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REGIONAL GROWTH OPPORTUNITIES

In Employment in the Northland Food & Beverage Industry

FINAL REPORT; v1.01; August 2019

REGIONAL GROWTH OPPORTUNITIES

in Employment in the Northland Food & Beverage Industry

Part of the New Zealand Food and Beverage Information Project

FINAL REPORT

August 2019

V1.01

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GENERAL

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INTRODUCTION

CONTEXT

New Zealand has a clear comparative advantage in food and beverages (and the wider agricultural supply chains). Food and beverage exports are $34b (2017) and account for 46% of New Zealand's total exports of goods and services.

New Zealand has a long history in producing and exporting food & beverages. New Zealand has a limited number of large export categories, namely dairy, beef, lamb, seafood, apples and more recently kiwifruit. Wine has also emerged in the last 20 years to become a billion dollar export. Growth has come from more volume, but more importantly, more value.

Going forward, New Zealand's food and beverage industries must focus on increasing the value of products and services. Nearly all industry representatives agree that New Zealand's future is in producing non-commodity products across all food and beverage groups.

OBJECTIVE

Government and industry acknowledge that increasing value and employment opportunities needs new capital and new capabilities to grow and develop. Development is not evenly distributed around New Zealand. Where should New Zealand put it's efforts? Which sectors? Which regions? Past research, as part of the Food and Beverage Information Project – Emerging Growth Opportunities, identified a range of growing and emerging export sectors. This current research, *Regional Growth Opportunities in Employment in Northland's Food and Beverage Industry,* identifies and measures industry performance and opportunities across the region.

The objective of this research is to provide a foundation of food and beverage data and knowledge and to identify opportunities for employment and growth in Northland. It is designed to deliver to Northland's key stakeholders the facts and insight needed to support planning.

SCOPE

The focus of this research is on increasing employment and identifying potential employment growth opportunities in the food and beverage manufacturing and processing sectors in Northland. Processing jobs (in particular high value jobs) are a key driver of economic development in the food and beverage sector. To achieve this requires investment across the supply chain.

OUT OF SCOPE

This report is not a traditional government strategy. It does not include detailed lists of tasks and responsibilities. Instead, it provides a starting point for national and regional government decision-making.

AUDIENCE

The report is designed to be used by four audiences: (1) Government (across all roles and responsibilities), (2) Industry participants (firms & individuals), (3) Investors (domestic or international) and (4) Scientific researchers (academic, government & corporate).

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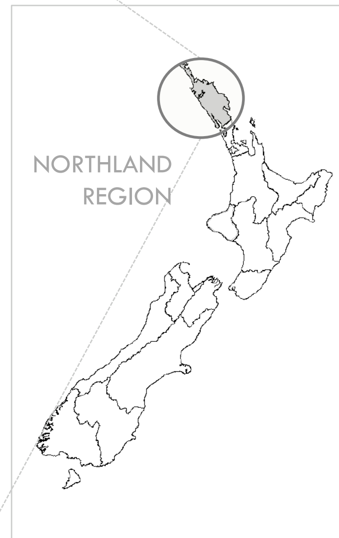
Northland is the subtropical, northern most region in New Zealand



What problem are you trying to solve for Northland?

Traditional mainstays of the regional food and beverage industry are not growing…

- *Dairy*
- *Meat*
- *Seafood*
- *Citrus*

… and the region is not creating net new jobs…

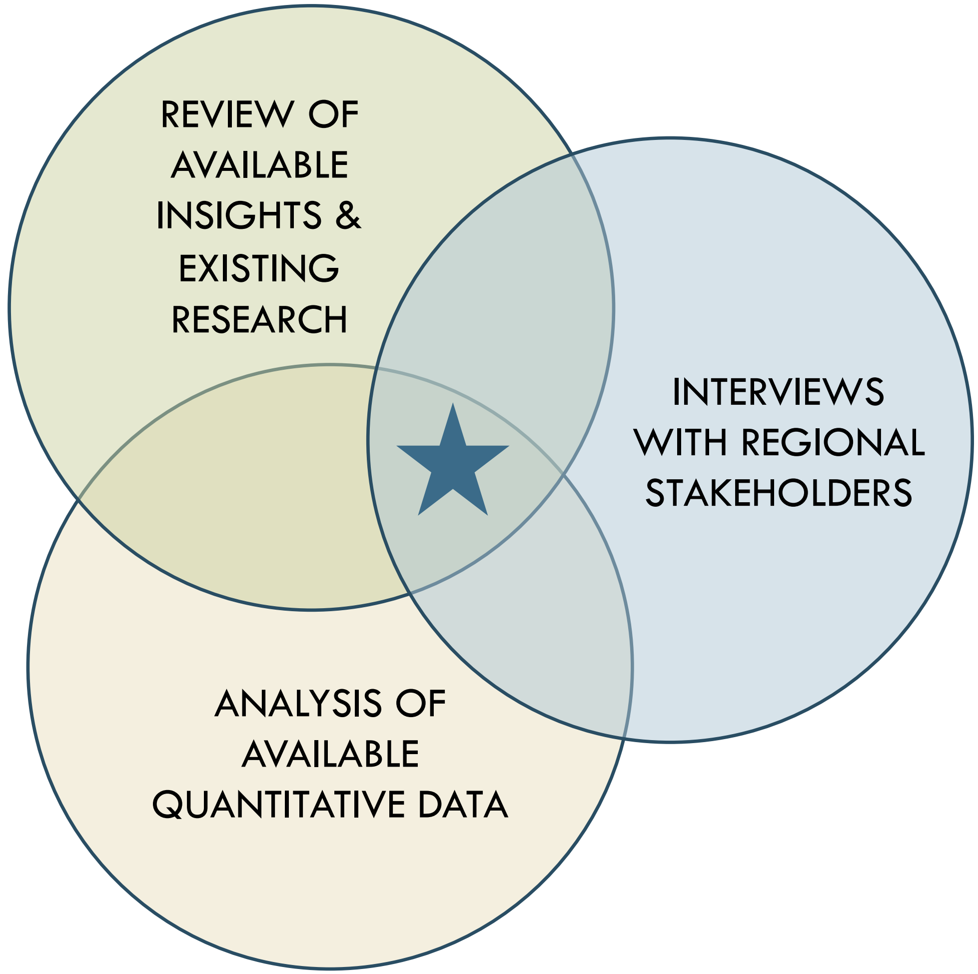
- *Net employment flat*
- *Net on-farm units down*
- *Net processing units flat*

… where should the region focus for growth?

- *Numerous opportunities exist, fruit and processed foods stand out*
- *Wide range of potential opportunities being discussed or promoted*

Source: Coriolis analysis

Where did you look for the answer?



Source: Coriolis analysis

In summary, how can the Northland food and beverage industry grow employment?

Northland is the northern most region of New Zealand. Northland's unique subtropical climate provides ideal growing conditions for a variety of plants and animals not necessarily grown elsewhere in the country. This combination of rainfall, mild temperatures, and high sunshine hours makes Northland an ideal agribusiness location. As a result, significant investment is being made into sectors that take advantage of these traits (e.g. kiwifruit, avocado, berries).

There are over 4,000 F&B operational units in Northland, primarily on-farm. The region directly employs almost 10,000 people in the food and beverage industry, both on-farm and in processing. This number rises in the fruit picking and packing season, as seasonal workers are often required from out of the region, but their numbers are not included in this total.*

Both the number of food and beverage units (in particular farm units) and employment have declined over the last 20 years. Meat and dairy – the two major employers in the region – are both in an overall long term decline and employing less people. However in the last 5 years, total post farmgate processing employment has grown 8% year on year. This recent growth was driven by processed foods, F&V, wine and the recovery of the seafood sector.

When post farm-gate jobs are compared across regions, it is clear that Northland creates less from it's abundant raw materials than other regions. As an example, Northland creates 1.5 processing jobs for every 1,000 tonnes of raw materials, compare this to Hawkes Bay which creates 7 jobs or Auckland which creates 30.5 jobs per 1,000 tonnes.

Northland faces challenges. Interviewees highlighted the key challenges to growth in the F&B sector as scale, value added processing and expertise, logistics (road, rail and port) and water storage. Representatives suggest a collaborative approach to resources, plus investment in a facility with shared equipment and resources. They also recommend that studies on water storage and essential infrastructure continue.

Despite these challenges, Northland can create significant growth in the long term. The potential employment size-of-the-prize for Northland is estimated to be between 4,500 and 10,500 new jobs. These jobs are across three key growth horizons; the core sectors, emerging growth sectors and all new sectors.

**Due to a lack of solid data*

Employment growth, while limited, can occur across the Horizon 1 Food and Beverage categories

HORIZON 1

DAIRY – Dairy in Northland is consolidating. Both land area in dairy and the number of dairy units are in decline, while average herd size shows long term growth. On-farm employment is falling. Equally dairy processing in Northland is not creating new jobs or units. Adding value to dairy in the region and producing more complex products, would create additional jobs in the region.

BEEF AND SHEEP – The red meat industry in Northland is mature and consolidating. Northland has both falling animal numbers and falling farm numbers. It is unlikely that the red sector will create significant new jobs going forward. Northland needs to focus on maintaining existing red meat jobs and adding additional value in the region.

SEAFOOD – The total number of seafood units in Northland has stabilised over the last 6 years. Both aquaculture and seafood processing employment have shown growth in the same period. Northland has the second largest coastline (by region) with many bays and inlets, but achieves only 6% of national seafood production. Opportunities exist to increase seafood production in Northland, in particular in aquaculture.

CITRUS – The citrus market is changing, with more demand for convenience and flavour. Citrus was once a "core" fruit for Northland, however the industry is shrinking - with fewer tonnes and hectares - and shedding jobs. Opportunities exist for early season fruit.

KIWIFRUIT – Kiwifruit in Northland has undergone recent growth and investment. SunGold is surging ahead as growers and packers take advantage of the cheaper land, high sunshine hours, early season and new port facilities. The kiwifruit industry has substantial growth goals and Northland can significantly increase employment as a result.

Significant employment opportunities exist in Horizon 2 - emerging and growth categories

HORIZON 2

HONEY – Further opportunities exist in the Northland honey industry, in particular with mānuka honey. Honey is a classic extensible platform with opportunities to use honey as a key ingredient in food and beverage products. Northland mānuka honey has naturally high activity levels making it attractive for more complex nutraceuticals, cosmetics and cosmeceuticals. The local industry is looking for additional R&D support.

AVOCADOS – Avocados are on-trend and growing globally. New Zealand is showing success in avocados. Northland, in particular, is investing in new orchards. Growing production and industry consolidation has led to fewer larger growers. Employment (on-farm and in the packhouse) will increase in the region as new trees begin to mature. Avocados are an extensible platform with numerous opportunities for added-value products.

WINE – Wine is an industry where New Zealand has shown global success. However after a period of growth, the Northland wine sector appears to have stalled. Northland needs to identify its own distinct wine where it can win. Opportunities exist for wineries to reinvigourate their cellar door experience and to provide a robust wine trail through Northland.

EGGS – Eggs are back in fashion and on-trend. Northland has a growing sector creating new units and jobs. Opportunities exist to develop this sector further.

BERRIES – Berries are growing globally as a healthy superfood. Northland is increasing berry production, area and employment off a small base. New investment in the industry creates opportunities to develop the industry and employment further.

UNDER COVER – Northland is the fourth largest under cover cropping region in New Zealand, primarily producing a narrow range of horticultural products. However, total area is in decline. Opportunities exist to take share from Auckland, especially as pressure comes on there from residential land use.

OLIVES – Northland has a reputation for quality oils. Area in olives is shrinking, but volumes are increasing. Olive producers are also shrinking into smaller units. To succeed, the industry must either retreat to a niche position or grow to scale.

… Horizon 3 products require viable options or models to enable additional growth in employment

ARABLE CROPS – Arable crops in the region are primarily used as supplementary dairy feed. However, Northland's long growing season is suitable for many arable crops. Opportunities exist for alternative crops such as hemp.

KUMARA – Kumara are on-trend, both as an alternative to potato, and in their own right. The Northland industry, located in Kaipara, is 90-95% of national production. The industry is consolidating with fewer growers on larger farms, over more total land. Opportunities exist for numerous value-added line extensions.

PROCESSED FOODS – Value-added processed and packaged foods are a massive and growing market. Processed Foods in Northland is growing strongly and creating jobs (off a low base). Northland has the ability to add value to existing raw products and create significant value in the region.

HORIZON 3

DAIRY GOAT & SHEEP – New Zealand dairy sheep and goat numbers are increasing. Goats in particular are of growing interest in Northland and investment is occurring in new sheds, however milk is currently being processed in the Waikato. Opportunities exist to significantly increase production in both goat and sheep milk.

BANANAS & PINEAPPLES – Northland's subtropical climate is suitable for subtropical fruit. There is growing interest in bananas and pineapples (in particular) in the north. However further R&D and investment is required into the most suited varieties, production systems and post harvest facilities.

POULTRY MEAT – Poultry meat is a long term growth platform for New Zealand. Only four regions are creating significant new poultry processing employment. There is an opportunity for Northland to become a major poultry region.

OTHER BEVERAGES (NON-WINE) – Northland has the beginnings of a vibrant beverage sector. Northland has all the key ingredients: inputs, marketing, reputation, skills, image and story.

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SITUATION: ADVANTAGE: Northland is an attractive place to live and work

- Northland is an attractive location to live and do business
- Northland's population has been steadily increasing as more people move to the 'winterless north'
- The unique subtropical climate provides attractive growing conditions and a first-to-market window for fruit and vegetables
- Northland's F&B sector is able to take advantage of the growing tourist spend
- Large firms are showing confidence in the region with ongoing investment in the F&B sector, in particular fruit

Northland is an attractive location to live and do business

"Northland is really unique in New Zealand. We love it here. We have the ability to be first to market with many of our fruit. There is a real market window. We even have the opportunity to grow subtropical fruit."

Advisor, Northland

"Northland is a great place to live, with a warm climate and the commercial rent is so much cheaper than Auckland."

CEO, Beverage Co, Northland

"Northland is a premium destination. It can grow this more in F&B, especially wine – with cellar door visits and farmgate visits. We can grow almost anything up here."

Advisor, Northland

"Northland is amazing with all the Islands and coast around the Bay of Islands, the stunning 90 mile beach and amazing sand dunes."

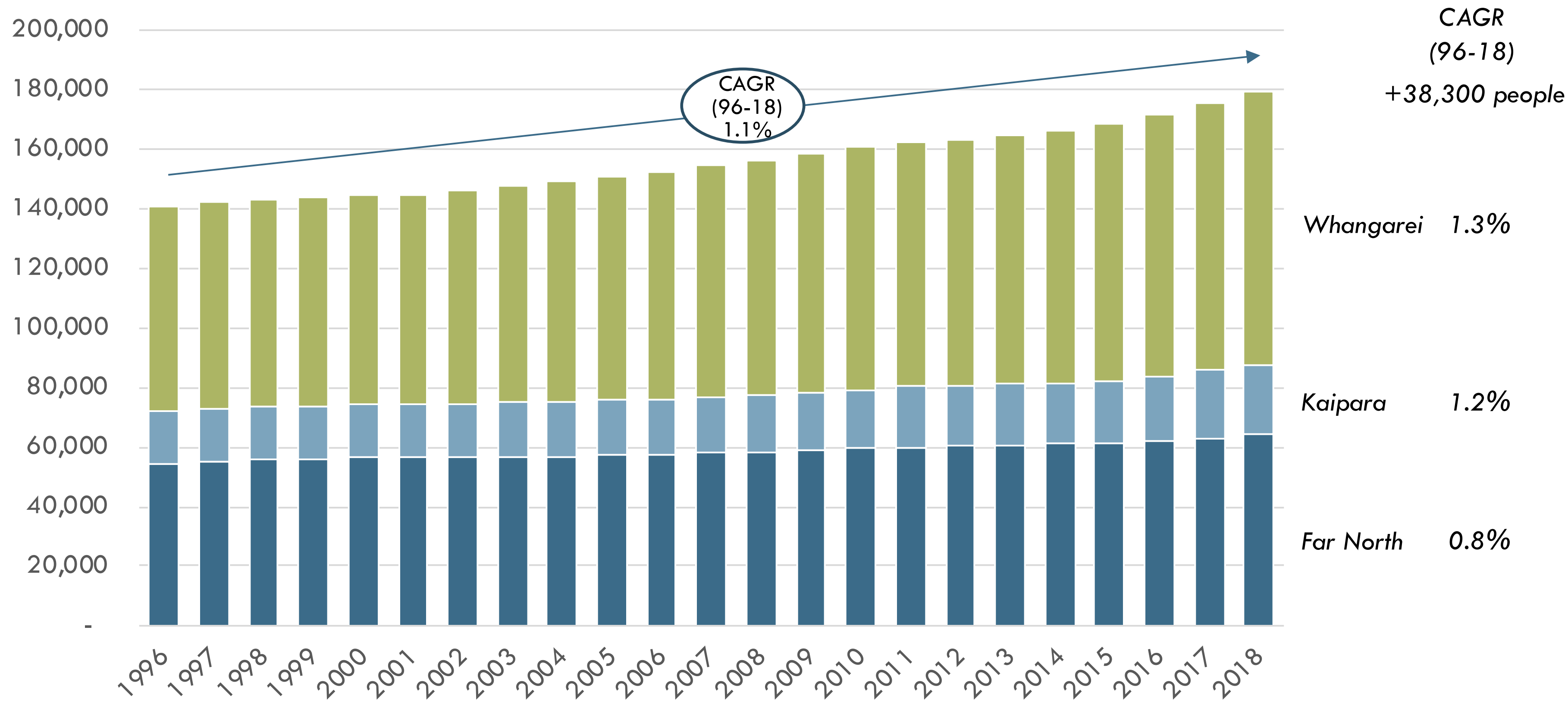
CEO Diversified Agriculture, Far North, Northland

Source: interviews; Coriolis analysis

Northland's population has been slowly increasing, as more people move to the 'winterless north'

NORTHLAND POPULATION BY DISTRICT

People; CAGR;1996-2018

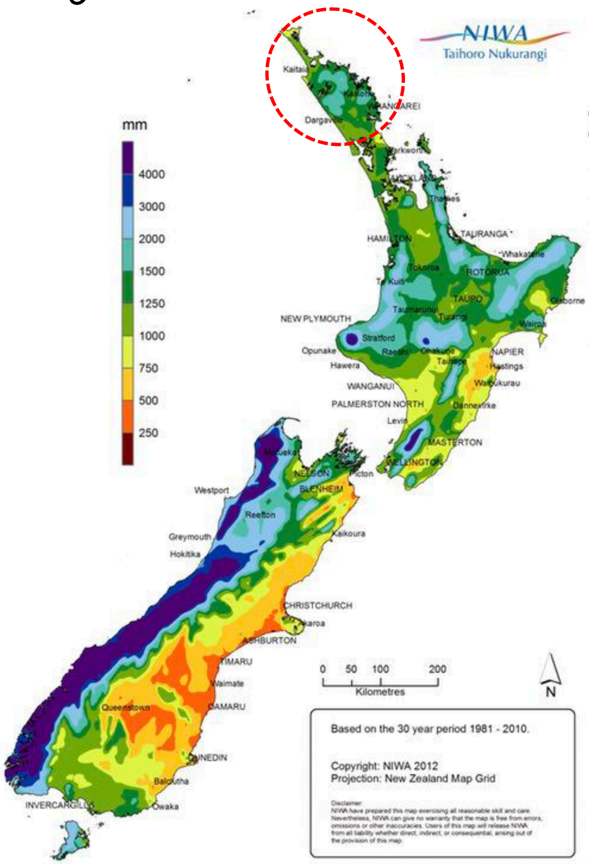


CAGR = Compound Annual Growth Rate; Source: Statistics NZ; Coriolis analysis

The unique subtropical climate provides attractive growing conditions and a first-to-market window for fruit and vegetables

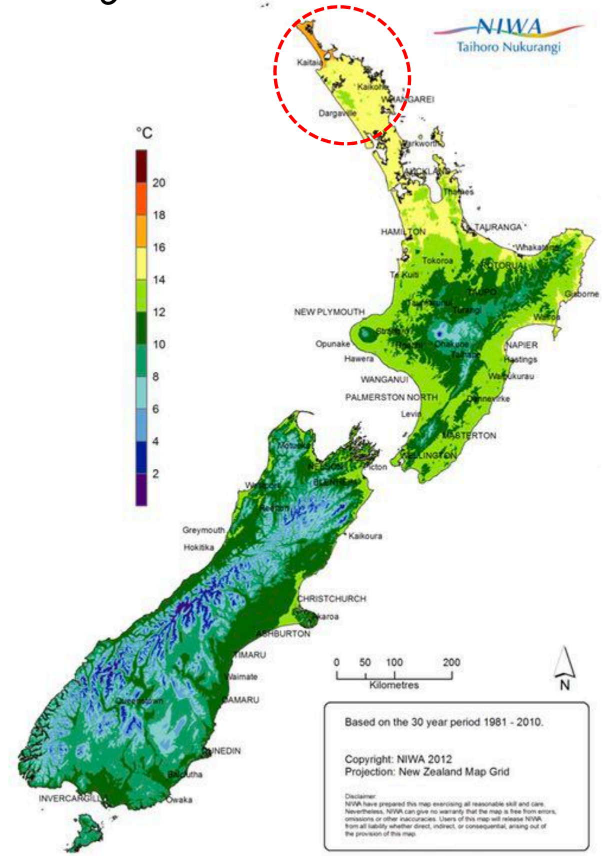
NZ MEDIAN ANNUAL TOTAL RAINFALL

mm; Averages from 1981-2010



NZ MEDIAN ANNUAL AVERAGE TEMP.

Degrees; Averages from 1981-2010

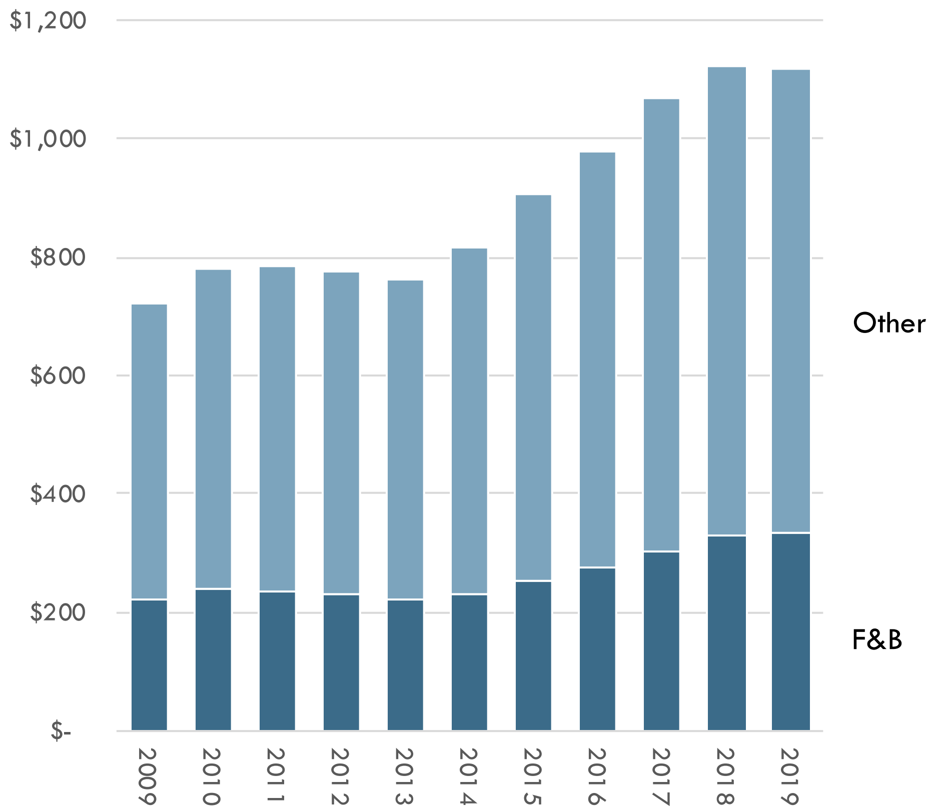


Source: NIWA

Northland is able to take advantage of growing tourist spending on food & beverages in the region

ANNUAL TOURIST SPEND[1]: NORTHLAND

$; m; 2009-2019



"We set up our location to be close to the cruise ships. 65 cruise ships come into Russel. Paihia is buzzing over summer. The boats come in and thousands of tourists visit the region. They can visit our place, buy directly from us and hopefully keep ordering when they are at home."

CEO, Beverage Co, Northland

"We could be the Queenstown of the North. Tourism is undercapitalised. We have the airport development potential in the Far North, we just need to work together. 30-40 buses go past our door over summer every day on the way to 90 Mile beach and Cape Reinga. We really need to tap into that."

CEO Honey Co, Far North, Northland

"Bay of Islands is a well known tourist destination. People overseas have heard of it, it's a beautiful place. That's why I set up business here. I wanted to have Bay of Islands written on my label and have people recognise it."

CEO, Beverage Co, Northland

1. Domestic and International; Source: StatisticsNZ; MBIE; Coriolis analysis and interviews

Large firms are showing confidence in the region with ongoing investment in the F&B sector, in particular fruit

"Seeka is spending $20 million on building a packhouse, packing machine and coolstores at its new Northland facility over the next two years…We are seeing a significant increase in trays supplied by new growers with 250 million [trays] committed so far. Once complete our Northland facility will be world class and a leader in the Northland kiwifruit community… the 8,300 sqm new packhouse facility at Kerikeri has been built and the processing machine is largely installed. It will be ready for the harvest in a few weeks." *CEO, Michael Franks, Mar 2019.*

RURAL NEWS

"T&G Global Limited (T&G) has reached an agreement regarding the sale of its Kerikeri-based kiwifruit orchards, packhouse facilities and assets to Seeka Limited (Seeka). The agreement, valued at approximately $40 million will see Seeka purchase T&G's post-harvest facilities in Kerikeri for the packing and storing of avocados, kiwifruit and citrus…T&G is also selling approximately 80 hectares of orchards in and around Kerikeri to Seeka on which it currently grows kiwifruit." *Press release, April, 2018*

Seeka SELECT EXCELLENCE

"The company has identified the region as a growth area for both avocados and kiwifruit and establishing a post-harvest hub in Northland has been a priority." *CEO, Michael Franks, Apr 2018.*

Seeka SELECT EXCELLENCE

"Our Northland berry and citrus operations are not included in our sale as we intend investing further in these growth categories. We have land ready for development and will be investing also in crop protection facilities for our existing operation in Kerikeri. We also hope to employ more people through these investments." *Apr 2018*

Andrew Keaney, CEO, T&G Global

Source: interviews; articles; Coriolis analysis

SITUATION: F&B: The Northland food and beverage industry is under strong pressures, but is well suited for future growth

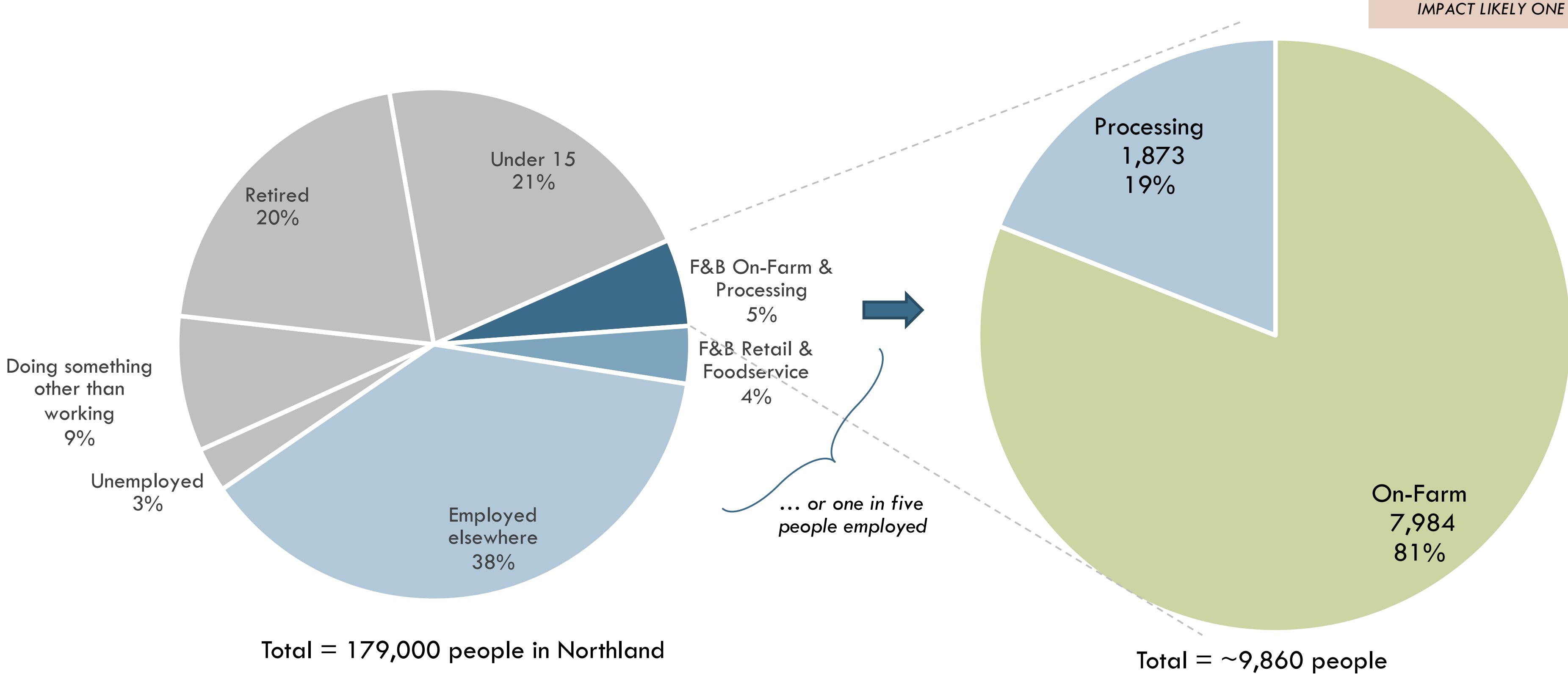
- The food and beverage sector directly creates one in five jobs in Northland
- The number of on-farm operations and food & beverage (F&B) units in Northland is shrinking, while processing units are growing
- Northland has not been creating new F&B jobs from its abundant natural resources; however the last 5 years show a recovery
- On-farm employment is trending flat-to-down across most sectors driven by industry consolidation
- Post farmgate food & beverage processing employment in Northland is changing, with growing and declining sectors
- Northland is underperforming many other regions in creating post farmgate jobs from its abundant raw materials
- Core issues highlighted by industry representatives are: 1) Many sectors (beyond meat and dairy) lack scale and are fragmented, 2) There is limited value-add processing and expertise in the region, 3) Logistics are a challenge; Northland is lacking key infrastructure, particularly rail and at the port; the road south is also a challenge impacting costs and 4) Limited water storage constrains growth in key growing areas (in particular for horticulture)
- Despite these challenges, Northland is well positioned for growth if key issues can be addressed or side-stepped

The wider food and beverage sector directly creates one in five jobs in Northland

ESTIMATED TOTAL NORTHLAND FOOD & BEVERAGE EMPLOYMENT

Headcount; 2018

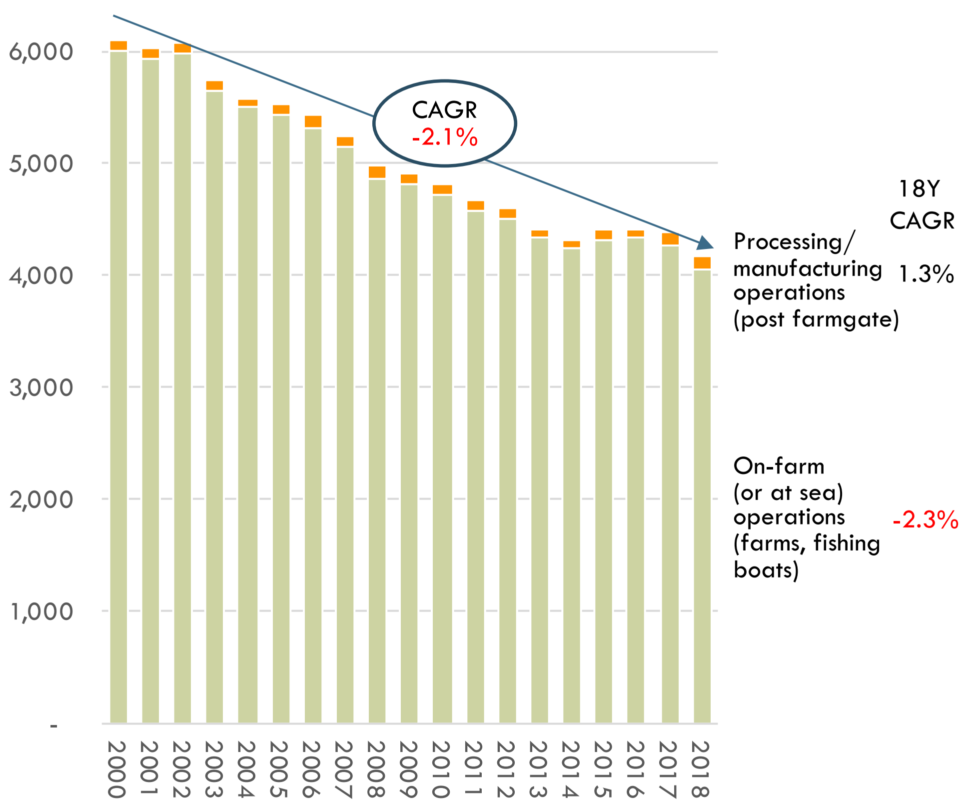
EXCLUDES FLORICULTURE, NURSERY, AGRICULTURAL EQUIPMENT, CASUAL LABOUR, SEASONAL LABOUR & SERVICE PROVIDERS; ACTUAL DIRECT IMPACT LIKELY ONE IN FOUR



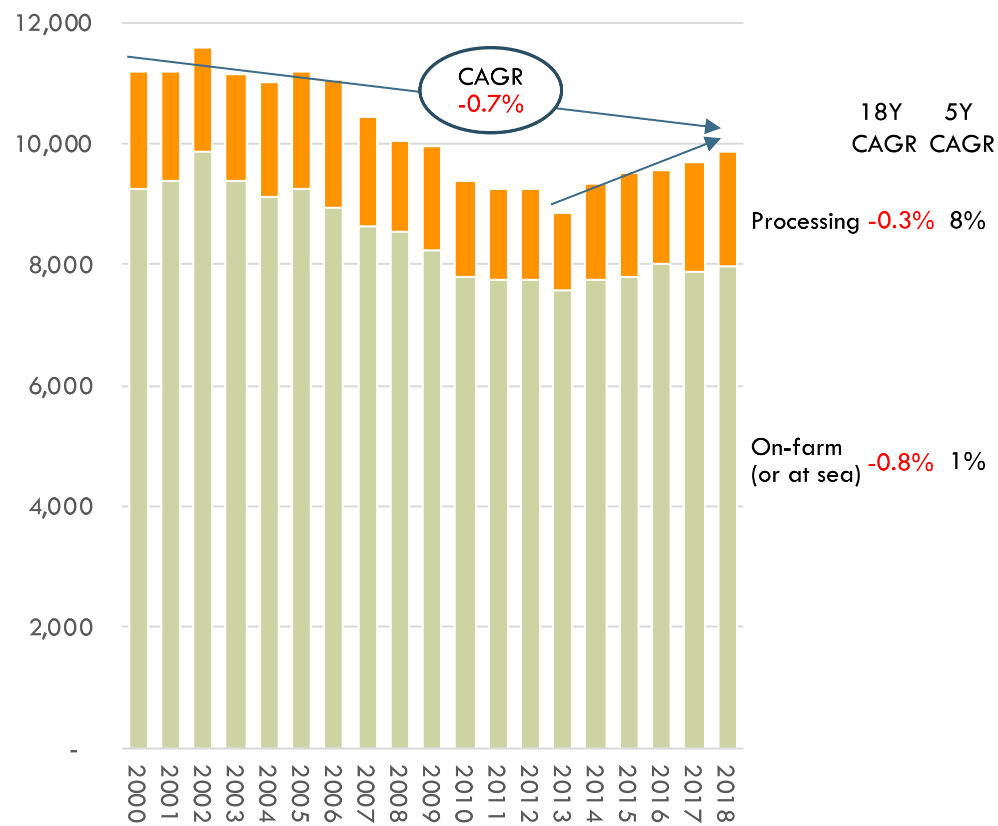
Note: processing defined to include wholesaling for seafood and fruit & veg for industry definition reasons; retail and foodservice includes other wholesale units; Source: Statistics NZ; Coriolis analysis, modelling and estimates

On-farm operations and jobs are shrinking; processing units are growing and employment is showing recent growth

FARM OPERATIONS IN F&B INDUSTRY
Geographic units; 2000-2018



TOTAL F&B JOBS ON-FARM & PROCESSING
Headcount; 2000-2018

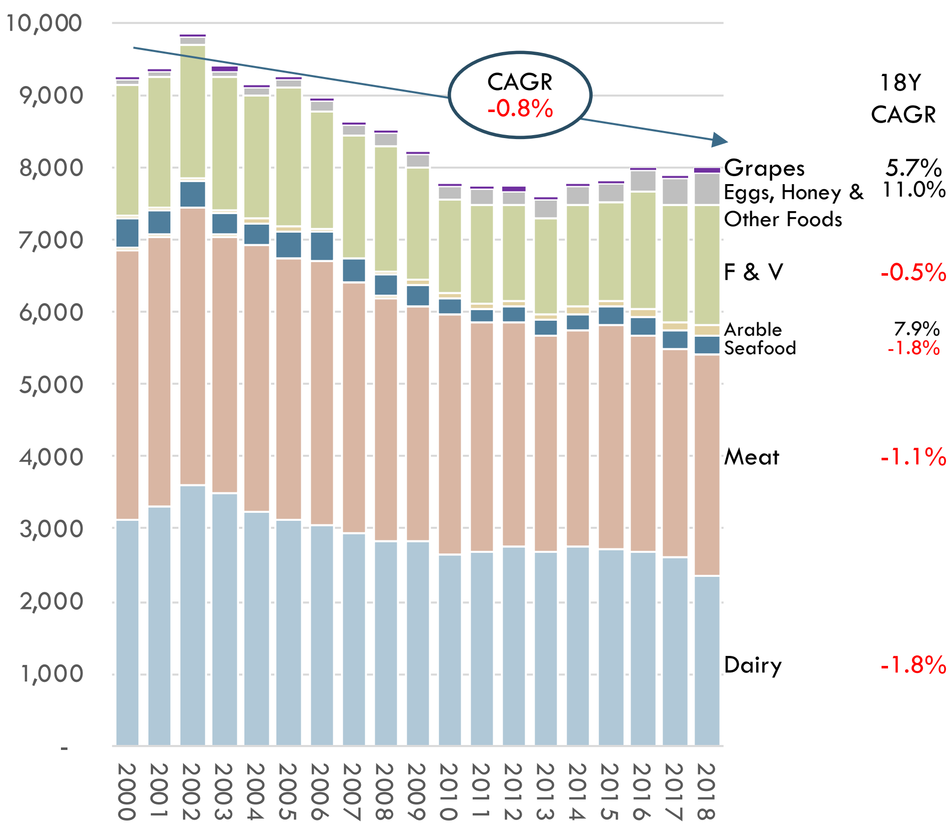


F&B = Food and Beverage; Note: processing defined to include wholesaling for seafood and fruit & veg for industry definition reasons; Note: red meat does not include dairy farmers to prevent double counting; on-farm includes assumed 'owner operators' (i.e. non-PAYE employees); Source: Statistics NZ; DairyNZ; other sources; Coriolis estimates and analysis (detail later in document)

Employment: on-farm is trending flat-to-down across most sectors driven by industry consolidation; post farm-gate is changing

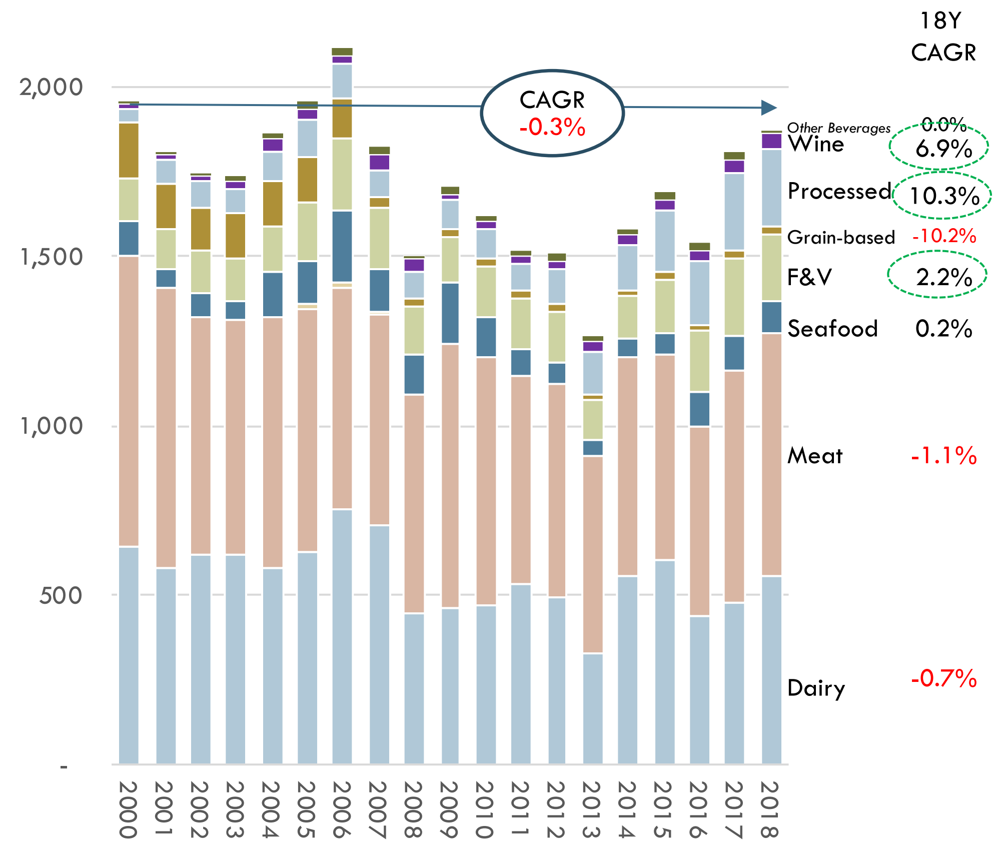
ON-FARM EMPLOY. IN F&B PRODUCTION*

Headcount; 2002-2018



PROCESSING. EMPLOY. IN F&B*

Headcount; 2000-2018



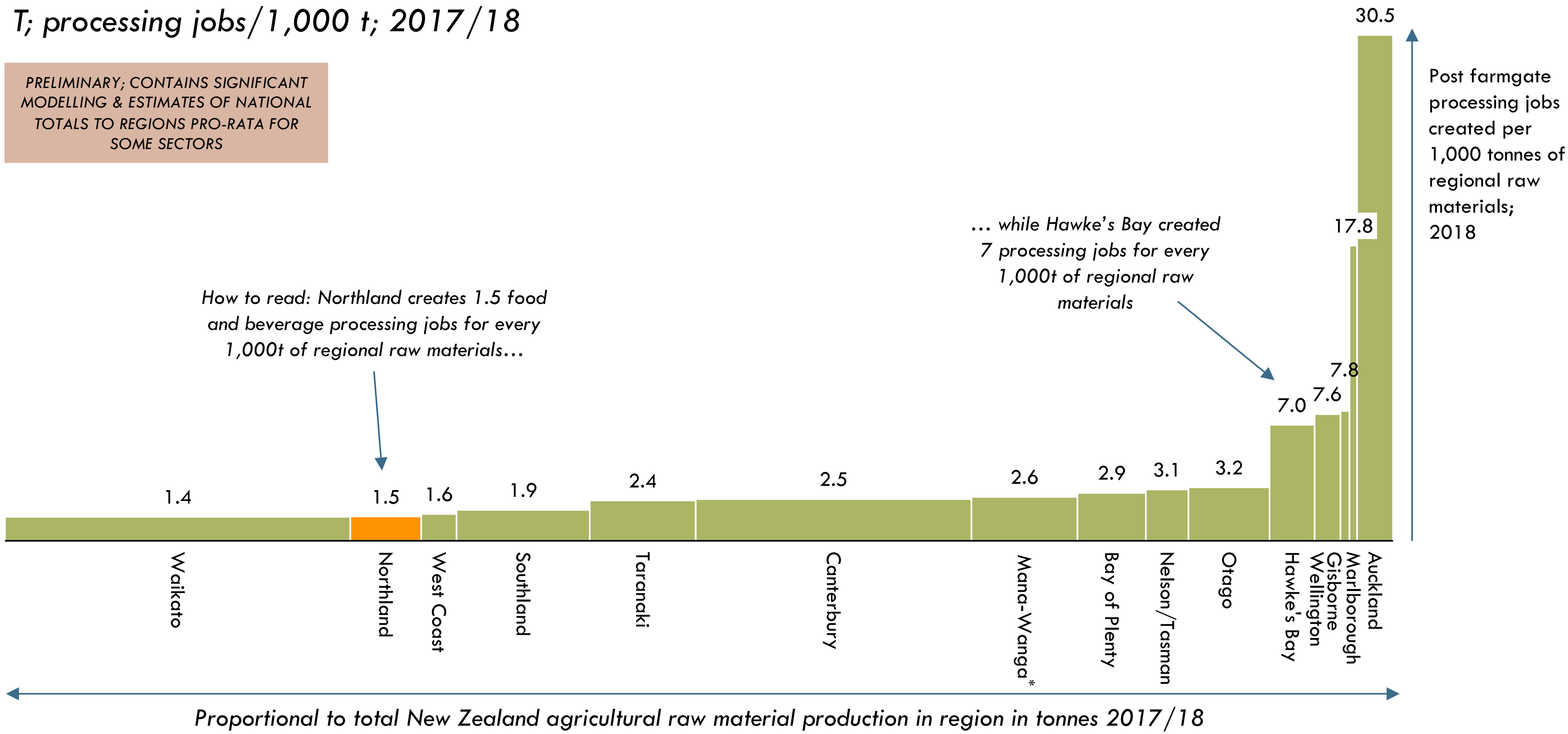
* Estimates; F&V = Fruit and Vegetables including nuts; Note: Assumes every farm unit has an "owner-operator (i.e. a non-PAYE employee); Source: Statistics NZ; Coriolis classifications and analysis

Northland is underperforming many other regions in creating post farmgate jobs from its abundant raw materials

REGIONAL RAW MATERIAL VS PROCESSING JOBS PER 1,000 TONNE

T; processing jobs/1,000 t; 2017/18

PRELIMINARY; CONTAINS SIGNIFICANT MODELLING & ESTIMATES OF NATIONAL TOTALS TO REGIONS PRO-RATA FOR SOME SECTORS



*Manawatu/Wanganui; Source: Coriolis analysis, modelling and estimates

Many sectors (beyond meat and dairy) lack scale and are fragmented

"Northland is small in most of its sectors. There are many niche and small firms."

