ bare.
- 0.5m ha Crop/ horticulture.
- 0.5m ha Water.
- 0.5m ha Other.
- 0.2m ha Urban.

MFE 2018

Higher total relative returns in horticulture and plant based businesses drives land use change

- Potential growth from 0.5m ha to 1.7m ha.
- Canterbury, Waikato and Manawatu.
- High value fruit, vegetables and viticulture from 140,000 ha.
- Commodity arable from 360,000 ha.

Plant and Food Research 2018

Forestry will develop, diversify, and grow

- Extra native forest—regenerative plantations (from exotic).
- Exotic to grow to 3m ha from tussock grassland.
- Trees grown for profit through the lifecycle, not just at harvest.

Lifestyle growth is set to continue

- Part of urban 'spill-over'.
- 100,000 estimated.
- 500,000 ha estimated.
- Vertical farming on the fringe of Auckland with ultra-high value crop.

But pastoral farming remains core

- 10.7m ha to 10.2m ha assuming horticulture doubles.
- Still No1.
- Sensitive land to better use—horticulture and forestry.

Horticulture and niche markets will grow. Aquaculture and horticulture will have good access to capital backed by strong growth and current returns of 7–10% pa. Horticulture will be constrained by land suitability and Aquaculture by regulatory frameworks being slow to support significant growth. Based on land and climate suitability analysis completed by MPI, Horticulture could triple in size. This ranges from arable commodities to higher value fruit. These industries will be important for growth, but will remain smaller than Dairy or Meat. For example, a tripling in size of Horticulture and Arable would 'only' be 10% of all available farming and growing land. However, Aquaculture—Salmon in particular—has potential for substantial size but unlikely over the next 10-year horizon.

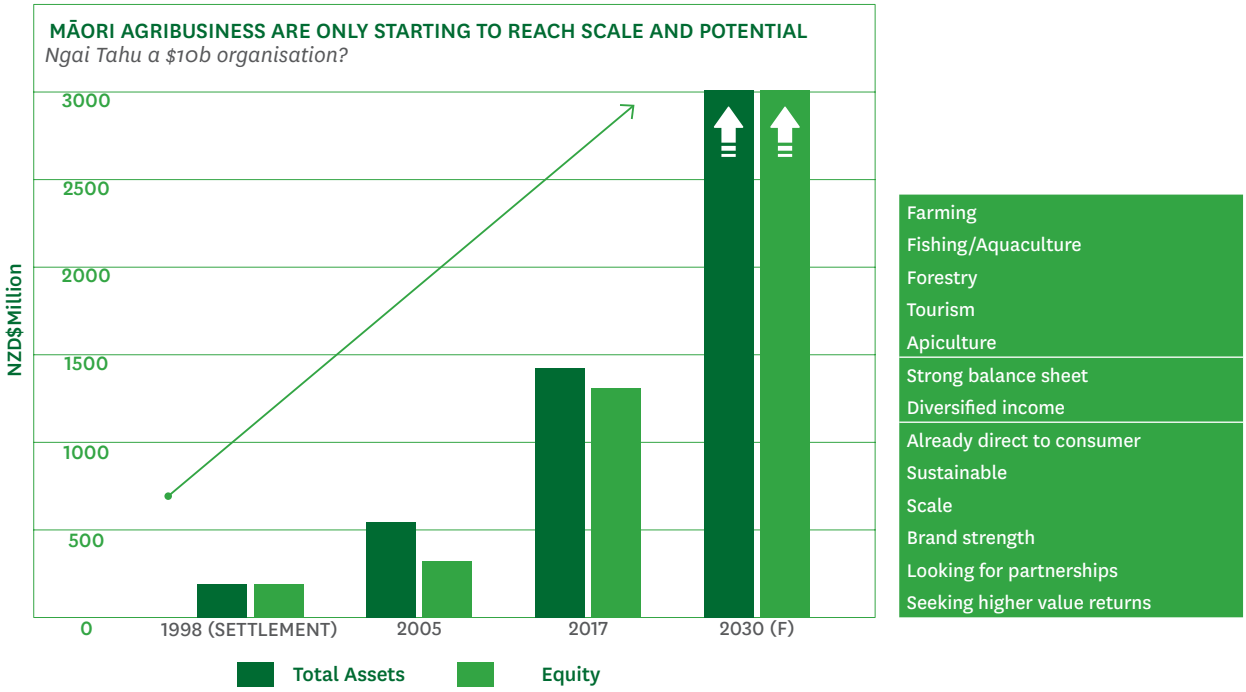
Niche and alternative income sources by farmers will continue to grow. In particular, branded products by farmers connecting with consumers directly and agri-tourism are set for growth. This is evidenced by the likes of Appleby Farms, Pāmu, Coastal Spring Lamb, Theland, leveraging of the Otago Rail Trail and Ngai Tahu's diverse business operations.

Capital markets will be constrained to pastoral farming. The dairy boom is over with land values at peak and the banks' appetite for generic lending is subdued. This is likely to continue unless a substantial amount of dairy debt is retired or returns for pastoral farming significantly increase above current predictions.

Pastoral farming production will plateau. Focus on value not growth, with connections to consumers to leverage a sustainable and natural form of farming.

Large farming entities will grow bigger, but not from debt funding. Māori and strong balance sheet corporates (with overseas investment) will be able to grow. As a result, they will also have more leverage direct to consumers and greater access to partnership opportunities, toll processing options and brand creation. These are areas that a smaller farmer cannot leverage, however, we see options for them to ride on the coat-tails of other partnerships. An example is Southern Pastures' partnership with Westland to create a pasture-based milk product pool open to all 'qualifying' suppliers.

GROWTH OF LARGE FARMING AND GROWING ENTITIES WILL BECOME TRULY CORPORATE AND DIVERSE. MĀORI ARE SHOWING THE WAY.



Social

While not a major driver of change, the farming and growing social environment will face some significant challenges. In particular the future-of-work in regions where robotics replace lower skilled workers such as dairy, meat and fruit processing. Regions that can diversify with more available workers into tourism and value-added products and services, will benefit. However, many towns will likely struggle to change and emerge as a 'zombie' town.