Industry Representative, Northland

"Because we don't have a very big population up here, we don't have a concentration of highly skilled or technical people. We need a R&D person, but we only need them part time."

CEO, Honey Co, Northland

"There are no hubs of activity. There is no concentration of firms or skills, maybe except honey and kumara."

Industry Representative, Northland

"Some firms do their base manufacturing here then freight the bulk product to Auckland for further manufacturing."

Director, Processed Foods Co, Northland

"We need areas where firms can cluster and share resources. Like an R&D centre, or a business hub or a commercial kitchen type place."

CEO, Honey Co, Northland

"We are a big region with the population spread out over a large distance. There are activity hubs like kumara in Dargaville and centres in Whangarei and Kerikeri, but no formal hubs."

Consultant, Northland

INDUSTRY RECOMMENDS: COLLABORATION AND RESOURCE SHARING

Source: *interviews; Coriolis analysis*

There is limited value-added processing and expertise in the region

"The limitation to growth for many small firms is the access to equipment."

Consultant, Northland

"We need an R&D centre something that multiple people can use. This way it spreads the cost. That way we can all afford a scientist or a technical person on a part time basis."

CEO, Honey Co, Northland

"We need areas where firms can cluster and share resources, like an R&D centre, a business hub or a commercial kitchen type place."

Beverage Company, Northland

"Our sectors like honey, olives, avocados can combine in an R&D centre where we value add to our base products, and use the by-products and waste products like the avocado seeds, olive leaves etc."

Director, Honey Co, Northland

"We need a cluster of businesses that could all coordinate and share costs. We need to develop co-shared facilities. It could be a commercial kitchen through to a small processing facility."

Advisor, Northland

"A plug-in-play centre would be great. All different organisations could share the space. Each with different businesses. It could be science, food production, beverages, tourism."

Director, Honey Co, Northland

INDUSTRY RECOMMENDS: R&D CENTRE, INCUBATOR OR DEVELOPMENT HUB

Source: interviews; Coriolis analysis

Logistics are a challenge; Northland is lacking key infrastructure, particularly rail and at the port…

"The lack of development and infrastructure in general in Northland is an issue."

Director, Processed Foods Co, Northland

"Northport in Whangarei has expansion plans, which would be great. Northland has the closest ports to all the northern markets. If we didn't have to send trucks south that would be great."

Business Advisor, Northland

"The rail doesn't come all the way north, this is a real limitation. Government are currently working through options for rail and port expansions involving Northland. We need to wait for consultant reports and the budget to see where we sit with expansion plans."

Business Advisor, Northland

"The port plans at Ruakaka and Port Whangarei is a great opportunity. In 5 years the import and export potential will be huge."

Advisor, Northland

"There is recent talk about Auckland's port moving to Northland and upgrading the rail lines. That would really support the region and bring more business."

Business owner, Northland

"If we see the port infrastructure improved in Northland we could see Maersk sail from Whangarei to Tauranga to the USA. Not transporting to Auckland would save us a lot of money in freight."

Director, Processed Foods, Northland

INDUSTRY RECOMMENDS: ONGOING PORT AND RAIL FEASIBILITY STUDIES

Source: interviews; Coriolis analysis

… The road south is also a challenge, impacting costs

"Most of the roads in Northland are single lane, narrow and windy. They are not designed for transport trucks."

Director, Honey Co, Northland

"We are such a long way from suppliers. The cost to freight my empty bottles up to Kerikeri then having to freight them all back full to Auckland is expensive. It's not a common freight route so it's expensive and irregular."

CEO, Beverage Co, Northland

"Getting to the port in Auckland is a real challenge. You have to battle through the Auckland traffic. It takes hours."

CEO, Processed Foods Co, Northland

"We need a transport hub somewhere like Silverdale, so all the trucks don't have to travel all the way up and down the highway and struggle to get through Auckland traffic."

Advisor, Northland

INDUSTRY RECOMMENDS: INVESTIGATION OF TRANSPORT HUB

Source: interviews; Coriolis analysis

Limited water storage constrains growth in key growing areas (in particular for horticulture)

Scoping of Irrigation Scheme Options in Northland 2017 report, funded by the Northland Regional Council and NZ Government; identified key potential water storage locations and additional 11,600 ha of irrigated land (currently only 8,500 hectares are irrigated). Comes after several other reports into irrigation potential and benefits for the region.

$18.5 million funding from Provincial Growth Fund announced in April 2019; to investigate and, if feasible, construct large scale water storage facilities in Kaipara and the Mid North.

"Water and water storage is a key issue in many areas. This is especially the case for intensive food production. If the area had an irrigation scheme this would enable additional development. This was the case in Kerikeri 20 years ago, this enabled the citrus industry." *Consultant, Northland*

"Continuity of water supply in the sandy and volcanic soils is a problem. Most horticulture needs consistent water." *Advisor, Northland*

"Tai Tokerau Northland Economic Action Plan identified irrigation as a key enabler to growth. There are economic development opportunities from better water use and storage." *Advisor, Northland*

"There is the potential to create hundreds of jobs and boost the regional economy by tens of millions annually." *Cr. Justin Blaikie, Northland Regional Council, media release, April, 2019*

EXAMPLE: KERIKERI WATER SCHEME	
WHO	Constructed by Ministry of Works
WHEN	1980-82
WHY	Support local horticulturalists (especially citrus); volcanic soils have low water holding capacity
WHAT	12Mm^3 storage capacity, 2 storage reservoirs, stores during high rainfall period and gravity feeds properties
OWNERSHIP	Co-operative Kerikeri Irrigation Co Ltd formed in 1990 and purchased assets (~340 shareholders)
USERS	2,300 ha horticulture land, 350 ha agricultural land, and lifestyle, commercial and town supply
CONTRIBUTION	$100m/year GDP and area under irrigation employs 1,300 FTE's (direct and indirect)

INDUSTRY RECOMMENDS: CONTINUE INVESTMENT IN FEASIBILITY STUDIES

Source: Northland Regional Council; Kerikeri Irrigation Co Ltd, '2016 KICL Economic, Social and Environmental Impact Report'; interviews; articles; Coriolis analysis

Despite these challenges, Northland is well positioned for growth if key issues can be addressed or side-stepped

SWOT ANALYSIS: NORTHLAND FOOD & BEVERAGE INDUSTRY

Early 2019

STRENGTH	WEAKNESS
- Warm subtropical climate zone provides long growing seasons (e.g. Whangarei - monthly rainfall in summer 93mm, winter 180mm; average temperature in winter 11.5°C and average in summer 20.1°C) - First to market for many products (most northern region) - Long history of farming; knowledge and experience in farming - Committed and passionate farming community - Low rents for commercial space	- Subtropical storms - Very large number of small and medium sized firms - Lack of F&B firms at scale - Geographically isolated area - High cost of freight vs most other regions - Low population growth - Lack of specialised support services for industry
OPPORTUNITY	**THREAT**
- Expansion of port facilities - Increase supply of F&B exports from region result in additional shipping freight services - Expansion of subtropical fruit production - Add value to existing commodity products - Co-shared R&D facilities and production hubs - Market Northland as a destination for tourists, especially 'foodies' and agri-tourism - Market Northland as a destination for new businesses and new capital	- Rising cost of doing business out of line with revenue growth - Alternative non-animal proteins reduce overall demand for dairy and meat products

Source: interviews; Coriolis analysis

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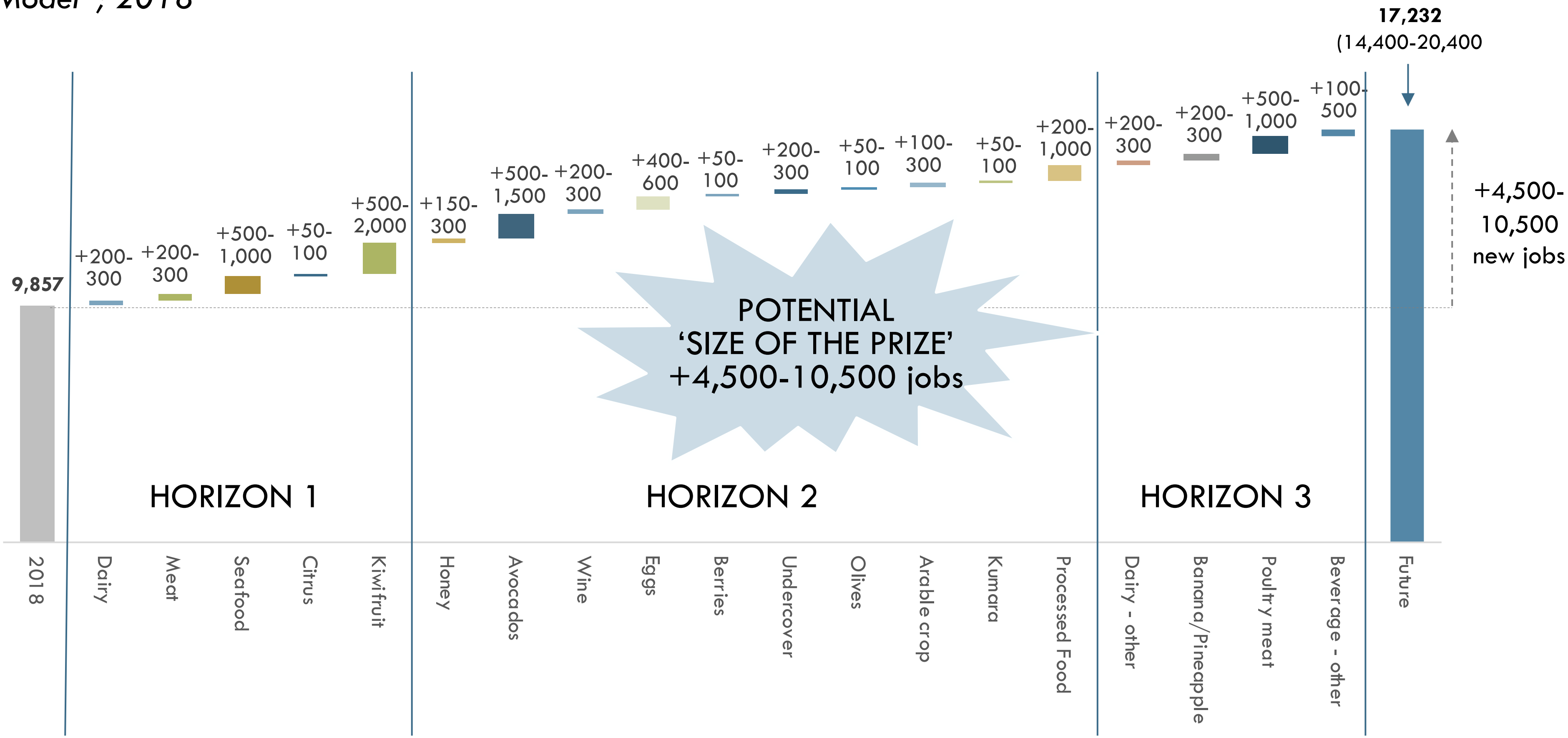
Northland can create significant new food and beverage employment growth in the long term

DETAILED LATER IN DOCUMENT

POTENTIAL ADDITIONAL F&B MANUFACTURING EMPLOYMENT IN NORTHLAND

Model; 2018*



*Potential Gross Employment Growth independent of any projections of on-farm employment losses in some sectors; based on Coriolis modelling, research, estimates and past work; treat as aspirational and indicative

Northland has three clear Horizons for Growth in food and beverage going forward

THREE HORIZONS FOR GROWTH: NORTHLAND F&B INDUSTRY

Model; 2019

	HORIZON 1 Mature categories & products	HORIZON 2 Build smaller/emerging products	HORIZON 3 Create viable options
Strategic Focus	– Defend the core business – Maintain existing jobs – Change and adapt – Focus on value not volume – Transition out of sunset products	– Expand and grow businesses – Support emerging products – Increase regional competitiveness – Reinvent/re-engineer struggling sectors – Climb down the cost curve	– Unlock new avenues for growth – Identify & explore new options – Create viable, scalable farm models – Remove impediments and barriers – Grow or import skills to region
Key success factors	– Efficiency & cost control – Process innovation – Scale – Supply chain	– New market development – Speed & flexibility – Execution/cost reduction – Resources/funding	– Risk taking – Market insight/market creation – Business model innovation – Culture & incentives
Key metrics	– Profits, margins, costs	– Market share, growth	– Milestones
Example products	– Dairy – Red meat – Seafood	– Wine – Processed foods – Avocados	– Poultry meat – Dairy goat – Sub-tropical produce

Source: adapted from McKinsey & Co.; Coriolis analysis

Research identified and evaluated a range of product segments across all three horizons

THREE HORIZONS FOR GROWTH: NORTHLAND F&B INDUSTRY

Model; 2019

Products

HORIZON 1
Mature categories & products

1.1 Dairy (Cow)
1.2 Red Meat
1.3 Seafood
1.4 Citrus
1.5 Kiwifruit

HORIZON 2
Build smaller/emerging products

2.1 Honey
2.2 Avocados
2.3 Wine
2.4 Eggs
2.5 Berries
2.6 Under Cover
2.7 Olives
2.8 Arable Crops
2.9 Kumara
2.10 Processed Foods

HORIZON 3
Create viable options

3.1 Dairy (Goat & Sheep)
3.2 Bananas & Pineapples
3.3 Poultry Meat
3.4 Other Beverages (Non-Wine)

Source: adapted from McKinsey & Co.; Coriolis analysis

Realising growth across all three horizons will require involvement by three specific sets of potential investors

EXISTING FIRMS	*NEW LARGE INVESTORS WITH SCALE AND SKILLS*	*NEW AND EMERGING FIRMS*
REINVESTMENT	ATTRACTION	NURTURING
- *Remove barriers to investment* - *Ensure Northland gets its share of new capital* - *Sell the region; make the case for Northland*	- *Identify the right investors (rather than 'waiting for the phone to ring')* - *Focus on firms able to add value to products in Northland* - *Sell the region; make the case for Northland*	- *Understand why Northland is underperforming currently* - *Encourage both existing locals and new arrivals* - *Encourage more showcasing of local products by local retail and foodservice operators*

Source: Coriolis analysis

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Research identified five mature categories and products in Horizon 1 for Northland

THREE HORIZONS FOR GROWTH: NORTHLAND F&B INDUSTRY

Model; 2019

Products

HORIZON 1
Mature categories & products

1.1 Dairy (Cow)
1.2 Red Meat
1.3 Seafood
1.4 Citrus
1.5 Kiwifruit

HORIZON 2
Build smaller/emerging products

2.1 Honey
2.2 Avocados
2.3 Wine
2.4 Eggs
2.5 Berries
2.6 Under Cover
2.7 Olives
2.8 Arable Crops
2.9 Kumara
2.10 Processed Foods

HORIZON 3
Create viable options

3.1 Dairy (Goat & Sheep)
3.2 Bananas & Pineapples
3.3 Poultry Meat
3.4 Other Beverages (Non-Wine)

Source: adapted from McKinsey & Co.; Coriolis analysis

1.1 DAIRY IN NORTHLAND

SCORECARD	
ON-FARM	
Units *(2018)*	1,008
Unit Change *Abs. (00-18)*	-4%
Unit Change *CAGR (00-18)*	-1,077
Employees *(2018)*	2,358
Employee *Change (00-18)*	-777
Employee *CAGR (00-18)*	-2%
PROCESSING	
Units *(2018)*	6
Unit Change *Abs. (00-18)*	-
Unit Change *CAGR (00-18)*	-
Employees *(2018)*	560
Employee *Change (00-18)*	-80
Employee *CAGR (00-18)*	-1%
OTHER	
Area *(ha)*	119,220
POTENTIAL EMPLOYMENT GROWTH*	+200-300 manufacturing

SELECT REGIONAL FIRMS

'ELEVATOR PITCH'

Northland produces highly awarded cheeses
Northland dairy industry continues to show productivity improvements

KEY RISKS & SENSITIVITIES

- Costs imposed by climate change regulation forces marginal lands out of production
- Biosecurity or disease risk (e.g. M. bovis) reduces productivity and impacts NZ reputation
- Rise in alternative 'dairy' from plant based proteins
- Risks of regulatory change or market conditions in key markets (e.g. China)

VALUE-ADDED OPPORTUNITIES

- Dairy nutritionals
- Specialty cheeses

WHAT YOU WOULD NEED TO BELIEVE

- On-going projects such as Extension 350 continue to increase productivity on Northland farms by sharing knowledge and learnings
- Medium sized firms (Fresha Valley) and small firms are able to grow
- Value-added cheese companies show strong growth
- On-going growth of goat (Belle Chevre) and sheep cheese (Just Ewe) production

DRIVERS OF GROWTH

- Growth of premium cheeses
- Growth of alternative and sustainable dairy (e.g. organic)
- Strong growth in emerging markets

KEY COMPETITORS

DOMESTIC	EXPORTERS
- All NZ	- Australia - Europe - South America (e.g. Chile)

**Coriolis estimates based on modelling, research and past work; treat as aspirational, indicative; Source: Statistics NZ; MPI/MAF; Coriolis estimates and analysis*

1.1 DAIRY (COW)

Dairy is a global growth market – particularly in China – but under pressure in New Zealand

The Northland dairy industry is consolidating

- Northland has falling hectares in dairy
- Northland has declining dairy unit numbers
- Northland is moving to larger herds, but falling unit numbers has led to falling overall dairy cow numbers
- Milk per cow is growing slowly, which combined with falling cow numbers, leads to low total milk production growth

Dairy is unlikely to create significant new on-farm jobs in Northland going forward

- Declining dairy unit numbers in Northland are driving down the number of on-farm dairy jobs; jobs per unit has stabilised
- Dairy processing in Northland is not currently creating new units or new processing jobs

Northland needs to focus on creating more dairy processing jobs by adding value in the region

- Northland appears to have the potential to create more jobs from regional milk (by adding more value in the region)
- Northland currently turns most of its milk into undifferentiated ingredients; opportunities exist to create more complex products

Dairy is a global growth market, but under pressure in NZ

"The Chinese dairy market is forecasted to grow by 6.6% CAGR until 2022 with consistent sales increases predicted for yogurt and cheese…Since 2014 yogurt has posted an annual retail sales growth of over 20% in China, and between 2015 and 2017 cheese saw a growth rate of between 15% and 25%...China will overtake the US as the world's largest dairy market by 2022.
Despite consistent sales growth for yogurt and cheese…annual per capita volume consumption for major dairy products remains low compared to other countries."

FOODBEV MEDIA

"The release of methane gas from ruminant livestock (sheep and cattle) amounts to almost 1/3 of New Zealand's greenhouse gas emissions, and it is the largest contributor. Methane also accounts for over 40% of all emissions in terms of global warming potential…Per capita, New Zealand has the largest methane emission rate (0.6 t per person per year) – six times the global average."

Manaaki Whenua Landcare Research

"Massive growth prospects for nation's dairy market over the next five years...China will see significant growth potential in the consumption of organic milk, yogurt and cheese products, fuelled by increasing demand for premium products from quality-conscious consumers…In the next five years, sales of cheese will see a compound annual growth rate of over 20 percent. In 2023, per capita consumption of cheese will reach 0.23 kg per year, and the continuing growth of solid milk products such as powder will be a future trend."

CHINADAILY.COM.CN

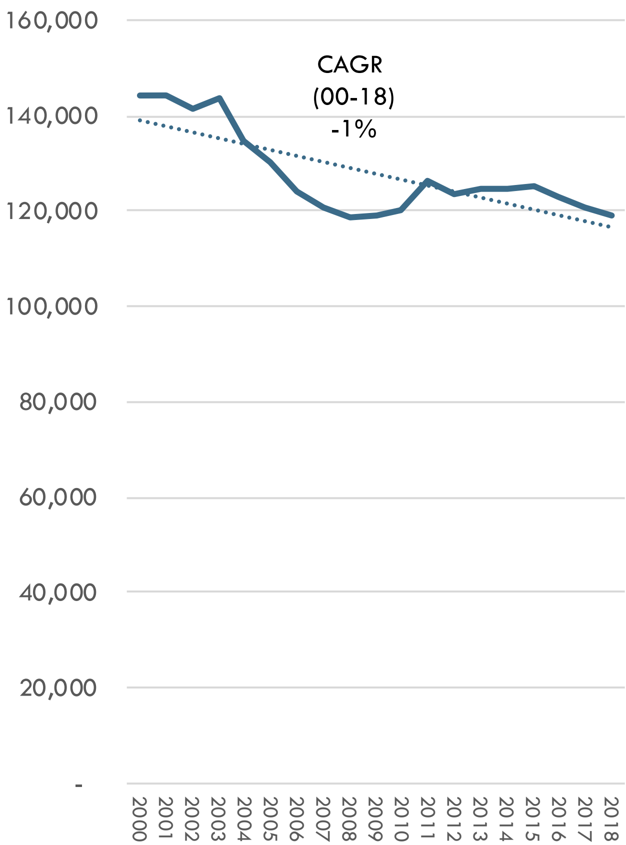
"The real villains behind New Zealand's deteriorating water quality are still at large: cows. Scrub where sheep once grazed is being given over to intensive dairy farms – some of them irrigated to help the pasture grow. Some 6.6m cattle are now squeezed into the country of 4.7m people, transforming even an iconic arid grassland, the Mackenzie Basin (made famous by the Lord of the Rings films), into a tapestry of emerald fields…"

The Economist

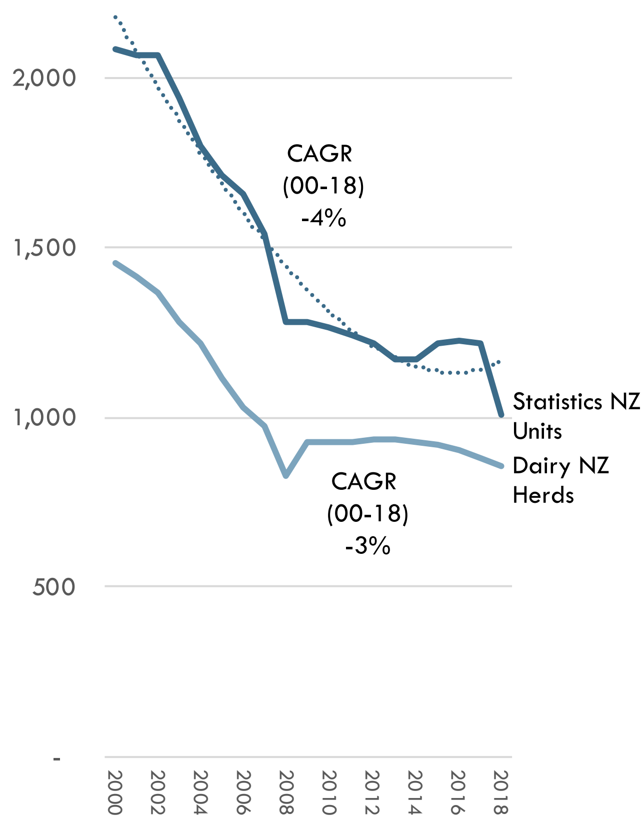
Source: articles; interviews; Coriolis analysis

Northland has falling hectares in dairy and falling herds and farms

DAIRY AREA: NORTHLAND
Ha; 2000-2018



DAIRY UNITS & HERDS
Geog units; herds; 2000-2018



COMMENTS/NOTES

Northland has removed -24,825 hectares from dairy production since 2000

Data is DairyNZ 'effective hectares' used for dairy production

Actual land on dairy farms will be larger than this number

Far North dairy land converting to horticulture (in particular avocados)

Statistics NZ units should be seen as operational units based in Northland, defined in this case as firms with over $60k in revenue annually (GST threshold); this will include non-cow dairy, operations with multiple parent companies, and owners and sharemilkers

DairyNZ herds is registered bovine dairy cow herds

The DairyNZ measure is not directly comparable to the Statistics NZ measure, but these should be proportional (as they are)

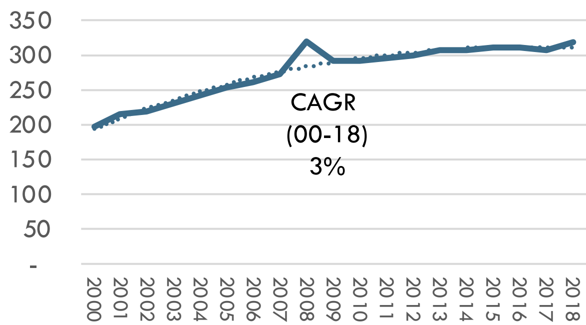
On the face of it, this data suggests (1) declining farm numbers overall in Northland and (2) a modest move away from sharemilking (likely through a sharemilker buying out the owners)

Geographic Units; Source: Statistics NZ; various DairyNZ reports; Coriolis analysis and estimates

Northland is moving to larger herds with falling overall dairy cow numbers but with more milk/cow and therefore more total milk

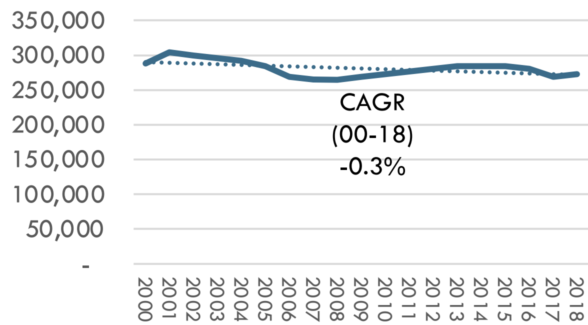
DAIRY COWS/HERD

Head/herd; 2000-2018



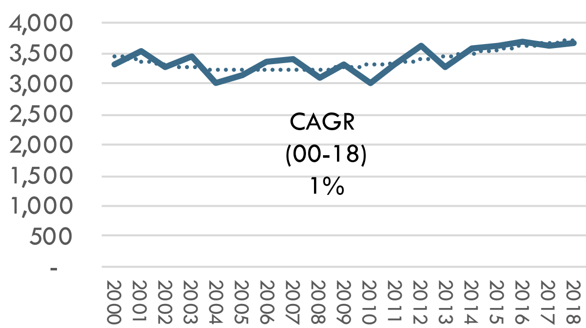
TOTAL DAIRY COWS

Head; 2000-2018



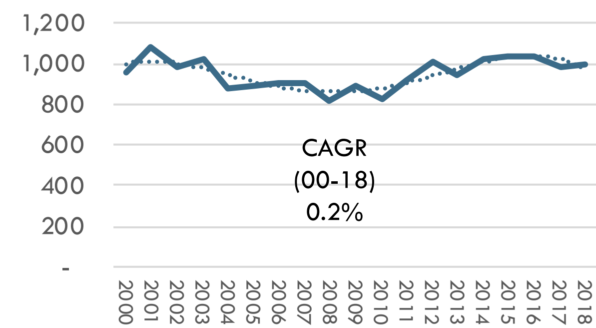
MILK/COW

L; 2000-2018



TOTAL MILK

L; m; 2000-2018



COMMENTS/NOTES

Data is DairyNZ bovine dairy cows only

Northland has declining dairy cow numbers while many other regions of New Zealand have grown cow numbers over the same period

Northland is not increasing animal productivity at any significant rate

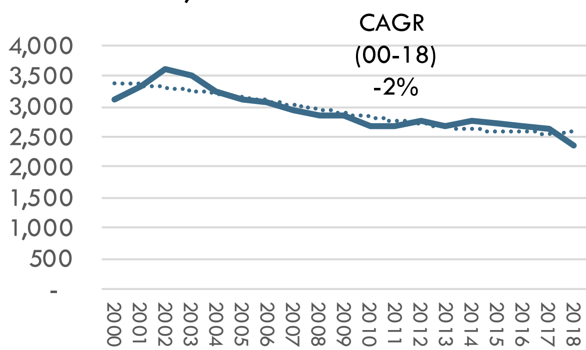
Collaborative program "Extension 350" is in year two – aiming to increase profitability, environmental sustainability and farmer wellbeing

Source: various DairyNZ reports; Coriolis analysis and estimates

Northland has declining on-farm dairy jobs and processing jobs; the number of processing facilities is stable at 6

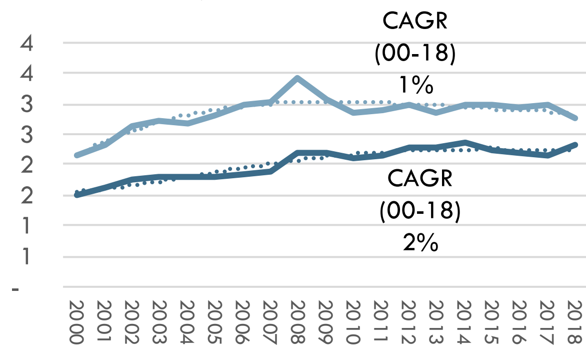
ON-FARM DAIRY JOBS

Headcount; 2000-2018



JOBS/UNIT OR HERD

Headcount; 2000-2018



COMMENTS/NOTES

Employee headcount includes full and part time, including owner operators (discussed below)

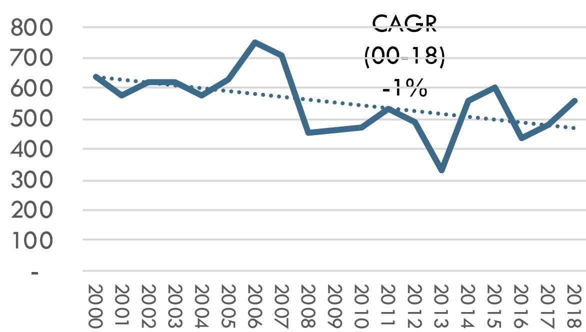
Employees includes an estimate for owner-operators (i.e. non-PAYE employees) at 1 per operational unit

Statistics NZ units should be seen as operational units based in Northland, defined in this case as firms with over $60k in revenue annually (GST threshold); this will include non-cow dairy, operations with multiple parent companies, and owners and sharemilkers.

This analysis will include non-cow dairy employees but non-cow dairy milk; implication is immaterial to result (~0.1%)

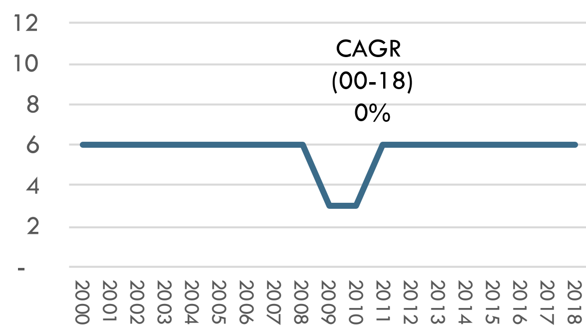
PROCESSING JOBS

Headcount; 2000-2018



DAIRY PROCESSING UNITS

Geographic units; 2000-2018



Employee headcount includes full and part time

Employees is IRD PAYE employees

Statistics NZ units should be seen as operational units based in Northland, defined in this case as firms with over $60k in revenue annually (GST threshold); this will include non-cow dairy, and operations with multiple parent companies

This analysis will include non-cow dairy processing operations and employees

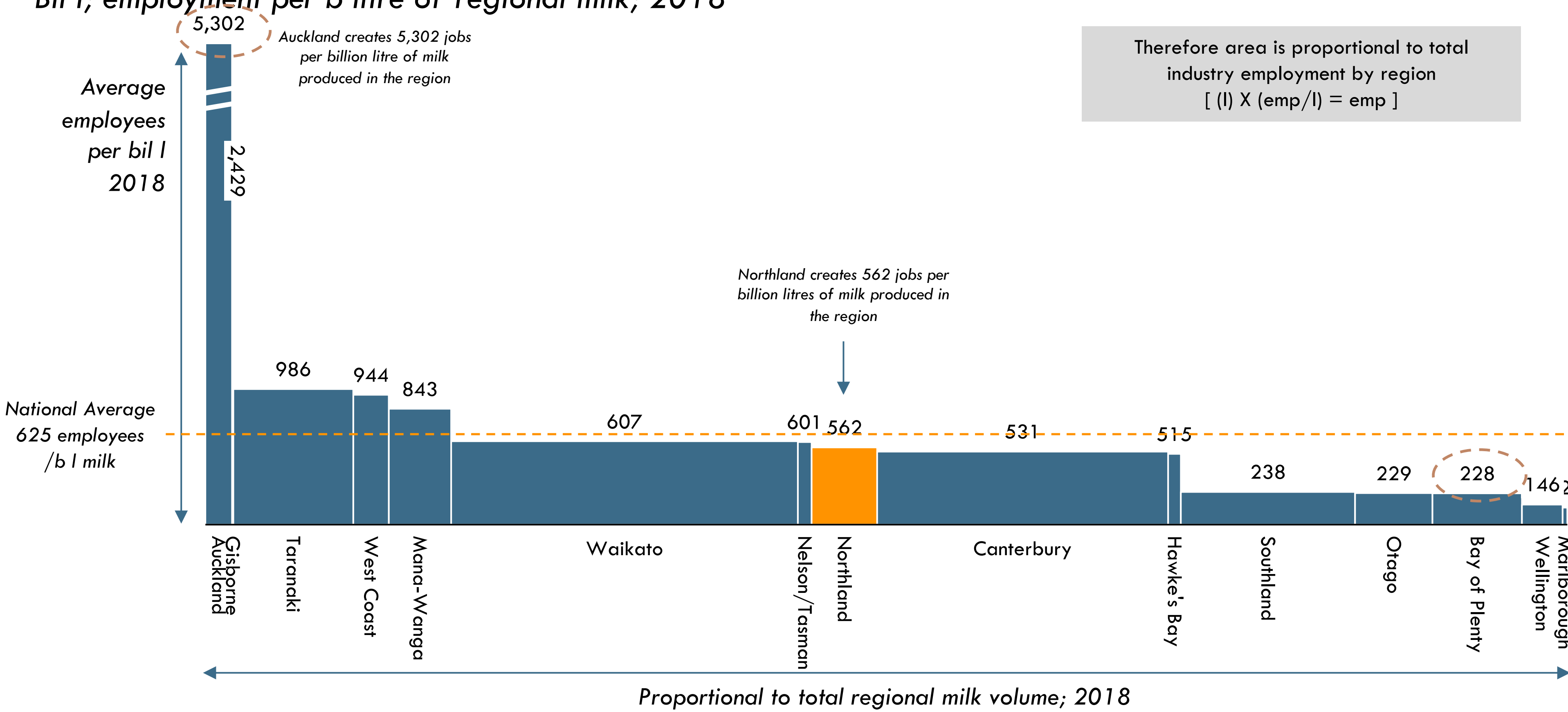
Units are defined by Statistics NZ as those predominantly producing processed dairy products (as opposed to, say, predominantly farming cows and selling milk but making hobby cheese on the side or predominantly running a cheese wholesaler but making cheese on the side)

Source: Statistics NZ; various DairyNZ reports; Coriolis analysis and estimates

Northland appears to have the potential to create more jobs from regional milk (by adding more value in the region)

MEKKO: MILK PRODUCED VS DAIRY PROCESSING EMPLOYMENT PER BIL LITRE*

Bil l; employment per b litre of regional milk; 2018



*Not adjusted for inter-regional transfer; Significant volumes of milk will move between regions (e.g. Gisborne to Hawke's Bay, Waikato to Auckland); Source: Statistics NZ; DairyNZ; Coriolis analysis

Northland currently turns most of its milk into undifferentiated ingredients; opportunities exist to create more complex products

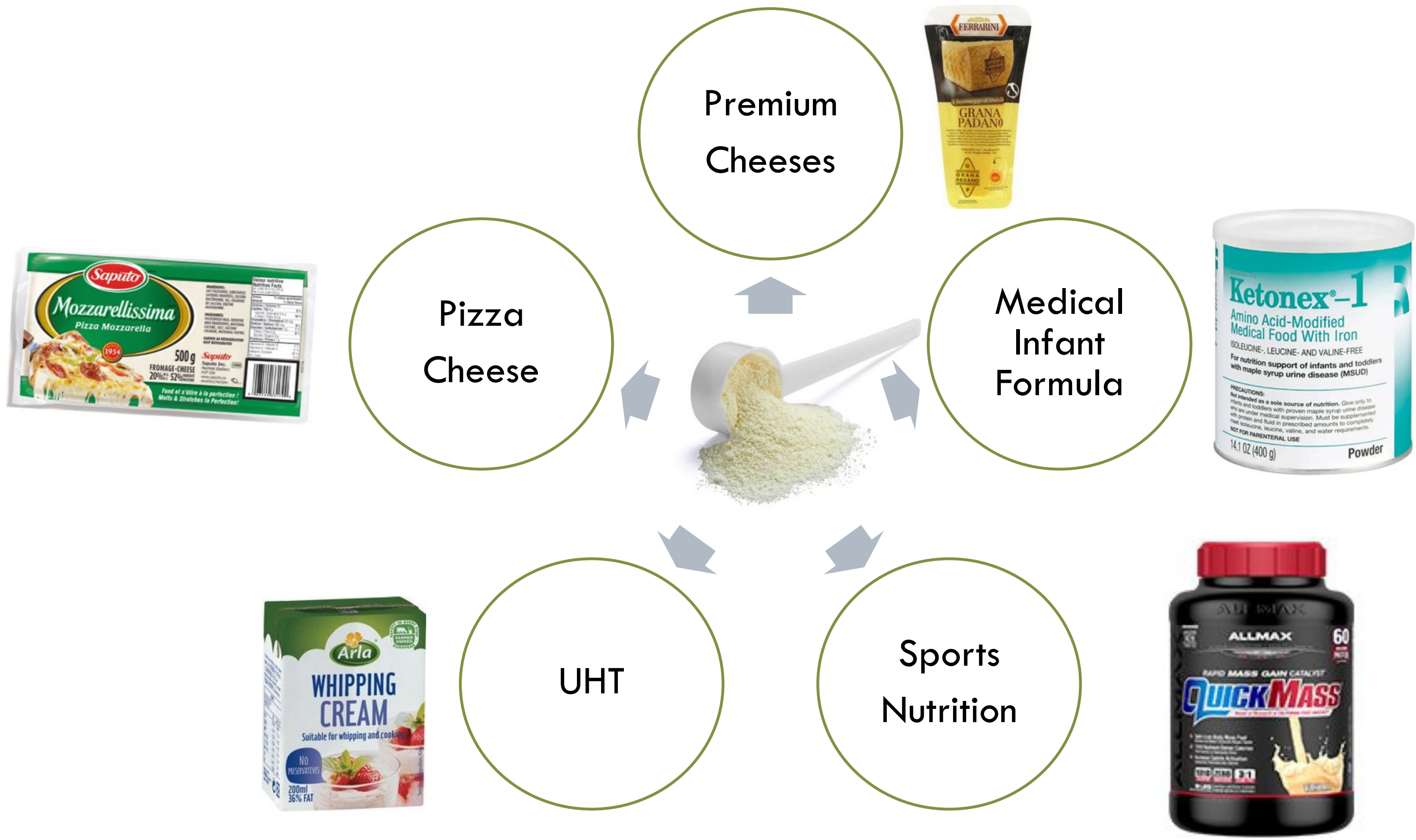


Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes for research/study/commentary/criticism/review; Source: Coriolis analysis

1.2 BEEF & SHEEP IN NORTHLAND

SCORECARD	
ON-FARM	
Units *(2018)*	3,180
Unit Change *Abs. (00-18)*	-1,722
Unit Change *CAGR (00-18)*	-2%
Employees *(2018)*	5,403
Employee *Change (00-18)*	-1,468
Employee *CAGR (00-18)*	-1%
PROCESSING	
Units *(2018)*	12
Unit Change *Abs. (00-18)*	-
Unit Change *CAGR (00-18)*	-
Employees *(2018)*	710
Employee *Change (00-18)*	-155
Employee *CAGR (00-18)*	-1%
OTHER	
Area *(ha)*	
POTENTIAL EMPLOYMENT GROWTH*	+200-300 manufacturing

SELECT REGIONAL FIRMS

AFFCO New Zealand; Silver Fern Farms; Omak Meats; Your Fresh Meat Company; Windy; Black Stag

'ELEVATOR PITCH'

Northland can be a supplier of premium beef and lamb products.

VALUE-ADDED OPPORTUNITIES

- Investment in premium meat breeds (angus, wagyu) and markets
- Develop farm to plate story
- Meal solutions with meat as key ingredient
- Ready to Eat premium categories
- Development of unique, marketable qualities (e.g. omega lamb)

DRIVERS OF GROWTH

- Free range, pasture fed, hormone free meat
- Asian middle class demanding more protein
- Growth of high end premium grass-fed beef
- Population growth

KEY RISKS & SENSITIVITIES

- Declining sheep flock (increase plant inefficiencies)
- NZ unable to compete with high supply beef nations such as Brazil
- Additional cost imposed by government regulation (e.g. methane emission regulations)
- Rise of alternative proteins and meat substitutes
- Biosecurity/disease enters NZ (e.g. M. bovis)

WHAT YOU WOULD NEED TO BELIEVE

- Major firms (AFFCO and SFF) continue to invest in the region, in particular in value added categories
- Small firms continue to provide premium products and grow their businesses beyond the regional market
- Able to target high value markets and obtain premium for sheep and beef
- NZ maintains its premium in sheep/lamb in export markets
- NZ maintains its disease free status

KEY COMPETITORS

DOMESTIC	EXPORTERS
- All of NZ	- Australia - Brazil

**Coriolis estimates based on modelling, research and past work; treat as aspirational, indicative; Source: Statistics NZ; MPI/MAF; Coriolis estimates and analysis*

1.2 BEEF & SHEEP

Global demand for meat continues to grow while New Zealand cattle numbers are under pressure

The Northland red meat industry is consolidating

- Northland has long term falling animal numbers across all species, particularly sheep
- Northland has declining 'meat producing' farm unit numbers

Red meat farming and processing is unlikely to create significant new jobs in Northland going forward

- Northland has declining on-farm employment on 'meat producing' farms
- Meat processing in Northland is not creating net new units or new processing jobs

Northland needs to focus on maintaining existing processing jobs by adding value in the region

- Northland currently markets most of its red meat as ingredients; opportunities exist to create more complex products

Global demand for meat continues to growth, while New Zealand cattle numbers are under pressure

"Overall, global meat consumption is rising with no sign of a plateau. Projections… show these trends continuing, with Asia in particular rapidly converging on "Western" levels of consumption… demand for meat will double in the 50 years to 2050."