Triggers for automation of work will be wage inflation v lowering cost of technology. In essence, as minimum wages increase the cost advantages of using robotics increases. Social impact examples to draw back on are Greymouth (coal bust) v Hokitika (tourism and dairy boom), Patea (meat plant close) v Hawera (dairy boom).

An area of rising concern is the cost of food for the average household in New Zealand. Specifically, if New Zealand can achieve premium for exporting its products and start exporting more fresh produce, then the concern is that prices for fresh meat, seafood, milk, fruit and vegetables will increase greater than wages. In time, this could position a greater urban/rural divide based on wealth distribution.

Social aspects of an aging workforce, amalgamation of farms and poorly planned succession in farming and growing are set to continue. However, we remain optimistic that there are enough opportunities for the next generation to invest. Land values may not increase as fast and structures to buy the first farm may not be easy, but we are already seeing innovative ways by the next generation of farmers to buy and grow their agribusinesses. For example; equity partnerships, use of professional investors and peer-to-peer lending are all likely to grow, alongside more traditional models like bank funding and sharemilking. The next generation of farmers will be more flexible. In particular, the ability to grow a business in a different way to the past generation's recipe for success, which was of land value appreciation and leveraging debt.

The lifestyle aspect of being a farmer will still be an important draw for the next generation of farmers. The outdoors, working with animals, physical work, close communities and being your own boss will all still draw young people to farming. However, compliance and regulations and harder access to capital, will mean only the truly business-savvy will own or operate farms in the future. There will be less room for the unsophisticated farmer.

Social aspects will also become an important part of consumer-led demand. How well the farmer looks after their people and supports their local community, will have (by horizon 3) equal footing with animal welfare and a farmer's environmental approach. Organisations like Ngai Tahu are already adopting a 'quadruple bottom line' approach to intergenerational farming and land ownership.

> "Farming on average has returned 2 or 3%, but the top farmers who consistently return 7 to 9%, can more easily access good capital and grow.
>
> **Ross Verry, Syndex**

CONNECTED FARMERS, FARMS, ADVISORS AND CONSUMERS WILL DRIVE NEW BUSINESS MODELS AND VALUE FROM SUSTAINABLE, TRANSPARENT AND ETHICAL FARMING.

Connected farmers
- Rural broadband and high uptake of technology.

Connected farms
- Connected people on farm.
- Integrated and 'smart' farm machinery and plant.
- Precision and 'smart' farming techniques.

Connected advisors
- Safe storage of data.
- Real-time advice.
- Benchmark performance against peers.
- Delegate/manage regulation, financials and operations.
- Connected governance and Advisory Board structures.

Connected consumers
- Full traceability.
- Purchasing decisions made on aligned values.
- Buy direct from 'that' farm.

Technology

We are inspired by what is possible with technology, which is a significant shaper of the future of farming and growing. Included are advancements in market access. For example, planes that are able to fly direct to large cities with fresh produce, and the high adoption of technology by farmers when ease (e.g. rural broadband, drones, smart phones), compliance (e.g. overseer, GPS mapping) and financial return (e.g. precision irrigation and fertiliser applications), combine to make farmers fast adopters of new tools.

Robotics

Early robotics are more hybrid than pure robots. For example, GPS self-steering tractors.

However, over the next 3–5 years we expect to see more robotics appear to replace unavailable workers and higher wage pressures. Specifically, the horticulture industry is ripe for robots including planting, pollinating, harvesting and sorting of produce 24/7. The benefit of this, for example, is a reduction on heat stress as produce is harvested at night.

Off-farm processing and manufacturing will also change over the next 5–15 years as more manufacturing plants are replaced with robotics. This will have an impact on these rural communities, particularly as the minimum wage rises, making the payback period on technology shorter and more affordable.

CRISPR/GE

CRISPR is the advancement of Genetic Engineering, whereby genes can be edited to improve or remove certain traits like drought tolerance or disease susceptibility. The ethical questions here are:

> Is it better to have a plant that can feed more people and use less resource (win-win) or should New Zealand stay GE free and market its products as such?

There is some concern that CRISPR will be invasive and not possible to regulate—it is a natural plant with minor 'editing' not unlike breeding plants over a longer time frame.

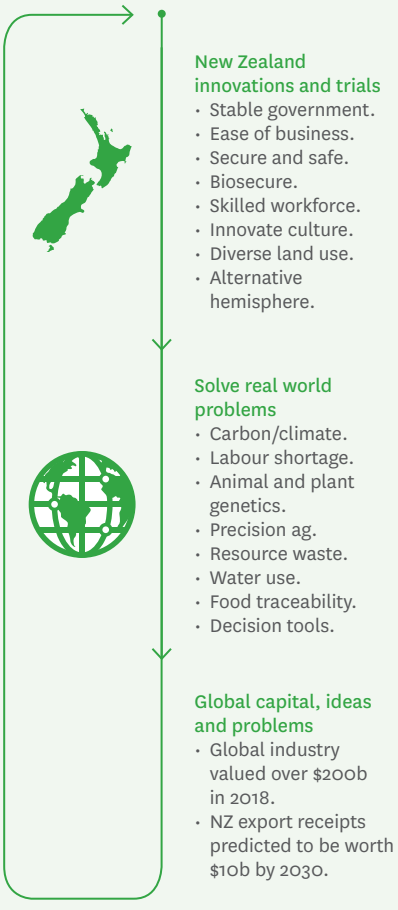
Vertical farming

We expect to see this appear in our bigger cities driven by supermarkets and restaurants who want a local food supply, as well as community groups who band together, possibly in apartment buildings.

New entrants in this area are targeting old warehouses and even shipping containers, which can grow products while being shipped and products are ready when they arrive in market.

Major advantages of vertical farming include food growing all-year-round, protection from harmful or not ideal weather including low temperatures, reduced waste loss during shipping, less water use and greatly increased production through huge growing areas on the same floor area.

NEW ZEALAND AGRI-TECH IS WELL PLACED TO GROW, BUT REQUIRES CAPITAL.



New Zealand innovations and trials
- Stable government.
- Ease of business.
- Secure and safe.
- Biosecure.
- Skilled workforce.
- Innovate culture.
- Diverse land use.
- Alternative hemisphere.

Solve real world problems
- Carbon/climate.
- Labour shortage.
- Animal and plant genetics.
- Precision ag.
- Resource waste.
- Water use.
- Food traceability.
- Decision tools.

Global capital, ideas and problems
- Global industry valued over $200b in 2018.
- NZ export receipts predicted to be worth $10b by 2030.

Hydro, wind and solar are all viable options that farmers and growers will readily adopt to become partially or wholly energy self-sufficient.

Some barriers are:

- currently limited to fast growing leafy green crops
- the cost of pollination and light technology.

Energy

We expect to see fast developments over the next 3–5 years of de-centralised power generation and storage. Recent cost modelling suggests that solar energy on New Zealand dairy farms will become economically viable with the next generation of technology and battery storage. Hydro, wind and solar are all viable options that farmers and growers will readily adopt to become partially or wholly energy self-sufficient.

Sustainable farming

The application of a number of smart tools, primarily under the heading Precision Ag, is delivering significant benefits. For example; less water, less nutrients, less nutrient run-off and better production. It is going to occur in the most sensitive places (compliance driven) and intensive farming (financial returns)—specifically Canterbury, dairy, horticulture and arable.

Management tools

Drones have quickly been adopted by farmers to check herds and flocks and will be deployed even further as technology advances. Pasture measuring is an example. Other management tools like Agrigate and FarmIQ are aggregating farm input and production data to assist with better 'remote' management of farm data. This will make compliance easier and operational decisions can be based on robust data. For example, progeny performance, multiple farm benchmarking and key performance tracking. The development of these aggregator sites will be important for transparency of farm systems (farm inputs and environmental outputs along with labour) to processors and end consumers.

Blockchain

While not necessarily a game changer, blockchain technology will assist in greater transparency of farm systems. Specifically, we can see the application of blockchain supporting traceability through trusted sources of farmers' and growers' systems. For example, fertiliser applied verified by a trusted (audited) Fertiliser company, animal welfare verified by a trusted (audited) Vet, freight handling, etc. This will allow greater transparency to the consumer who want to trust the source of their food. Blockchain will also assist in supporting asset registers, location of assets, changes in asset risk and efficient payment triggers when the produce moves through the supply chain. We are already seeing trials of this in the New Zealand market, with Greenlea Meats one of the processors using this technology.

Logistics

New Zealand is heavily reliant on efficient movement of produce. Traditional methods of creating long-life storage (freeze meat, dry milk powder, UHT dairy products, wine, etc.) have worked well to shift commodities and some premium products into markets. However, with advancements in technology of passenger airplanes being able to fly longer distances quickly, New Zealand is now much closer to major Asian cities. Fresh produce is already being flown every day from Auckland to Asian cities, including organic milk, fresh seafood and vegetables. Christchurch is the next opportunity to literally piggy back tourism growth for agribusiness.

FASTER PLANES, FLYING DIRECTLY TO BIG CITIES ALLOWS NEW MARKETS TO OPEN UP FOR FRESH PRODUCE.

Large number of flights direct to major cities each day
- Auckland airport already active.
- Christchurch airport next.

Fresh produce can get to markets quickly and attract premium

Farmers and growers switch to highest paying land use—vegetables, fruits, etc.
- Dairy farmers sell to alternative land users.
- Robotics will make planting and harvesting easier.

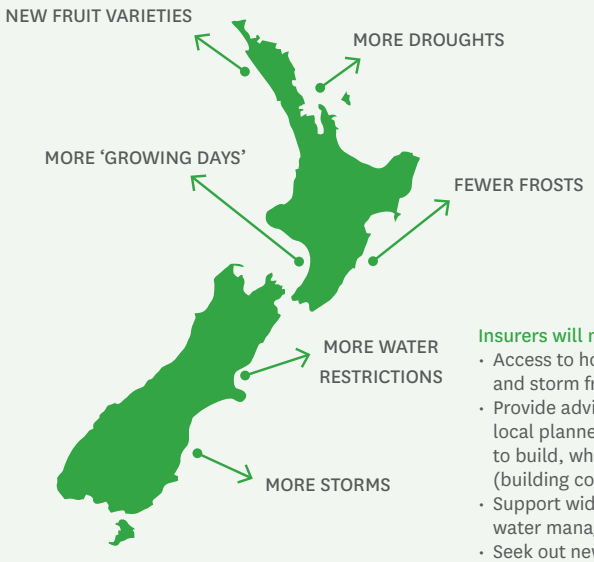
Capital flows to highest returning land use
- Growers will become a proportionately bigger population of farmers and growers.
- May be a different ethnic background to traditional pastoral farming.

> "Never been cheaper to start a business and never been more expensive to scale. Difficult to take good NZ agri and tech ideas to scale.
>
> **Peter Wren-Hilton, NZ Agri Tech**

CLIMATE CHANGE WILL BRING MORE EXTREMES TO FARMERS AND GROWERS. SKILLS IN NAVIGATING CHANGE AND GETTING GOOD ADVICE WILL BE NEEDED.

RISKS BY WEATHER WILL CHANGE

- More 'growing days ' and fewer frosts will encourage new varieties and push horticulture into 'unknown' areas.
- Low lying land is susceptible to storm surges.
- Farm practices will change i.e. water storage, herd homes, shelter, winter milking/summer dry.
- Biosecurity concerns increase as bugs survive without cold weather.
- More droughts and extreme flooding is likely, impacting on the confidence to invest.
- More erosion that's difficult to control, especially with traditional fencing.



Insurers will need to be front-footed

- Access to horticulture growth risks i.e. hail and storm frequency.
- Provide advice of risks to communities, local planners for future proofing i.e. where to build, what to build and how it is built (building code/consent).
- Support wider conversations on sustainable water management.
- Seek out new partnerships to offer insurance where traditional products don't work.

Ecological

The ecological and environmental areas are a key focus of political and legislative changes driven by consumer and voter demands for a more sustainable farming model. Climate change, specifically the likelihood of more severe droughts and storms, will impact growing conditions. Changing temperatures will increase the risk of new pests and diseases, which will present a number of challenges to farmers' resilience.

Climate change an on-going test

Farming and growing is always subject to variable weather conditions in New Zealand. With it, it's highly likely there will be more extremes. Farmers and Growers will need more mitigations and tools to withstand shocks. We see a future of more diverse farming operations that will help (tourism, horticulture) and a continuation of investment in irrigation schemes. Globally we will see continued volatility in commodity prices based on key supply markets' weather conditions. For example, NSW 2018 drought impact on lamb and beef prices.