WORLD ECONOMIC FORUM

"Global meat-eating is on the rise, bringing surprising benefits… As Africans get richer, they will eat more meat and live longer, healthier lives… Between 1961 and 2013 the average Chinese person went from consuming 4kg of meat a yr to 62kg. Half of the world's pork is eaten within the nation… the primary reason Chinese are consuming extra meat is solely that they're wealthier…
Within the decade to 2017 international meat consumption rose by a median of 1.9% a year."

The Economist

"African swine fever will "shake up the basket" of global agricultural trade for years to come… Arlan Suderman, chief commodities analyst with INTL FCStone, said… hog feeding is down 40 percent… Total hog production in China is around 710 million animals a year, so a 40 percent reduction in feeding indicates 284 million in lost hog production. There isn't enough hogs in all of North and South America to make up for that shortfall. "It's just hard to grasp," he said. "The mind doesn't want to believe it because it's just so unfathomable that it could be that bad but that's what they're consistently saying.""

THE WESTERN PRODUCER

"New Zealand needs to get rid of up to a fifth of livestock methane emissions to stop more global warming…

New Zealand would need to reduce livestock methane emissions by up to 22 per cent by 2050 to stop any additional global warming, official research shows. This would likely require a serious reduction in the number of livestock farmed, unless new and untried technologies can be shown to work.."

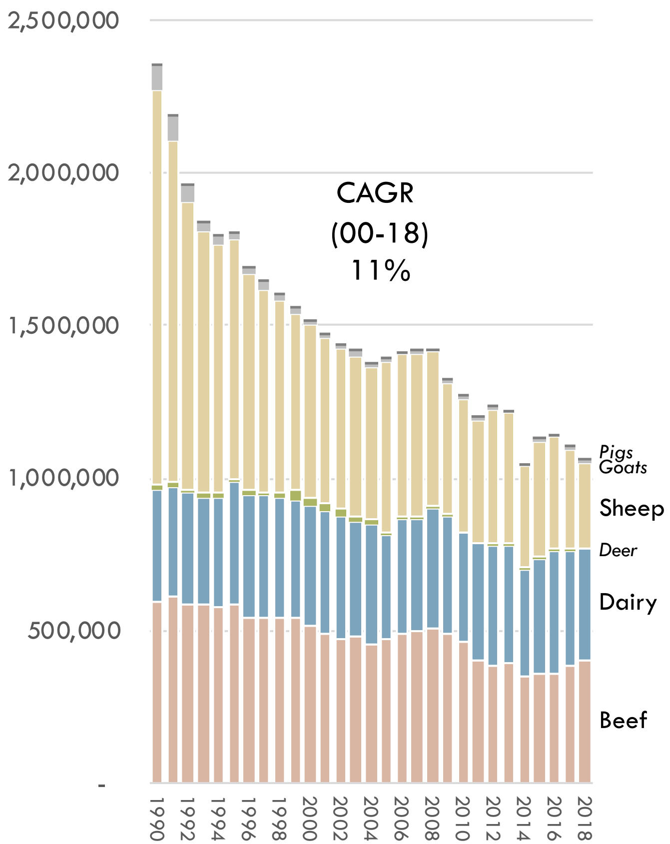
stuff

Source: articles; interviews; Coriolis analysis

Northland has long term falling animal numbers across all species, particularly sheep and declining 'meat producing' farm units

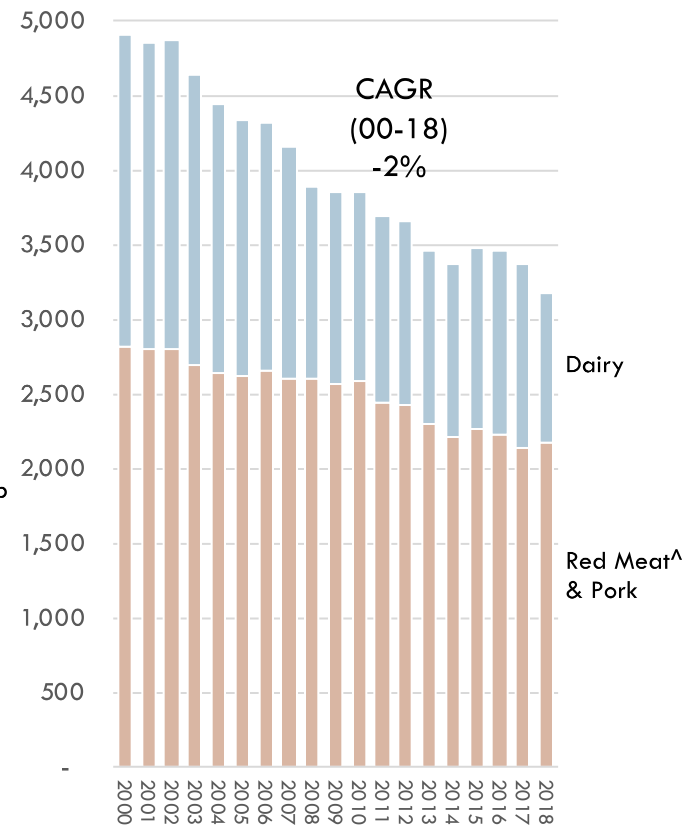
TOTAL ANIMALS

Headcount; 1990-2018*



FARM AND DAIRY UNITS

Geographic units; 2000-2018



COMMENTS/NOTES

This unfortunate situation will cascade through later industry metrics; it is difficult to create growth and employment in a situation of falling supplies of raw inputs

This data is a point-in-time inventory, not slaughter; this includes breeding stock and milking animals

This value for dairy cows will differ from that presented elsewhere; this is total dairy animal inventory, not just animals in milk, and it includes cows, calves and bulls

Government and industry collaborative program "Extension 350" is in year two – aiming to increase profitability, environmental sustainability and farmer wellbeing

In Northland, the dairy sector is consolidating faster than red meat

There is an unresolved 'chicken-and-the-egg' problem here: are falling animal numbers leading to falling farm numbers or vice versa?

Multiple farm sub-types are rolled together under 'red meat and pork' due to overlapping stocking and processing

Dairy farms are included as they produce significant amounts of cattle meat as a secondary outcome of their primary activity

Statistics NZ units should be seen as operational units based in Northland, defined in this case as firms with over $60k in revenue annually (GST threshold)

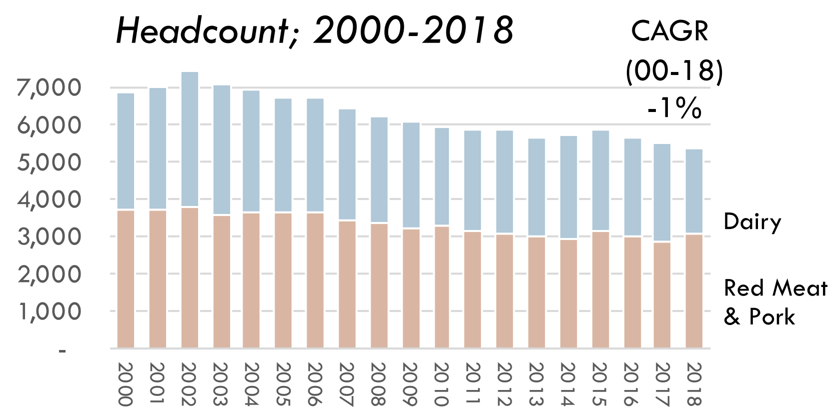
Caution should be take to avoid double counting; report sections overlap and are not MECE (mutually exclusive, collectively exhaustive)

* Point in time inventory; ^ Red meat = Beef, Sheep, Deer, Goat; Source: Statistics NZ; Coriolis analysis and estimates

Northland has declining on-farm employment on 'meat producing' farms; processing not creating net new units or new processing jobs

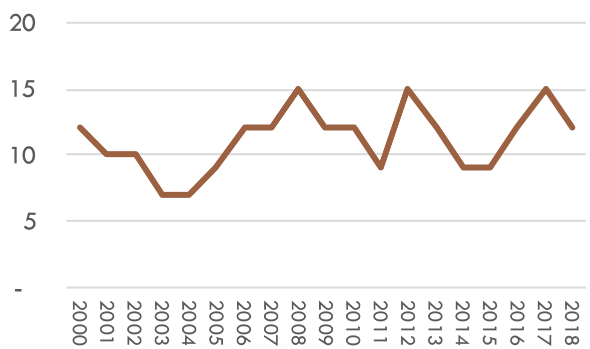
ON-FARM EMPLOYMENT

Headcount; 2000-2018



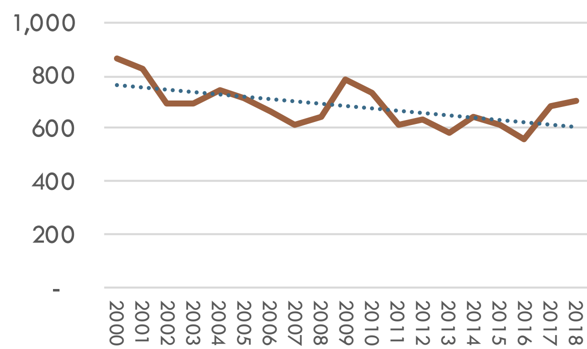
MEAT PROCESSING UNITS

Headcount; 2000-2018



PROCESSING JOBS

Headcount; 2000-2018



COMMENTS/NOTES

Employment is not declining as rapidly as units, suggesting a shift to fewer, larger units

Employee headcount includes full and part time, including owner operators (discussed below)

Employees includes an estimate for owner-operators (i.e. non-PAYE employees) at 1 per operational unit

Caution should be take to avoid double counting; report sections overlap and are not MECE (mutually exclusive, collectively exhaustive)

Employee headcount includes full and part time

Employees is IRD PAYE employees

Statistics NZ units should be seen as operational units based in Northland, defined in this case as firms with over $60k in revenue annually (GST threshold); this will include non-cow dairy, and operations with multiple parent companies

This analysis will include non-cow dairy processing operations and employees

Units are defined by Statistics NZ as those predominantly producing processed dairy products (as opposed to, say, predominantly farming cows and selling milk but making hobby cheese on the side or predominantly running a cheese wholesaler but making cheese on the side)

Source: Statistics NZ; various DairyNZ reports; Coriolis analysis and estimates

Northland currently markets most of its red meat as ingredients; opportunities exist to create more complex products

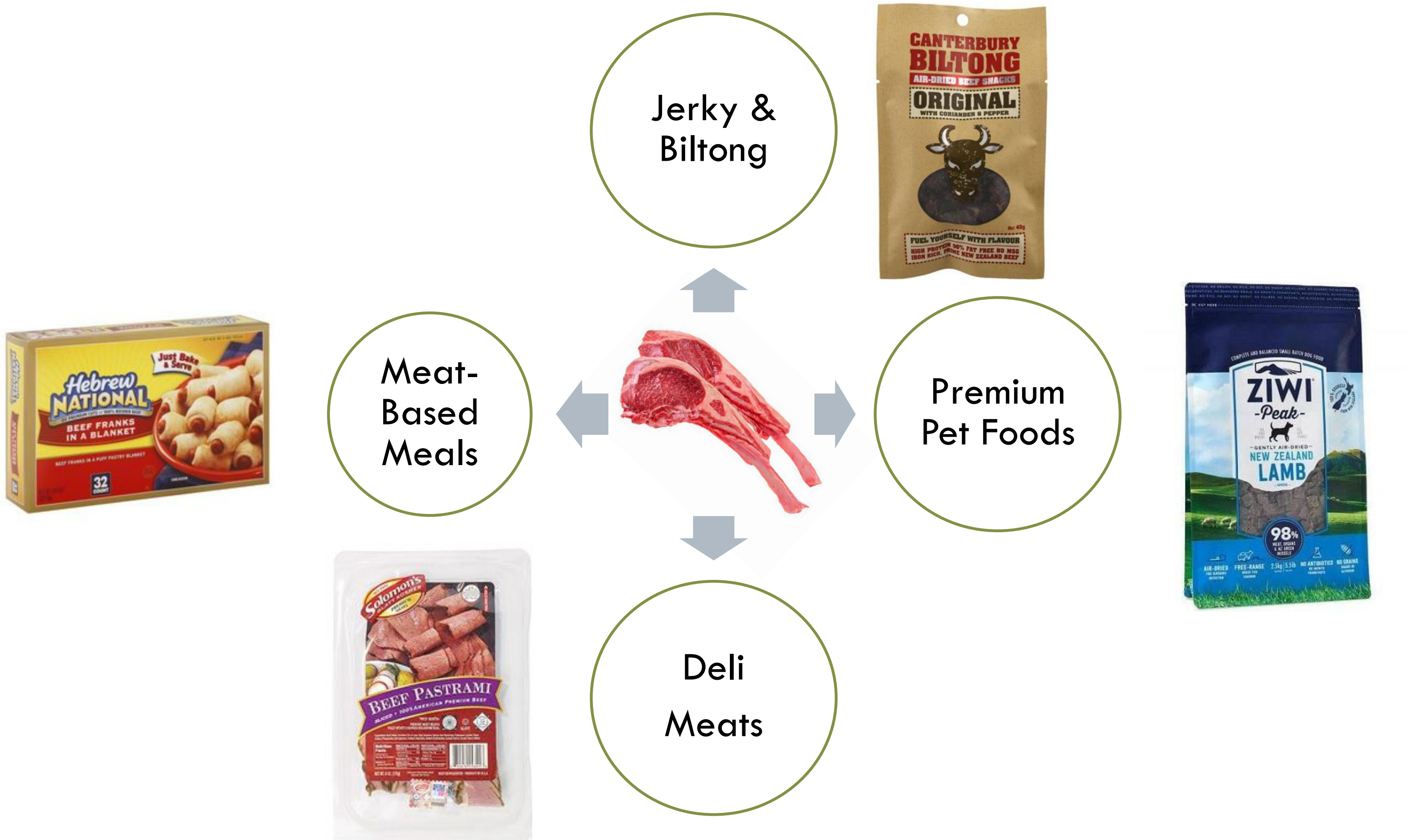


Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes for research/study/commentary/criticism/review; Source: Coriolis analysis

1.3 SEAFOOD IN NORTHLAND

SCORECARD

ON-FARM	
Units *(2018)*	141
Unit Change *Abs. (00-18)*	-75
Unit Change *CAGR (00-18)*	-2%
Employees *(2018)*	276
Employee *Change (00-18)*	-110
Employee *CAGR (00-18)*	-2%
PROCESSING	
Units *(2018)*	15
Unit Change *Abs. (00-18)*	-3
Unit Change *CAGR (00-18)*	-1%
Employees *(2018)*	99
Employee *Change (00-18)*	+3
Employee *CAGR (00-18)*	0.2%
OTHER	
Coastline *(km)*	*3,595*
POTENTIAL EMPLOYMENT GROWTH*	+500-1000 Total[1]

SELECT FIRMS IN THE REGION

MOANA NEW ZEALAND

AQUARIUS FISHERIES

KONO

KIWA OYSTERS

apatu aqua

OCEANZ BLUE ABALONE

WESTPAC

Paroa Bay Oysters

Zephyr Oysters

'ELEVATOR PITCH'

Aquaculture in Northland can be a $1b industry by 2025[1]
Northland's onshore and sea environment is ideally suited to aquaculture (mild weather and numerous bays)

KEY RISKS & SENSITIVITIES

- Diseases can impact industry (e.g. biotoxins, oyster OsHV-1virus in 2011)
- Social license – can aquaculture successfully grow in the north (some local opposition)

WHAT YOU WOULD NEED TO BELIEVE

- Oyster industry bounces back from Sanford plant closure and oyster virus
- Oyster industry growth utilising new technologies (e.g. new mould technology enabling automatic shucking)
- Applications for new developments are granted permission (e.g. Westpac mussels)
- On-going research into kingfish and hapuka aquaculture at NIWA's Bream Bay research facility result in commercially viable operations
- Success and growth of Oceanz Blue abalone industry drives the industry in Northland

VALUE-ADDED OPPORTUNITIES

- Oyster processing for export
- Smoked seafood
- Pate, spreads
- Ingredient as part of meal solution
- Using byproduct, shells (construction, fertiliser)
- Nutraceuticals (oils, green-lipped mussel extract)

DRIVERS OF GROWTH

- Aquaculture is a fast growing protein (vs animals)
- Healthy source of protein and oils
- Limited growth in wild catch, leaves aquaculture as a viable option

KEY COMPETITORS

DOMESTIC	EXPORTERS
- Nelson/Marlborough - Coromandel - Bluff	- Chile

*1. on-sea, on-farm and processing, primarily in aquaculture; *Coriolis estimates based on modelling, research and past work; treat as aspirational, indicative; Source: Statistics NZ; MPI/MAF; Coriolis estimates and analysis*

1.3 SEAFOOD

Growing global demand for seafood is being met almost exclusively through aquaculture

Overall, the Northland seafood industry is currently consolidating

- Total New Zealand seafood volumes are falling, with wild capture trending down and aquaculture stabilised
- Northland has declining seafood unit numbers
- Northland has declining seafood employment

Northland has the theoretical potential to produce more seafood – and seafood jobs – than it does currently

- Northland has an abundance of coast and is second only to Southland in terms of total coast length
- Despite abundant coastline, Northland only accounts for an estimated 6% of total seafood production volume
- Northland could produce more jobs from its coastline

The Northland seafood industry believes it can grow, primarily through aquaculture

Growing global demand for seafood is being met almost exclusively through aquaculture

"Positive outlook for global seafood as demand surges for multiple species in markets across the world… An estimated 2.3 percent hike in global fish production combined with good market conditions around the world gave a significant boost to trade… Aquaculture continues to increase its contribution to the world's seafood supply, growing at a steady rate of about 4.5 percent… Capture fisheries productions remain stable… Asia, and particularly China, remains the major driver of global seafood development on both the supply and demand side."

Food and Agriculture Organization of the United Nations

"Rising Seafood Consumption Spurs Growth in the Global Aquaculture and Fisheries Market… The global market for Aquaculture and Fisheries is projected to reach 188 million tons by 2020, driven by surging consumption of seafood in both developed as well as developing regions and the continuous decline in natural fish stock… With seafood production struggling to keep pace with rising consumption, there is increased interest in aquaculture and fish farming as a means to bridge the widening gap between demand and supply by supplementing the output of capture fisheries."

The Fish Site

"Why the long-term outlook for China's seafood imports is bright… Growing demand for seafood in China is coming up against a wall of environmental problems that are holding back domestic production, opening the door for imports into the world's largest economy."

SeafoodSource

"The world fish trade is forecast to hit an all-time high this year, helped by the economic recovery in key European importers, as well as high prices of popular fish such as salmon… Compared with most other agricultural businesses, such as grains, fish producers have offered higher returns. Salmon producers, for example, have generated total shareholder returns – the combination of share price gains and dividend yield for a company's stock – of 45 to 60 per cent since 2012."

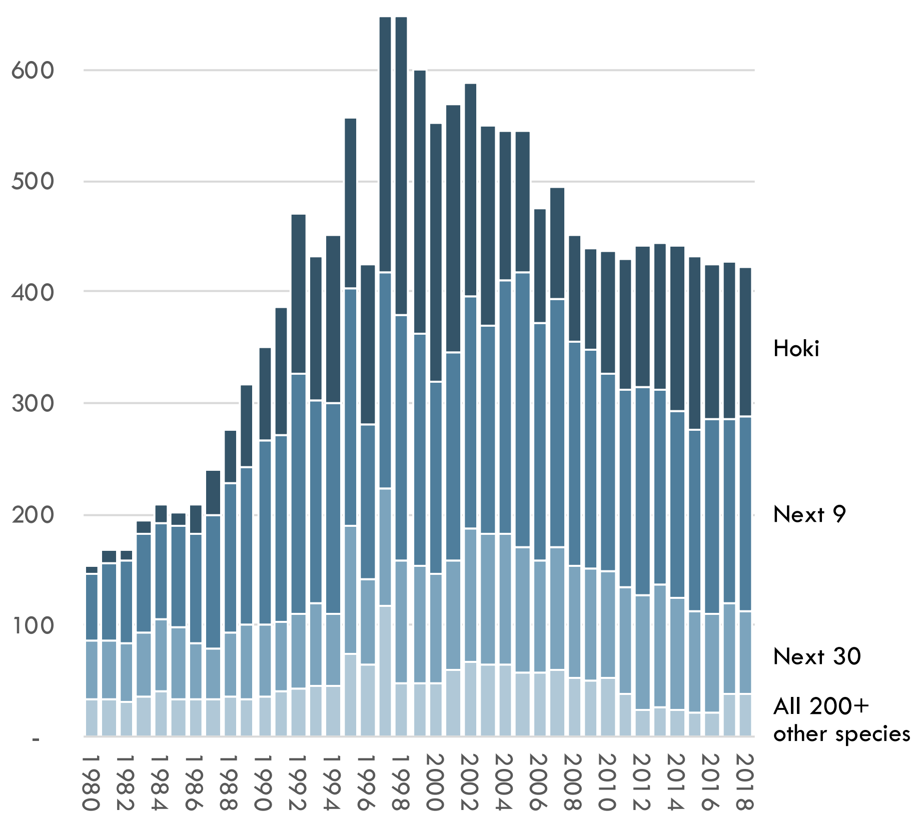
FT Financial Times

Source: articles; interviews; Coriolis analysis

Total New Zealand seafood volumes are falling, with wild capture trending down and aquaculture stabilised

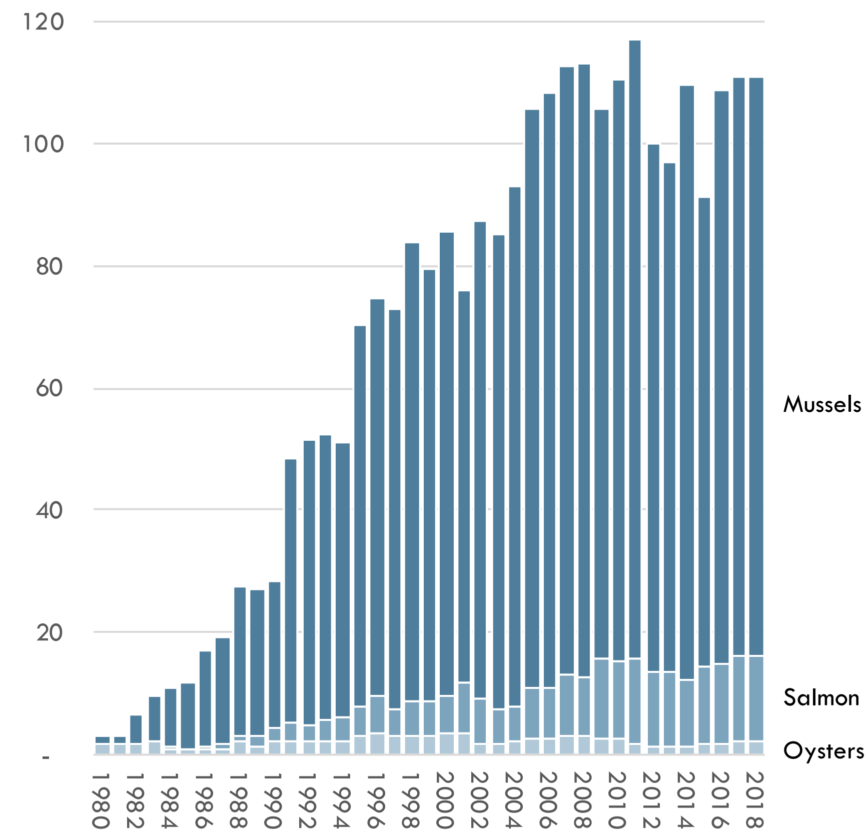
TONNES WILD CAPTURE

T; 000; 1980-2018



TONNES AQUACULTURE

T; 000; 1980-2018

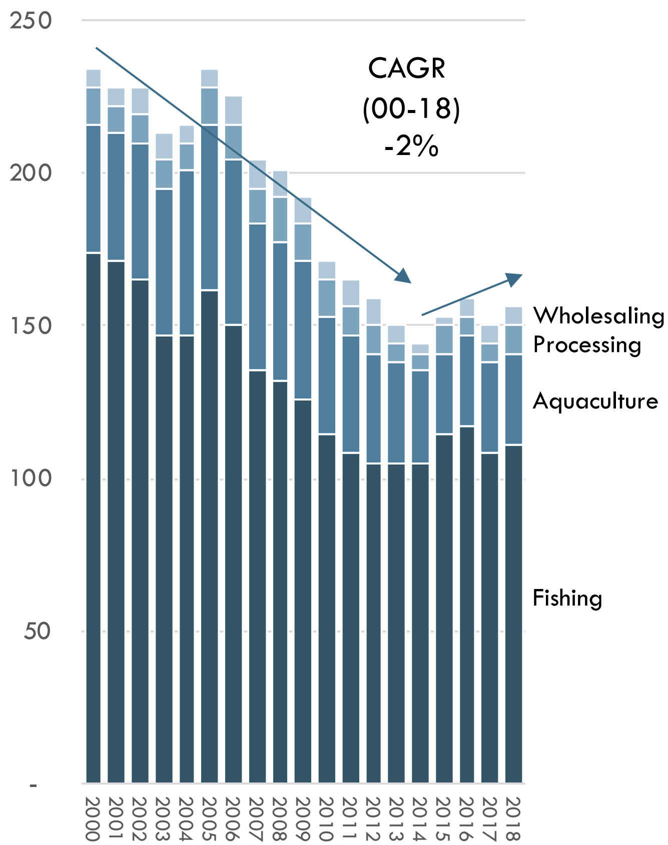


Source: UN FishStat; Statistics NZ; MPI/MAF/MoF; industry sources; Coriolis analysis and estimates

Northland has long term declining seafood unit numbers and employment; however recent upsurge since 2013

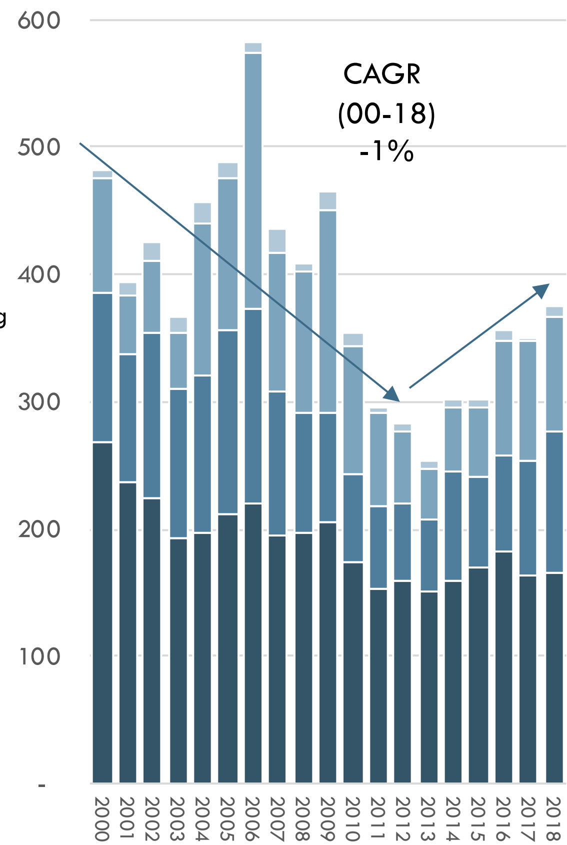
SEAFOOD UNITS BY TYPE

Geographic units; 2000-2018



SEAFOOD EMPLOY BY TYPE

Headcount; 2000-2018



COMMENTS/NOTES

Statistics NZ units should be seen as operational units based in Northland, defined in this case as firms with over $60k in revenue annually (GST threshold)

Statistics NZ classifies units by their predominant activity; however, in practice units may play multiple roles (e.g. process and wholesale fish on site); as a result, there is some definitional 'softness' in that a SNZ classification of a unit may not match the owners perception or self-identification

These are geographic or activity units; a single firm can have more than one of these

With seafood (and F&V, but not all other sectors) we add wholesalers due to these being, in this industry, a core industry activity due to product perishability

Does not include fish-and-chip shops or retail fishmongers, though some of these may overlap

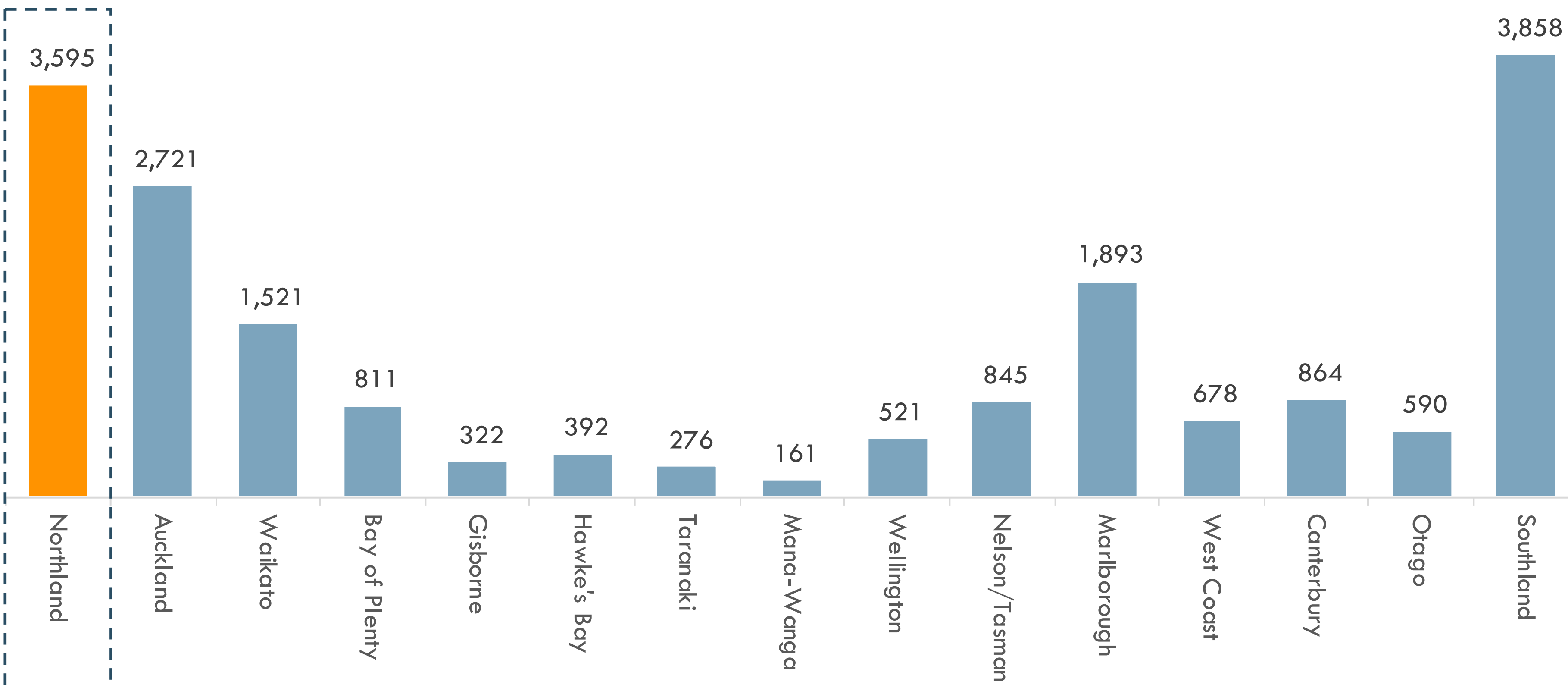
There are signs of recovery 2013-2018, particularly processing and aquaculture

Fishing and aquaculture (but not processing or wholesaling) include an estimate for owner-operators (i.e. non-PAYE employees) at 1 per operational unit; this is a rough fix to the incomplete available data

Source: Statistics NZ; Coriolis analysis and estimates

Northland has an abundance of coast and is second only to Southland in terms of total coast length

COASTLINE BY REGION
Km; 2019



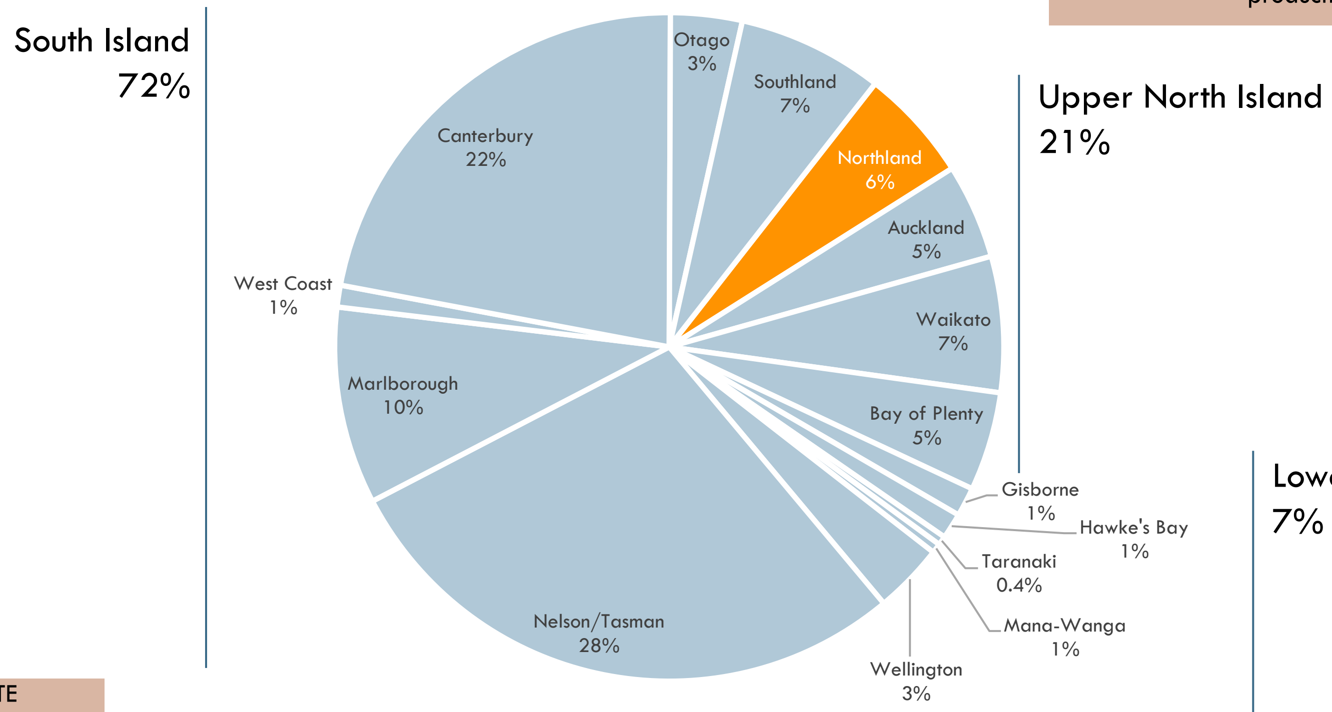
Note: May not be comparable to other sources, but uses common measure (polygon size) across all regions; Source: LINZ dataset; Coriolis analysis

Despite abundant coastline, Northland only accounts for an estimated 6% of total seafood production volume

ESTIMATED SHARE OF LANDED WILD & AQUACULTURE VOLUME BY REGION

% of tonnes; 2018

Oysters in NLD are 38% of National production



CORIOLIS ESTIMATE
Total regional data is not collected

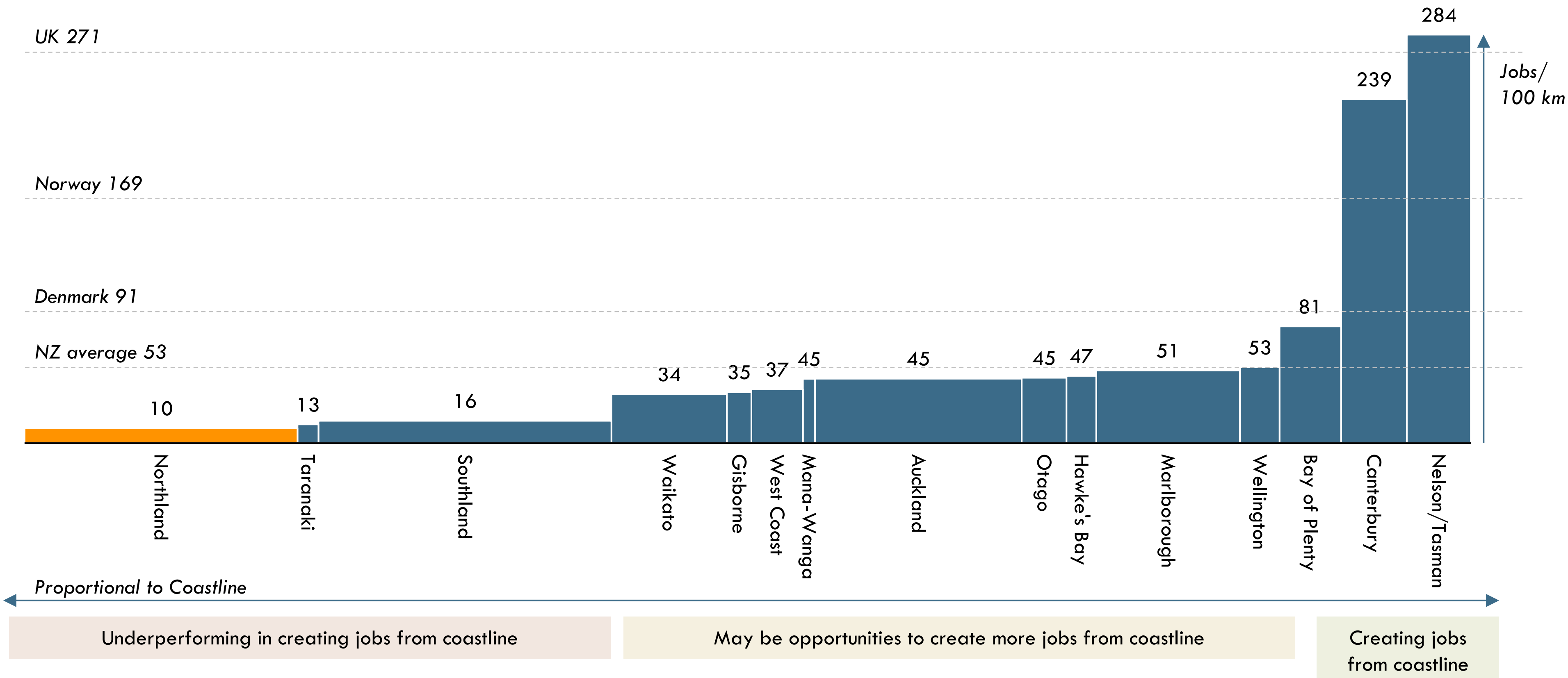
Total = 534,000t

Note: point of landing not location of capture; Source: Coriolis modelling

Northland could produce more jobs from its coastline

TOTAL SEAFOOD INDUSTRY EMPLOYMENT PER 100 KILOMETRE OF COASTLINE

Headcount/100 km; 2018



Source: Statistics NZ; Coriolis analysis

The Northland seafood industry believes it can grow, primarily through aquaculture

"The aquaculture industry aims to be $1b by 2025. This growth coming from oysters, mussels, abalone and finfish… oysters in Northland currently account for 38% of the national production."

Aquaculture Northland, Northland Inc

"Firms need to keep using their licenses or they will be revoked. There are a lot of job opportunities in aquaculture."

Director, Diversified Farm Operator, Northland

"Northland has around 270 hectares of developed aquaculture area. Most of this is for Pacific oysters, which are predominantly farmed in Northland, with a small area for greenshell mussels and a single commercial paua farm at Bream Bay [Oceanz Blue]. The majority of oyster farms are located in Whangaroa Harbour, Bay of Islands, Houhora, Kaipara and Parengarenga Harbour. Mussel spat collection in New Zealand, and farms throughout New Zealand are reliant on it. There is also a large scale mussel farm on the northern side of Houhora Harbour [Westpac Mussels]."

Aquaculture Northland, Northland Inc

"Aquaculture can employ a lot of people in the region. There has been some real innovation in this space especially out of the NIWA operation at Bream Bay. If we can get that rolled out over the region that would be great."

Farmer, Northland

Source: *interviews; Coriolis analysis*

Seafood provides numerous opportunities for extensible platforms

Smoked

Oil

Pate

Live

Nutraceuticals

Photo credit: Pacific oysters (CC BY-SA Guido); products shots fair use/fair dealing; low resolution; complete product/brand for illustrative purposes; Source: Coriolis analysis

1.4 CITRUS IN NORTHLAND

SCORECARD

ON-FARM - CITRUS	
Units *(2018)*	27
Unit Change *Abs. (00-18)*	-108
Unit Change CAGR (00-18)	-9%
Employees *(2018)*	42
Employee *Change (00-18)*	-433
Employee CAGR (00-18)	-13%
PROCESSING F&V (Total F&V Processing[1])	
Units *(2018)*	15
Unit Change *Abs. (00-18)*	0
Unit Change CAGR (00-18)	0
Employees *(2018)*	195
Employee *Change (00-18)*	64
Employee CAGR (00-18)	2.2%
OTHER	
Area *(ha)*	*307*
POTENTIAL EMPLOYMENT GROWTH*	+50-100 Total[2]

SELECT FIRMS IN REGION

T&G (A BayWa Company); Seeka (Select Excellence); freshmax

'ELEVATOR PITCH'

Northland fruit are first to market and with easy access to the largest domestic market (Auckland)

KEY RISKS & SENSITIVITIES

- Declining volumes reduce efficiency of packhouses
- Movement of production to East Coast (e.g. Gisborne, Hawkes Bay)
- Higher cost of production, difficult to compete globally

VALUE-ADDED OPPORTUNITIES

- Citrus based liqueur (e.g. Cointreau)
- Juice
- Desserts (e.g. ice blocks)
- Sauces/dressings/marinades

WHAT YOU WOULD NEED TO BELIEVE

- Northland is able to stabilise area losses and concentrate on core growth varieties
- On-going investment in sector (Seeka $18m post harvest investment to support multiple sectors including citrus)

DRIVERS OF GROWTH

- Convenience, in particular easy peel
- Early seasonal window; Northland is first to market
- Warmer climate relative to other regions

KEY COMPETITORS

DOMESTIC	EXPORTERS
- Hawkes Bay - Gisborne	- USA - Egypt - China - South Africa - Australia

*1. Data is total F&V Processing in Northland; packhouses typically pack multiple fruit /veg; caution against double counting; 2. On-orchard and processing; *Coriolis estimates based on modelling, research and past work; treat as aspirational, indicative; Source: Statistics NZ; MPI/MAF; Coriolis estimates and analysis*

1.4 CITRUS

Citrus is changing, with more demand for convenience and flavour

The Northland citrus industry is shrinking and shedding jobs

- Northland has declining citrus area and tonnage
- The citrus industry in Northland is restructuring and under pressure
- Tonnes per unit is growing, indicating fewer, larger units remaining; at the same times jobs per unit is down

The Northland citrus industry has a clear strategic direction if it is to turn around the current situation

The global citrus industry is changing, with more demand for convenience and flavour

"The hierarchy of [US] summer citrus-supplying countries has changed in the past 10-13 years, with those with significant easy peeler production, like Chile, rising to the top of the list and displacing traditional summer orange suppliers, like Australia…Easy peelers are enjoying double-digit compound annual growth. Production regions like South Africa are expected to have 20% to 40% more late mandarin oranges, according to Summer Citrus from South Africa…Consumers want the easy-peel citrus experience to continue through the summer months, especially with families on the go."

The Packer

"Mandarins, also known as 'easy-peel' oranges, have rapidly come into favour with consumers over the past decade…The growing popularity of mandarins is eating into the traditional domestic demand for navel oranges… Lemons have also continued to grow in popularity, with US domestic demand currently at an all-time high."

Rabobank

"Already, California bearing acreages of mandarins has increased by 250 percent in the past decade. During the same period, California's bearing acreage of navels, valencias, and lemons has fallen by 4, 32, and 4 percent, respectively."