Risk mitigation tool access

With the move to more diverse farming operations across the country, access to and advice around a range of risk mitigation tools, will become far more important. In areas where land use is more marginal (e.g. horticulture in less than ideal climatic areas), farmers and growers should expect appetite for risk transfer to be harder to source, making advice around how to mitigate losses from industry professionals top of mind.

Environmental conditions to improve

New signs that dairy farming effluent and waterway fencing compliance is starting to improve waterways (mainly e-coli). We see this continuing as dairy farming stops growing and investment in riparian and precision ag techniques take hold. We are optimistic, with signs pointing towards fresh water improvements and greater knowledge amongst farmers on what good practice looks like.

Resource management

A stronger focus by consumers on reducing their environmental footprint will support a healthy ecological system. Farmers and growers will show their sustainable practices through increases in QEII covenants, wetland protection, soil health improvement, carbon capture, forestry management and fresh water protection.

Fresh water management

A more balanced view of fresh water management will develop as the benefits of water storage (dams, reservoirs) go beyond the current cynical definition of: water storage = dairying = bad water. We see this moving to a definition of: improving eco-systems by sustaining water flows of rivers, water access for urban populations during dry summers, providing renewable energy sources, tourism, fishing and recreational uses.

Pest and disease

With increasing warmer conditions, we will see more tropical pests and diseases in New Zealand as conditions favour their establishment i.e. no frost winters. This will have major impacts on key horticulture industries and create major shocks to viability. For example, disease to kiwifruit or pests to vegetables.

Media

While not a major driver of change, the media will influence consumer preferences and understanding of farming. Perceptions of New Zealand farming as a wealthy and arrogant sector, requires a leadership model to advance a collaborative approach to better connect with consumers through meeting their preferences and demonstrating more humility and success in value creation for all New Zealanders. However, a PR exercise without humility and success does not work. Particularly in New Zealand culture where 'tall poppy syndrome' is still rife even within the farming sector. Here are some recent examples to learn from.

- Fonterra's significant spend to defend itself undermined by poor results and an unsettled supplier (ownership) base.
- Facebook and its silence on data breaches followed by denial they had done anything wrong. When the truth did come out their reputation and brand took a hit. Sitting silent on issues and doing nothing does not work as the truth always comes out.

Organisations that have a solid brand with consistent and strong results, will have an opportunity to speak with a trusted voice that is credible, reliable, respectful and bridges the urban/rural dynamic with ease. Examples include FMG, Farmlands, Gallaghers, Synlait, NZ Merino, Ngai Tahu and more recently Pāmu. Pāmu's August 2018 publicity partnership with Forest and Bird is one recent example.

The media has, and will continue to have, a focus on the worst 5% of farmers that run against society's values (see Ethical Consumer section) by resource waste, pollution, animal cruelty, employment issues and poor food quality standards. These 5% will create stories for media and create a drag for the industry. However, the good farmers will have more opportunity to be transparent with their farm systems. They will also demonstrate that best practice is being applied directly to consumers and create their own brands. Stronger compliance measures will minimise but not eliminate this dynamic.

Political

While not a major driver of change, the New Zealand political system will support a stronger focus on ethics driven by consumer preferences. New Zealand has a stable and efficient political sector that generates conservative policies. New Zealand government generally runs a low debt and fiscal surplus model that allows it to support the economy during major shocks.

The 2017 election of a 'left of centre' government has expedited a stronger compliance, social and 'green' set of policies. A number of these will generate new legislation frameworks for farmers and growers to navigate (see Legal section). The New Zealand government also wishes to see a stronger vision for 'primary industries' developed by the sector. It would support a stronger collaborative approach to a shared vision and set of policies, which provide leadership opportunities.

Green policies and regional policies set by the current government will drive a preference for forestry planting, with $500 million set aside to plant 1 billion trees.

This, coupled with a review of Emissions Trading Scheme and Carbon Zero policies, will have a powering impact on forestry growth.

Other areas that will develop and impact on farmers and growers are political debates on water rights and use of genetic engineering. However, we see relatively minor adjustments to these in the holistic sense.

For example, no significant change to laws governing these areas due to the political appetite being low before 2025.

> "We're strengthening our support for planting over the next 3–4 years in areas where there are currently limited commercial drivers for investment and where wider social, environmental or regional development benefits can be achieved.
>
> **Hon Shane Jones, July 2018**

AS FARMERS AND GROWERS DIVERSIFY AND ARE HELD ACCOUNTABLE FOR ENVIRONMENTAL IMPACTS, THEIR LIABILITY RISKS WILL INCREASE.

100% PURE

To protect key industries and Kiwi values, farmers and growers will be held liable for negative impacts on the New Zealand brand and environment

- Includes providing safe working conditions, animal welfare, nutrient management, environmental stewardship, biosecurity and employment management.

Wider liability products and future-proofed advice will be needed to manage a more complex farming and growing operating environment

As farmers and growers diversify they will encounter more liability risks to manage

- Product recall.
- Tourism liability.
- Biosecurity.
- Cyber security/digital assets.
- Agri-tech intellectual property.
- Environmental liability.
- Contractual obligations.

Legal

The legislative future will include a stronger set of compliance requirements and regulations imposed on farming practices, mainly related to ecological stewardship. A set of frameworks are beginning to be implemented in highly sensitive ecological areas, which will drive alternative land use and adoption of new technologies to mitigate impacts. For example, land that is better suited to horticulture than dairy is likely to drive land use change. Tighter regulations and oversight are also set to occur over biosecurity (e.g. NAIT, import health standards), employment law and animal welfare. Tighter regulations on overseas investment are already 'biting' and impacting on land values from lower demand.

Specific legislative areas that will have high impact on the future of farming and growing include:

- **Dairy Industry legislation (DIRA) and raw milk regulations** where Fonterra will have more flexibility to manage who it accepts milk supply from and who it has to supply with 'raw' milk. This will help Fonterra invest in value-add assets if it can manage the volume of milk it has to take and send to competitors. While the 2019 review has addressed some concerns, future reviews may be able to speed up Fonterra's ability to manage its volumes and who is able to supply. Government support for preferential pricing based on environmental impacts (including greenhouse gas emissions) will challenge the cooperative to find incentives that can be directed back to the farm level.
- **Carbon Zero** legislation, with it being likely that ETS upper limits for carbon credits are removed and stronger accounting for carbon emitters. Of particular interest will be the treatment of methane—a short lifecycle gas. Some academics (Professor David Frame, Director Climate Change and Research, Victoria University) suggest that it has only 10% of the impact that carbon dioxide does. The current Zero Carbon Bill treatment of these gases being split, is fundamentally what farmers need. However, proposed details of the reductions and mitigation or off-set options will place extreme pressure on farmers until new technology is available. The Government, science community and industry need to work collaboratively on this to ensure sustainable profitability of livestock farming.
- **Genetic engineering** and the use of CRISPR technology, is unlikely to change within the next 10 years. We believe there is little political appetite for a change in New Zealand laws to allow GE technology to be applied in New Zealand. The 'political' appetite includes industry leaders who see benefits in New Zealand products being GE free. This is a collective industry decision, which defaults to no change without whole-of-industry support, and we do not see the appetite for this collective decision. We do however, see the need for a robust debate to begin with industry leaders leaving egos and personal gain behind, to collaborate and form a joint vision in this space for New Zealand.
- **Water rights** will become an issue for Iwi and raise some concerns over existing property rights. However, at a holistic level where water quality improves and New Zealand continues to have good natural flows of water and irrigation schemes, then the overall impact will be negligible for the whole system (see Ethics section).

Ethics

Ethics is becoming a major driver of change. We have entered a period of consumer-driven organisations. Consumers are more demanding and shareholders of organisations are taking the 'power' shift more seriously, which is advancing ethical demands on farming and growing.

Recent examples of this shift include the Australian Banking Royal Commission (in a corporate sense), Pāmu partnership with Forest and Bird and Synlait's Lead With Pride programme extended to include more consumer and environmentally friendly incentives.

The root of all significant change in the political, legal and economic areas is borne by a (minority) consumer demanding sustainable practices from organisations that are transparent and do good. Minority and ethically-driven consumers lift the bar higher and (overtime) it is easier to impose these 'bars' on all farmers and growers. An example of this is the phasing out of caged-egg production, even though some consumers would prefer a low cost alternative.

New Zealand farmers and growers will position themselves well by embracing a 'natural not factory' farming model that is fully transparent. Noting that the global definition of conventional farming is Concentrated Animal Feeding Operations (CAFOs) that are very different to New Zealand's view of farming.

A mind-set shift is occurring whereby all farmers and growers buy into (or are forced by compliance) a sustainable model that attracts premium status for their products. New Zealand farming and growing has great potential to lead the world in meeting high consumer-driven ethical standards. The likes of Fonterra have struggled and in some cases restrained through legislation to keep ahead of the shift in consumer demands, by not sending signals to farmers early enough through appropriate incentives and regulations. This will be a barrier for all organisations to support farmers and growers, but not insurmountable.

Key pressure areas of change are detailed below.

- **Water:** Water access and quality are pivotal issues lead by a complex stakeholder group including Māori, existing irrigation users, dry land farmers, green advocacy groups and urban population. That said, it is clear that the future will see more land irrigated as existing schemes find efficient ways to use and store water and new smaller schemes come on line to support industry and environments. In particular, water access for more diverse farming and growing (other than just dairy) will be assisted by precision agriculture technology that helps reduce waste and nutrient run-off. Irrigation is currently seen as bad for the environment. That will change as farmers and growers reduce environmental degradation through better technology and appropriate land use for the environment.
- **Climate:** The ethical consumer wants to see a fully transparent business model that not only makes safe, quality food, but also one that is environmentally sustainable. A recent Unilever study found that one-third of consumers are already buying on this basis. The reduction of greenhouse gases are already important choices for consumers, with a number of large consumer brands making bold moves towards carbon zero production. For example, Unilever is moving to 'carbon positive' by 2030 in all of its operations by building solar, hydro and biomass energy sources.

THE ETHICAL CONSUMER IS DRIVING POLITICS, LAWS AND CLEANER FARMING DEMAND.

Consumers demand 'clean' farming or seek alternatives

Local and Central Government drive more sustainable resource practices

'Connected' farmers and farms will provide transparency of clean farming practices

Tech enables best use of resources (Precision Ag)

- New Zealand farmers' knowledge will grow, to be world class in resource management practices.

Farms will diversify to best and sustainable use of resources

Consumers reward 'clean' food production with loyalty and higher expectations

- Quadruple bottom line.
- Full traceability.
- Loyalty.

> Society doesn't evolve by consensus, voting, majority, committees, verbose meetings, academic conferences, tea and cucumber sandwiches, or polling; only a few people suffice to disproportionately move the needle.
>
> **Nassim Taleb (author of Black Swan, Anti-fragile, Skin in the Game)**

THE ETHICAL FARMER WILL APPLY 'NATURAL' FARMING PRACTICES AND EXCEL IN GETTING PREMIUM RETURNS.



High value consumers are looking for 'natural' farming practices that align with their values
- Premium customers.
- Increasing expectation.
- Will support ethical business.
- Not overly interested in scientific conversations—seeking values-based discussions.
- Food security, quality and safety underpins confidence.

Farmers will feel pressure to change practices at the same time as
- Bobby calves.
- Animal welfare.
- Pig and poultry 'factory' farming.
- Inputs – PKE, Spray, GE.
- Water use and quality.
- Carbon, methane, phosphorous and nitrate outputs.
- Nutrient management.
- Employment conditions.
- Technology used to improve practices (rather than straight productivity gains).

Farmers will improve operations to increase value and remove risks to value
- Antibiotic-free 2030.
- Pasture based, free grazing, virtual fencing.
- Herd homes + shelter.
- Effluent storage and management.
- Spray free.
- 20% methane reduction.
- Energy efficient rating.
- Strong diverse employer.
- Water quality.

PKE, antiboitics, packaging, chemicals, fertilisers, water use and carbon footprints are all major concerns for ethical consumers.

New Zealand is well placed to respond to this, with 85% of electricity being renewable and emerging technology for processing and collection of farm produce such as electric fired boilers (v coal) and fuel efficient trucks. An efficient and transparent ETS will assist in the whole supply chain, meeting New Zealand Carbon Zero goals and will achieve consumer support.