Fresh Plaza

"Citrus production has surpassed 100 million tons and certain market saturation starts to occur, particularly with regard to the production of oranges… Consumers seek fruit that is easy to handle and peel, without seeds but with adequate size and juice content, balanced sugar/acid ratio, and attractive bright color. Current production trends indicate that variety profile is shifting towards 'easy peelers'. This is particularly true with the fact that the two hemispheres are complementary and that development of transport technology allows for long-distance shipping and storage for long periods of time."

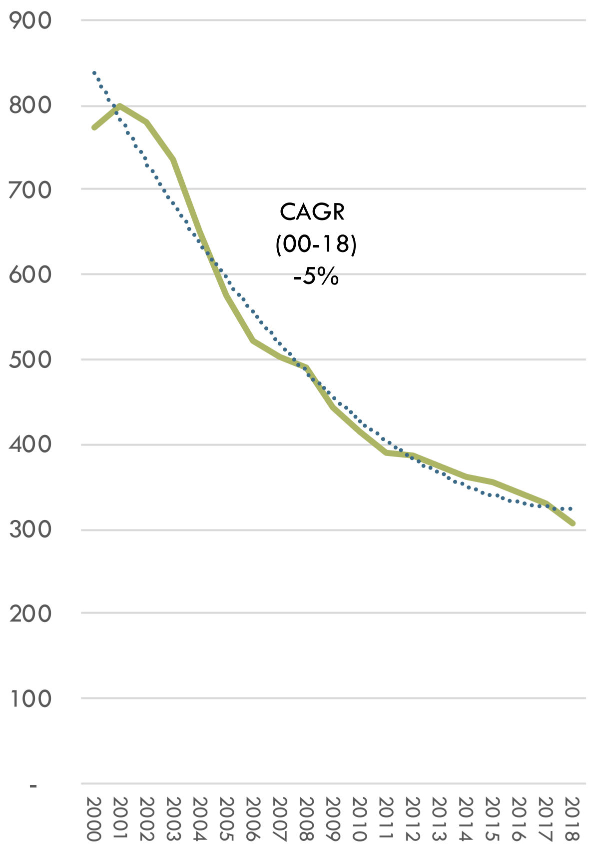
ScienceDirect

Source: articles; interviews; Coriolis analysis

Northland has declining citrus area and tonnage

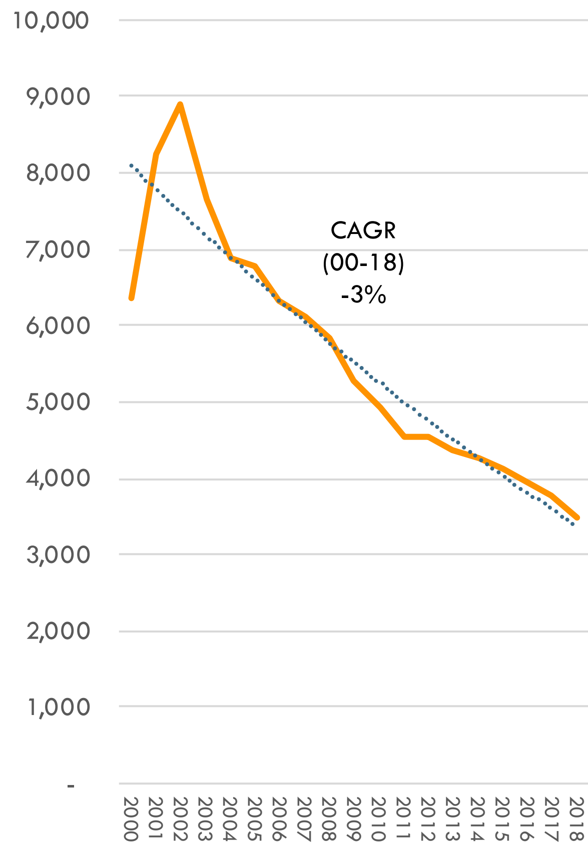
HECTARES

Ha; 2000-2018



TONNES

T; 2000-2018



COMMENTS/NOTES

Northland was traditionally a major New Zealand citrus producing region, established in the 1920s; propelled into growth through the 1980s Kerikeri Irrigation Scheme

Interviewees and press reports indicate that in key Northland citrus regions (e.g. Kerikeri), land price increases and subdivisions are shifting orchards out of production

New Zealand does not appear to currently record, collect or report citrus production by region

Data presented here is modelled from national citrus area and volume (which is reported) and available Northland data

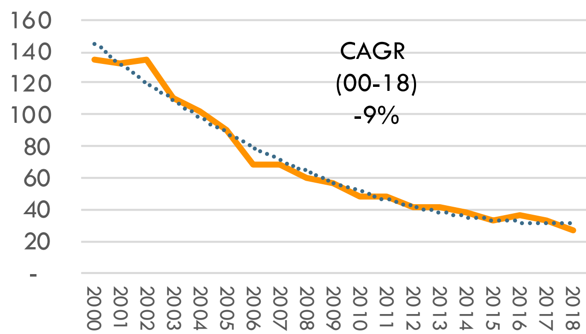
Treat as indicative/directional

Source: Statistics NZ; UN FAO AgStat; MAF/MPI; Coriolis analysis and estimates

The citrus industry in Northland is under pressure; tonnes per unit is growing, indicating fewer, larger units remaining

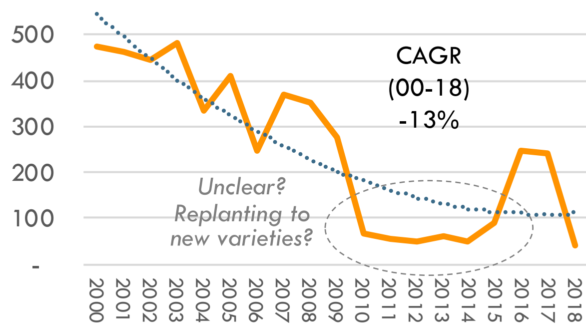
CITRUS FARM UNITS

Geographic units; 2000-2018



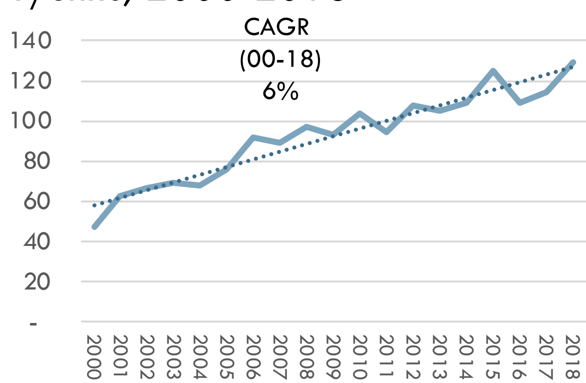
CITRUS FARM JOBS

Headcount; 2000-2018



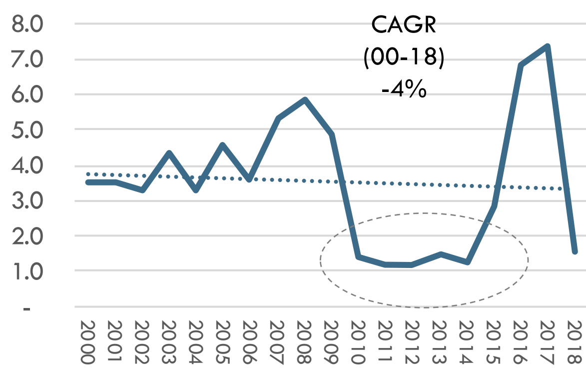
TONNES/PROC. UNIT

T/units; 2000-2018



JOBS/PROC. UNIT

Headcount/unit; 2000-2018



COMMENTS/NOTES

This is a from a different dataset than the page prior; this data ultimately comes from the IRD tax records

Units should be read as business locations with over $60,000 in revenue (i.e. GST reg.) that receive the majority of their revenue from citrus (i.e. citrus growers)

Employee headcount includes full and part time, including owner operators (discussed below), but not hobbyists or lifestyle

For employment, we have assumed every unit has, in addition to any employees (i.e. PAYE), one owner operator (i.e. non-PAYE); we do this as most farmers use 'shareholder/director' formats rather than being on a PAYE salary

We have real reservations about the jobs/unit number – while accurate to SNZ data – there is a missing 'story' here

Units should be seen as professional, large scale and corporate operational units based in Northland, defined as firms with over $60k in revenue annually (GST threshold) and that predominantly farm citrus

Employees includes an estimate for owner-operators (i.e. non-PAYE employees) at 1 per operational unit

Proc = Processing; Source: Statistics NZ; UN FAO AgStat; MAF/MPI; Coriolis analysis and estimates

The Northland citrus industry has a clear strategic direction if it is to turn around the current situation

Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes for research/study/commentary/criticism/review; Source: Coriolis analysis

1.5 KIWIFRUIT IN NORTHLAND

SCORECARD	
ON-FARM - KIWIFRUIT	
Units *(2018)*	78
Unit Change *Abs. (00-18)*	-30
Unit Change *CAGR (00-18)*	-2%
Employees *(2018)*	478
Employee *Change (00-18)*	+250
Employee *CAGR (00-18)*	4%
PROCESSING – F&V (Total F&V Processing[1])	
Units *(2018)*	15
Unit Change *Abs. (00-18)*	0
Unit Change *CAGR (00-18)*	0
Employees *(2018)*	195
Employee *Change (00-18)*	64
Employee *CAGR (00-18)*	2.2%
OTHER	
Area *(ha)*	*440*
POTENTIAL EMPLOYMENT GROWTH*	+500-2000 Total[2]

SELECT FIRMS IN REGION

Seeka SELECT EXCELLENCE; ORANGEWOOD; AONGATETE advanced horticulture; Golden Mile Fruit Packers; APAC auckland pack & cool; EastPack Growers at heart

'ELEVATOR PITCH'

Northland fruit are first to market
Northland has favourable growing conditions, in particular for Gold which produces higher yields
Land prices in Northland favorable vs Bay of Plenty

KEY RISKS & SENSITIVITIES

- Disease
- Biosecurity threats
- Water availability
- Picking and packing staff availability, labour shortages

VALUE-ADDED OPPORTUNITIES

- Organic
- Liqueur beverages
- Juice (ingredient)
- Dried

WHAT YOU WOULD NEED TO BELIEVE

- Ongoing investment in kiwifruit planting and post harvest operations to support industry
- Significant growth projections for kiwifruit industry will result in further investment in Northland ($4.5b by 2025)
- New shipping line at Northport remains (previously fruit was trucked to Auckland and railed to Tauranga for export)
- NZ able to maintain it's tight biosecurity

DRIVERS OF GROWTH

- Growth of Kiwifruit Gold varieties
- Ongoing growth projections for the industry
- Favourable land prices in Northland vs Bay of Plenty
- Favourable growing conditions in Northland

KEY COMPETITORS

DOMESTIC	EXPORTERS
- Bay of Plenty - Auckland	- Italy - Belgium - Chile - Greece - Iran

*1. Data is total F&V Processing in Northland; packhouses typically pack multiple fruit/veg; caution against double counting; 2. On-orchard and processing; *Coriolis estimates based on modelling, research and past work; treat as aspirational, indicative; Source: Statistics NZ; MPI/MAF; Coriolis estimates and analysis*

1.5 KIWIFRUIT

New Zealand kiwifruit – particularly SunGold – are on a roll and in growth mode after recovering from PSA-V

Northland is seen as a favourable location for kiwifruit, with growing investment and returns for growers

Growth performance of the Northland kiwifruit industry over the past 15 years has been mixed; however, gold varieties are performing well

- Net kiwifruit area in Northland is not growing; however, underneath this the area in SunGold gold is surging
- Yields vary by variety in Northland, with gold varieties performing better than green

Production is down but revenue is up

- Kiwifruit production in Northland is currently still declining as a result of PSA-V; however, SunGold is growing production rapidly
- Total Northland kiwifruit revenue is growing, though obviously impacted by the transition to SunGold

Northland can clearly increase kiwifruit area

New Zealand kiwifruit – particularly SunGold – are on a roll and in growth mode after recovering from PSA-V

"By 2025, Zespri projects its global revenue will reach NZ$4.5b. This represents a significant increase over current levels of production and will require a step change in the way the industry operates to meet growing consumer demand. The industry's growth is expected to result in tray volumes increasing to up to 260m trays by 2025 from 139m trays in 2017/18. The SunGold variety is expected to be responsible for the lion's share of projected growth, with New Zealand volumes expected to increase to more than 88m trays in 2021/22."

ANZ

"Bust to boom: Red kiwifruit could be a game-changer...More than 180,000 cultivars and counting. Plant and Food Research breeds more than 10,000 kiwifruit cultivars for Zespri every year - and every year most of them will fail. But hopes are high for Zespri's new red kiwifruit variety which is in the trial stage. The New Zealand market is already sampling 30,000 trays this year. Zespri cultivar innovation manager Bryan Parkes said there was a lot of excitement about the potential for a red kiwifruit."

The New Zealand Herald

"A focus over the next five years is to seize the growth opportunity inherent in the fantastic success of SunGold while continuing to grow Green demand…The focus on growth of SunGold is driven by the positive market and consumer response during the past two seasons…Optimism in the growth potential of SunGold is strong."

Zespri

"Zespri closing in on red kiwifruit cultivar for commercial release…in the hope of finding one that can emulate the huge success of Zespri SunGold."

FreshFruitPortal.com

Source: articles; interviews; Coriolis analysis

Northland is seen as a favourable location for kiwifruit, with growing investment and returns for growers

"Seeka is spending $20 million on building a packhouse, packing machine and coolstores at its new Northland facility over the next two years. We are seeing a significant increase in trays supplied by new growers with 250 million committed so far. Once complete our Northland facility will be world class and a leader in the Northland kiwifruit community…the 8300 sq m new packhouse facility at Kerikeri has been built and the processing machine is largely installed. It will be ready for the harvest in a few weeks." *CEO, Michael Franks, Mar 2019.*

RURAL NEWS

"The majority of New Zealand kiwifruit is grown in the Bay of Plenty, however with limited greenfield land available, the sale of the SunGold licence by Zespri will require alternative growing regions…Northland's subtropical climate and wide diversity of soil is being considered by industry participants as an area with strong growth potential, which would suit the SunGold variety…With an already established grower network, Northland's kiwifruit industry has the opportunity to grow."

ANZ

"A bumper Northland kiwifruit crop earned the region's growers more than $50 million in export sales this year…In Northland, the return is well up on 2017's $44m, and the nationwide return more than matches the 144 million trays recorded in 2017, up 18 per cent on 2016 harvest. *Dec 2018*

The New Zealand Herald

"The cost to get one pallet of kiwifruit from Kerikeri to Tauranga used to be about $102 but to load it at Marsden Point cost about $36, a saving of $66 directly for the producers." *Karen Pickford, Kiwifruit Grower, Northland, Dec 2018*

The New Zealand Herald

"The company has identified the region as a growth area for both avocados and kiwifruit and establishing a post-harvest hub in Northland has been a priority." *CEO, Michael Franks, Apr 2018.*

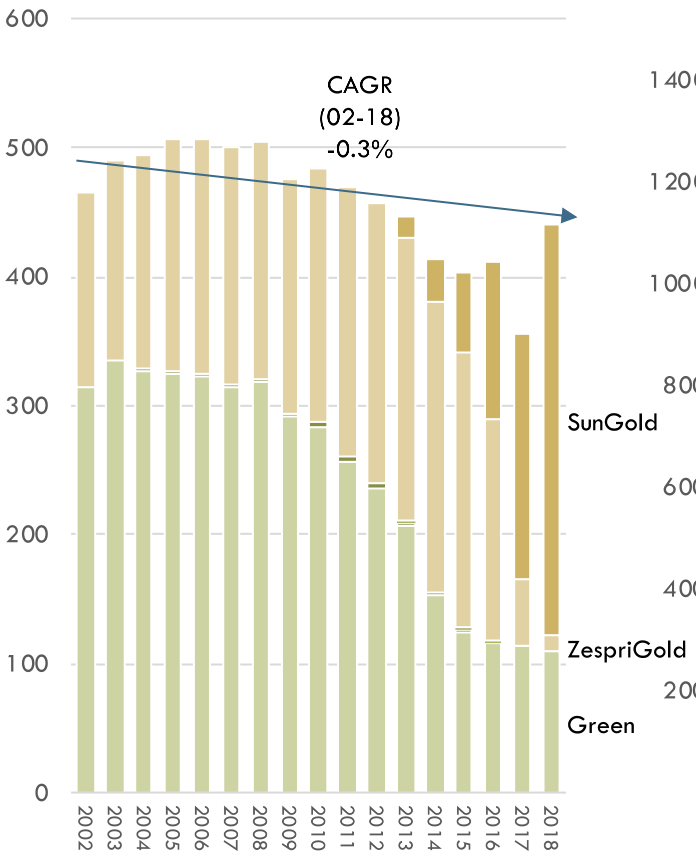
Seeka
SELECT EXCELLENCE

Source: interviews, articles; Coriolis analysis

Net area in Northland is not growing; however, underneath this the area in SunGold gold is surging and performing well

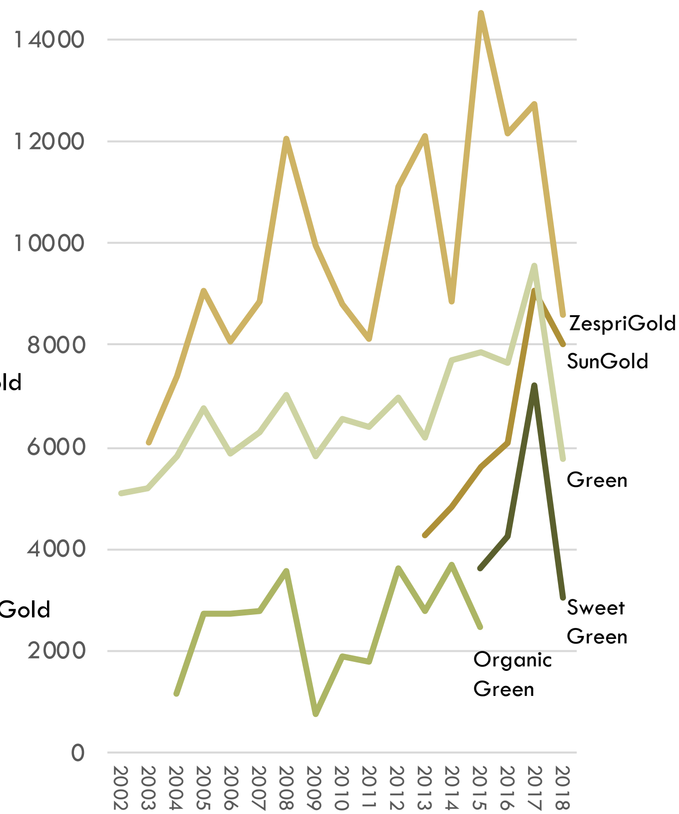
KIWIFRUIT AREA BY VARIETY

Producing ha; 2002-2018



KIWIFRUIT YIELD

Tray equivalents/hectares; 02-18



COMMENTS/NOTES

Zespri Gold was particularly susceptible to the PSA-V disease; Zespri Gold is being replaced with SunGold which is more resistant to the disease

Interviewees and data support that gold can get higher yields in Northland than in Bay of Plenty (the opposite is true for green)

Small amounts of organic green and Zespri Sweet Green are shown on the chart but not labelled (for legibility)

Data is 'producing' hectares; will exclude new planting that are not yet bearing

Zespri Gold was particularly susceptible to the PSA-V disease

Interviewees and data support that gold can get higher yields in Northland than in Bay of Plenty (the opposite is true for green)

Yields will be supressed for new varieties as newly bearing plants have lower yields; Sungold is not yielding like Zespri Gold was in 2005/06.

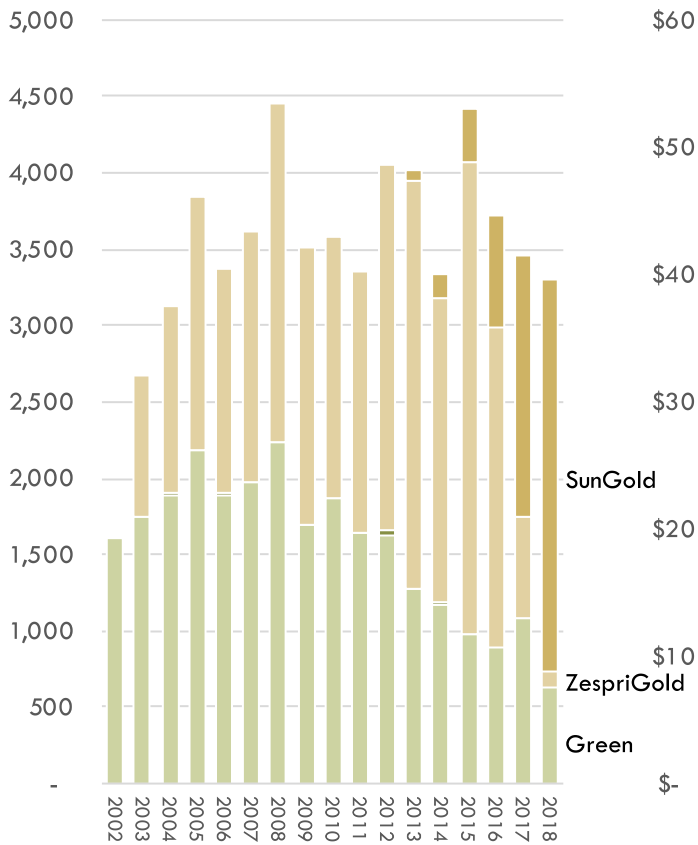
Data is 'producing' hectares; will exclude new planting that are not yet bearing

Source: various Zespri Annual Reports; Coriolis analysis

Kiwifruit production in Northland is currently still declining as a result of PSA-V; however, SunGold is growing production rapidly

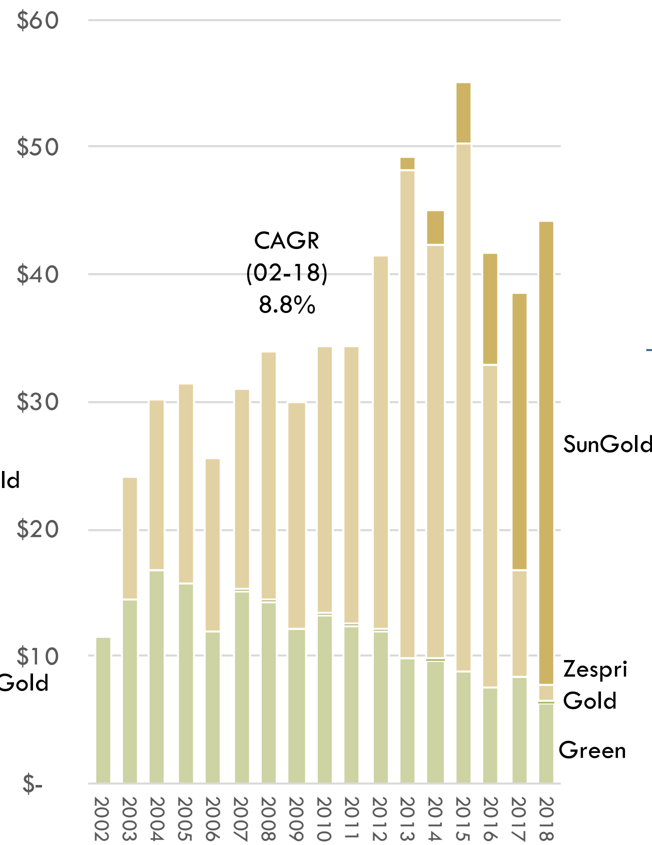
KIWIFRUIT PRODUCTION

Tray equivalents; 000; 2002-2018



GROSS REVENUE

NZ$; m; 2002-2018



COMMENTS/NOTES

Zespri Gold was particularly susceptible to the PSA-V disease

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Yields will be supressed for new varieties as newly bearing plants have lower yields; Sungold is not yielding like Zespri Gold was in 2005/06

Data is tray equivalents 'producing' hectares; will exclude new planting that are not yet bearing

Uses data from various Zespri annual reports

Due to limited available data (an incomplete picture), analysis assumes (1) all fruit are Class 1 (no breakout) and (2) all receive national average payment

Gross revenue is "Total fruit and service payments (including loyalty premium)" and is a gross payment; grower will receive less than this (i.e. net of various and sundry complex packhouse charges and fees)

In other words, this is a best case scenario for the region as a whole; treat as directional/indicative

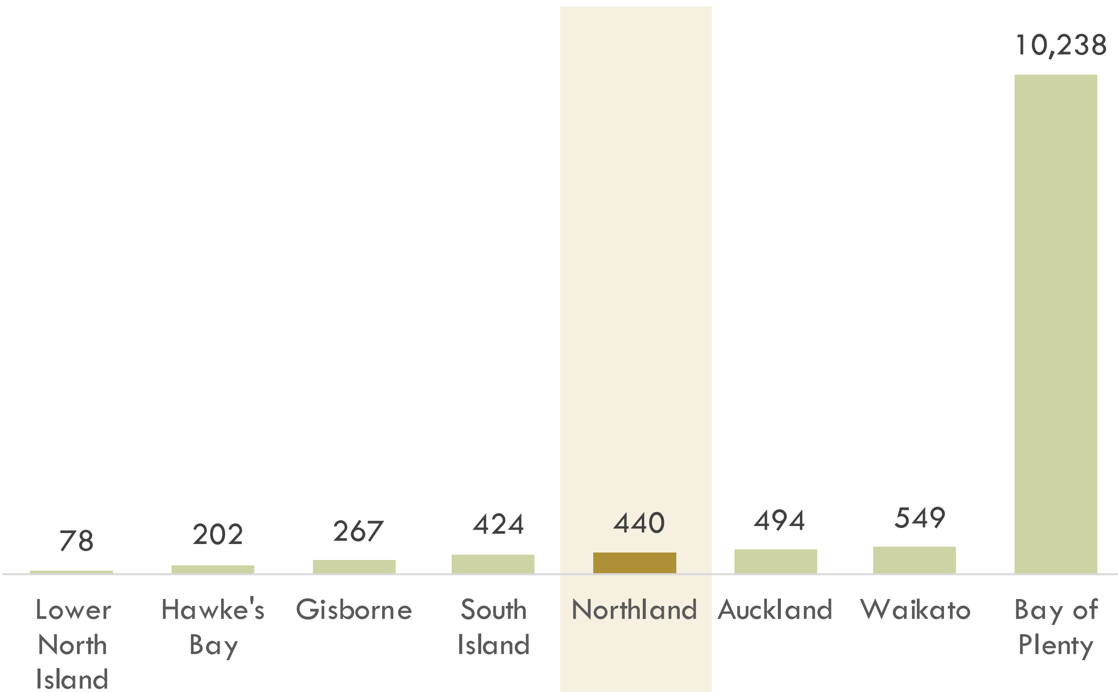
Small amounts of organic green and Zespri Sweet Green revenue are shown on the chart but not labelled

Source: various Zespri Annual Reports; Coriolis analysis

Northland can clearly increase kiwifruit area

KIWIFRUIT AREA BY REGION

Producing ha; 2018



	Lower North Island	Hawke's Bay	Gisborne	South Island	Northland	Auckland	Waikato	Bay of Plenty
% of total area in kiwifruit	0.00%	0.01%	0.03%	0.00%	0.03%	0.10%	0.02%	0.85%

COMMENTS/NOTES

Bay of Plenty uses 25.6x more of its land in kiwifruit than Northland currently; if Northland matched BOP share of land in kiwifruit, the region would have 11,300 ha and NZ$1.1b in regional revenue

Given (1) gold yields higher in Northland than in BOP and (2) Zespri is planning for massive growth, this is not a completely unreasonable scenario

Source: various Zespri Annual Reports; Statistics NZ; Coriolis analysis

TABLE OF CONTENTS

Research identified nine Horizon 2 emerging categories and products for Northland

THREE HORIZONS FOR GROWTH: NORTHLAND F&B INDUSTRY

Model; 2019

Products

HORIZON 1
Mature categories & products

1.1 Dairy (Cow)
1.2 Red Meat
1.3 Seafood
1.4 Citrus
1.5 Kiwifruit

HORIZON 2
Build smaller/emerging products

2.1 Honey
2.2 Avocados
2.3 Wine
2.4 Eggs
2.5 Berries
2.6 Under Cover
2.7 Olives
2.8 Arable Crops
2.9 Kumara
2.10 Processed Foods

HORIZON 3
Create viable options

3.1 Dairy (Goat & Sheep)
3.2 Bananas & Pineapples
3.3 Poultry Meat
3.4 Other Beverages (Non-Wine)

Source: adapted from McKinsey & Co.; Coriolis analysis

2.1 HONEY IN NORTHLAND

SCORECARD

ON-FARM	
Units *(2018)*	126
Unit Change Abs. (00-18)	+108
Unit Change CAGR (00-18)	11%
Employees *(2018)*	306[1]
Employee Change (00-18)	+268
Employee CAGR (00-18)	12%
PROCESSING	
Units *(2018)*	No Breakout available; classified in Processed
Unit Change Abs. (00-18)	
Unit Change CAGR (00-18)	
Employees *(2018)*	
Employee Change (00-18)	
Employee CAGR (00-18)	
OTHER	
Area *(ha)*	-
POTENTIAL EMPLOYMENT GROWTH*	+150-300 Total[2]

SELECT REGIONAL FIRMS

COMVITA; Watson & Son; Manuka Health New Zealand; MANA KAI Honey · Beekeeping · Extraction; Kaiora honey; Tahi At one with nature.; Manuka Mountain; KĀRE; Te Roroa; Honeylands Naturally; Manuka Honey by Happy Beekeeping; New Zealand Honey Traders; The Whangarei Bee Club; Ai Tokerau Honey Ltd

'ELEVATOR PITCH'

Northland is a leading supplier of sustainable premium high grade mānuka honey

Northland is leading the way in product innovation and research and development

KEY RISKS & SENSITIVITIES

- Regulatory changes impacting Northland
- Disease affecting mānuka plants
- Disease impacting honey bees and hive health
- Climate impacting volumes
- Department of Conservation extend 'native bee exclusion zones'
- China changes honey import rules
- Adulterated honey impacting NZ quality and reputation

VALUE-ADDED OPPORTUNITIES

- Cosmetics
- Nutramedics
- Pollen
- Health and medical products
- Lozenges
- Single serve
- Pet/animal products
- 'Clean' honey, no spray, packaging recyclable, reduced plastic, etc.
- Sustainable and ethical honey production

WHAT YOU WOULD NEED TO BELIEVE

- Ongoing breeding programs and research to understand drivers of mānuka activity levels
- Industry in Northland can collaborate to share equipment, extraction, branding, volumes, costs, facilities
- Research into other natives to identify activity levels will diversify honey industry
- Research into honey, royal jelly, propolis etc. drives the growth in nutramedics and cosmetics
- NZ is able to protect the name mānuka
- Increase provenance story around people, place as industry marketing

DRIVERS OF GROWTH

- Asian demand for mānuka honey (HK, China)
- Proactive natural health solutions
- Honey regarded as a 'natural' sugar
- Large body of scientific and medical research on mānuka supports uses
- Strong presence in tourist stores and duty free

KEY COMPETITORS

DOMESTIC	EXPORTERS
- Gisborne/East Cape - Waikato - Coromandel - Wanganui/Manawatu	- Australia - Chile - Argentina

*1. Professional; excludes hobbyist/small scale; 2. in-field and processing; *Coriolis estimates based on modelling, research and past work; treat as aspirational, indicative; Source: Statistics NZ; MPI/MAF; Coriolis estimates and analysis*

2.1 HONEY

New Zealand honey has growing demand but a changing regulatory situation

The Northland honey industry has been growing strongly, creating firms and jobs

- Northland has growing hive numbers and growing honey production
- As a reminder, New Zealand honey is predominantly produced by large scale beekeeping operations
- Northland has a growing professional honey industry, with growing unit numbers and growing employment

Further honey production and job growth is still possible in Northland, but upside is not unlimited

- Northland already produces a lot of honey per square kilometre; peers suggest a +30-50% upside at most
- Northland produced a lot of beekeeping jobs per square kilometre relative to other regions of New Zealand

Much future industry growth will need to come from adding value to volume

- Honey is a classic extensible platform with numerous opportunities to expand into more value added products
- Local representatives think mānuka honey has significant opportunity to add additional value

New Zealand honey has growing demand but a changing regulatory situation

"Mānuka honey mania is spreading like wildfire, fueled now by international skincare interest… Celebrity endorsements from the Kardashians, to designers and movie stars (and, we are led to believe, royal devotees) are fast-growing the profile of mānuka as the latest "in" wellness and beauty ingredient. It is honey's heritage, however, as a prized foodstuff and skin salve, along with scientific validation of the mānuka variety's special antibacterial properties, that lend credibility to its appeal."

VIVA

"The industry is in a boom and bust at the moment, it's really having a shakeout. Clover honey went from $13 to $5, bush honey went from $15 to $5, $7 if you're lucky. It costs $6-8 to produce. Many firms are going out of business."

CEO, Honey Co, Northland

"[Mānuka honey] really adds an amazing glow and your skin is so soft afterward. It pulls out the impurities – and it's a nice foundation, especially if you are going to a big event where you want a great glow." *Scarlett Johansson*

POPSUGAR.

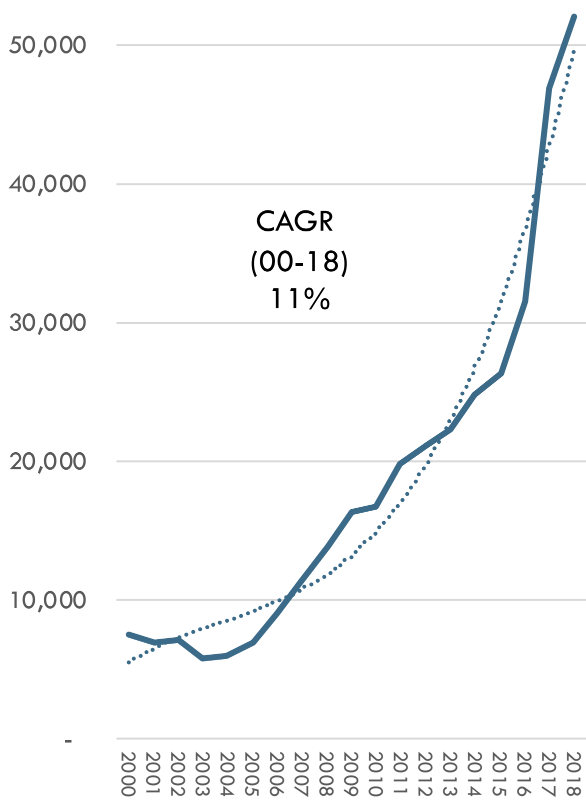
"A standard set by the Ministry for Primary Industry to define mānuka honey came into effect on Monday. A new definition for multifloral mānuka honey was announced only two weeks ago… They are determined by four chemical markers and one DNA marker. Two weeks ago, MPI adjusted the conservative definition for identifying multifloral mānuka honey. The earlier notice required 5 mg/kg of chemical marker 2'-MAP. This has been changed to greater than, or equal to, 1 milligram per kilogram." *Feb 2018*

The Gisborne Herald

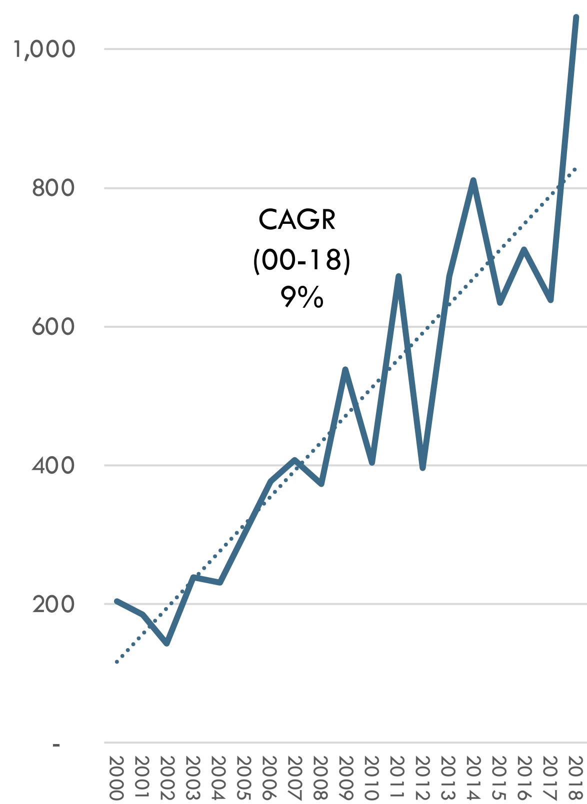
Source: articles; interviews; Coriolis analysis

Northland has growing hive numbers and growing honey production

HIVES IN NORTHLAND
Units; 2000-2018



HONEY PRODUCED
T; 2000-2018



COMMENTS/NOTES

Northland has a sub-species of mānuka (Leptospermum Scoparium sp. Incanum) which has UMF/MGO properties

Growing prices due to growing demand for mānuka honey with these properties has driven production growth in the region

Northland data is estimated from aggregate Northland/Auckland/Waikato super-region production and hive data and the available Northland data

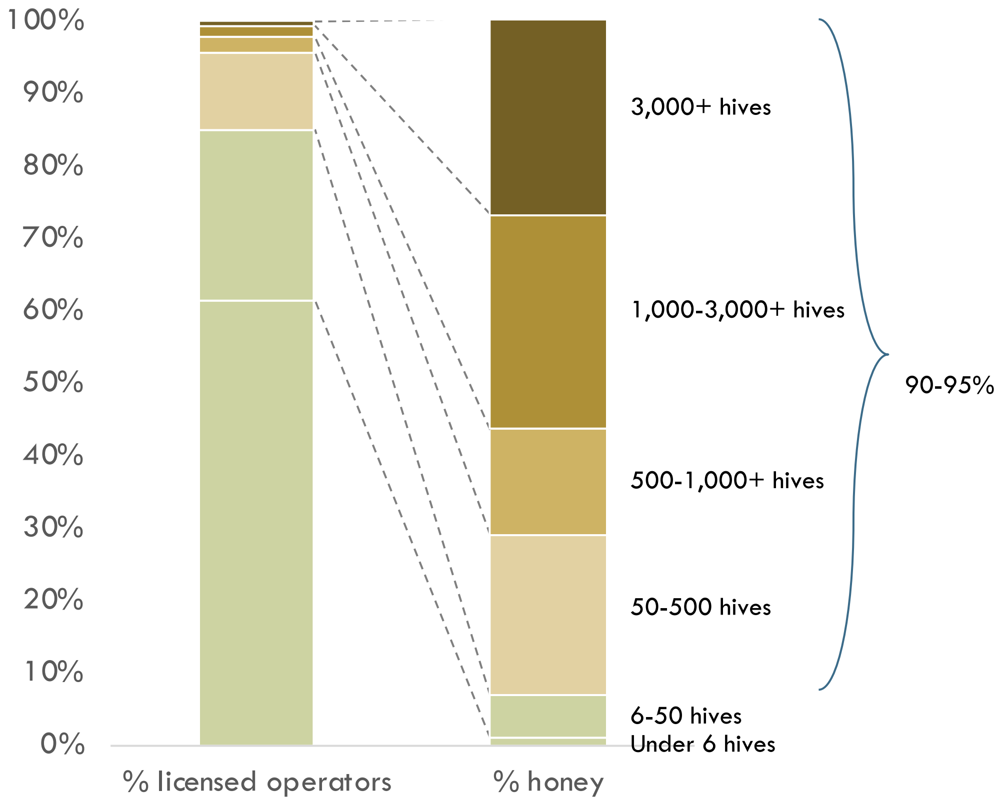
There is an increasing trend for beekeepers to move hives long distances to harvest mānuka; therefore this data should be treated as directional or indicative as hives will move in and out of the region throughout the year; there will be periods where there will be more or less hives in the region

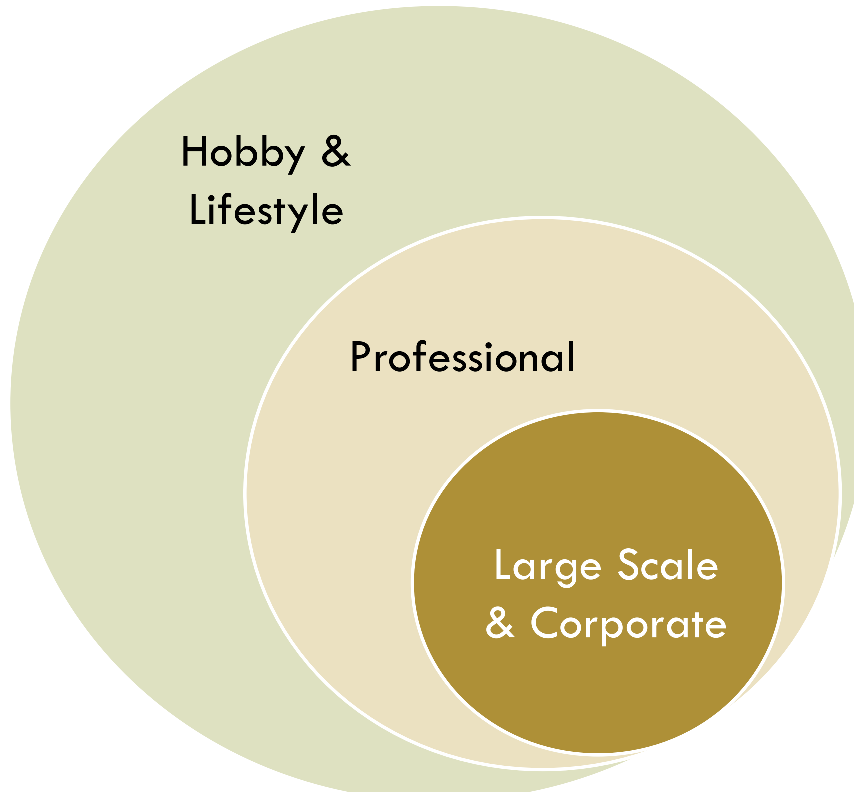
Source: Assure Quality; various MPI Apiculture Monitoring Report; Statistics NZ; past Coriolis client work; Coriolis estimates and analysis

As a reminder, New Zealand honey is predominantly produced by large scale beekeeping operations

SIMPLIFIED MODEL OF NEW ZEALAND HONEY INDUSTRY

2018



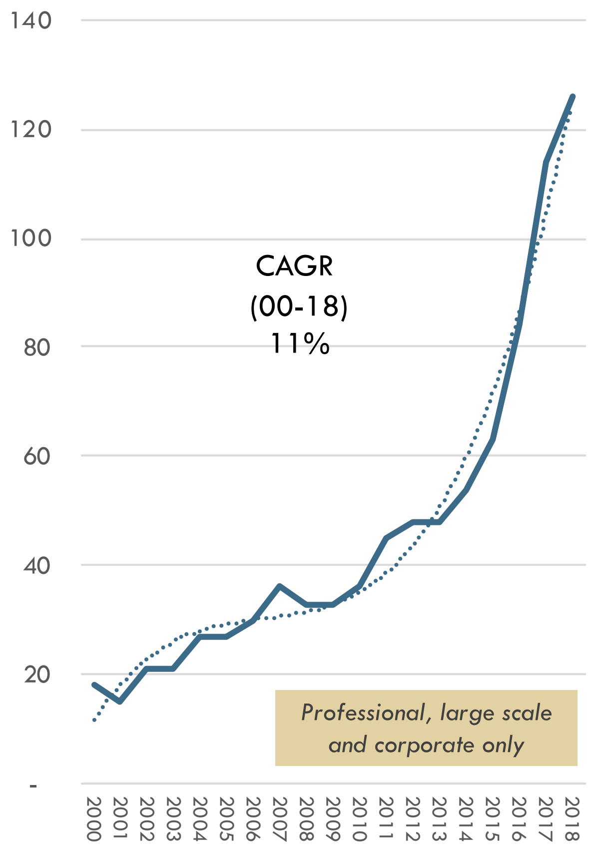


Source: MPI 2018 Apiculture Monitoring Report; Coriolis estimates and analysis

Northland has a growing professional honey industry, with growing unit numbers and growing employment

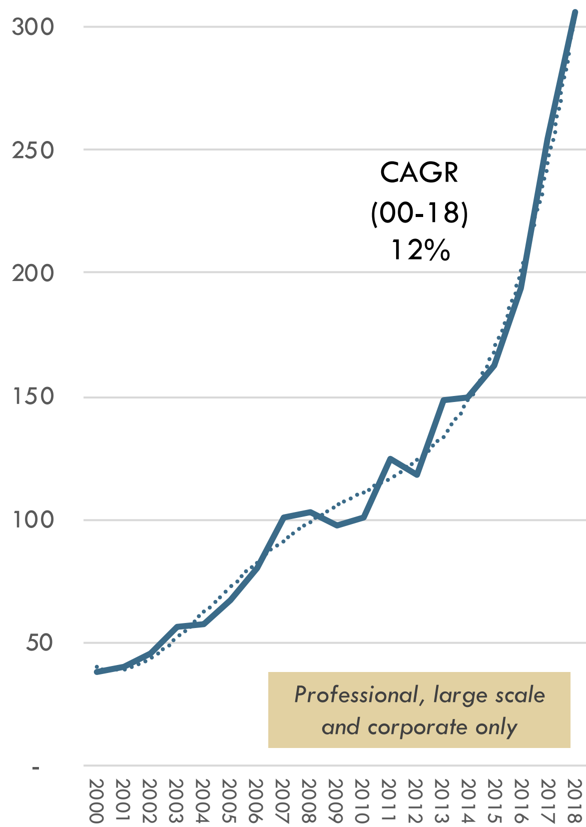
BEEKEEPING UNITS

Geographic units; 2000-2018



BEEKEEPING EMPLOYEES

Headcount; 2000-2018



COMMENTS/NOTES

Units should be seen as professional, large scale and corporate operational units based in Northland, defined in this case as firms with over $60k in revenue annually (GST threshold)

Employee headcount includes full and part time, including owner operators (discussed below), but not hobbyists

Actual number of beekeepers in Northland will be larger than this employment number due to these hobbyists

Employees includes an estimate for owner-operators (i.e. non-PAYE employees) at 1 per operational unit

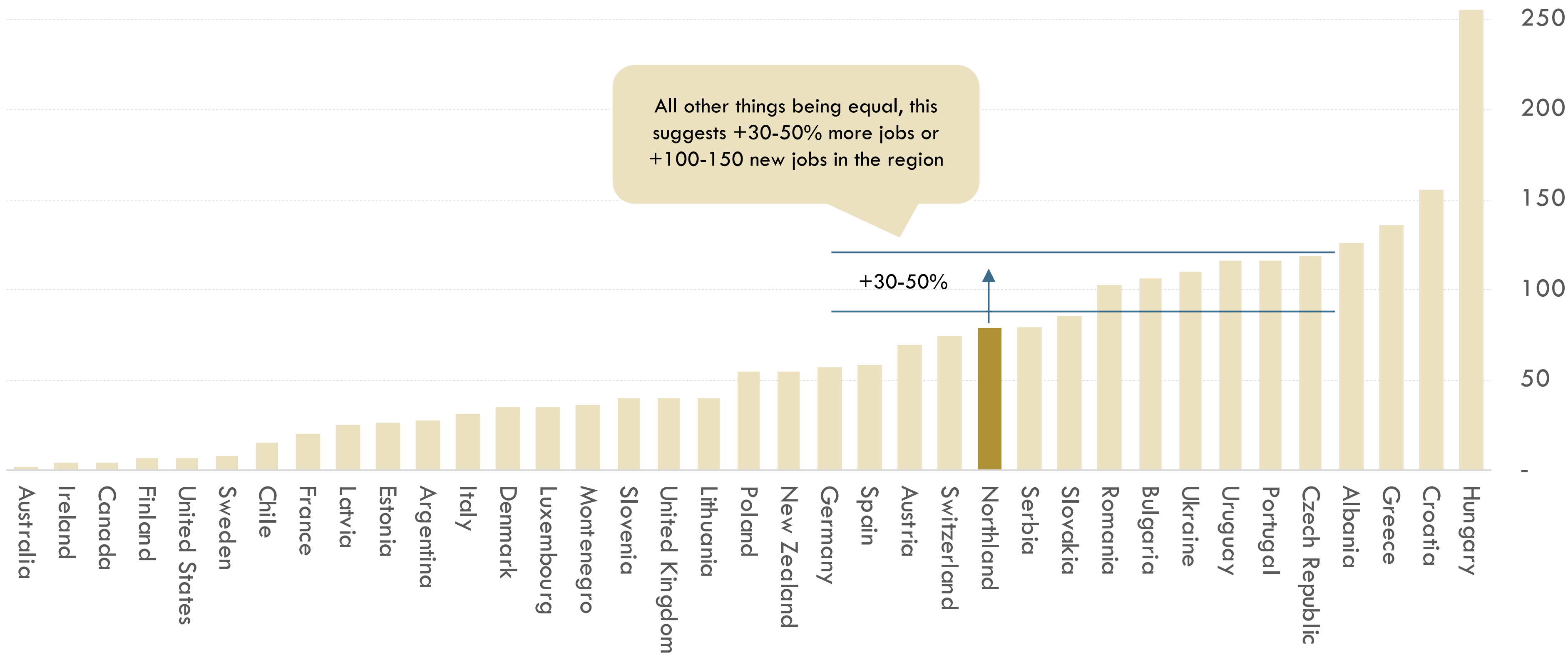
Data excludes 'honey processing' (51%+) operations as Statistics NZ has no specific code for these and instead classifies them into 'C119900 Other Food Product Manufacturing n.e.c.'