- **Animal welfare:** Animal welfare is emerging as the next big area for farmers and growers to stay ahead of. Cameras in cowsheds, bobby calves, factory (pig and poultry) farming, shade, shelter, weather exposure and mud have all been recent topics addressed by animal welfare advocates that consumers have connected with (through media coverage). Farmers will get ahead of this by adopting more transparent animal welfare practices. For example, many dairy farmers have already phased out bobby calves. However, we do not believe the industry is moving fast enough to move ahead of these concerns, with barriers to change including changing farm systems and enough capital to address them. Building more shelter and shade on exposed farms and better use of winter crops versus creating 'mud up to the udders', will soon need to be addressed.
- **Sustainable inputs:** PKE, antiboitics, packaging, chemicals, fertilisers, water use and carbon footprints are all major concerns for ethical consumers. Many farmers and growers are developing their farm systems to better address these including Pāmu removing PKE from its farm systems and Yealands' Wine Carbon Zero systems. Farmers and growers will adopt more sustainable input systems as technology and financial incentives arrive. In particular, renewable energy on farm from solar, wind and hydro; electric vehicles (John Deere new 130Hp fully electric tractors); Precision Ag with GPS mapping to soil and incentives like Synlait's Lead With Pride or open market demand like organic pricing. Rural retailers like Farmlands and Ballance will be required to—and are already moving to—support traceability of inputs for full transparency of system inputs.
- **Employment:** Future of work will include more robots and fewer workers in factories and on farm (see Social section). A key focus area for consumers will be on-farm workers' conditions including on-farm safety and minimum/fair wages. The generic requirements of meeting standards in each country may cause competitive advantages and disadvantages. For example, a 'minimum wage' in New Zealand may be $17.70 per hour versus the equivalent in Brazil being $2.32.

"

As a sector we need to focus more on natural attributes of our food and the qualities they bring. New Zealand already grows what the ethical consumer wants.

Tony Egan, Greenlea Meats

5

Impact on farmers and timing

Farmers and growers are not unlike most people. They look to achieve long-term goals, achieve mastery of specific tasks and retain choice and control over what they do. This is referenced by Dan Pink author of *Drive. The surprising truth about what motivates us* (2009), as Purpose, Mastery and Autonomy.

FMG 2011 research identified similar motivations called *Farmers' Code to Happiness* as Wealth (Purpose), Achievement (Mastery) and Choice (Autonomy). We have taken the liberty of blending these two pieces of work to guide our thinking on material impacts (both positive and negative) of the changes discussed to farmers' happiness.

Purpose and Wealth

Farmers and growers want to create a positive legacy by creating wealth, protecting the environment and passing a better future on to the next generation. Their purpose and happiness is challenged by levels of debt, capital land value appreciation slowing, volatile returns and environmental restrictions on farming.

Mastery and Achievement

Over the next 10 years we see farmers and growers having a general mind-shift of mastery and achievement from maximising production to also maximising value. Adoption of new technology, more sustainable farm systems and animal welfare standards, are all areas to show greater mastery. Farmers will adopt new tools quickly when they hit the sweet spot of being easy, compliance driven and cashflow positive. NAIT, with real-time animal tracking connected to consumers' traceability demands, is an obvious area ripe for farmers to adopt.

Autonomy and Choice

A key impact on farmers' happiness will be from more compliance. Some farmers won't want to be involved in this as they will see it as a real threat to their lifestyle. However, more business focused farmers will leverage compliance to maximise their returns. For example, options for Synlait farmers to join Lead with Pride and earn an extra 20 cents per KgMS of production. Over time, the compliance bar will be lifted with only the committed surviving and those who are not will struggle and likely exit. There will also be more choice through diversity of operations, opportunities to connect directly and sell to consumers, being able to leverage technology suited to their needs and developing deeper relationships with advisors and retailers who will have more information to share and support.

To help us understand when this may happen, we have made an assessment of what is likely to emerge versus widespread adoption. We have taken a conservative view of the short-term impacts and a more aggressive view of 10-year+ horizons. This is based on a historical view of change, where in the short term very little looks to have changed, but over a 10-year period, the market has transformed.

Examples include the wool industry's slow decline, dairy's sizeable growth, Manuka honey coming from 'nowhere', Tesla formed in 2003 v growth from 2010, and the rise of ethics driving policy and expectations.