Source: Statistics NZ; Coriolis analysis and estimates

Northland already produces a lot of honey per square kilometre; peers suggest a +30-50% upside at most

HONEY PRODUCTION PER SQUARE KILOMETRE: NORTHLAND VS PEERS

Kg/sq km; total country/regional area; 2018 or as available



Source: UN FAO; CIA World Fact Book; Assure Quality; various MPI Apiculture Monitoring Report; Statistics NZ; past Coriolis client work; Coriolis estimates and analysis

Significant new plantings of mānuka will stabilise and potentially grow honey production in the region

"Honey from the first Aranga plantings will be harvested in three to five years. Planting will continue over the next 10 years to cover more than 500ha. It is expected 10 tonnes plus of high grade mānuka honey will be harvested on average each season by that time." *2018*

stuff

"The honey industry has had it tough over the last three years. Industry used to get 60kg from a hive, now it's 20kg a hive, last year it was 10kg. We don't know why."

CEO, Honey Co, Northland

"Thousands of seedlings are being planted across the country including Northland. These seedlings will increase honey production in the region."

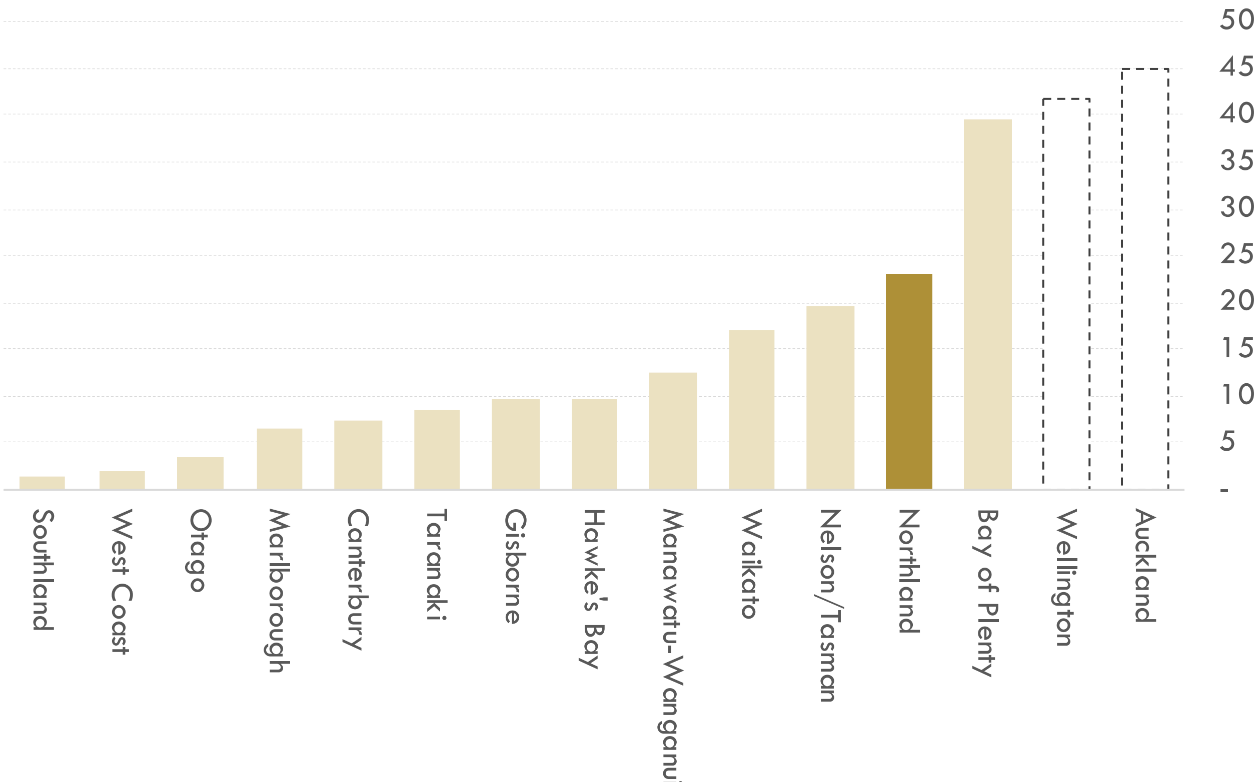
CEO, Honey Co, Northland

Source: articles; interviews; Coriolis analysis

Northland produced a lot of beekeeping jobs per square kilometre relative to other regions of New Zealand

BEEKEEPING EMPLOYMENT PER 1,000 SQ KM

Headcount/1,000 sq km; 2018



COMMENTS/NOTES

Bay of Plenty based beekeepers can access large stands of regenerating native bush in the Coromandel, Kaimai, Raukumara and Te Urewera

There may be some opportunity to draw jobs away from Auckland

Combined with the page prior (+30-50% production upside) this data suggests achieving continued employment growth from honey will become more and more difficult

Source: Statistics NZ; Coriolis analysis and estimates

Honey is a classic extensible platform with numerous opportunities to expand into more value added products

Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes for research/study/commentary/criticism/review; Source: Coriolis analysis

Local representatives think mānuka honey has significant opportunity to add additional value

"There is limited extraction, blending, packaging, labelling and branding in the region. There are a few extractors but there is the opportunity for more of this in the region."

Consultant, Northland

"We need to stop exporting honey in bulk drums, it devalues the industry and opens opportunities for tampering. It should be banned and that honey should be branded in New Zealand."

Director, Honey Co, Northland

"There are a lot of ideas and proposals floating around the region, they need to be brought together into a package that works for the region. Ideas around R&D centres, joint extraction, joint branding. There has to be options that work for the majority and will benefit the region."

Advisor, Northland

"There are significant opportunities around value added honey products like lozenges, bee pollen, and R&D around new foods. There is also the opportunity around marketing sustainable and ethical beekeeping – like not moving hives around, brushing bees not blowing."

CEO, Honey Co, Northland

"The R&D needs to continue into new uses for mānuka honey. An R&D centre would be amazing, so would a honey tourist centre."

CEO, Honey Co, Northland

"We need to be clever around the industry and move into nutraceuticals, nutramedics and cosmetics."

CEO, Honey Co, Northland

Source: interviews; Coriolis analysis

2.2 AVOCADOS IN NORTHLAND

SCORECARD	
ON-FARM - AVOCADO	
Units *(2018)*	191
Unit Change *Abs. (00-18)*	+67
Unit Change *CAGR (00-18)*	2.4%
Employees *(2018)*	491
Employee *Change (00-18)*	+220
Employee *CAGR (00-18)*	3.4%
PROCESSING – F&V (Total F&V Processing[1])	
Units *(2018)*	15
Unit Change *Abs. (00-18)*	0
Unit Change *CAGR (00-18)*	0
Employees *(2018)*	195
Employee *Change (00-18)*	64
Employee *CAGR (00-18)*	2.2%
OTHER	
Area harvested	*1,371ha*
POTENTIAL EMPLOYMENT GROWTH*	+500-1500 Total[2]

SELECT REGIONAL INVESTORS

KING AVOCADO; Honey Tree Farms; Murray Furlong; Tony Gibbs; John Greensmith; T&G (A BayWa Company); Seeka (SELECT EXCELLENCE); EastPack; Golden Mile Fruit Packer; NTL Fruitpackers

'ELEVATOR PITCH'

New Zealand is showing success in avocados; Northland is a growth platform for the industry.
Northland could be a major producer of avocados.

VALUE-ADDED OPPORTUNITIES

- Avocado oil (existing Olivado range in the region)
- Avocado based foods, smoothies, baby food, desserts
- Organic
- Powder (as ingredient)
- Named 'premium' variety
- Cosmetics, face creams (Carol Priest in Nelson)
- Utilising the seed/husk for multiple industries (cosmetics, HBC, medical)

DRIVERS OF GROWTH

- Healthy fats
- Healthy snack option
- Strong global demand
- Strong growth in value and volume into NZ key markets
- Land prices in Northland cheaper than Bay of Plenty (30,000/ha vs 125,000/ha)[3]
- Early maturing in Far North

KEY RISKS & SENSITIVITIES

- Domestic oversupply
- Over-exposed to Australian market (significant production growth in AU)
- Chile will gain market access to Australia significantly increasing competition
- High instore losses if handled poorly in supply chain
- Climatic extremes, achieving water rights
- Low volume of quality trees available for expansion plans

WHAT YOU WOULD NEED TO BELIEVE

- Northland can reduce the effect of biannual fruit bearing vs Bay of Plenty – ongoing consistent fruiting
- Investment in additional production will occur
- New Zealand will maintain and grow export markets at current premium price
- New Zealand will maintain its biosecurity status - no markets able to enter NZ

KEY COMPETITORS

DOMESTIC	EXPORTERS
- Bay of Plenty	- South America (Mexico Chile, Peru) - Kenya - Australia

*1. Data is total F&V processing in Northland; packhouses typically pack multiple fruit/veg; caution against double counting; 2. On-orchard and processing; 3. AgriHQ; *Coriolis estimates based on modelling, research and past work; treat as aspirational, indicative; Source: Statistics NZ; MPI/MAF; Coriolis estimates and analysis*

2.2 AVOCADOS

Avocados are on-trend and growing globally

Northland is growing avocado production, though the rate of growth has slowed

- Northland has growing avocado area; however, the rate of growth slowed around 2007-08 (i.e. the GFC)
- Northland avocado production is growing

Avocados are not currently directly creating job growth in Northland

- The number of avocado growers in Northland appears to have consolidated and then stabilised
- Growing production and industry consolidation had led to fewer, larger growers with more production per unit
- Northland employment on-farm by avocado growers appears to have stabilised at around ~500 with some signs of further growth

Northland can produce more avocados

- Peers suggest Northland could double or triple avocado area (obviously only if market demand justifies)
- Healthy returns have encouraged new plantings and investment, particularly in Northland

The avocado is an extensible platform that provides numerous opportunities for value-added line extensions

Avocados are on-trend and growing globally

"Avocado sales to China are expected to more than double this year as demand continues to grow for the fruit from the country's expanding middle-class population. 'It appears to just double every year, from what we've seen,' Steve Barnard, president of Oxnard, California-based Mission Produce, the world's largest distributor of avocados. 'It maybe more than double this year.' And, the pace of growth shows no sign of slowing as more health-conscious consumers in the world's most populous nation show an interest in the 'heart-healthy' avocados, executives say. The fruit also appeals to 'young, trendy people' said Barnard."

CNBC

"Avocados are great in salads, smoothies and even in chocolate cakes but what are the health benefits of this popular superfood and what is 'good fat'? … Avocados are brimming with essential nutrients, including potassium, B-vitamins and folic acid… Eating avocados has been shown to lower cholesterol levels and they are a rich source of monounsaturated fatty acids, including oleic acid, which offers significant protection against breast cancer. The potassium content in avocados regulates blood pressure and helps guard against heart disease and strokes, as well as aiding digestion and helping the body flush out toxins."

The Telegraph

"The global consumption of avocado was USD 9.29 billion in 2018, with a CAGR of 5.03%. Avocados contain vitamins A, B, C, E, and K, including 25 essential nutrients. It also contains phytochemicals, like beta-sitosterol and antioxidants, like lycopene and beta-carotene. The essential nutrients are increasing the demand for the fruit, globally, and therefore acts as a major driving force behind the growth of the avocado market."

Mordor Intelligence

"World trade and consumption of fresh avocados has been rocketing higher for the past 15 years, but how long can the market continue to grow?...European and U.S. imports of avocados seem to be breaking records every year at the same time Asian markets are also growing."

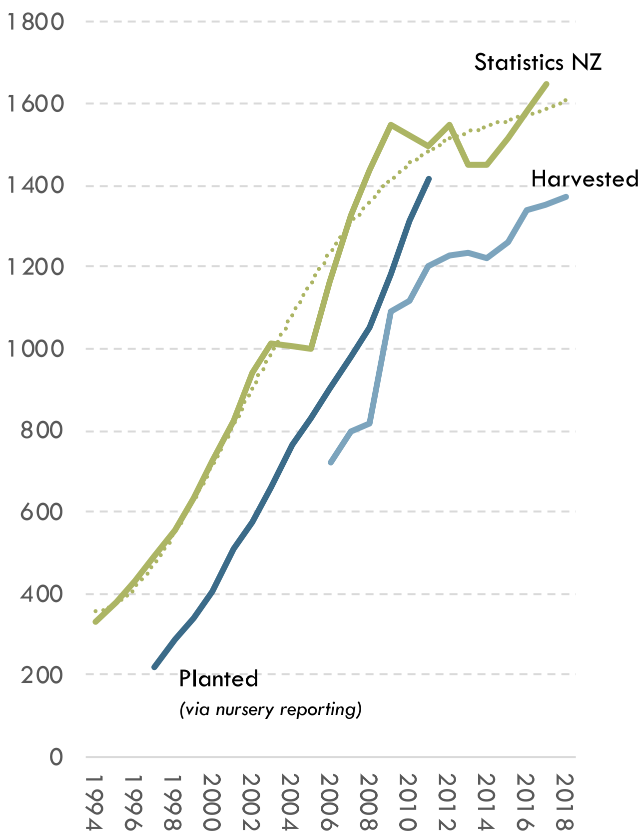
The Packer

Source: articles; interviews; Coriolis analysis

Northland has growing avocado area and production; however, the rate of growth slowed around 2007-08 (i.e. the GFC)

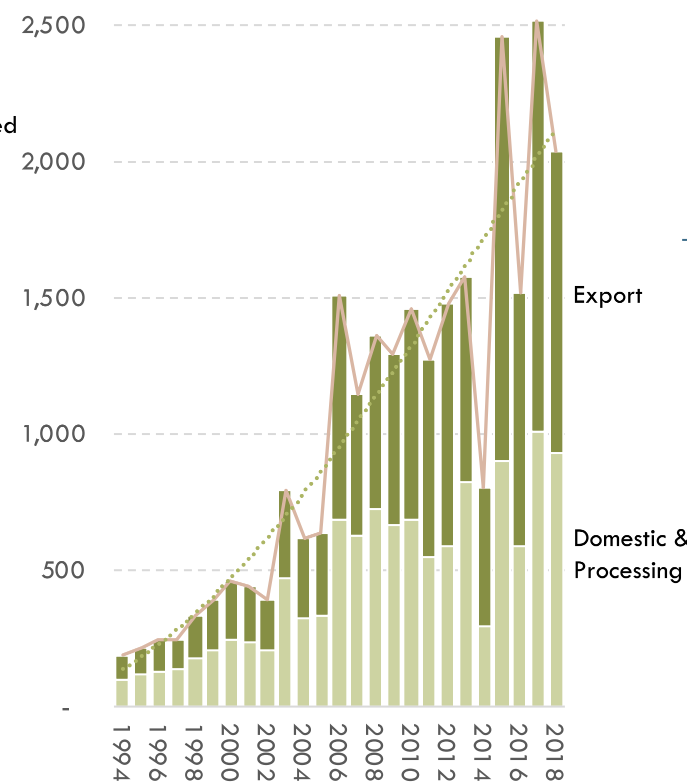
AVOCADO AREA

Ha; 1994-2018



AVOCADO VOLUME

5.5kg trays; 000; 1994-2018



COMMENTS/NOTES

Clearly there was strong area growth through 2009/2010; growth appears to have levelled off until recently

Harvested area is from NZ Avocado Growers and combined their 'Mid North' and 'Far North' regions

Statistics NZ is from the Agricultural Production Census/Survey from all available years with missing years extrapolated

Northland, like other regions of New Zealand, has a challenge with biennial bearing

NZAGA's 'NZ Avocado PGP' has one of its five research objectives to address this: "On-orchard research is exploring methods to increase avocado yield and consistency including: optimising tree decline management; understanding and validating new canopy management strategies; evaluating new cultivars and the development of best practice guidelines"

Export production is from NZ Avocado Growers and combined their 'Mid North' and 'Far North' regions

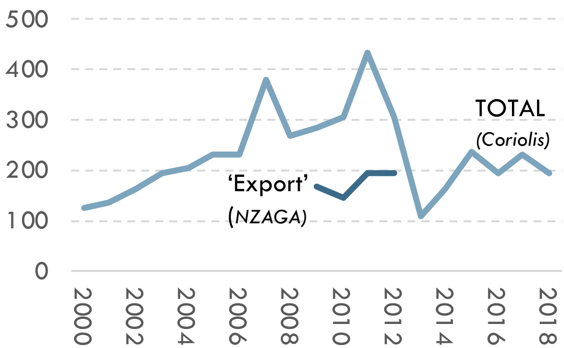
Processing and domestic production is a mix of historical data and estimates for the more recent period (% export packout)

Source: various Statistics NZ reports; various NZAGA/NZAIL annual reports; Coriolis analysis and estimates

The number of avocado growers in Northland have consolidated and then stabilised; industry has fewer larger growers

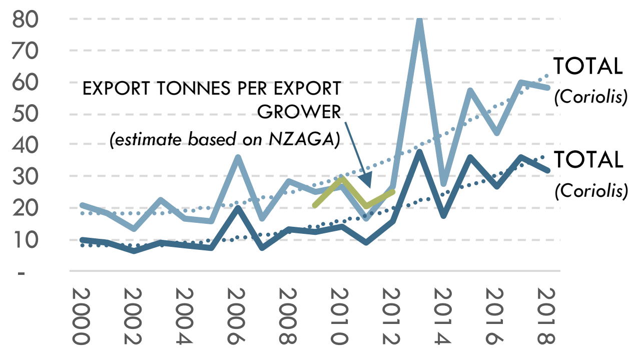
OF GROWERS

Enterprises; 2000-2018



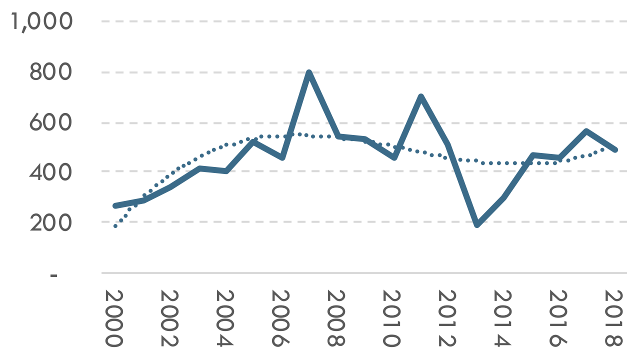
PRODUCTION/GROWER

T/enterprises; 2000-2018



AVOCADO EMPLOYMENT

Headcount; 2000-2018



COMMENTS/NOTES

Multiple sources exist and disagree; treat as directional

Clearly there was a strong industry consolidation/correction in the 2009-11 period; total number of growers declined, with exits primarily coming from non-export growers, being small hobby and less capable growers (i.e. those unable to deliver export quality)

Following this clear out of poorer performing growers, what was left was professional, export growers; grower numbers in Northland appear to have stabilised

Export is from NZAGA; total is Coriolis estimates from a wide range of sources (SNZ, MAF/MPI, others)

The Australian New Zealand Standard Industry Classification (ANZSIC) System does not have a specific code for 'Avocado Growers'

Avocado growers are classified in as 'A013900 Other Fruit and Tree Nut Growing'

Therefore Statistics New Zealand does not collect business demographics on the group

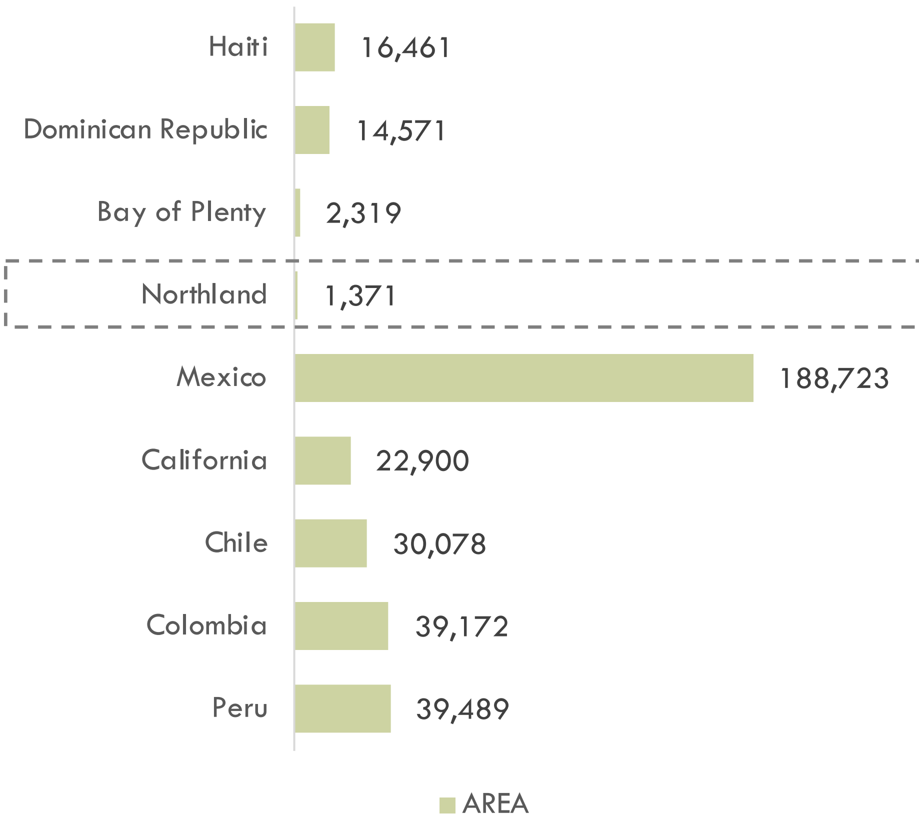
What is presented here is our estimated based on grower numbers and Northland fruit industry averages

Caution: Data is FT/PT including estimated owner operators (non-PAYE employees) but will exclude contract labour (e.g. seasonal contract labour or picking gangs)

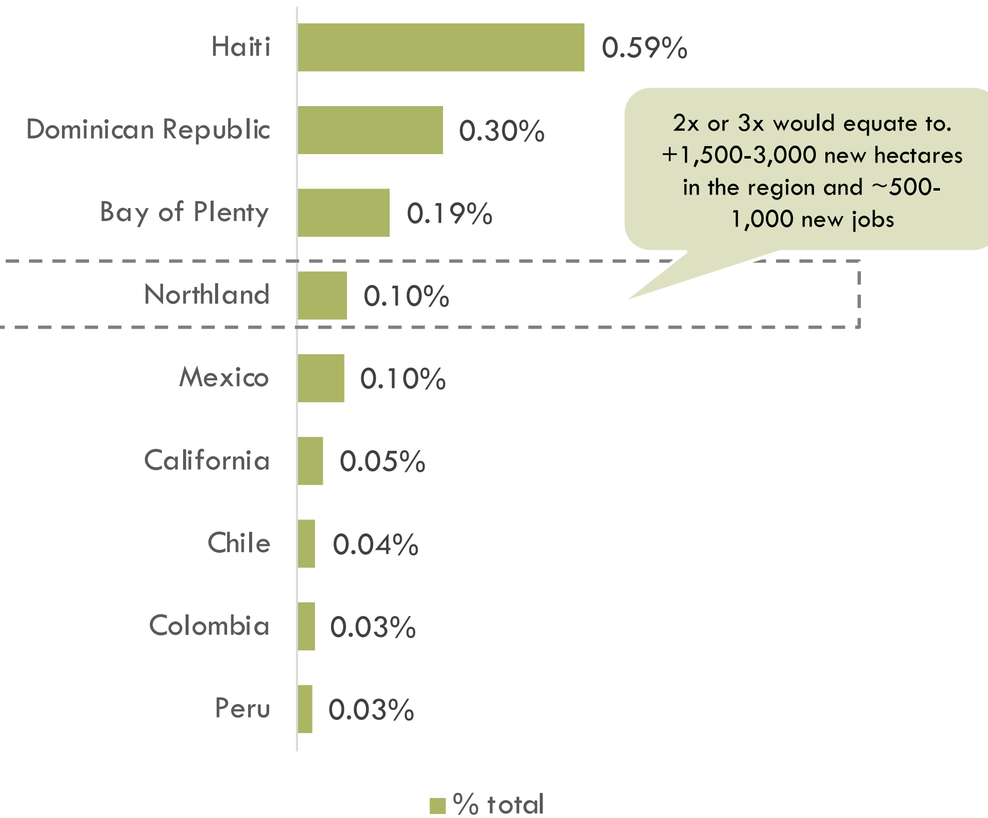
Source: various Statistics NZ reports; various NZAGA/NZAIL annual reports; Coriolis analysis and estimates

Peers suggest Northland could double or triple avocado area (obviously only if market demand justifies)

TOTAL AVOCADO AREA
Ha; 2018 or as available



AVOCADO AREA AS % OF TOTAL AREA
% of square kilometres; 2018 or as available



Note: Obviously sub-regions of large producers will have higher densities (i.e. parts of Mexico will look like Haiti); Source: UN FAO; CIA World Fact Book; NZAGA/NZAIL annual report; Coriolis analysis and estimates

Healthy returns have encouraged new plantings and investment, particularly in Northland

"The company has identified the region as a growth area for both avocados and kiwifruit and establishing a post-harvest hub in Northland has been a priority… With new avocado developments in the area, we are expecting demand for post-harvest facilities to increase." *Michael Franks, CEO Seeka, Apr 2018*

Seeka
SELECT EXCELLENCE

"Investors have filled MyFarm's first avocado orchard investment four days after the opportunity was released. Aupōuri Avocados Limited Partnership is an investment in two properties totalling 32ha on the Aupōuri Peninsula in the Far North. MyFarm raised $5.8million from 32 investors to purchase the properties...fruit exporter Freshmax will operate the orchards, pack and market the fruit into new and existing markets."

MYFARM INVESTMENTS

"Tony Gibbs who has developed one of New Zealand's largest avocado orchards with the planting of 45,000 trees completed at Tapora last year and former Fresh Food Exports owner John Greensmith who has a 50ha orchard."

stuff

"The industry had 3,800 productive hectares, with another 1,000ha planted in the last three years…These new avocado plantings and improving production will enable further growth towards the industry goal of $280m in total sales value by 2023."

Jen Scoular, CE, NZ Avocado

"Harbour Edge Avocados Ltd (Southern Paprika Ltd) aims to establish the largest avocado orchard in New Zealand on a 405ha dairy farm it has acquired on the Okahukura Peninsula at Tapora on the Kaipara Harbour…plans to plant about 100,000 avocado trees on 295ha by the end of the 2020-21"

The New Zealand Herald

"Grower returns from avocados are favourable with an industry average of $27,300/ha in recent years with top growers achieving $78,000/ha."

AgriHQ

Source: articles; interviews; Coriolis analysis

The avocado is an extensible platform that provides numerous opportunities for value-added line extensions

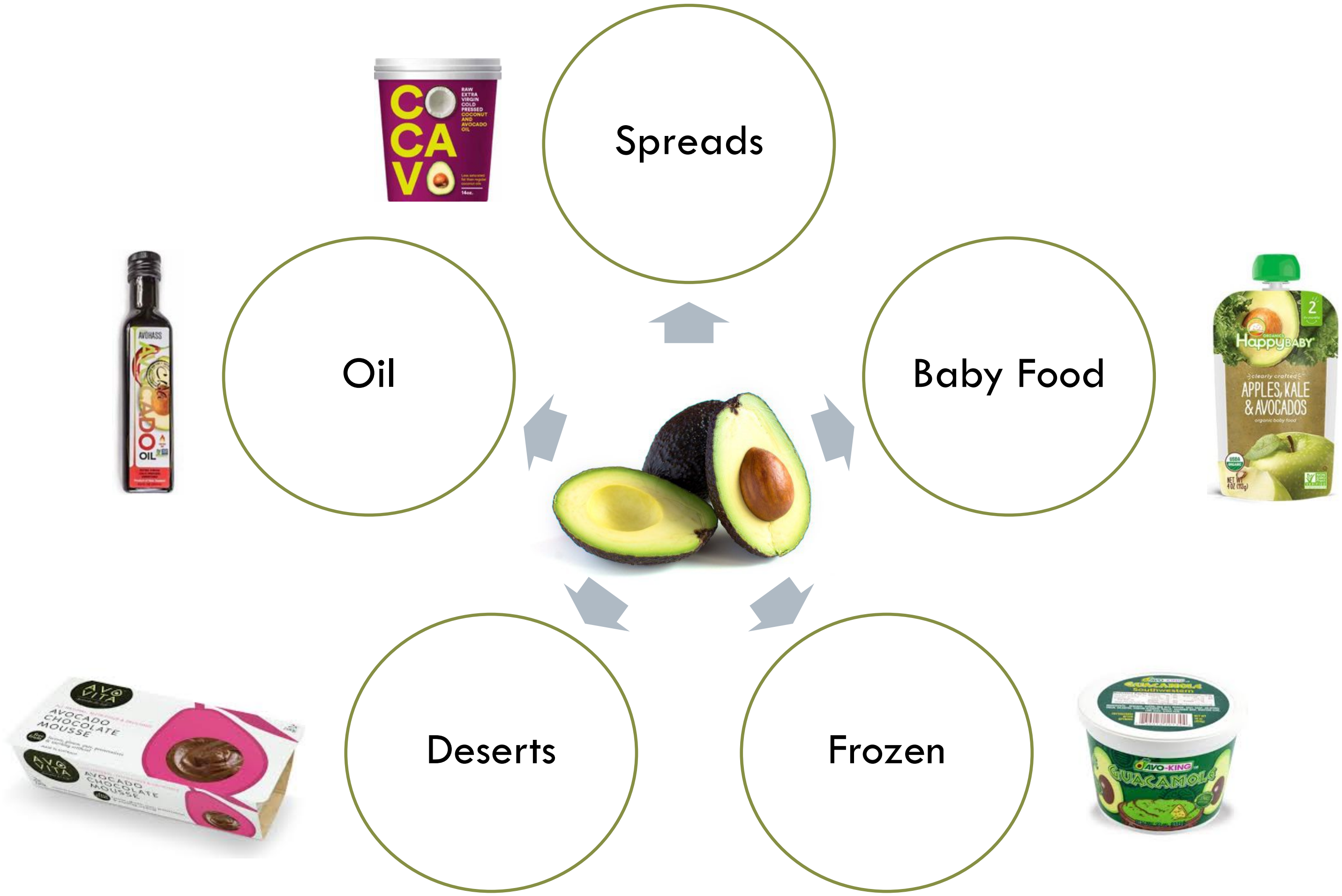


Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes for research/study/commentary/criticism/review; Source: Coriolis analysis

2.3 WINE IN NORTHLAND

SCORECARD	
ON-FARM	
Units (2018)	18
Unit Change Abs. (00-18)	+6
Unit Change CAGR (00-18)	2.3%
Employees (2018)	73
Employee Change (00-18)	+46
Employee CAGR (00-18)	5.7%
PROCESSING	
Units (2018)	17
Unit Change Abs. (00-18)	+10
Unit Change CAGR (00-18)	5.1%
Employees – total (2018)	123
Employee Change (00-18)	+81
Employee CAGR (00-18)	6%
OTHER	
Area (ha)	67
POTENTIAL EMPLOYMENT GROWTH*	+200-300 Total[1]

SELECT REGIONAL FIRMS

'ELEVATOR PITCH'

New Zealand is good at wine, New Zealand achieves a premium in the world market.
Northland could be a major producer of premium wine.
New Zealand has already demonstrated strong growth is possible.

KEY RISKS & SENSITIVITIES

- Currently no large investors in the region
- Northland is yet to find 'it's wine'

VALUE-ADDED OPPORTUNITIES

- 'Port' style fortified wines
- 'Cognac' style
- Nutraceuticals (resveratrol)
- Strong link with tourism, cellar door, tours

WHAT YOU WOULD NEED TO BELIEVE

- Northland can find it's "unique" variety, that achieves a premium in the market
- Investment into wine production will occur

DRIVERS OF GROWTH

- Growth in new world wine consumption
- Growth of New Zealand wine exports
- Growth in regional tourism

KEY COMPETITORS

DOMESTIC

- Marlborough
- Otago
- Hawkes Bay
- Canterbury

EXPORTERS

- Europe
- Australia
- North America
- South America

1. On-orchard and processing; *Coriolis estimates based on modelling, research and past work; treat as aspirational, indicative; Source: Statistics NZ; MPI/MAF; Coriolis estimates and analysis

2.3 WINE

Wine is a growth industry where New Zealand is winning

After a period of growth, the Northland wine sector appears to have stalled

- Northland has growing wine grape area; however, growth appears to have slowed since 2007/08 (i.e. the GFC)

- Northland tonnage appears to have stabilised since 2007/08

After a long period of stability, the Northland wine industry has begun to create jobs again

- Northland has a growing wine industry creating new winery units, but flat overall units

- The Northland wine industry has finally begun to create new jobs again, though only in the last year

Further growth will require Northland to find a way to stand out and be different and unique

- Northland produces a extensive variety of different grape varieties (30+) in a relatively small amount of land (66.7ha)

- Northland needs to identify its own distinct wine where it can ‘win against the world’ to create material growth going forward

- Opportunities exist for wineries to reinvigourate their cellar door experience and provide a robust wine trail through Northland

Wine is a growth industry where New Zealand is winning

"The global wine industry has been growing in leaps and bounds in recent years. Valued at over USD 300 billion by the end of 2017, the forecast for the global wine industry is looking bright as it is expected to cross USD 420 billion by the end of the year 2023. North America is likely to continue its domination of the global wine industry, followed closely by Europe…The demand for wine is also increasing, especially in India, China, and Japan. As the demand for premium wines keeps increasing, the Asia Pacific wine market is expected to post healthy growth in the coming years to 2023."

R&M RESEARCH AND MARKETS

"New Zealand wine is exported to more than 90 countries, and is New Zealand's fifth largest export good. Wine exports reached a record high of $1.66 billion last year and the industry is looking to reach $2b by 2020…The US is the world's largest and most competitive wine market. It became New Zealand's largest export market in 2015, overtaking the UK and Australia. For the second year in a row, with sales of $579 million, New Zealand has been ranked the third biggest wine importer by value to the US, behind Italy ($2.6 billion) and France ($2.5 billion)."

stuff

"World wine consumption is estimated to be around 24 billion litres per annum and is gradually increasing with population growth and increases in disposable income, particularly in Asia. The top three wine consuming countries are the USA, China and France, while Portugal, Italy and France have the highest per capita consumption at over 35 litres per person per year, compared with 23.9 for Australia, 9.9 for the USA and just 3.5 for China. The biggest importers of wine are Germany, the USA and the United Kingdom, where production is much lower than consumption."

Wine Australia

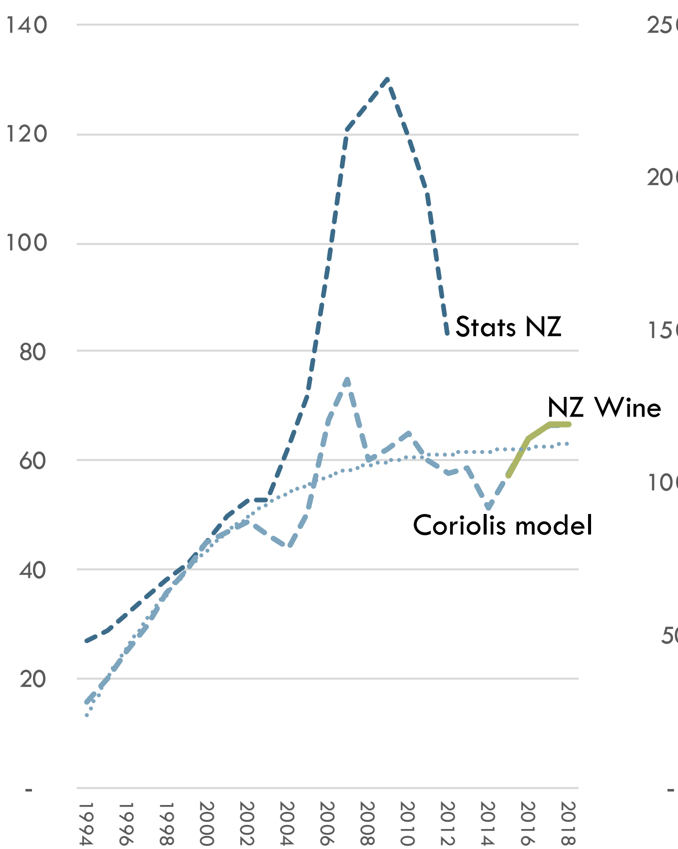
"As wine consumers drink less, the value of wines is increasing, indicative of premiumisation having a worldwide impact…There is also a move by consumers, particularly millennials, towards products that are sustainable, authentic and provide unique wine experiences…Two of our three top markets, the US and UK have seen imports of New Zealand wine rise, with market retail growth strong. However, Australia, another important market has plateaued. It is a similar story when you look at value – in the US and UK it is up, but…Australia is more 'challenged'. And despite China being quite a small market for our wine, it has the highest average price."