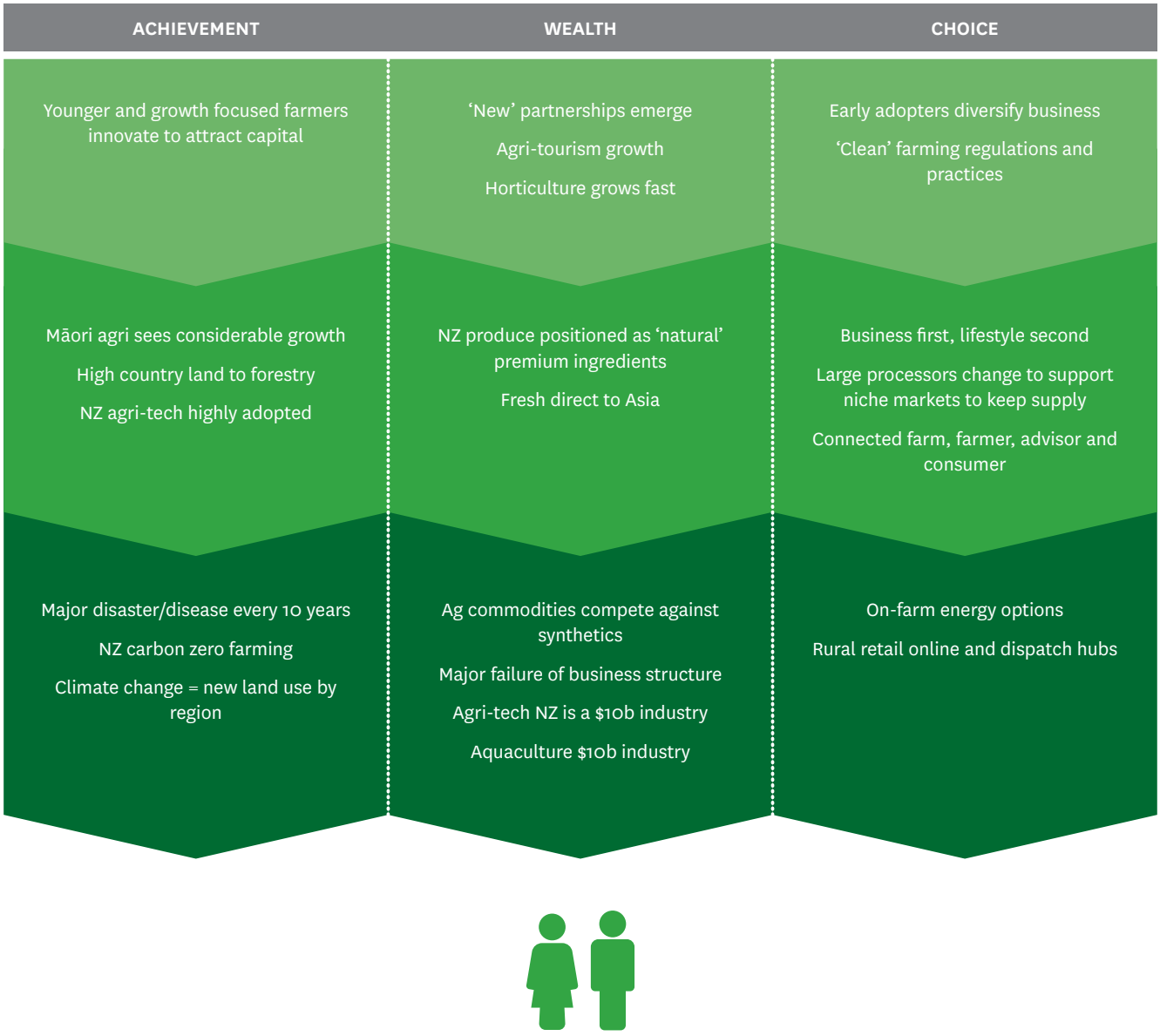
The unknowns are shocks to the systems that speed change, specifically disease and financial crisis. There is also opportunities for new business models to quickly by-pass current players' rules, such as Airbnb or our crude McDonalds cull cow example earlier.

Three horizons view

Our assessment of the key impact areas is informed by a number of core beliefs.

1. Adoption of **tech follows** breakthrough in **ease** of use, higher **income** and **compliance** pressure.
2. Only the **adaptive businesses will** survive. Cannot rely solely on capital gains to be successful.
3. Industry leadership is competitive not collaborative. Tension for all New Zealand to succeed.
4. **NZ agri/regions** are **at risk** to **'one-off events**. High debt, commodity prices, biosecurity breach and isolation.
5. **Ethics of minority drive change.** For example, water use, animal welfare and carbon. Old ways get left behind.
6. NZ agri is light in capital, but high in skills and ideas.

FARMERS' CODE TO HAPPINESS: KEY IMPACT AREAS



Area	Confidence	Horizon	Notes
Highly regulated farming and growing	High	H1	Food quality, environment, audits, nutrient use, carbon use. Set to continue throughout H3.
Pastoral farming plateaus	High	H1	Alternative land use (horticulture and forestry) with better returns and environmental regulations.
Non-pastoral growth	High	H1	Horticulture, aquaculture, forestry and agri-tourism grows with higher returns and regulation support.
Connected farms and consumers	High	H2	Is already emerging and technology will fast-track more farmers being visible to consumers.
Ethics-driven change	High	H2	Bobby calves, environment, climate change, non-GE (CRISPR) use, full transparency (cameras on farm).
Clean farming demand	High	H2	New Zealand positioned well to leverage the opportunity. For example, Precision Ag, traceability, tech advancements, natural farming. Offsets commodity risks.
Impacting legislation	High	H2	Carbon zero, capital gains tax, biosecurity, DIRA. Some legislation to occur in H1 too.
Premium ingredient position	Med	H3	Will take a New Zealand-wide agri leadership approach to agree the 'pre-competitive' space and alignment.
Renewable energy	Med	H3	Farms self-sustainability. Hydro, wind, solar, storage and electric vehicles.
Large farmer growth	Med	H3	Consolidation of farming business to continue (trend of last 50+ years). Māori agribusiness sees significant growth.
Major disaster or failure	Med	H3	Every 10 years an industry failure or natural disaster occurs.

6

Risks and uncertainty

Key barriers to a positive future do exist, these are highlighted below.

Inability to move away from commodity business models

A move away from commodity trading will be difficult. For example, Fonterra is 'wired' to commodity trading; it is still seeking volume and is seeking efficiency over long-term investments.

Up until today, co-ops have seen every farmer as the same. For example, 'a dairy farmer is a dairy farmer' and must be paid the same price. That's not sending the right signals of what the (ethical) consumer wants. The co-op of the future will need to evolve from a guarantee to buy farmers' products at commodity levels, to also allow farmers to create value with incentives to meet consumers' needs. They will also need to introduce a toll process for farmer branded products. That is a lot to ask of existing leaders to communicate and do.

Agri-leaders default to competitive positions and drop collaboration

Collaborating in the pre-competitive industry issues space seems the most fertile. However, these are currently considered by many as areas to compete on and opportunities to drive individual value. We were inspired by Nike's leadership to whole-of-industry approach to important issues like the quest for waterless dying techniques and sharing their IP on their deep understanding of how different materials impact the environment. Also locally, by NZ Merino's approach to connecting famers directly to consumers, providing clear consumer signals that allow farmers to benefit in providing a better product.

Agri-leaders don't make key strategic choices

Agri-leaders need to send clear signals to farmers that we are either a commodity provider and define if PKE, GE and factory farming are acceptable. Or, we are a highly valued natural farming system that sets high standards to drive value. A choice needs to be made to make the most of our produce (either as a lower cost commodity or a higher valued ingredient) and clearly communicated. It's easy not to make a decision as it's hard to pick just one, but it's probably the most important decision of our time.

Significant trade barriers

New Zealand is a highly open market and subject to major shifts in global trade. Currently, China and the USA 'trade wars', EU and UK Brexit, have uncertainties that could significantly impact against New Zealand's trade interests—either directly or indirectly

Economic stall

Risk that national economic growth stalls as the centre-left-government introduces major changes. For example; carbon tax, large compliance, targeting lower intensity farming (aka lower production) and irrigation schemes side-lined (and drought appears).

Major disease

For example, a Foot and Mouth outbreak, which would quickly shut down product sales and drastically impact tourism.

Attitude and aptitude to change

What has worked well for the past 30 years won't work for the next period. We've seen a big growth by increasing productivity, but now the environment is at capacity. Commodities are at risk of substitution. Debt funding and land appreciation is scarce and only available to those with acumen. But the leaders we have on-farm and around the board tables today, have not experienced this and have not created a clear vision for the future of farming and growing. They need to—on-farm and in the board room.

7

Author details

Pete Frizzell

Pete is a passionate supporter of the Mutual model and how FMG is striving to help grow strong and prosperous rural communities. The Future of Farming and Growing Report is important to Pete—alongside a companion report on the Future of Insurance. Both contribute to understanding the challenges and opportunities that are coming and support decision making to ensure on-going sustainability—both for FMG and rural New Zealand.

Pete joined FMG in 2010 and currently has responsibility for Client Propositions and Communications. Previously, Pete oversaw the Marketing, Projects and Improvement teams at FMG and was Product Owner for the implementation of the Guidewire Insurance Suite. Prior to joining FMG, Pete completed a PhD in Operations Research at Massey University and has worked in a number of technology-based analysis, management and consulting roles across various industries in New Zealand and the United Kingdom. Pete can be contacted by email at pete.frizzell@fmg.co.nz

Angela Hogg

For the past decade, Angela has supported farmers and growers across New Zealand to understand their risk inside and outside the farm gate. Joining agriculture by choice with Federated Farmers, Angela held a range of provincial and national roles, including Commercial Manager where she developed strategies, initiatives and projects to ensure the organisation's future commercial success.

Since joining FMG as the Rural Segment Manager in 2017, Angela has continued to have an involvement in helping farmers and growers understand risk and works with the team to provide advice, mitigation and transfer options, largely in areas of emerging concern. With a particular interest in biosecurity and disaster management, Angela is pleased to work alongside FMG's Strategic Alliance partners—Federated Farmers and Farmlands—on the Major Rural Events Programme, which she co-created. This programme helps farmers and growers prepare for and recover from large-scale events by coordinating information and resources across the primary industry and government.

Connecting ideas and people to allow farmers and growers the space and resources they need to do what they love most, best sums up why Angela has continued to choose agriculture as a career and lifestyle. Angela can be contacted on 027 585 2513 or angela.hogg@fmg.co.nz

Jason Rolfe

Jason is FMG's Head of Client Strategy and Advice Services. He is responsible for providing dedicated leadership to the development, integration and management of FMG's client strategy, client insights and advice offering, across both general and personal insurance.

Growing up on a Taranaki dairy farm, Jason went on to attend Lincoln University to study a Bachelor of Agriculture majoring in Farm Management and Rural Valuation. He also has experience on Sheep and Beef farms, as well as previously running his own beef fattening block.

Jason is a 2015 Kellogg alumni, where he researched how to get more school leavers studying agriculture/horticulture. He was also privileged enough to complete a 2017 Nuffield scholarship investigating how we could move up the value chain through ecommerce.

The project was important for Jason as the success of New Zealand farmers and growers is something he is deeply passionate about. Following on from his 2017 Nuffield scholarship looking at global issues affecting agribusinesses and how they were managing headwinds and creating successful business models, the project gave him the opportunity to investigate how well prepared the New Zealand agri-food sector is. Jason can be contacted on 027 574 1741 or jason.rolfe@fmg.co.nz

Mike Lange

Mike Lange is an experienced agribusiness leader, with a background in leading strategy, innovation and financial product developments for large global and national agribusiness brands.

Mike is passionate about creating stronger relationships between farmers and agribusinesses—particularly businesses that have a clear purpose and strategies to succeed through supporting and growing the communities they work in.

Mike has recently been appointed Chief Executive for VetNZ, a growing veterinarian business with clinics in Southland, Otago, Westland and the Waikato and is focused on ensuring that being rural and far away doesn't compromise the quality of veterinary services to its clients.

8

Acknowledgements

The authors of this report are greatly thankful for the time, energy, and support of the following people and organisations who provided the insights and expertise needed to conduct this research. Without them, this work could not have been done.

Michael Ahie, FMG Board Member, Chancellor of Massey University and Chairman of Plant & Food Research

Steve Allen, FMG Board Member and Tatua Dairy Chairman

Danny Chan, FMG Board Member and Director of Flowerzone International

Nick Clark, Federated Farmers

Melissa Clarke-Reynolds, FutureCentre.nz

Tony Cleland, FMG Board Chairman and Director of FarmRight

Geoff Copstick, FMG Board Member and Director of Gallagher

Sarah Crofoot and Anders Crofoot, Castlepoint Station

Kate Dekker, PwC

Tony Egan, Greenlea Meats

Ben Geisen, Ngai Tahu Farming

Hayley Gourley, Rabobank New Zealand

Mat Hocken, Dairy farmer and Nuffield Scholar

Andrew Horsbrough, Farmlands Cooperative Society

Rebecca Hyde, Ravensdown

Lain Jagger, Chair of the Primary Sector Council

Marise James, former FMG Board Member and Director of Staples Rodway

Dave Kidd, Beef and Dairy farmer

Cindy Mitchener, FMG Board Member and Owner of Marsden Inch

Anton Nicholls, Macfarlane Rural Business

Ryan O'Sullivan, Dairy farmer and Nuffield Scholar

Marv Pangborn, Dairy farmer and Lincoln University

Mike Petersen, New Zealand Special Trade Envoy

Hamish Reid, Synlait Milk

Paul Shapiro, Clean Meats Author

Murray Taggart, FMG Board Member, Alliance Group Chairman and Director of Ballance Agri-Nutrients

Ross Verry, Syndex

Dave Williams, Synlait Milk

Scott Wishart, New Zealand Agri Brokers

Peter Wren-Hilton, AgriTech NZ

The team at FMG

We're easy to contact

Call us on 0800 366 466

Email us at contact@fmg.co.nz

Visit our website www.fmg.co.nz

FMG
Advice & Insurance