NEW ZEALAND WINEGROWER

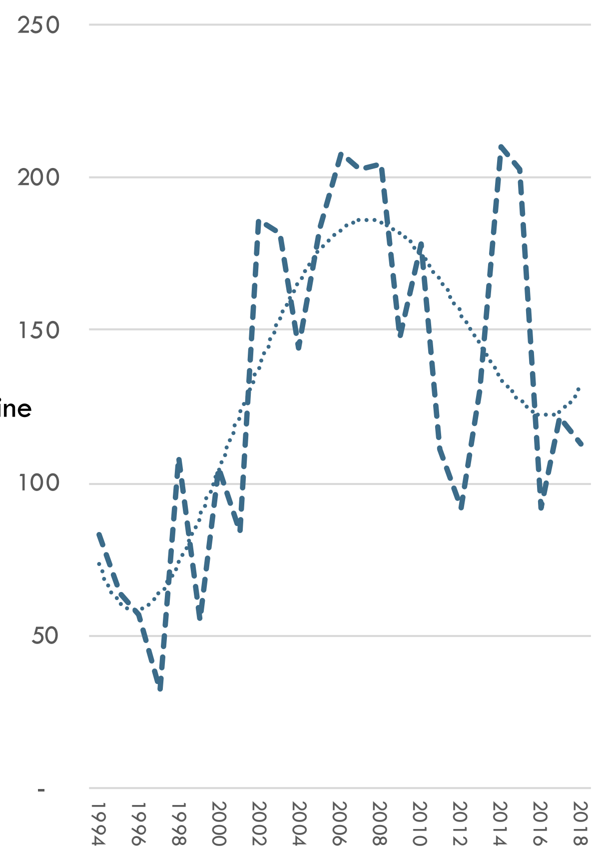
Source: articles; interviews; Coriolis analysis

Northland has growing wine grape area and tonnage; however, growth appears to have slowed since 2007/08 (i.e. the GFC)

GRAPE AREA
Ha; 1994-2018



GRAPE VINTAGE VOLUMES
T; 1994-2018



COMMENTS/NOTES

Statistics NZ is total wine grape area (bearing and non-bearing) from the Agricultural Production Survey/Census (with extrapolation of missing years); it will contain some amount of table grapes

Prior to 2015 NZ Wine aggregated Northland and Auckland area data together, but provided tonnage broken out

The 'Coriolis model' is our estimate of harvested wine grape area based on vintage volumes (detailed next page)

Treat results as preliminary; recommend further depth work to uncover details of specific sector challenges in Northland

Northland tonnage appears to have stabilised at between 100-200 tonnes

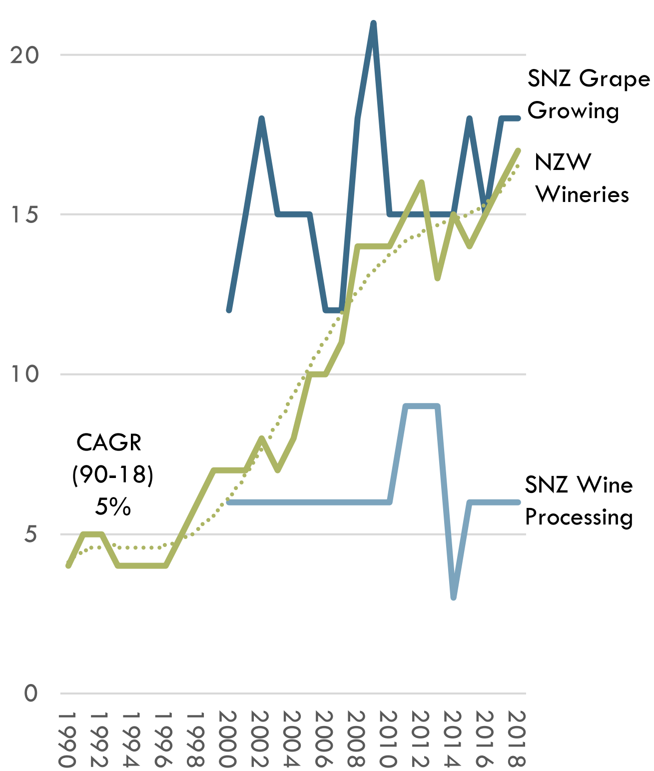
NZ Wine provides Northland vintage tonnage data (but not area data prior to 2015)

Source: Statistics NZ; various NZ Wine reports; Coriolis modelling, analysis and estimates

Northland has a growing wine industry creating new winery units, but with flat overall units; employment starting to grow

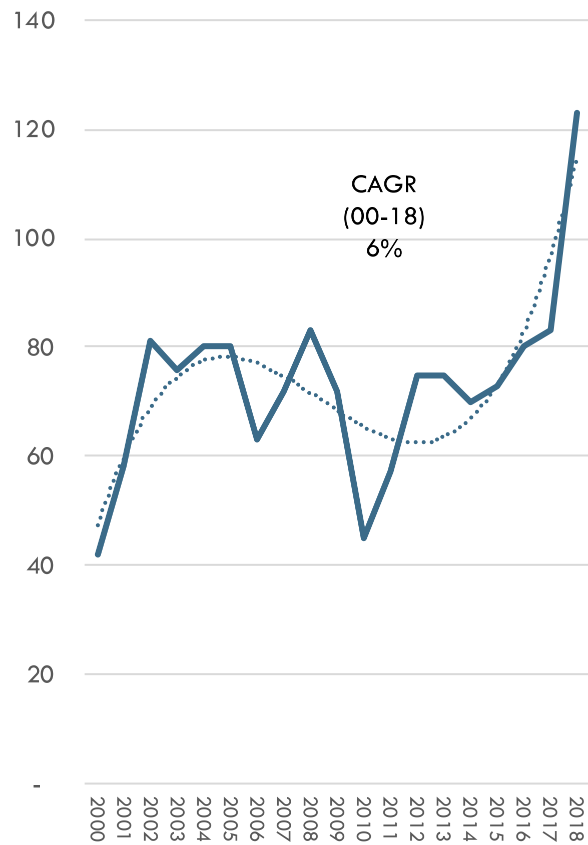
GRAPE/WINE UNITS

Geographic units; 1990-2018



TOTAL INDUSTRY JOBS/UNIT

Headcount; 2000-2018



COMMENTS/NOTES

NZW wineries are registered NZW members classified as 'wineries' (i.e. they make wine)

Statistics NZ units are defined as those predominantly either growing grapes or producing wine (as opposed to, say, predominantly running a restaurant or events venue)

SNZ units should be seen as professional, large scale and corporate operational units based in Northland, defined in this case as firms with over $60k in revenue annually (GST threshold)

The two data sources can be reconciled by assuming operations that historically were primarily grape growers (selling grapes to others) are migrating to selling their own wine; the SNZ wine processing data will account for large processing/bottling sites only

Employee headcount includes full and part time, including owner operators (discussed below)

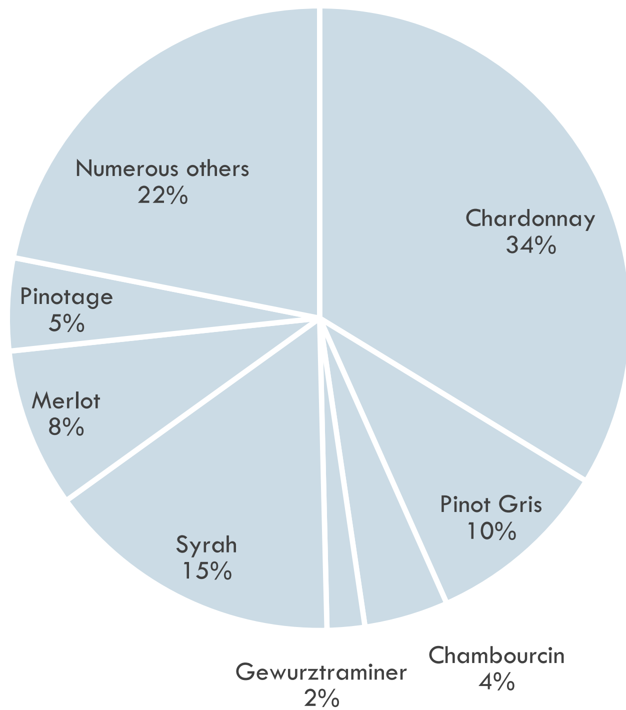
Employees includes an estimate for owner-operators (i.e. non-PAYE employees) at 1 per operational unit for grape growers only (but not wine processing units)

Source: Statistics NZ; various NZ Wine reports; Coriolis analysis and estimates

Northland produces an extensive variety of different grape varieties (30+) in a relatively small amount of land (66.7ha)

WINE AREA IN NORTHLAND BY VARIETY

Ha; 2018



TOTAL = 66.7 ha

COMMENTS/NOTES

Most successful wine regions are known for a single, distinctive wine with unique characteristics drawn from the local terroir (land)

Northland - so far - appears to be a 'jack of all trades, master of none' in wines

The region has yet to discover, locate or find its distinct or unique wine

Northland needs to identify its own distinct wine where it can 'win against the world' to create material growth going forward

Rhône = Syrah	Champagne = Champagne	Burgundy = Pinot Noir	Bordeaux = Cab Sav blends
Oregon = Pinot Noir	Central Otago = Pinot Noir	Tuscany = Sangiovese	Clare Valley = Riesling
Mendoza = Malbec	Rioja = Tempranillo	McLaren Vale = Shiraz	Gimblett Gravels = Syrah
Cognac = Cognac (Ugni blanc)	Niagara Peninsula = Ice Wine	Duoro Region = Port	La Rioja = Rioja
Barossa Valley = Shiraz	Marlborough = Sauvignon Blanc	Sancerre = Sauvignon Blanc	Northland?

Source: Coriolis analysis

Opportunities exist for wineries to reinvigourate their cellar door experience and provide a robust wine trail through Northland

BAROSSA VALLEY EXAMPLE

Barossa executes on a well developed wine trail

a. Barossa has over 80 cellar doors and 150 wineries within an hour's drive of Adelaide, creating an accessible cluster of cellar doors
b. There is a wide range of well-presented cellar doors, catering to different consumer preferences
c. Readily available information, itinerary planners and maps exist, in multiple formats
d. Signage in the Barossa region is consistent, containing the logo and reinforcing the brand
e. The Barossa Trust Mark provides the consumer with a "guarantee of excellence"

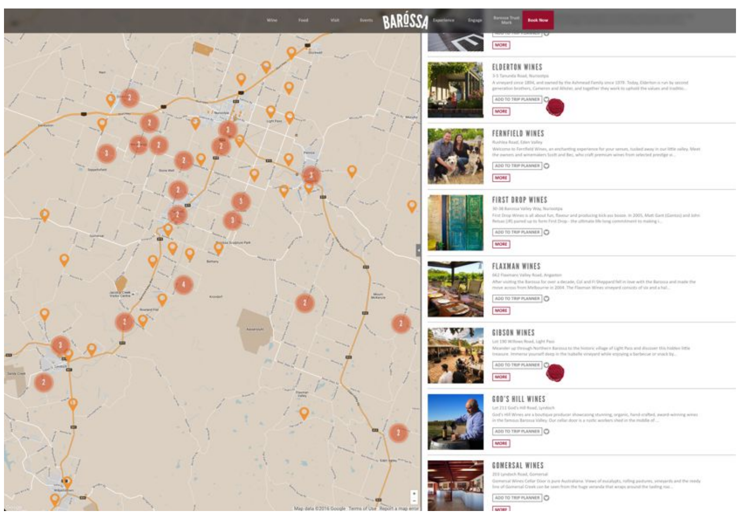


Photo credit: fair use/fair dealing; transformative, criticism, comment, scholarship & research; no other available source; Source: Barossa.com website; Coriolis analysis

2.4 EGGS IN NORTHLAND

SCORECARD	
ON-FARM	
Units *(2018)*	21
Unit Change *Abs. (00-18)*	+15
Unit Change *CAGR (00-18)*	7%
Employees *(2018)*	100
Employee *Change (00-18)*	+79
Employee *CAGR (00-18)*	9%
PROCESSING	
Units *(2018)*	No Breakout available; classified in Processed
Unit Change *Abs. (00-18)*	
Unit Change *CAGR (00-18)*	
Employees *(2018)*	
Employee *Change (00-18)*	
Employee *CAGR (00-18)*	
OTHER	
Area *(ha)*	-
POTENTIAL EMPLOYMENT GROWTH*	+400-600 Total[1]

SELECT REGIONAL FIRMS

Good farms · FRENZ free range eggs New Zealand · GOOD EGGS · Northern Eggs · Otaika Valley Free Range Eggs · NEW DAY eggs with care

'ELEVATOR PITCH'

Northland's climate is conducive to free range chicken operations
Northland's close proximity to Auckland provides an attractive production location

KEY RISKS & SENSITIVITIES

- New Zealand contracts bird disease that impacts disease free status
- Risk associated with salmonella
- Movement from caged systems (by 2022) increases costs and reduces consumption

VALUE-ADDED OPPORTUNITIES

- Organic, free range
- Instant scrambled eggs
- Egg protein powder
- Ready to use eggs
- Key ingredient in meals (e.g. scrambled breakfast burrito)

WHAT YOU WOULD NEED TO BELIEVE

- Northland firms are able to gain scale
- New Zealand maintains it's disease free status through strict breeding and quarantine systems
- Able to grow exports (Pacific Islands, Oceania, Asia)
- Ongoing growth in domestic sales (currently $286m)[2]
- Shift to non-cage animal systems is smooth and cost effective for industry – currently caged is 83% of production[2]

DRIVERS OF GROWTH

- Egg a day is OK campaign
- Growth in free range
- Growth in high protein diets (move away from cereal in some countries)
- Egg consumption associated with improved dietary quality

KEY COMPETITORS

DOMESTIC	EXPORTERS
- Waikato	- Netherlands
- Canterbury	- Turkey
- Auckland	- Poland
- others	- Germany
	- China
	- Malaysia
	- USA

*1. On-farm and processing 2. Egg Producers Federation; *Coriolis estimates based on modelling, research and past work; treat as aspirational, indicative; Source: Statistics NZ; MPI/MAF; Coriolis estimates and analysis*

2.4 EGGS

Eggs are back in fashion and on-trend, particularly free range

Northland has growing egg production

Northland has a growing egg sector creating new units and new jobs

Tonnes per unit is flat, indicating growth is coming from more units; employment per unit is growing (shift to free range?)

Northland can continue to grow egg production

Eggs provide a base for expansion into more value added egg-based products

Eggs are back in fashion and on-trend, particularly free range

"US per capita egg consumption still rising as protein craze continues…While increasing numbers of food manufacturers are experimenting with alternatives to animal proteins, enthusiasm for all things plant-based has not dampened overall demand for eggs, with US per capita egg consumption rising...So what's behind the growing per capita consumption figures? There are likely multiple factors at play…with eggs benefiting from the protein craze and picking up some of the slack at breakfast as ready-to-eat cereal consumption continues to decline."

FOOD navigator-usa.com

"Egg sales in UK skyrocket due to increased number of flexitarians and vegetarians…The British Egg Industry Council (BEIC) has revealed that egg sales rose by four per cent in 2018 – equivalent to approximately 240m extra eggs. The organisation suggests the spike in sales could be correlated with a rise in the number of people adopting flexitarian diets – consuming more plant-based meals without completely eliminating meat – suggesting consumers are looking for more meat-free alternatives."

INDEPENDENT

"As diets around the world become richer and more diverse due to an increase in living standards, proteins become a growing part of people's diet. Today, eggs are one of the fastest growing proteins in the world, with more than 50% growth forecast in the next 2 decades.
Egg consumption continues in many European markets. In the UK, eggs are benefiting from the slowdown in breakfast cereal sales. However, it is in emerging markets, where consumers seeking affordable and diverse protein sources, that eggs per capita consumption is growing at the fastest pace."

Huhtamaki

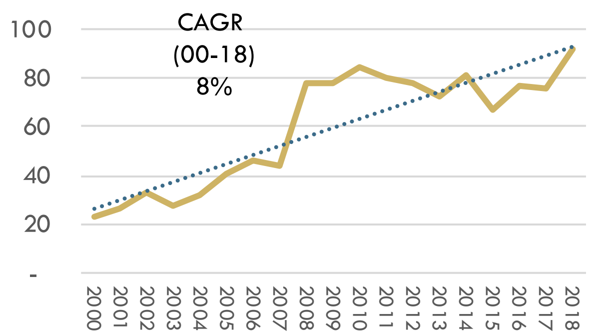
"A rise in the price of eggs is the cost of improving life for layer hens as the [NZ] industry gears up for a new animal welfare code. Battery cages will be banned by December 2022 in favour of larger colony cages, or barn and free range rearing. Upgrading cost was cited by the biggest poultry farm in New Zealand, Mainland Poultry, as a reason for selling a majority shareholding to an Australian private equity firm Navis Equity."

stuff

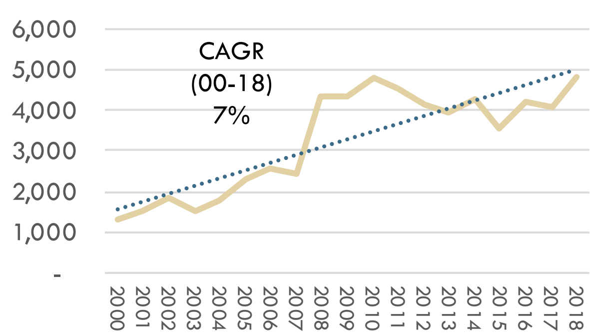
Source: articles; interviews; Coriolis analysis

Northland has a growing egg sector creating new units and new jobs

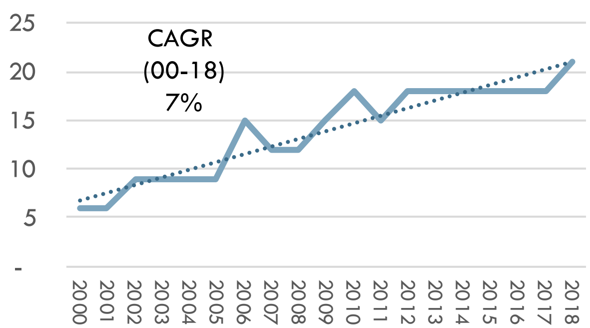
POULTRY EGGS
Number; m; 2000-2018



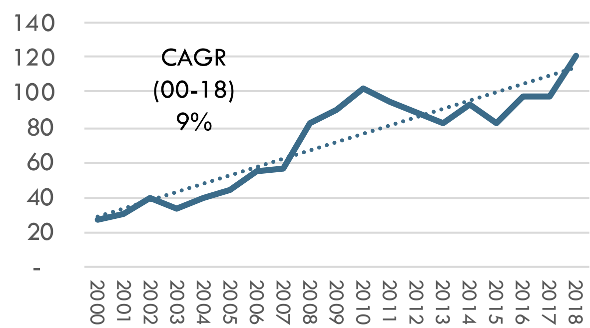
POULTRY EGG VOLUME
T; 2000-2018



POULTRY EGG UNITS
Geographic units; 2000-2018



EMPLOYEES/JOBS
Headcount; 2000-2018



COMMENTS/NOTES

New Zealand does not report egg production by region

Data is modelled from national egg volume (which is reported) and Northland's share of industry jobs; this assumes jobs are purely proportional to volume

Treat as indicative/directional

165 egg farms nationally

Units should be seen as professional, large scale and corporate operational units based in Northland' defined in this case as firms with over $60k in revenue annually (GST threshold)

Employee headcount includes full and part time, including owner operators (discussed below), but not hobbyists

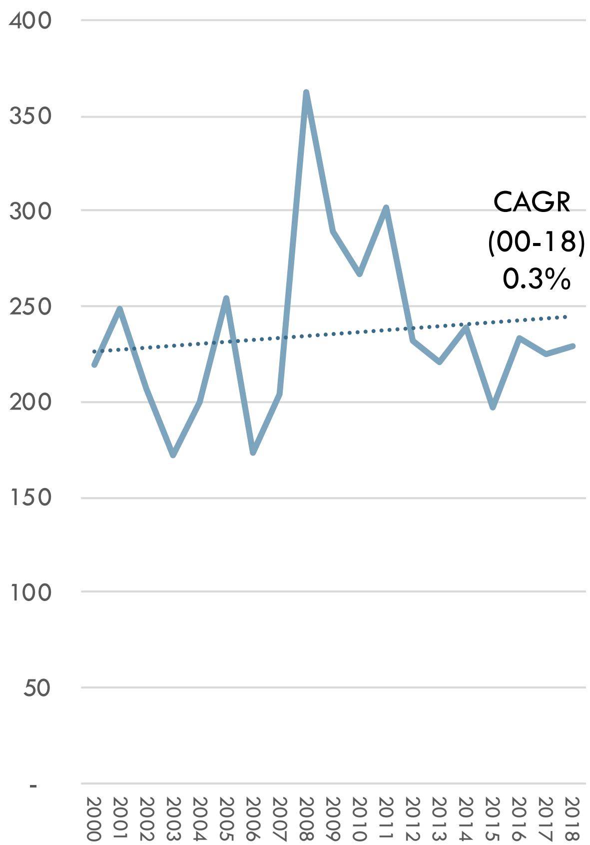
Employees includes an estimate for owner-operators (i.e. non-PAYE employees) at 1 per operational unit

Source: Statistics NZ; UN FAO AgStat; Coriolis modelling, analysis and estimates

Tonnes per unit is flat, indicating growth is coming from more units; employment per unit is growing (shift to free range?)

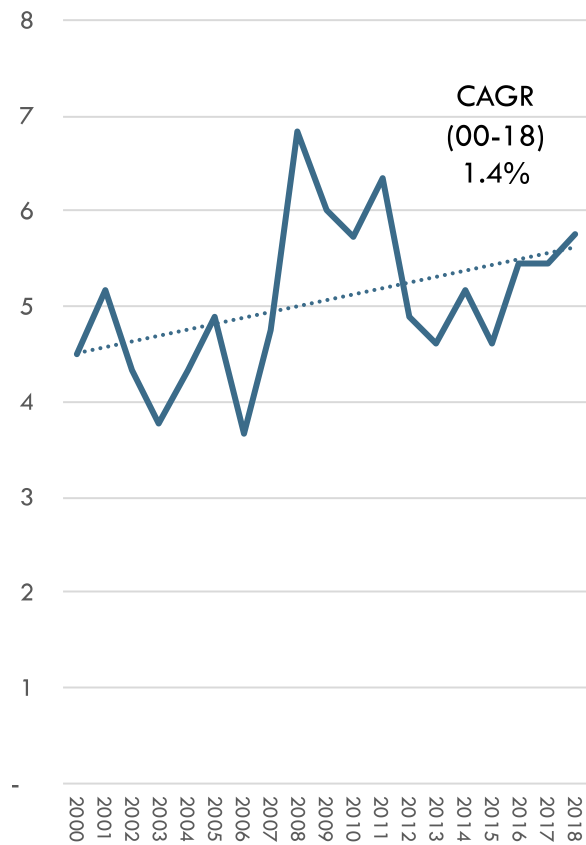
TONNES/UNIT

T/units; 2000-2018



JOBS/UNIT

Headcount/unit; 2000-2018



COMMENTS/NOTES

Units should be seen as professional, large scale and corporate operational units based in Northland, defined as firms with over $60k in revenue annually (GST threshold) and that predominantly produce eggs; this excludes larger farming operations that may focus elsewhere but have poultry on the side

Employee headcount includes full and part time, including owner operators (discussed below), but not hobbyists

Employees includes an estimate for owner-operators (i.e. non-PAYE employees) at 1 per operational unit

New Zealand has changed its regulations and requirements around egg farming; at the same time, some consumer segments (e.g. LOHAS (Lifestyles of Health and Sustainability) shoppers) have shifted to demanding more soft attributes from their eggs (e.g. free range)

Source: Statistics NZ; Coriolis analysis and estimates

Eggs provide a base for expansion into more value added egg-based products

Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes for research/study/commentary/criticism/review; Source: Coriolis analysis

2.5 BERRIES IN NORTHLAND

SCORECARD	
ON-FARM – BERRIES[3]	
Units *(2018)*	9
Unit Change *Abs. (00-18)*	+3
Unit Change *CAGR (00-18)*	2%
Employees *(2018)*	12
Employee *Change (00-18)*	+6
Employee *CAGR (00-18)*	4%
PROCESSING – F&V	
Units *(2018)*	15
Unit Change *Abs. (00-18)*	0
Unit Change *CAGR (00-18)*	0
Employees *(2018)*	195
Employee *Change (00-18)*	64
Employee *CAGR (00-18)*	2.2%
OTHER	
Area *(ha)*	*25-30*
POTENTIAL EMPLOYMENT GROWTH*	+50-100 Total[2]

Total F&V Processing[1]

SELECT REGIONAL FIRMS

T&G (A BayWa Company); Maungatapere Berries; Blue River Orchard; Living Fruits Limited; The Freshberry Company of NZ Ltd; Tomo Berries (NZ Blueberries & Raspberries)

'ELEVATOR PITCH'

Northland fruit are the first to see the market, an optimal market window

VALUE-ADDED OPPORTUNITIES

- Ingredients in desserts, ice cream, yoghurt, smoothies
- Dried in cereals, baked goods, bars
- Freeze dried whole, power
- Flavouring in beverages
- Jams, preserves, jellies, sauces, dressings
- Cosmetics ingredient

DRIVERS OF GROWTH

- Early season, first to market opportunity
- Strong health attributes (e.g. blueberries)

KEY RISKS & SENSITIVITIES

- Birds
- Moulds/fungus more prevalent in the North
- Variety selection important (low chill) in the warmer North and disease and pest management

WHAT YOU WOULD NEED TO BELIEVE

- Ongoing investment in the region to gain scale
- Current sector fragmented and on small blocks
- On-going R&D and growth of premium large berries in NZ
- Relationships with key global berry firms (e.g. Driscoll's, exclusivity with The Fresh Berry Co. – sister company to RD8) brings learnings and best practice operations to the industry

KEY COMPETITORS

DOMESTIC	EXPORTERS
- Waikato - Hawkes Bay	- Poland - Europe (East) - Peru - Mexico - Chile

*1. Data is total F&V processing in Northland; packhouses typically pack multiple fruit/veg; caution against double counting; 2. On-orchard and processing; 3. Data captures specialised berry producers only; *Coriolis estimates based on modelling, research and past work; treat as aspirational, indicative; Source: Statistics NZ; MPI/MAF; Coriolis estimates and analysis*

2.5 BERRIES

Berries are growing globally driven by 'superfood' status

Northland is investing in berries and is forecast to grow production

Northland is increasing berry area and berry production

Northland has a growing berry sector creating new units and jobs

Tonnes per unit is growing modestly, indicating much growth is coming from more units; employment per unit is growing modestly

Northland can produce more berries and, therefore, more berry jobs

Berries are an extensible platform that provides numerous opportunities for value-added line extensions beyond fresh

Berries are growing globally driven by 'superfood' status

"Consider the tremendous positives: A 'health halo' like no other fruit…it's tough to imagine better publicity than the Harvard University study…that found blueberry consumption might help ward off Alzheimer's disease, thus earning it the enviable moniker 'brainberry' by the Harvard professor in charge of the study. Add to that the fact that berries of all types are now available year-round, and you have a product with unparalleled sales growth, in terms of year-on-year percentage, not just in the produce aisle but in the entire grocery store. Finally, it doesn't hurt that many new varieties have fantastic flavor and can be grown in many areas where it wasn't previously possible."

Growing Produce

"Nutritious, delicious and bountiful. Berries check all the boxes for what consumers look for in fresh fruit. In fact, the collective category of strawberries, blueberries, raspberries and blackberries were Number One in fruit in terms of dollar sales last year…What's more, there's no sign to date of the berry boom slowing, as the category grew 8.8 percent in dollar sales compared to the previous year."

producebusiness MARKETING • MERCHANDISING • MANAGEMENT • PROCUREMENT

"Demand for superfoods like avocados and blueberries has exploded in recent years…Trade in blueberries has grown by 11% each year over the past decade…Global fruit trade is definitely impacted by superfruit fads. Once a product gets very popular consumers expect it to be available all day every day. Most fruits cannot be sourced locally all year round, so trade is needed."

FOOD navigator-usa.com

"Berries are among the healthiest foods you can eat. They're delicious, nutritious, and provide a number of impressive health benefits … Blueberries are…wildly popular. Often labeled a superfood, they are low in calories and incredibly good for you. They're so tasty and convenient that many people consider them their favorite fruit."

healthline

Source: articles; interviews; Coriolis analysis

Northland is investing in berries and is forecast to grow production

"Tomo Orchard show ever-increasing tonnage for the plantation. In the 2016 season, the business produced 1,177 trays of blueberries, increasing to 3,210 trays of blueberries in the 2017 crop, 6,250 trays in the 2018 harvest, and with a forecast to deliver 9,200 trays of blueberries from next year's pickings…Tomo Orchard has 2,000 raspberry plants producing 600kg of fruit annually. And complementing the dual-berry production lines, the business also sustains a 346-tree avocado plantation." *Mar 2018*

The New Zealand Herald

"Our berry project in Kerikeri began in 2009, and was market driven by export demand from Australia and Asia. We built 15ha under canopy and got a commercial crop in 2013 of 14t." *Lloyd Foss, KeriFresh (T&G), Sept 2014*

NZGROWER

"There are large expansions of berries underway, we have just planted more hectares of hydroponic blueberries." *May, 2019*

Berry Grower, Northland

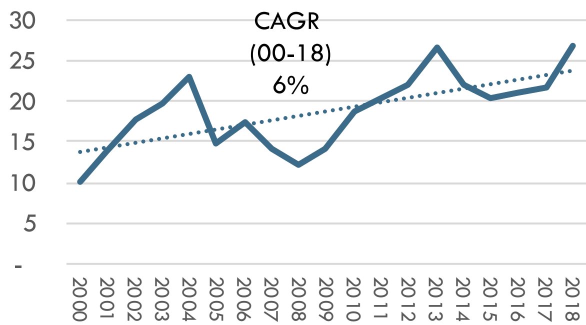
"We intend investing further in these growth categories [citrus and berries]…We have land ready for development and we will also be investing in crop protection facilities for our existing operation in Kerikeri. We also hope to be employing more people through these investments." *Andrew Keaney, T&G Global NZ, Seeka Press release, Apr 2018*

T&G A BayWa Company

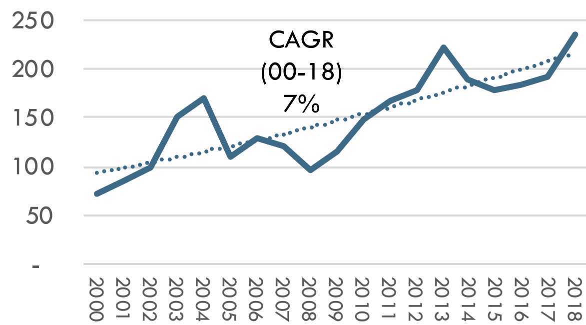
Source: interviews; articles; Coriolis analysis

Northland is increasing berry area, berry production, units and jobs

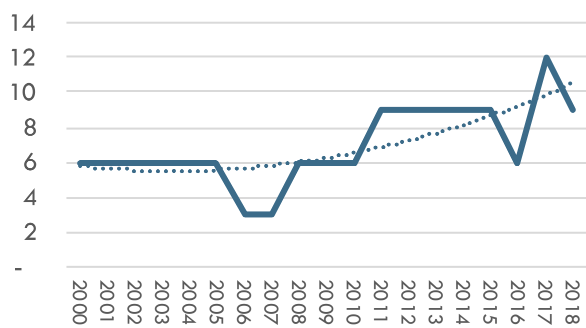
HECTARES
Ha; 2000-2018



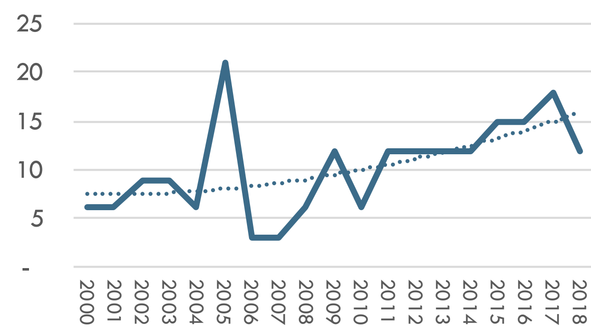
TONNES
T; 2000-2018



FARMING UNITS
Geographic units; 2000-2018



EMPLOYEES/JOBS
Headcount; 2000-2018



COMMENTS/NOTES

Bearing area only; will not include new plantings

New Zealand does appear to record, collect or report berry production by region

Data presented here is modelled from national berry area and volume (which is reported) and Northland's share of adjusted industry jobs (smoothed with a rolling multi year average)

This assumes jobs are purely proportional to volume, which is a very rough approximation; this methodology will obscure interregional seasonal fluctuations by blending the region into the national result

Based on these (admittedly rough, pro-rata) estimates, Northland currently has very little harvested berry area (ca. 25-30 ha); clear upside potential.

Treat as indicative/directional

Units should be read as business locations with over $60,000 in revenue (i.e. GST registered) that receive the majority of their revenue from berries (i.e. berry growers)

Employee headcount includes full and part time, including owner operators (discussed below), but not hobbyists or lifestyle

For employment, we have assumed every berry unit has, in addition to any employees (i.e. PAYE), one owner operator (i.e. non-PAYE)

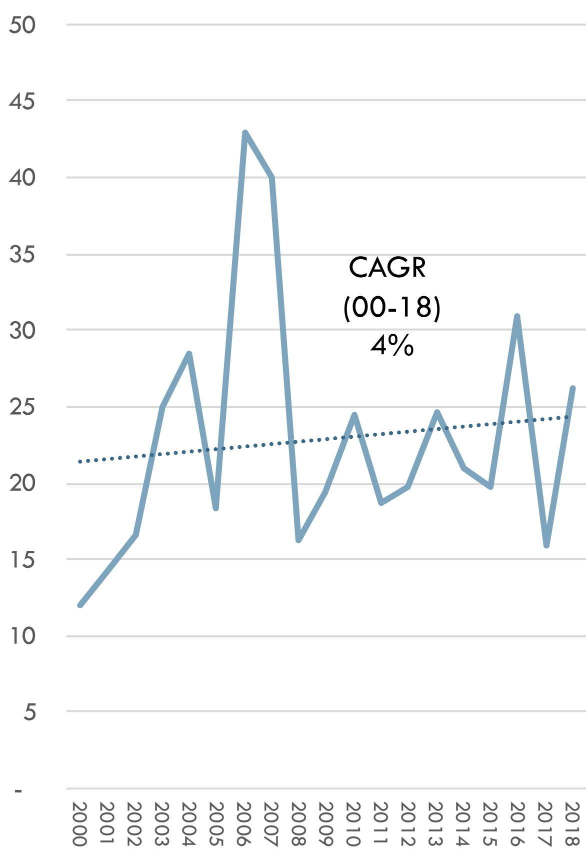
We do this as most farmers use 'shareholder/director' formats rather than being on a PAYE salary

Source: Statistics NZ; UN FAO AgStat; MAF/MPI; Coriolis analysis and estimates

Tonnes per unit is growing modestly, indicating much growth is coming from more units; employment per unit is growing modestly

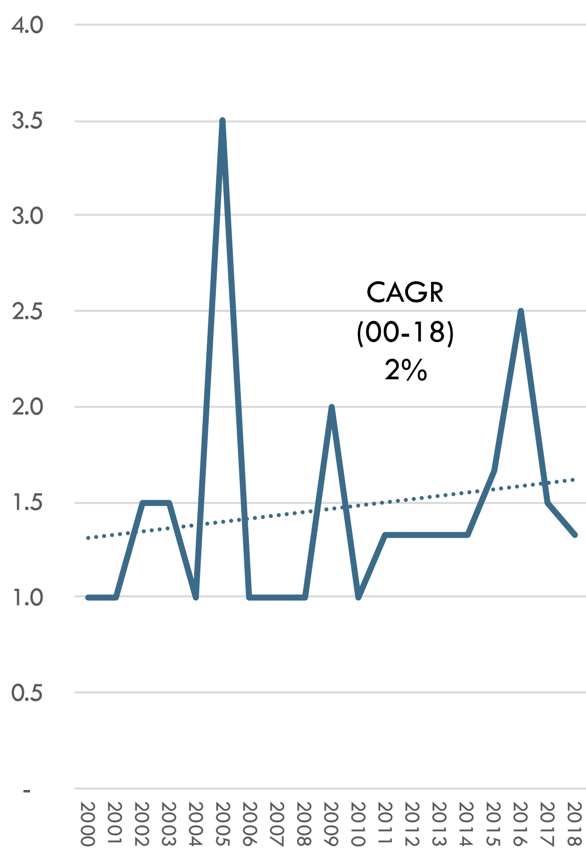
TONNES/UNIT

T/units; 2000-2018



JOBS/UNIT

Headcount/unit; 2000-2018



COMMENTS/NOTES

Units should be seen as professional, large scale and corporate operational units based in Northland, defined as firms with over $60k in revenue annually (GST threshold) and that predominantly produce berries

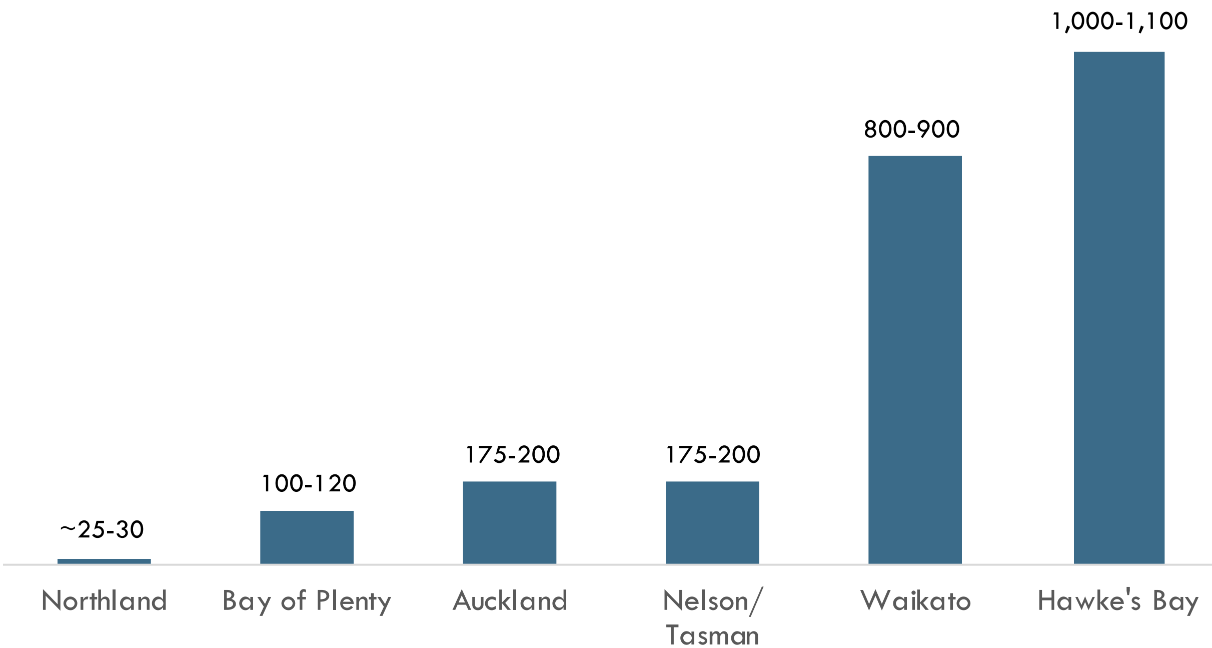
Employee headcount includes full and part time, including owner operators (discussed below)

Employees includes an estimate for owner-operators (i.e. non-PAYE employees) at 1 per operational unit

Source: Statistics NZ; UN FAO AgStat; MAF/MPI; Coriolis analysis and estimates

Northland can produce more berries and, therefore, more berry jobs

ESTIMATED BEARING BERRY AREA: NORTHLAND VS PEERS
Ha; 2018



COMMENTS/NOTES

Urban growth is impacting Auckland berry production; Waikato appears to be growing and benefiting from pressures on Auckland, Northland does not

New Zealand does not appear to record, collect or report berry production by region

Data presented here is modelled from national berry area and volume (which is reported) and regional share of adjusted industry jobs (smoothed with a rolling multi year average); this assumes jobs are purely proportional to volume, which is a very rough approximation; this methodology will obscure interregional seasonal fluctuations by blending the region into the national result

If you have better data, please send it to the authors

Treat as indicative/directional

Source: Plant & Food Research Fresh Facts; Statistics NZ; Coriolis analysis and estimates

Berries are an extensible platform that provides numerous opportunities for value-added line extensions beyond fresh

Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes for research/study/commentary/criticism/review; Source: Coriolis analysis

2.6 UNDER COVER IN NORTHLAND

SCORECARD	
ON-FARM – UNDER COVER	
Units *(2018)*	18
Unit Change *Abs. (00-18)*	9
Unit Change *CAGR (00-18)*	4%
Employees *(2018)*	60
Employee *Change (00-18)*	6
Employee *CAGR (00-18)*	1%
PROCESSING – F&V (Total F&V Processing[1])	
Units *(2018)*	15
Unit Change *Abs. (00-18)*	0
Unit Change *CAGR (00-18)*	0
Employees *(2018)*	195
Employee *Change (00-18)*	64
Employee *CAGR (00-18)*	2.2%
OTHER	
Area *(ha)*	22
POTENTIAL EMPLOYMENT GROWTH*	+200-300 Total[2]

SELECT REGIONAL FIRMS

T&G A BayWa Company

MAUNGATAPERE Berries™

Parkgard Growers

'ELEVATOR PITCH'

Northland's climate provides optimal growing conditions for under cover horticulture

KEY RISKS & SENSITIVITIES

- Moulds/fungus more prevalent in the North
- Variety selection important (low chill) in the warmer North and for disease and pest management

VALUE-ADDED OPPORTUNITIES

- Hydroponics
- Organic
- Fertigation technologies
- Mushrooms

WHAT YOU WOULD NEED TO BELIEVE

- Ongoing investment in the region to gain scale and efficiency
- Successful management of moulds and insects

DRIVERS OF GROWTH

- Early season, first to market opportunity
- Crop management, environmental management
- Low water usage/losses

KEY COMPETITORS

DOMESTIC	EXPORTERS
- Auckland - Hawkes Bay	- Spain

*1. Data is total F&V processing in Northland; packhouses typically pack multiple fruit/veg; caution against double counting; 2. On-orchard and processing; *Coriolis estimates based on modelling, research and past work; treat as aspirational, indicative; Source: Statistics NZ; MPI/MAF; Coriolis estimates and analysis*

2.6 UNDER COVER*

Under cover (or protected) cropping is growing globally

Northland is the fourth largest under cover cropping region in New Zealand

- Northland accounts for 7% of area in under cover horticulture in New Zealand
- Northland primarily focuses on producing a narrow range of horticulture under cover

Under cover cropping in Northland is under pressure and in transition

- The amount of area in under cover horticulture in Northland has been declining
- Northland was creating under cover production units through 2007/08 (i.e. GFC); units down and employment stabilised since

Northland has the potential for more under cover cropping

**Under cover includes greenhouses, glasshouses, polytunnels; some overlap with other industries (e.g. berries, vegetables)*

Under cover (or protected) cropping is growing globally

"Protected cropping heralded as ideal system to help supercharge Australian agriculture. 'Sustainable growth' is the key phrase underpinning the Australian Government's plans to make the nation's agricultural industry a $100 billion industry by 2030. Yet with widespread and continued drought conditions challenging these ambitious plans, growers are looking to new solutions to ensure more consistent crops and higher yields – and protected cropping is one increasingly attractive proposition…The Protected Cropping Industry is the fastest growing food producing sector in Australia, valued at around $1.8 billion per annum."

hortidaily

"The global greenhouse horticulture market size is projected to reach USD 41.85 billion by 2025 due to the increasing demand for healthy food which is free from of all kinds of poisonous and harmful food adulterants. Other factors surging market growth is the increasing demand for innovative, commercially oriented and modern agriculture across the globe. Advanced irrigation systems have played a major role in water saving for greenhouse cultivation."

ADROIT MARKET RESEARCH Your Knowledge Partners

"The Commercial Greenhouse market size will grow from USD 22.93 Billion in 2017 to USD 38.28 Billion by 2023, at an estimated CAGR of 8.92%…One of the major drivers is that commercial greenhouses provide higher yield compared to traditional agricultural techniques…Europe has traditionally been at the forefront of implementing advanced techniques in the commercial greenhouse market. Countries such as The Netherlands, Spain, and France have large areas under greenhouse cultivation."

HTF Market Intelligence

"Banks of what appear to be gargantuan mirrors stretch across the countryside, glinting when the sun shines and glowing with eerie interior light when night falls. They are Holland's extraordinary greenhouse complexes, some of them covering 175 acres. These climate-controlled farms enable a country located a scant thousand miles from the Arctic Circle to be a global leader in exports of a fair-weather fruit: the tomato."

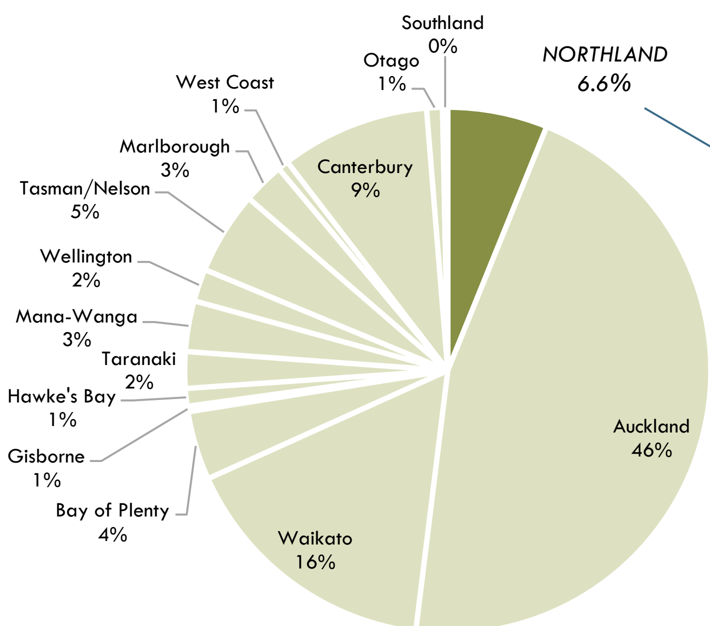
NATIONAL GEOGRAPHIC

Source: articles; interviews; Coriolis analysis

Northland accounts for 7% of area in under cover horticulture in New Zealand; focusing on a narrow range of horticulture

NZ AREA UNDER COVER

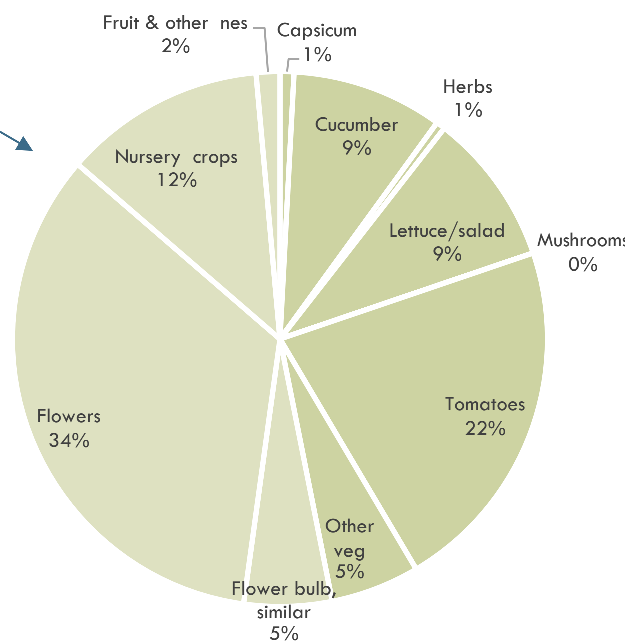
Sq m; % of sq m; 2017



TOTAL = 3,686,189 sq m

NLD AREA UNDER COVER

Sq m; % of sq m; 2017



TOTAL = 226,317 sq m

COMMENTS/NOTES

Northland (NLD) has the fourth largest area under cover horticulture out of New Zealand regions

About two thirds of total area under cover is in Northland/Auckland/Waikato super-region

This suggests a strong climate (warm), population (customers and labour) and logistics (roads, air, ports) component to the industry

Northland appears well positioned to benefit from pressures on Auckland production (urban growth, land use restrictions, etc.)

About half vegetables, half flowers & nursery

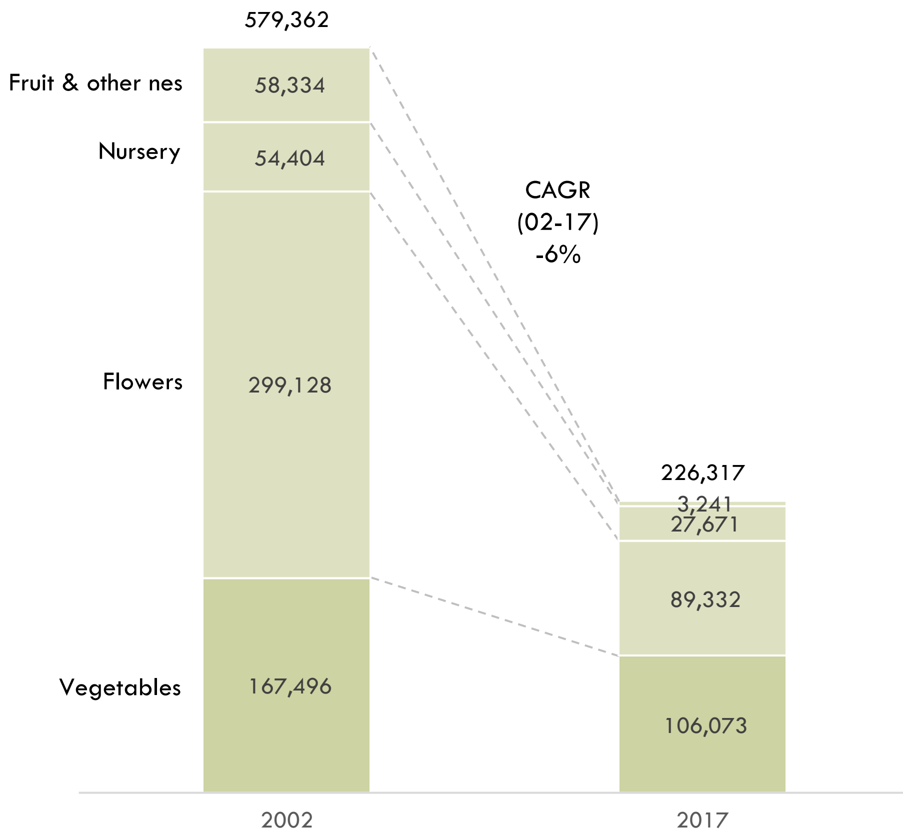
A handful of vegetables (tomatoes, cucumbers and lettuce/salad greens) dominate under cover food production in Northland

Growing number of berry crops are also under cover

Source: Statistics NZ; Coriolis analysis and estimates

The amount of area in under cover horticulture in Northland has been declining

AREA IN UNDER COVER HORT IN NORTHLAND
Sqm; 2017



COMMENTS/NOTES

More area being lost out of flowers and nursery than vegetables

Indications are some significant amount of this is an ongoing transition from more low technology, lower yield poly tunnels to higher technology, higher yield modern glass structures

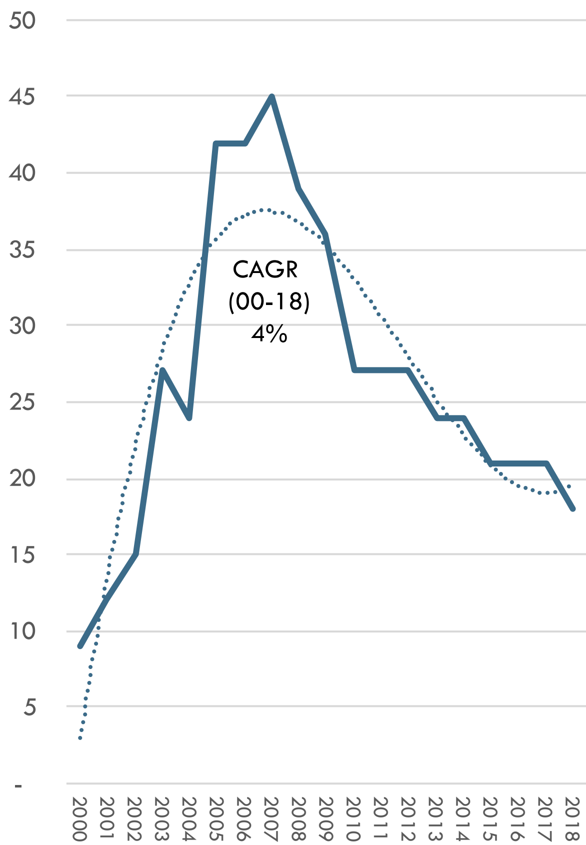
A handful of vegetables (tomatoes, cucumbers and lettuce/salad greens) dominate under cover food production in Northland

Source: Statistics NZ; Coriolis analysis and estimates

Northland was creating under cover production units through 2007/08 (i.e. GFC); units down and employment stabilised since

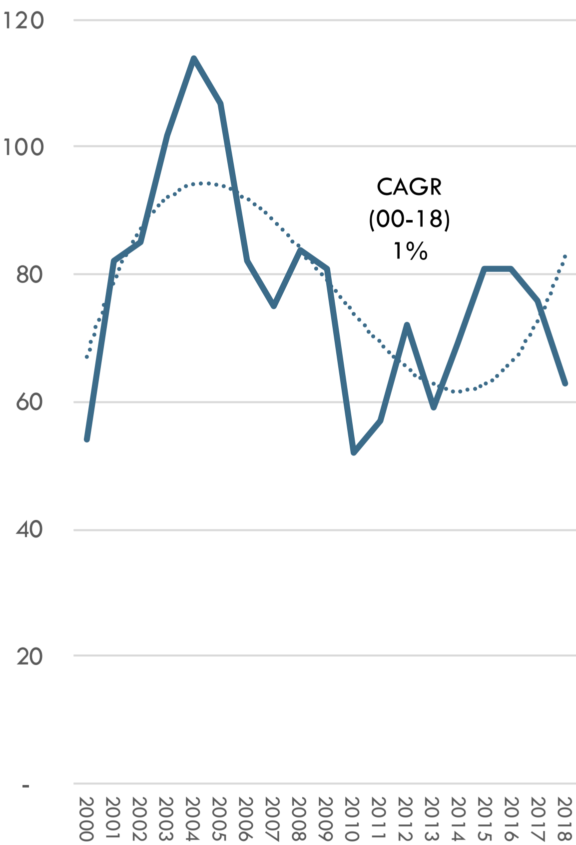
UNDER COVER UNITS

Geographic units; 2000-2018



EMPLOYEES/JOBS

Headcount; 2000-2018



COMMENTS/NOTES

Jobs did not fall as far or as fast as units or area (page prior) supporting narrative that industry is transitioning to smaller, more high intensity glass units

Units should be seen as professional, large scale and corporate operational units based in Northland, defined in this case as firms with over $60k in revenue annually (GST threshold)

Employee headcount includes full and part time, including owner operators (discussed below), but not hobbyists

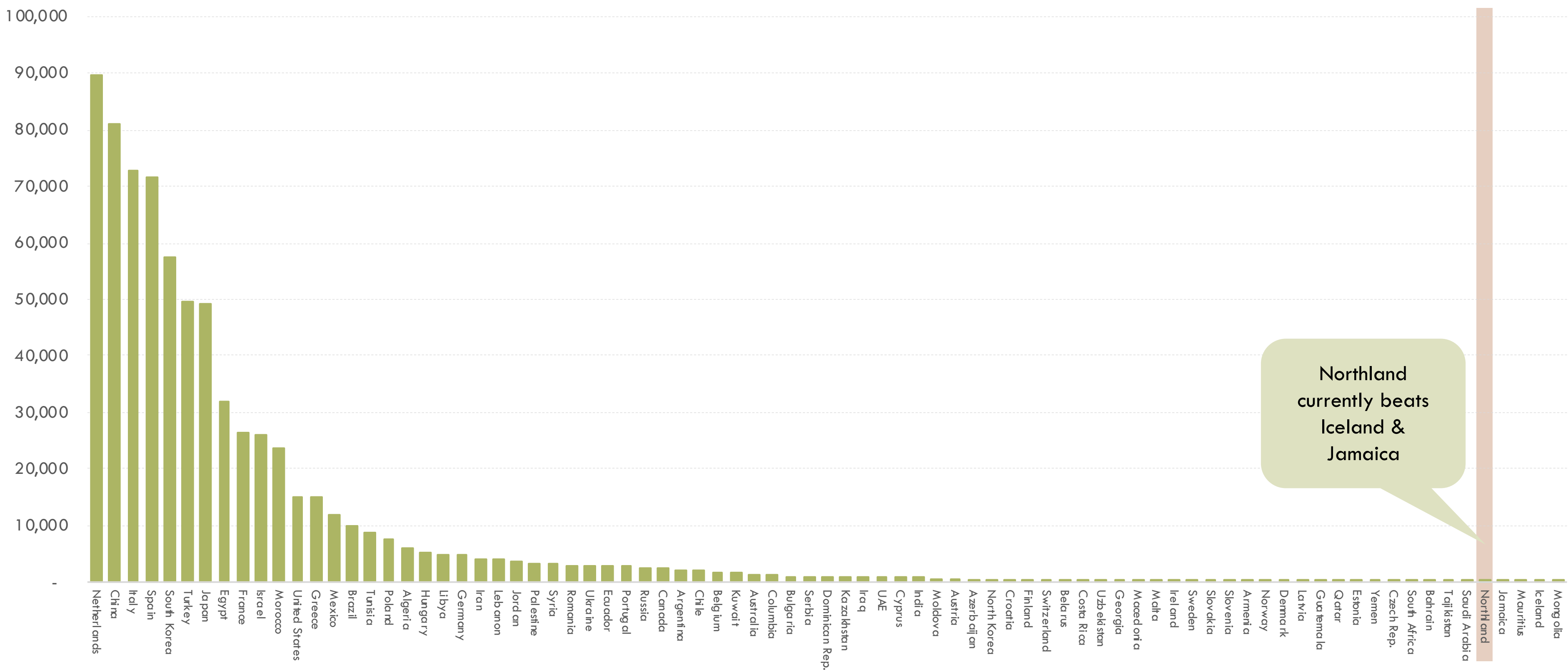
Employees includes an estimate for owner-operators (i.e. non-PAYE employees) at 1 per operational unit

Source: Statistics NZ; Coriolis analysis and estimates

Northland has the potential for more under cover cropping

AREA IN GREENHOUSE/UNDER COVER: NORTHLAND VS SELECT COUNTRIES

Ha; 2018 or as available



NOTE: Data is from a wide range of sources and may not be perfectly comparable; many countries include glasshouse, greenhouse/PE tunnel & low tunnel; range of estimates for China (up to 2,760,000ha);
Source: Cuesta Roble Consulting; "Greenhouse production systems in Mediterranean area" Leonardi/De Pascale May 2010; "Greenhouse Technology Globally: The future of food"; Coriolis analysis

2.7 OLIVES IN NORTHLAND

SCORECARD	
ON-FARM	
Units *(2018)*	45
Unit Change *Abs. (00-18)*	+36
Unit Change *CAGR (00-18)*	9%
Employees *(2018)*	45
Employee *Change (00-18)*	+34
Employee *CAGR (00-18)*	8%
PROCESSING	
Units *(2018)*	No Breakout available; classified in Oils and fats
Unit Change *Abs. (00-18)*	
Unit Change *CAGR (00-18)*	
Employees *(2018)*	
Employee *Change (00-18)*	
Employee *CAGR (00-18)*	
OTHER	
Area *(ha)*	110
POTENTIAL EMPLOYMENT GROWTH*	+50-100 Total[2]

SELECT REGIONAL FIRMS

OLIVADO · OLIVETI · CHAPEL OLIVE OIL · TAIHOA TIDES · EVER GREEN · FIRST DROP extra virgin olive oil · TE ARAI OLIVE ESTATE · KORU OLIVES · Olives ON THE HILL · TE WHEKE OLIVES · Two black dogs Extra Virgin Olive Oil

'ELEVATOR PITCH'

Northland has a reputation for quality olive oils
Northland is the second largest olive region with 50,352 trees[1]

VALUE-ADDED OPPORTUNITIES

- Opportunity for unique infusions and flavours
- Olive leaf extract
- Innovative packaging (pourer, spray)

DRIVERS OF GROWTH

- Growing middle class in Asia
- Healthy oil
- Oil as ingredient (e.g. premium cheese, marinades)
- Demand in particular in high income areas and retailers
- Well accepted usage at social events and with guests

KEY RISKS & SENSITIVITIES

- Difficult to compete with European oils (no country of origin requirements, blends, subsidies)
- NZ is unknown as an olive oil producing country
- Cost of bottling in Northland
- Unreliable quantity of supply
- Current producers small and likely undercapitalised (beyond Olivado)
- Growth in alternative oil categories
- High cost of production verses competition
- Competing use of land (e.g. avocados)

WHAT YOU WOULD NEED TO BELIEVE

- Able to export to high value markets (e.g. Japan, Singapore, China, Taiwan)
- Northland able to develop a regional identity and unique flavour profile
- Continue to develop a food and wine culture including olive grove tours and tastings
- Northland gains attention by winning awards and using the OliveMark quality certification system

KEY COMPETITORS

DOMESTIC	EXPORTERS
- Hawkes Bay	- Spain
- Auckland	- Italy
- Wairarapa	- Turkey
- Nelson	
- Canterbury	

*1. Olive New Zealand database; 2. on-grove and processing; *Coriolis estimates based on modelling, research and past work; treat as aspirational, indicative; Source: Statistics NZ; MPI/MAF; Coriolis estimates and analysis*

2.7 OLIVES

Olives are a global growth sector, but under strong pressures

The Northland olive industry is shrinking

- After a period of growth, the Northland olive industry is currently consolidating into less area, but with stabilising volumes
- Olive growing in Northland has flat-to-declining units and jobs
- Olive producers in Northland are retreating into smaller units

There are two potential futures for the Northland olive industry: Retreat to Niche or Grow to Scale

Olives are a global growth sector, but under strong pressures

"Spain is a giant in the olive oil world. The country produces almost half of the world's olive oil, more than three times as much as Italy, Greece or Tunisia. Over 250 million olive trees grow in Spain…But over the last 25 years, and especially during the last decade, the world of Spanish olive oil is changing…In the past, the country was known for sacrificing quality for quantity…No longer. Spain's olive producers and bottlers have invested in excellence, from new harvesting practices to state-of-the-art machinery. Their goal is to challenge the assumption that Italian oil is the finest and firmly establish Spanish extra virgin olive oils among the best in the world."

Olive Oil Times

"Intensive and super intensive olive cultivation offers advantages that have contributed to its proliferation in Extremadura [Spain] in the last few years. Intensive and super intensive methods facilitate mechanization, easing management and saving costs. Their irrigation grants stability to the crops. The reduced harvesting costs lead to a more profitable effort amid a growing global demand and reduced production in some other olive growing areas…It is expected that approximately 20,000 new olive grove hectares will be planted in the next few years."

Olive Oil Times

"One of the major reasons behind the growing demand and consumption of olive oil is the health benefits associated with the consumption of olive oil. Olive oil forms a unique and a tasty alternative to conventional edible oils."

R&M RESEARCH AND MARKETS

"The global olive oil market is projected to rake-in US$11bn worth of revenues by 2022…The developed countries continued to be the largest consumers of olive oil globally, the fast-growing economies in the Asia Pacific excluding Japan region were catching up and could rattle the market balance in the coming years…The global olive oil supply was dependent on the weather conditions in key Mediterranean growing regions…and fluctuating weather in Spain and Italy had substantially increased prices over the last few years. Continuing high demand in emerging economies – led by China – indicated that the industry might be facing challenging times in the coming years."

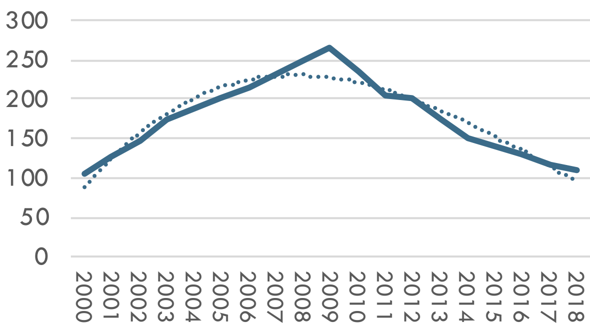
OFI OILS & FATS INTERNATIONAL

Source: articles; interviews; Coriolis analysis

After a period of growth, the Northland olive industry is currently trending down

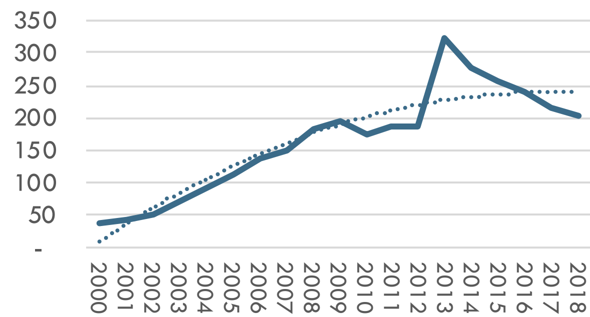
NORTHLAND OLIVE AREA

Ha; 2000-2018



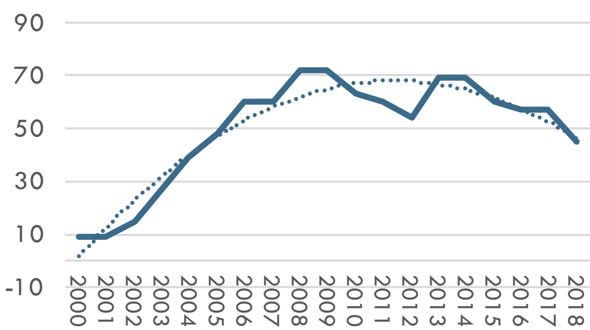
OLIVE VOLUME

T; 2000-2018



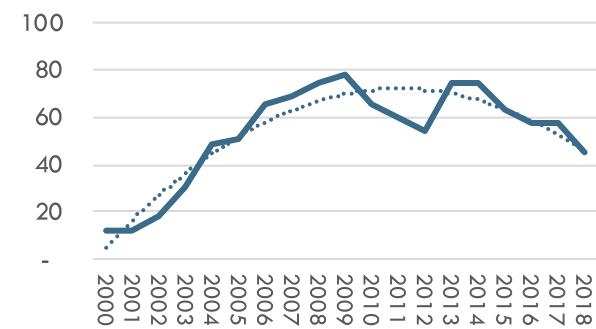
OPERATING UNITS

Geographic units; 2000-2018



ESTIMATED JOBS

Headcount; 2000-2018



COMMENTS/NOTES

Data is very much best fit to a very patchy data set; treat as directional

Volume is calculated from Northland area multiplied by average national yields; treat as directional.

Area and volume should be read as commercial/market facing; doubtful that 150 ha of trees have been removed, just that it is no longer being commercially harvested

This is a from a different dataset than other sets; this data ultimately comes from the IRD tax records

Units should be read as business locations with over $60,000 in revenue (i.e. GST registered) that receive the majority of their revenue from olives (i.e. olive farmers)

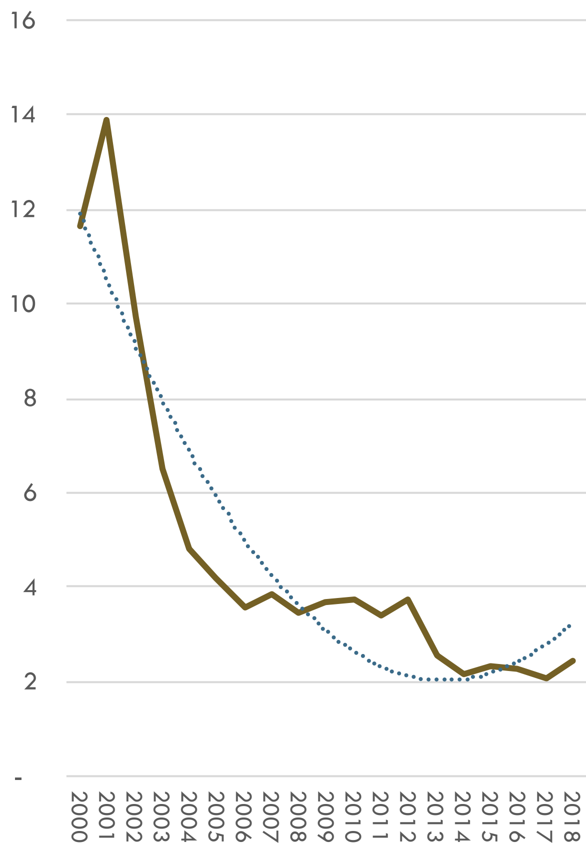
For employment, we have assumed every olive unit has, in addition to any employees (i.e. PAYE), one owner operator (i.e. non-PAYE); we do this as most farmers use ‘shareholder/director’ formats rather than being on a PAYE salary

This modification is made as the raw data makes no sense otherwise as, for example, it says that in 2018 there are 45 operational ‘farms’ and no employees (i.e. PAYE employees); there were employees in other years

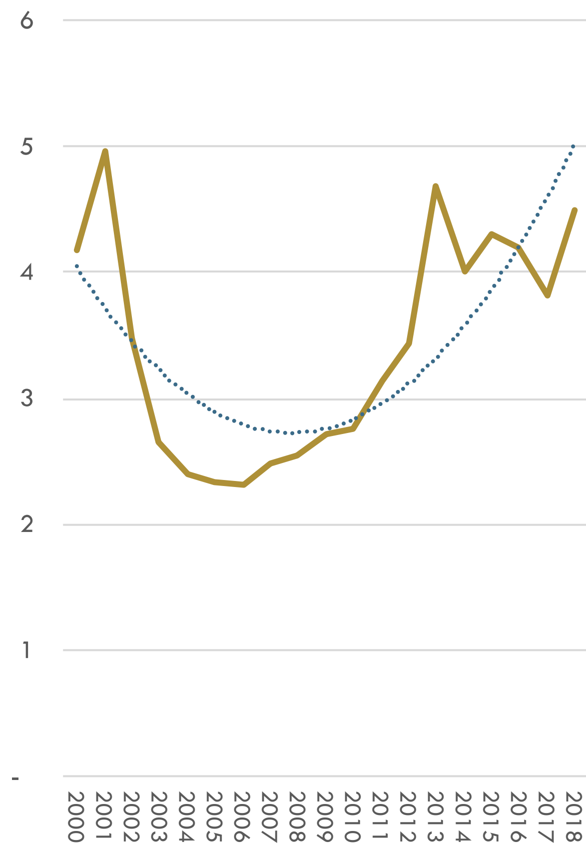
Source: various Statistics NZ reports; various PFR Fresh Facts; past Coriolis research; Coriolis analysis and estimates

Olive producers in Northland are retreating into smaller units

HECTARES/UNITS
Ha/units; 2000-2018



TONNES/UNIT
T/unit; 2000-2018



COMMENTS/NOTES

The major global competitors in olives (both edible and for oil) are a mixture of (1) a large number of small farms and (2) a small number of large farms

However, effectively all new plantings in major producers (e.g. Spain, Italy, Tunisia, Morocco, Greece & Turkey) are very large scale operations; as an example, the Al-Jouf Agriculture Development Company has a farm that has 13m trees and 8.5x the area of all olives in NZ; this scale supports mechanical harvesting and efficient systems

In this environment, the fact that Northland appears to be moving to smaller farms suggests a retreat from competition and any focus on exports, into a niche, tourist, lifestyle positioning

Real growth creating real material numbers of new jobs will require a move to modern production in large scale, efficient farms (in other words, what the apple sector looks like)

Source: various Statistics NZ reports; various PFR Fresh Facts; past Coriolis research; Coriolis analysis and estimates

There are two potential futures for the Northland olive industry

SCENARIO 1: RETREAT TO NICHE

- Small scale producers
- Large number of small operators
- Driven by hobby and lifestyle requirements, not commercial realities or growth
- Focused on farmgate sales and farmers markets

NORTHLAND OLIVE INDUSTRY

SCENARIO 2: GROW TO SCALE

- Large scale producers
- Small number of large operators
- Driven by commercial operators targeting above market returns and strong growth
- Focused on supermarkets, foodservice and export

OUTCOME

No material impact on regional employment

May have soft benefits around regional identity and tourism

OUTCOME

Olives contribute materially to regional employment and growth

Source: Coriolis analysis

2.8 ARABLE CROPS IN NORTHLAND

SCORECARD	
ON-FARM – ARABLE CROPS	
Units *(2018)*	70
Unit Change *Abs. (00-18)*	+49
Unit Change *CAGR (00-18)*	7%
Employees *(2018)*	129
Employee *Change (00-18)*	+96
Employee *CAGR (00-18)*	8%
PROCESSING - GRAIN (Total Grain Processing[1])	
Units *(2018)*	6
Unit Change *Abs. (00-18)*	-3
Unit Change *CAGR (00-18)*	-2.2%
Employees *(2018)*	24
Employee *Change (00-18)*	-141
Employee *CAGR (00-18)*	-10.2$
OTHER	
Area *(ha)*	9,856
POTENTIAL EMPLOYMENT GROWTH*	+100-300 Total[2]

SELECT REGIONAL FIRMS

Primarily for on-farm usage as supplementary animal feeds.

'ELEVATOR PITCH'

Northland has a long growing season suitable for many crops

KEY RISKS & SENSITIVITIES

- Available areas of scale and suitability are competing with alternative land uses (e.g. horticulture, avocados)

VALUE-ADDED OPPORTUNITIES

- Processed foods (e.g. hemp, chia, quinoa products)
- Specialty seed supply
- Specialty pet food

WHAT YOU WOULD NEED TO BELIEVE

- Ongoing investment in the region to gain scale and efficiency
- Successful management of soil and climatic variability

DRIVERS OF GROWTH

- Early season, first to market opportunity
- Growth in dairy industry (supplementary feed requirements)

KEY COMPETITORS

DOMESTIC	EXPORTERS
- Canterbury - Imports	- Australia - Eastern Europe - Canada

*1. Data is total grain processing in Northland; 2. Total on-farm and processing; *Coriolis estimates based on modelling, research and past work; treat as aspirational, indicative; Source: Statistics NZ; MPI/MAF; Coriolis estimates and analysis*

2.8 ARABLE CROPS

Growing global demand for protein – particularly milk – is driving growing global demand for animal feeds

Opportunities exist in alternative crops such as hemp

Grain growing area in Northland is increasing

Northland has growing crop units and is creating on-farm crop jobs

Northland has the potential to produce more arable crops

Growing global demand for protein – particularly milk – is driving growing global demand for animal feeds

"The rising demand for meat products sourced from livestock and poultry animals across the globe is expected to drive animal feed industry growth in the coming years…These factors will drive global animal feed market size to incremental growth of over USD 93 billion between 2017-2022, accelerating at a CAGR of nearly 4%."

technavio

"Cattle feed comprises of forage such as grass, legumes, silage which is used mainly as dairy cattle feed along with grain, soy and other ingredients which increases energy density of diet…Dairy cattle feed contains carbohydrates, fats, proteins, minerals, vitamins etc. which are helpful for milking animals…Dairy cattle feed is trending as a result of increasing global demand of milk products. Cattle feed if provided in optimum level gives good production of milk as a result."

fmi Future Market Insights

"Today world compound feed production is estimated to be one billion tonnes annually. Global commercial feed manufacturing generates…turnover of over US $400 billion…continue to see an increase in the demand for animal protein worldwide, including for livestock, dairy and fish…The United Nations estimates that by 2050 the demand for food will grow by 60%…with meat production projected to rise by nearly 70%, aquaculture by 90% and dairy by 55%. This already marks a growth factor of almost two, however if we were to extrapolate the growth rates of the last forty years forward to 2050, this would in theory quadruple the needs."

IFIF Feed the world

"Palm kernel expeller (PKE) imports [into New Zealand] have hit record levels, despite the fact dairy farmers will be penalised from September 1 for feeding their cows excessive quantities. At the same time import prices have soared by 25 per cent to $337 million for the year to May, compared with $260m the year before. The amount of PKE imported for the year to May was 2.2 million tonnes, compared with 2.1 million tonnes in 2016-17."

stuff

Source: articles; interviews; Coriolis analysis

Opportunities exist in alternative crops such as hemp

"There is limited opportunities for cropping under the current farming systems. Soils are not suited to continuous cropping and most need to be returned to pasture every few years to restore soil structure…Most cropping (maize, kumara, squash, fodder beet and turnips) are part of a pastoral farming rotation."

Northland Regional Council Report, 2017

"There are opportunities to extend work happening at iHemp with the breeding program. Need to look at fibre and food optimised farming systems. Farmers can utilise existing harvesting equipment. The key is to make sure we have the processing in the region."

Farmer, Landowner, Far North

"We think there is an opportunity in hemp, it needs to be developed sensibly. They are growing it up in Ahipara. Everything needs to be lined up, growing, harvesting, processing, end products."

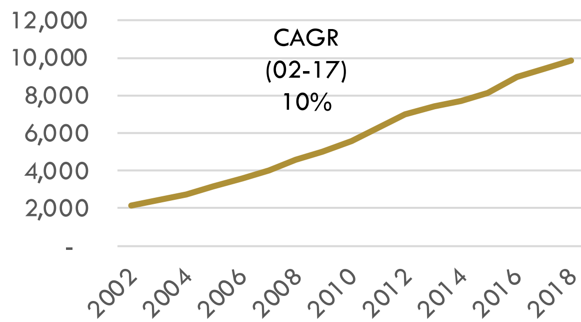
CEO, Diversified Company, Northland

Source: interviews; Coriolis analysis

Grain growing area in Northland is increasing; Northland has growing crop units and is creating on-farm crop jobs

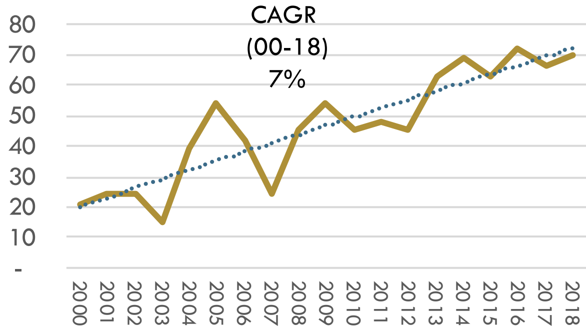
AREA IN GRAIN GROWING

Ha; 2002-2017



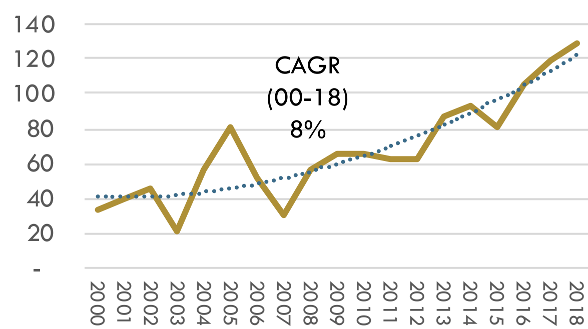
CROP UNITS

Geographic units; 2000-2018



EMPLOYEES/JOBS

Headcount; 2000-2018



COMMENTS/NOTES

Indications are most of this is going to animal feed

"While over 80 per cent of feed used annually is pasture-based, supplemental feeds are required, especially during challenging weather events. PKE makes up less than 5 per cent of feed used annually." *Fonterra Spokeswomen, Jul 2018*

Presented is line of best fit to patchy available data (i.e. missing years are extrapolated)

Units should be seen as professional, large scale and corporate operational units based in Northland, defined in this case as firms with over $60k in revenue annually (GST threshold)

Employee headcount includes full and part time, including owner operators (discussed below), but not hobbyists

Employees includes an estimate for owner-operators (i.e. non-PAYE employees) at 1 per operational unit

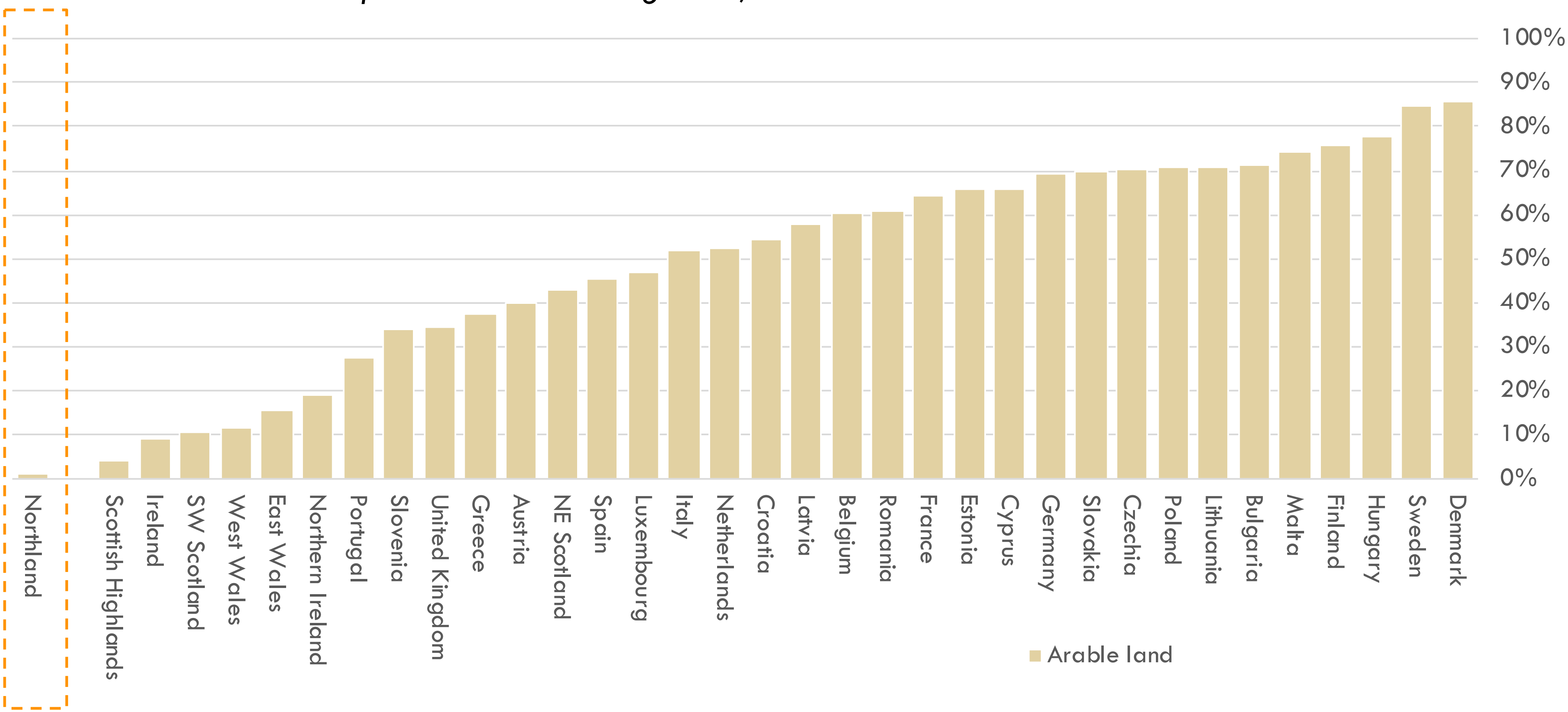
Data includes farms classified as 'Grain-Sheep' and 'Grain-Beef'; these farms are also counted under 'meat producing farms' therefore, please take caution to avoid double counting if summing total employment

Source: Statistics NZ /MftE data; Coriolis analysis and estimates

Northland has the potential to produce more arable crops

SHARE OF AGRICULTURAL AREA IN ARABLE CROPS: NORTHLAND VS EUROPEAN PEERS

On-farm ha in arable crops as a % of total ag. area; 2018 or as available



Source: Statistics NZ; Eurostat; Coriolis analysis

2.9 KUMARA (SWEET POTATO) IN NORTHLAND

SCORECARD	
ON-FARM	
Units (2018)	48
Unit Change Abs. (00-18)	-57
Unit Change CAGR (00-18)	-4%
Employees (2018)	-
Employee Change (00-18)	-
Employee CAGR (00-18)	-
PROCESSING	
Units (2018)	4
Unit Change Abs. (00-18)	No Breakout available; classified in Processed
Unit Change CAGR (00-18)	
Employees (2018)	
Employee Change (00-18)	
Employee CAGR (00-18)	
OTHER	
Area (ha)	1,600
POTENTIAL EMPLOYMENT GROWTH*	+50-100 Primary Proc.

SELECT REGIONAL FIRMS

'ELEVATOR PITCH'

Kaipara is the leading grower of Kumara in New Zealand with 90-95% of the total National crop
Cluster of growing and processing expertise

KEY RISKS & SENSITIVITIES

- Areas of land at scale that are suitable are competing with alternative land uses
- Climatic variability impacting growth, yield and harvest

VALUE-ADDED OPPORTUNITIES

- Processed foods (e.g. chips, crisps, cooked, paste, soups, baby food)
- Ingredient in smoothies
- Maximise Dargaville's position of the 'Kumara Capital of the World'

WHAT YOU WOULD NEED TO BELIEVE

- Ongoing investment in the region to gain scale and efficiency
- Ability to reduce costs to compete on price in export markets
- Successful management of soil and climatic variability
- Development of value added processor and or food manufacturer in the region
- Kaipara can establish a story around kumara

DRIVERS OF GROWTH

- Alternative to potatoes for chips and crisps
- Health properties of kumara - anti-oxidants, vitamin E and beta carotene, low GI

KEY COMPETITORS

DOMESTIC	EXPORTERS
- Potato/Pasta - Imported frozen - Pukekohe growers (Balle, Wilcox, Masters)	- NIL

*Coriolis estimates based on modelling, research and past work; treat as aspirational, indicative; Source: Statistics NZ; MPI/MAF; Coriolis estimates and analysis

2.9 KUMARA

Kumara (sweet potato) is on-trend and growing globally

Growers are consolidating and production is growing

- Kumara growing is consolidating into fewer, larger growers with more area overall

- Kumara production is growing through more land, though at lower yields

Kumara sales are growing

- Kumara sales are growing driven by increased volume and price growing with inflation

- All of this comes together to show an industry with rapidly growing tonnes per grower and revenue per (surviving) grower

Kumara has potential for further consumption growth

- NZ has high consumption by western standards, but low relative to East Asia, the Pacific Islands or Africa; growth is possible

The kumara is an extensible platform that provides numerous opportunities for value-added line extensions

Opportunities exist to add value in the region

NOTE: This section presents the data for the total New Zealand kumara industry as (1) regional data is not available and (2) Northland accounts for 90-95% of national production.

Kumara (sweet potato) is on-trend and growing globally

"Bread is SO last season! Sweet potato toast becomes latest picture-perfect health trend to take over Instagram, as users proudly share their own versions of the gluten-free, low-calorie treat. People are now using sweet potato slices as an alternative to bread, putting the pieces in the toaster or an oven to cook them like a normal piece of toast. As with other healthy trends like avocado toast, sweet potato toast has quickly taken social media by storm, with dozens of people sharing their versions."

Daily Mail

"Fresh trends data shows appeal of sweet potatoes…Sweet potatoes are a popular vegetable among U.S. shoppers, with female, white and high-income consumers among the most frequent purchasers. Just more than four out of 10 consumers (41%) in The Packer's Fresh Trends 2019 survey indicated they had purchased sweet potatoes in the past year. That is just ahead of cantaloupes (40%) and just behind spinach (42%) in purchase frequency, according to Fresh Trends."

The Packer

"They've been all over Instagram for a couple years now: bright orange planks topped with avocado (of course), or some combination of spread, fruit, vegetable, egg, nuts and more. The idea to use sweet potato slices as bread stand-ins came from the gluten-free, paleo and Whole30 worlds, and the appeal was cute enough for the idea to spread. Now the hashtag #sweetpotatotoast turns up more than 23,000 Instagram posts (and counting), there are entire accounts devoted to the food, and at least one manufacturer is selling a pre-sliced, pre-roasted, frozen, ready-to-heat product."

The Washington Post

"Bread is so last season! Sweet potato toast is the new food trend…It looks like avocado on toast will have to relinquish its crown as the hottest health trend on social media to a new picture-perfect sensation: sweet potato or kumara toast…And far from being a complicated food fad that involves pricey ingredients, tricky recipes and lengthy preparation times, sweet potato toast is actually incredibly easy to do - requiring nothing more than a slice of kumara, and an oven or a toaster."

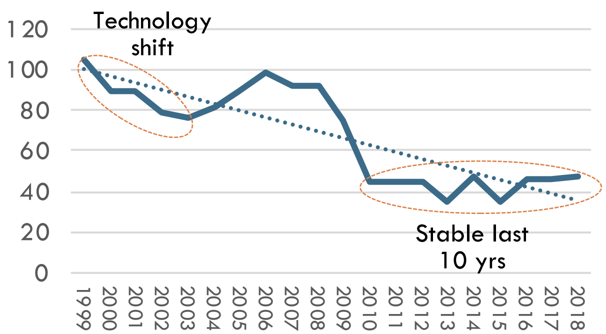
stuff

Source: articles; interviews; Coriolis analysis

Kumara growing is consolidating into fewer, larger growers with more area overall; production is growing through more land

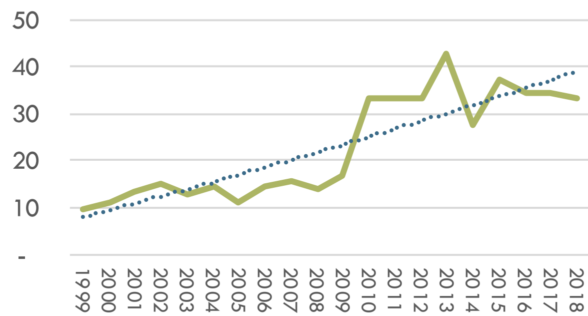
KUMARA GROWERS

Number; 1999-2018



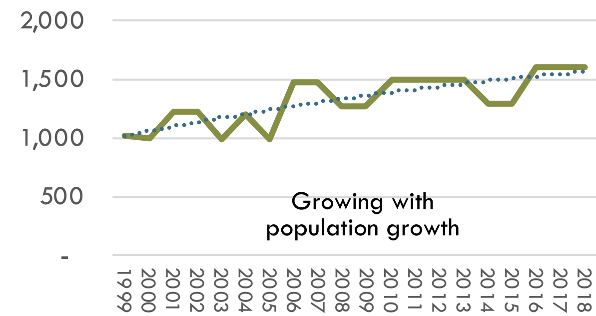
KUMARA AREA/GROWER

Ha/grower; 1999-2018



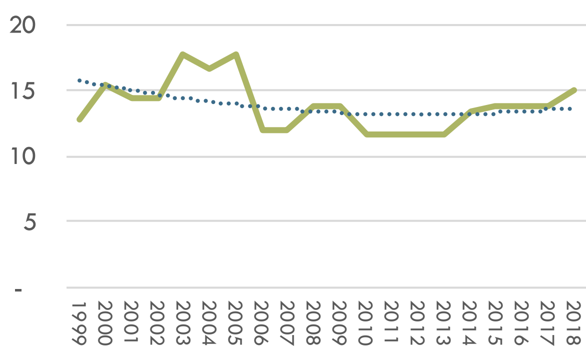
KUMARA AREA

Ha; 1999-2018



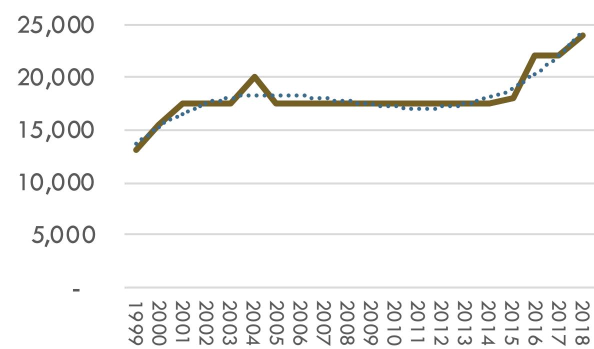
KUMARA TONNES/HA

T/ha; 1999-2018



KUMARA PRODUCTION

T; 1999-2018

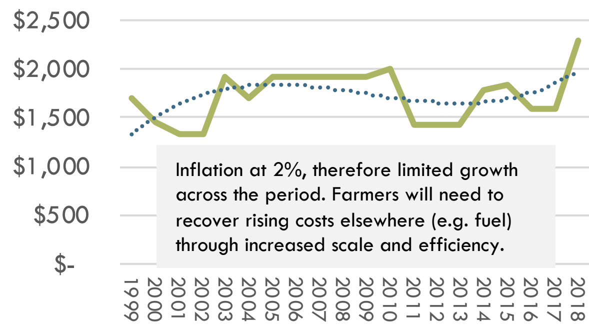


Note: P&FR 2018 & 2019 value (2,541ha) has been corrected to (1,600ha) following discussions with Martech & industry representatives; Source: various editions of PFR Fresh Facts (Martech); United Nations Food & Agricultural Organisation (itself from MAF/MPI); Coriolis analysis

Kumara sales are growing driven by volume; industry has rapidly growing tonnes/grower and revenue/(surviving) grower

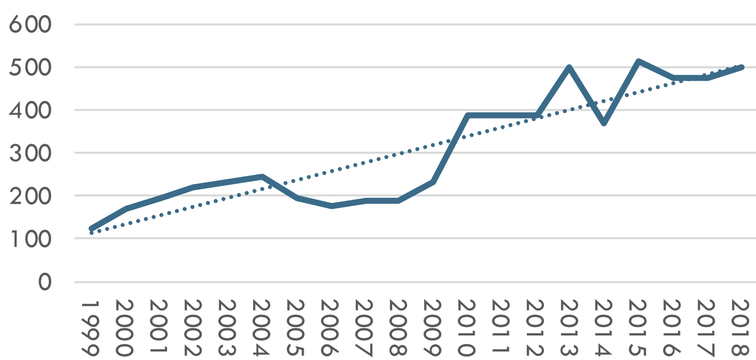
KUMARA PRODUCTION
T; 1999-2018

KUMARA $/TONNE
NZ$/t; 1999-2018

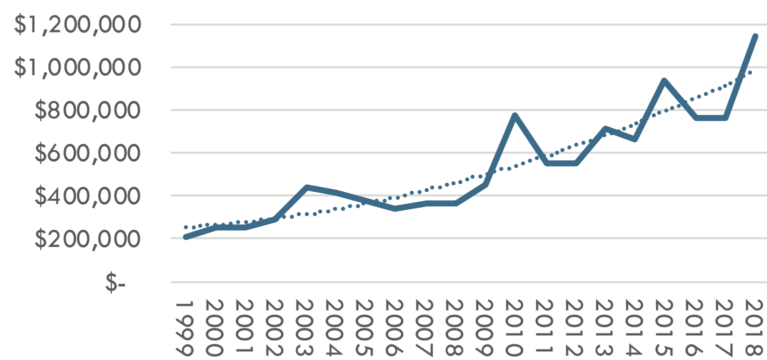


KUMARA FARMGATE SALES
NZ$; m; 1999-2018

TONNES/ GROWER
T/unit; 1999-2018



GROSS REVENUE/GROWER
NZ$/unit; 1999-2018

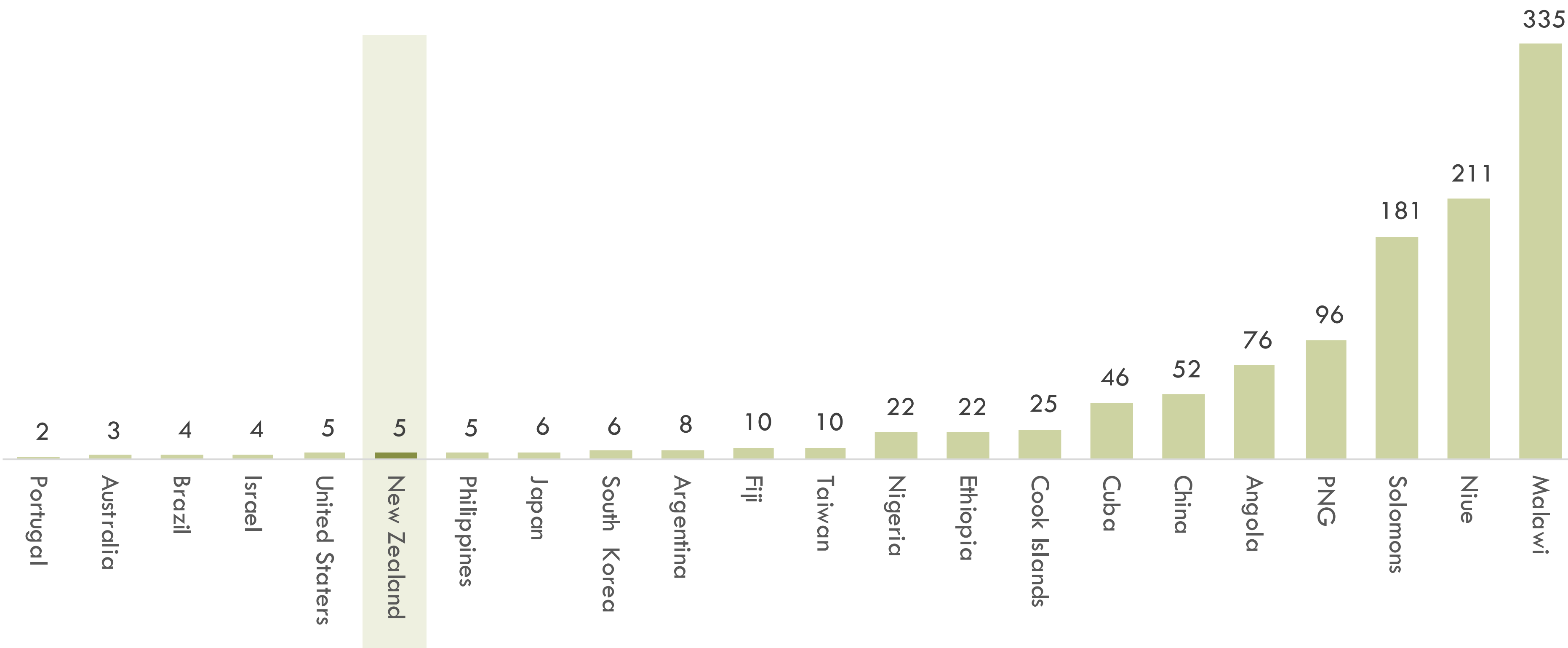


Source: various PFR Fresh Facts (Martech); Coriolis analysis

NZ has high consumption by western standards, but low relative to East Asia, the Pacific Islands or Africa; growth is possible

APPARENT KUMARA CONSUMPTION PER CAPITA (ALL FORMS): SELECT COUNTRIES

Kg/person; 2018



Note: Data is not adjusted for imports or exports; Source: UN FAO AgStat database; CIA World Fact Book; Coriolis analysis

Opportunities exist to add value in the region

"+95% of the country's kumara are supplied out of the Kauri Coast or Kaipara…An estimated 1,200 hectares are planted and processed by the four local packhouses. Delta Produce Co-op process 45% of the area's crop. Sales earn about $55m for the district." *June, 2017*

The New Zealand Herald

"If we could process the kumara into other products in the region that would really lift employment in Dargaville."

Farmer, Landowner, Northland

Source: articles; interviews; Coriolis analysis

The kumara is an extensible platform that provides numerous opportunities for value-added line extensions

Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes for research/study/commentary/criticism/review; Source: Coriolis analysis

2.10 PROCESSED FOODS IN NORTHLAND

SCORECARD	
ON-FARM	
Units *(2018)*	No Breakout available
Unit Change *Abs. (00-18)*	
Unit Change *CAGR (00-18)*	
Employees *(2018)*	
Employee *Change (00-18)*	
Employee *CAGR (00-18)*	
PROCESSING	
Units *(2018)*	126
Unit Change *Abs. (00-18)*	108
Unit Change *CAGR (00-18)*	11%
Employees *(2018)*	226
Employee *Change (00-18)*	187
Employee *CAGR (00-18)*	10.3%
OTHER	
Area *(ha)*	-
POTENTIAL EMPLOYMENT GROWTH*	+200-1,000 Processing

SELECT REGIONAL FIRMS

COCAVO, KAITAIA FIRE Ltd. Fine Chili Products, CAVEMAN CANDY, Bennetts Chocolatier Mangawhai New Zealand, MAKANA Confections, Wild West Worcester, The Original, ONE SPICE, Fire Dragon Chillies www.firedragonchillies.co.nz, ALLBLACKSALT Unique Salt Creations, olive and ash, Due North Foods Taste of the Northland, K NUTS, Raw cakes

'ELEVATOR PITCH'

Northland is close to key New Zealand population
Northland is home to unique food companies
Northland has access to unique products (tamarillo, kumara, subtropical fruit)

KEY RISKS & SENSITIVITIES

- Lack of processing scale
- Cost of bottling and processing in Northland
- Lack of specific skills and capabilities

VALUE-ADDED OPPORTUNITIES

- Utilise Dargaville's reputation as 'The Kumara Capital' to develop more value added kumara products in the region (e.g. chips, flours, dips, toast, etc.)
- Develop 'foodie tourism' trail/regional hampers
- Unlimited

WHAT YOU WOULD NEED TO BELIEVE

- Existing Northland firms able to develop scale and develop beyond regional and national demand
- Northland can leverage reputation to compete with cheaper producers
- Northland able to access processing equipment and capabilities to support research, new product development and production in the region

DRIVERS OF GROWTH

- Adding value to existing products (e.g. Kaitia Fire, Fire Dragon Chillies)
- Demand for niche local products (e.g. Allblack salt, One spice, Wild West Worchester)
- Healthy options (e.g. K4 cultured foods)
- Diet specific snacking (e.g. Caveman candy)
- Indulgence/Gifting (e.g. Bennetts, Matakana Confectionery, Raw Cakes)

KEY COMPETITORS

DOMESTIC	EXPORTERS
- Auckland - Hawkes Bay - Canterbury - Nelson	- Global

**Coriolis estimates based on modelling, research and past work; treat as aspirational, indicative; Source: Statistics NZ; MPI/MAF; Coriolis estimates and analysis*

2.10 PROCESSED FOODS

Value-added processed/packaged foods are a massive and growing global market

Processed food in Northland is growing

Northland has a rapidly growing processed foods sector that is creating jobs

Processed foods provide Northland with a clear opportunity to add value to regional raw materials

Value-added processed/packaged foods are a massive and growing global market

"Food and beverage makers around the world have reason to rejoice…a new report…estimates the global packaged food market will reach sales of $3.03 trillion by 2020…Packaged foods include ready meals, baked foods, breakfast cereals, soups, baby food, potato chips, nuts, instant noodles, pasta, cookies, chocolate confectionery, cheese, yogurt, ice cream, sauces, dressings, condiments."

NATURAL PRODUCTS INSIDER

"The concept of packaged food is gaining wide acceptance and large-scale adoption across the globe due to benefits like easy availability, convenience, easy cooking and consumption, and safety from tampering, propelling global packaged food market growth…Lifestyle and consumer behavior changes have also added to the surge…with packaged food gaining acceptance as a suitable alternative to traditional home cooked food. Advancement in packaging technologies guaranteeing food safety, improved shelf life and quality are other factors further driving the packaged food industry growth."

technavio

"Not so long ago, the packaged foods market witnessed a paradigm shift in focus from developed regions to developing ones…The benefits of packaged food are many, including easy handling, cooking, and consumption, and free from external tampering. These advantages bode well for urban consumers, who seek convenient, ready-to-eat meals to suit their evolving and fast-paced lifestyles. The level of health awareness among these consumers has also grown in recent years and their demand for healthier alternatives for snacks and food items that contain natural rather than artificial ingredients has also risen."

Transparency Market Research
In-depth Analysis. Accurate Results

"When it comes to revenue growth, it is often the case that where you play matters more than how well you execute. This broad conclusion about what makes companies grow certainly applies in today's packaged-food industry: the fastest-growing companies are those that have chosen to compete in the fastest-growing product categories and geographic regions. M&A has also contributed to growth but to a much lesser extent."

McKinsey & Company
Consumer Packaged Goods

Source: articles; interviews; Coriolis analysis

Processed food in Northland is growing

"Cocavo has really grown, using the skills and technology developed from years of experience extracting oils (olives, avocados). We have plans to build 5 coconut oil extraction plants in the Pacific to supply the product. We blend and pack the oil in Whangarei to create the range then export to the USA (Walmart and Target) and to NZ stores. We are able to expand more and further develop our range."

Director, Cocavo, Northland

"We have a small and fragmented processed foods sector. The industry would really benefit from co-shared facilities, where different firms can work in the same space and share resources and expertise."

Consultant, Northland

"There is the opportunity to further develop fermented foods products in the region. We have made a start."

Advisor, Northland

"A facility where we could all use, like a pilot plant or commercial kitchen would really help. We have great ideas but don't have the capital or time to make it all happen."

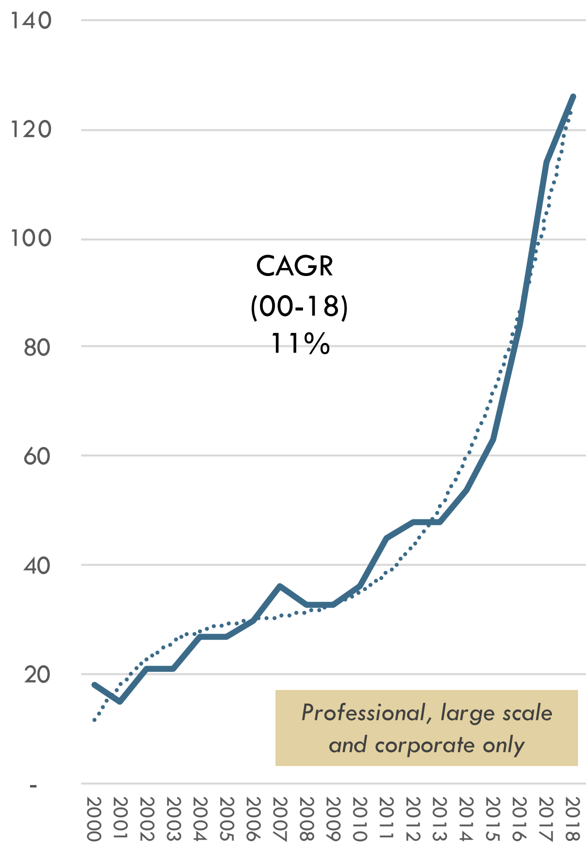
Director, Processed Foods/Beverage Co, Northland

Source: articles; interviews; Coriolis analysis

Northland has a rapidly growing processed foods sector that is creating jobs

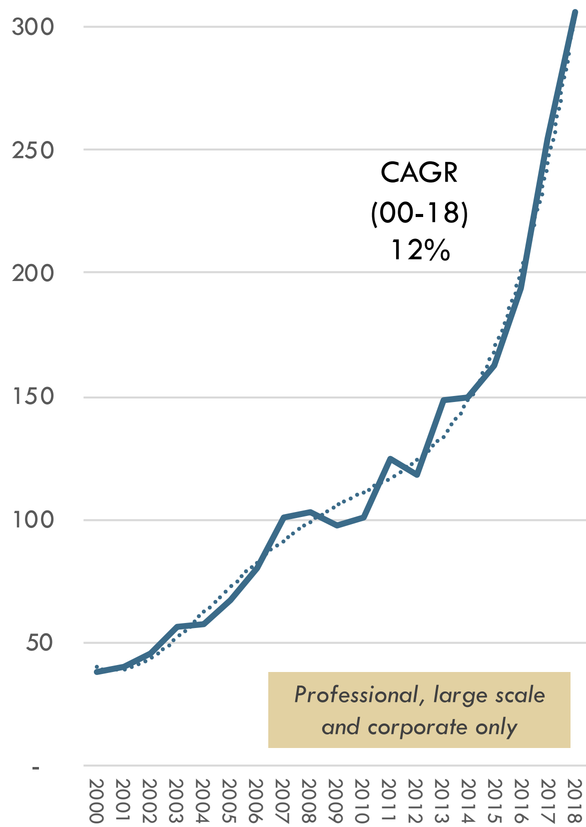
UNITS

Geographic units; 2000-2018



EMPLOYEES/JOBS

Headcount; 2000-2018



COMMENTS/NOTES

Units should be seen as professional, large scale and corporate operational units based in Northland, defined in this case as firms with over $60k in revenue annually (GST threshold)

Employee headcount includes full and part time, including owner operators (discussed below), but not hobbyists

Employees includes an estimate for owner-operators (i.e. non-PAYE employees) at 1 per operational unit

Source: Statistics NZ; Coriolis analysis and estimates

Processed foods provide Northland with a clear opportunity to add value to regional raw materials

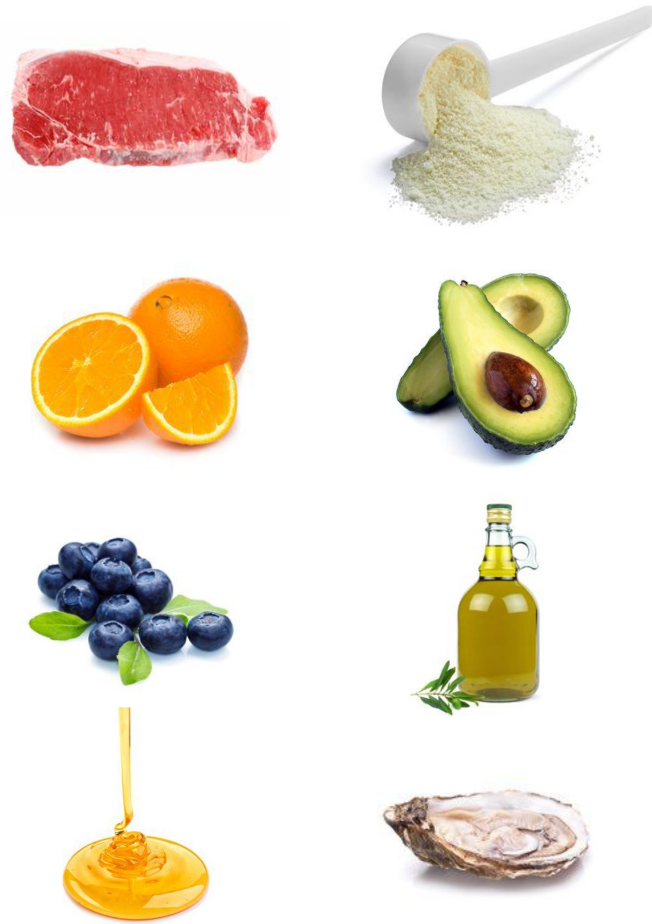


Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes for research/study/commentary/criticism/review; Source: Coriolis analysis

TABLE OF CONTENTS

Research identified four Horizon 3 potential categories and product for Northland

THREE HORIZONS FOR GROWTH: NORTHLAND F&B INDUSTRY
Model; 2019

HORIZON 1
Mature categories & products

HORIZON 2
Build smaller/emerging products

HORIZON 3
Create viable options

	Horizon 1	Horizon 2	Horizon 3
Products	1.1 Dairy (Cow)	2.1 Honey	3.1 Dairy (Goat & Sheep)
	1.2 Red Meat	2.2 Avocados	3.2 Bananas & Pineapples
	1.3 Seafood	2.3 Wine	3.3 Poultry Meat
	1.4 Citrus	2.4 Eggs	3.4 Other Beverages (Non-Wine)
	1.5 Kiwifruit	2.5 Berries	
		2.6 Under Cover	
		2.7 Olives	
		2.8 Arable Crops	
		2.9 Kumara	
		2.10 Processed Foods	

Source: adapted from McKinsey & Co.; Coriolis analysis

3.1 DAIRY (GOAT & SHEEP)

New Zealand dairy sheep numbers are growing

Following a 'hiccup' in the late 80's – early 90's, New Zealand dairy goat numbers are also growing

Dairy goats are of growing interest in Northland

Despite this growth, the New Zealand dairy industry is still currently dominated by cow dairy

Highly relevant peers achieve goat milk as ~2% of total milk production and sheep milk as ~1-3%

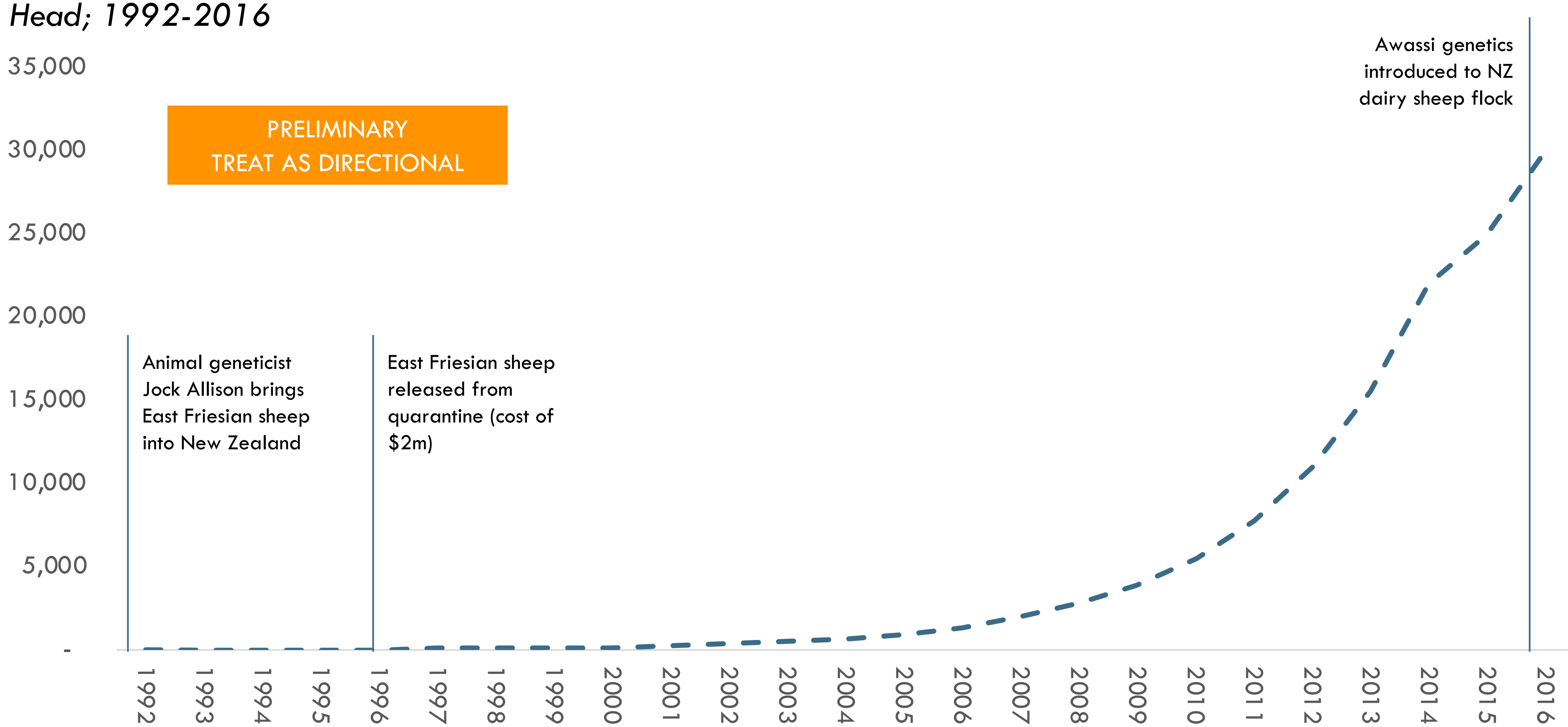
Matching the performance of peers would involve producing significantly more goat and sheep milk

Goat and sheep dairy has the potential to create at least 200-300 new jobs in Northland

New Zealand dairy sheep numbers are growing

ESTIMATED/EXTRAPOLATED* NUMBER OF MILKING SHEEP EWES IN NEW ZEALAND

Head; 1992-2016

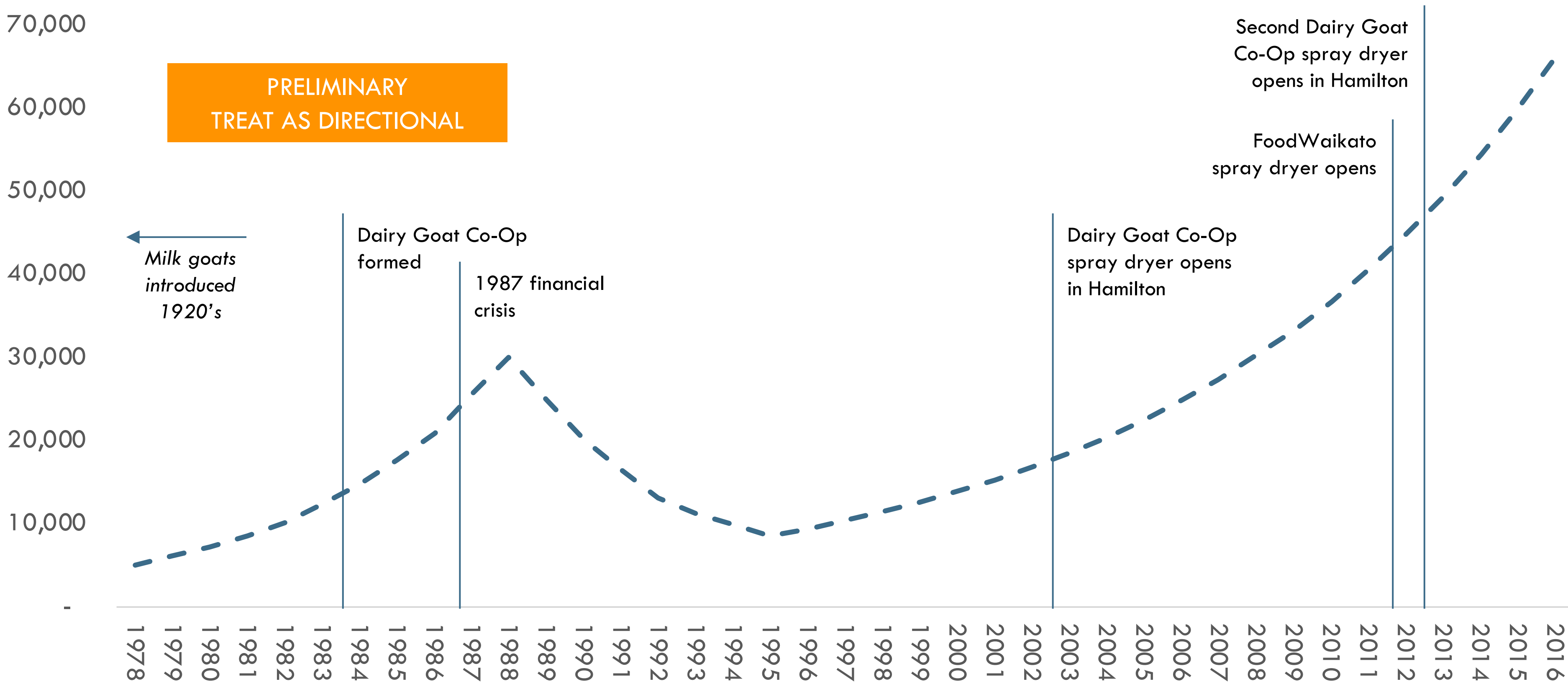


*Line of best fit across patch data set; Source: various published articles; Coriolis extrapolation

Following a 'hiccup' in the late 80's – early 90's, New Zealand dairy goat numbers are also growing

ESTIMATED/EXTRAPOLATED* NUMBER OF MILKING GOAT DOES IN NEW ZEALAND

Head; 1978-2016



**Line of best fit across patch data set; Source: various published articles; Coriolis extrapolation*

Dairy goats are of growing interest in Northland

"Goat milk is an emerging sector showing growth and more interest in the region. Currently the milk gets processed in Hamilton. There is no existing processing in Northland. We would require more scale for this to happen."

Consultant, Northland

"Many Iwi Land Management Groups are looking to diversify their lands and interests, they have interests in berries, avocados and goats are another option."

Consultant, Northland

"The MPI approval process for processing and manufacturing goat cheese is really in-depth – 133 pages. It's also a $4,000 annual fee. The verifier is in Christchurch so it's expensive to get him up. For a small business this is a big expense. The system really isn't for small firms. You need scale."

Goat Cheese Manufacturer, Northland

"There has been recent investment in additional goat sheds in the region. It's all going to the Waikato for processing."

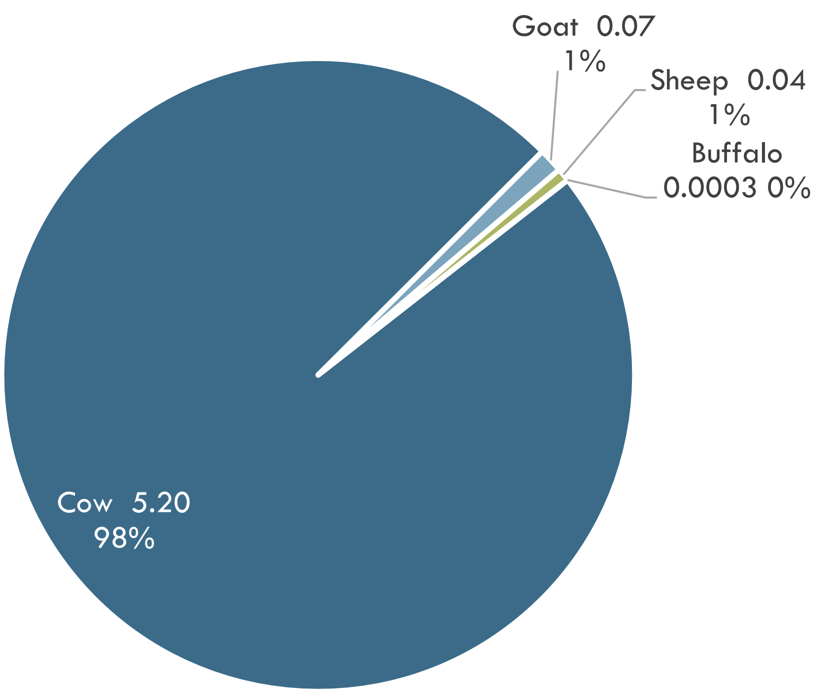
Advisor, Northland

Source: *interviews; Coriolis analysis*

Despite this growth, the New Zealand dairy industry is still currently dominated by cow dairy

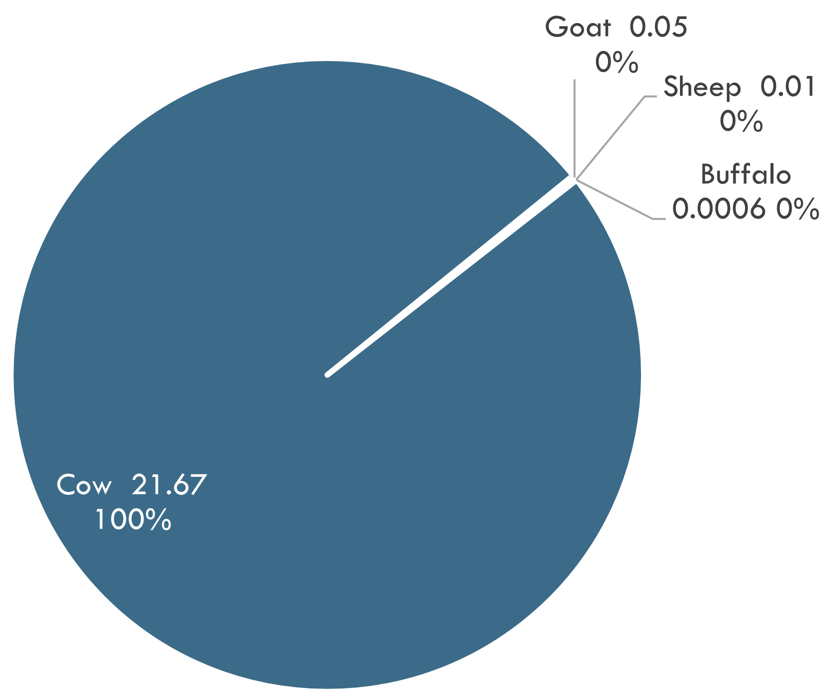
NUMBER OF DAIRY ANIMALS IN NZ

Head; in milk in year; 2016



MILK PRODUCTION IN NZ BY SPECIES

T; m; 2016

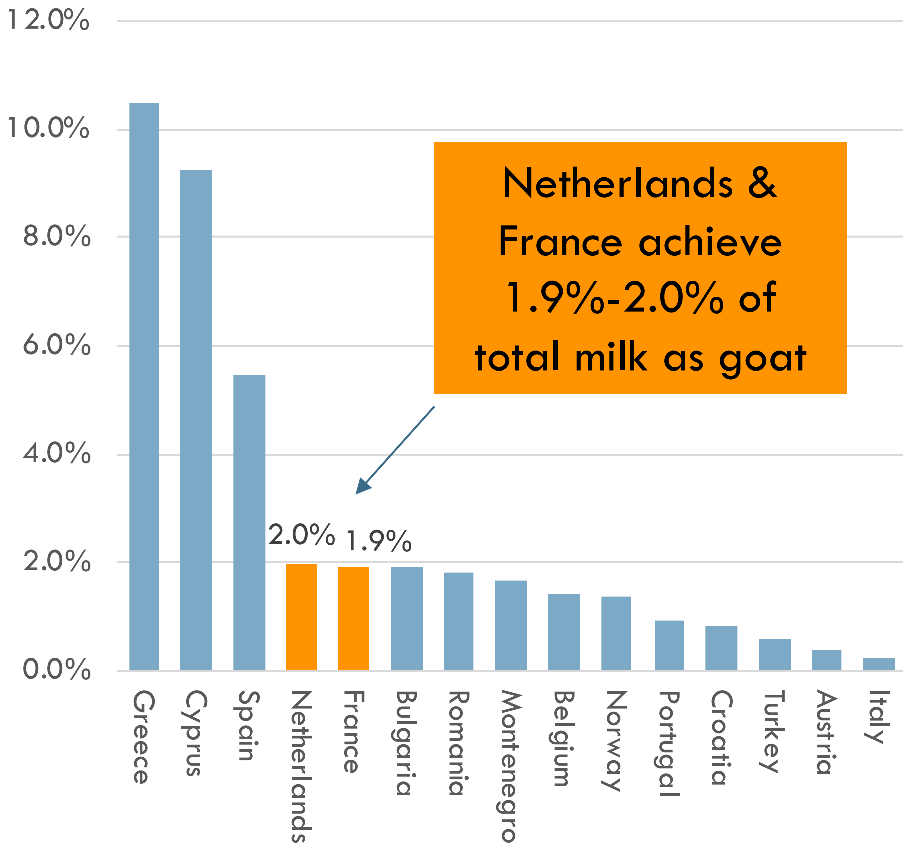


Source: UN FAO; various published articles and papers; Coriolis estimates and analysis

Highly relevant peers achieve goat milk as ~2% of total milk production and sheep milk as ~1-3%

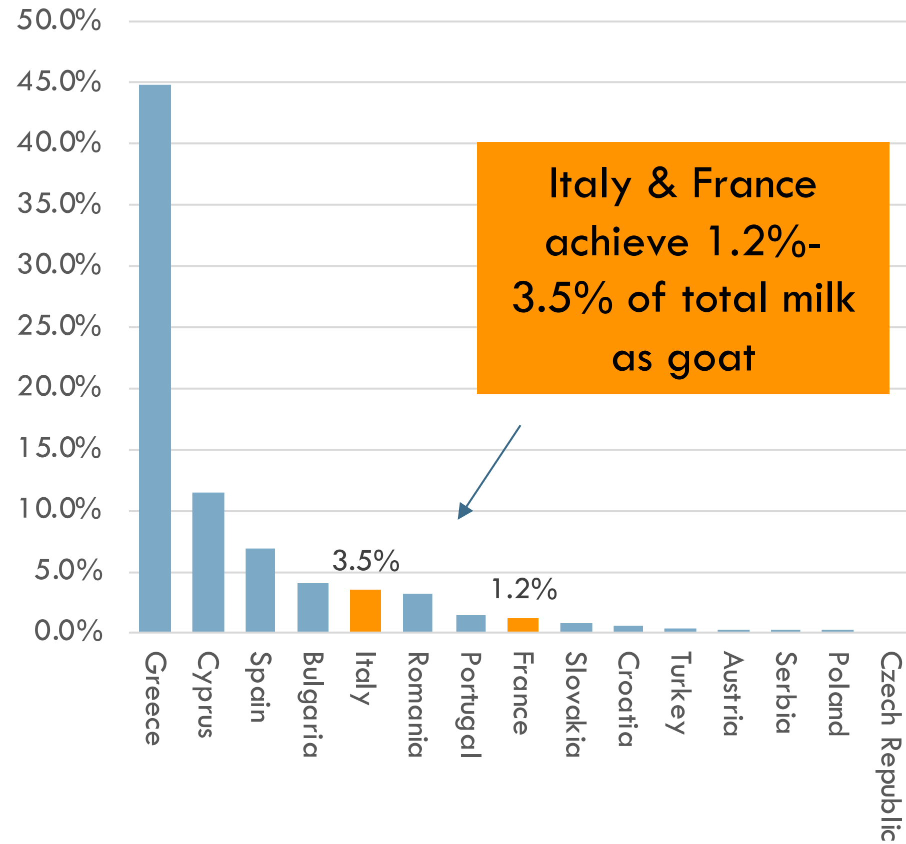
GOAT MILK % OF TOTAL MILK PROD.

% of volume; 2016



SHEEP MILK % OF TOTAL MILK PROD.

% of volume; 2016



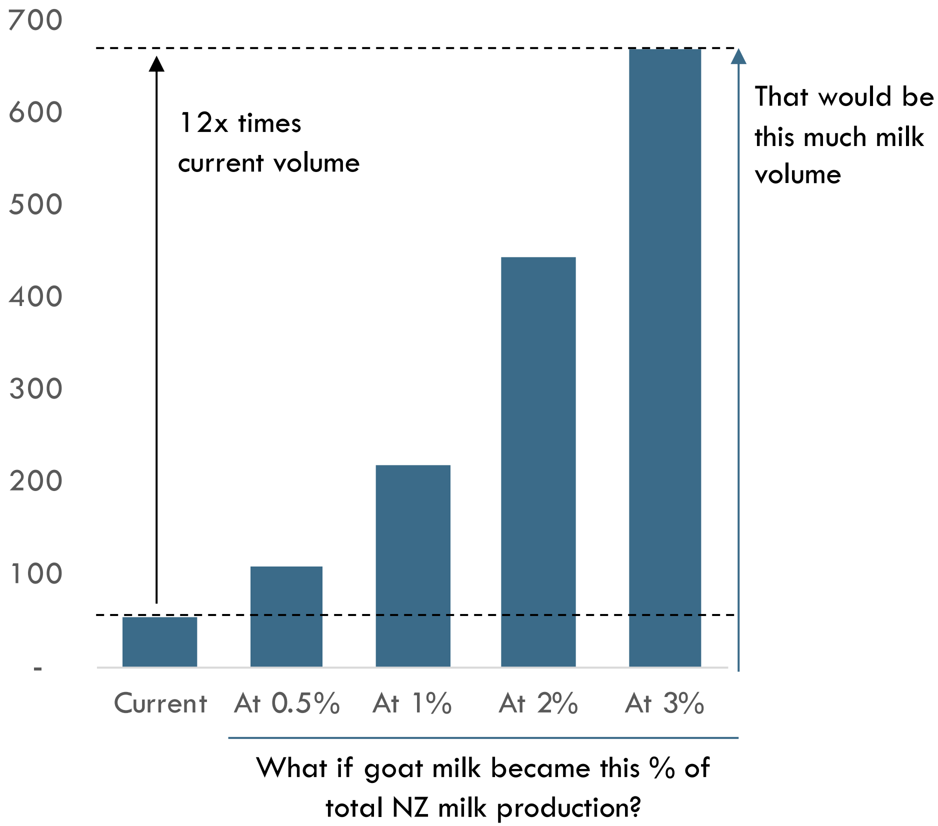
Source: UN FAO; Coriolis analysis

Matching the performance of peers would involve producing significantly more goat and sheep milk

PRELIMINARY
TREAT AS DIRECTIONAL

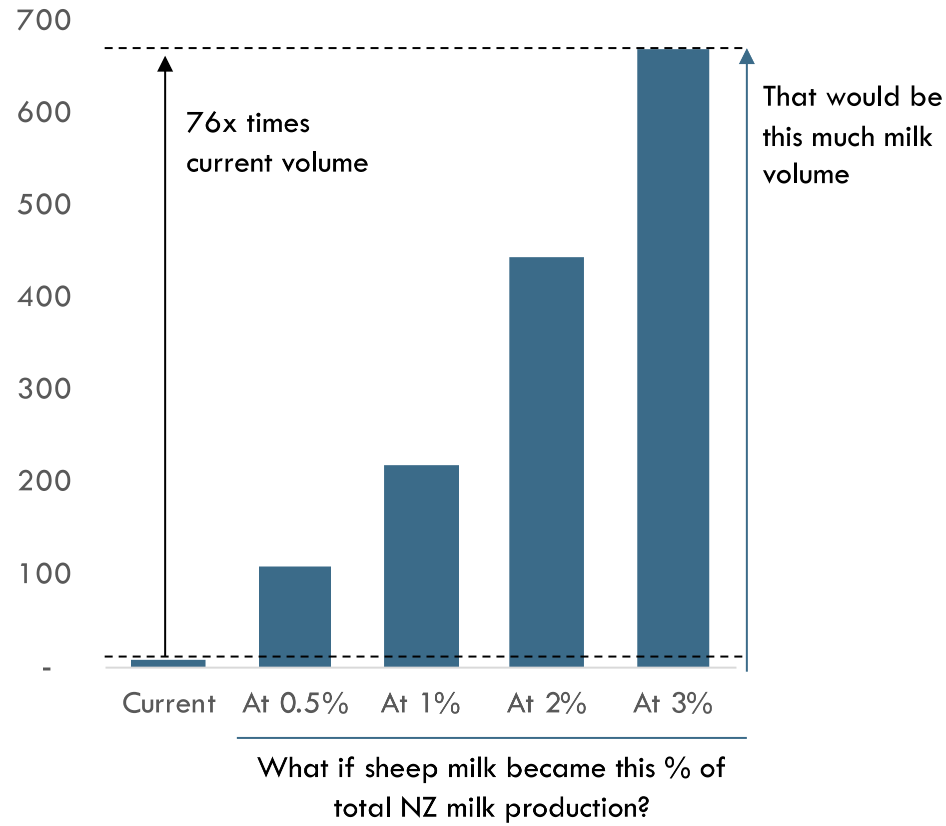
GOAT MILK % OF TOTAL MILK PROD.

% of volume; 2016



SHEEP MILK % OF TOTAL MILK PROD.

% of volume; 2016



Note: assuming no change to other species volumes; Source: Coriolis modelling and estimates

Goat and sheep dairy has the potential to create at least 200-300 new jobs in Northland

SIMPLE CONCEPTUAL MODEL OF POTENTIAL OF GOAT/SHEEP DAIRY IN NORTHLAND

Various; 2019 or as available

Current cow milk production in Northland	European peers goat and sheep milk as a % of cow milk	Therefore, potential litres of milk in the region	Estimated jobs created per million litres of milk (at scale)	Potential jobs in Northland
997m	2% goat	20m	5-10*	100-200 jobs
	2% sheep	20m	5-10*	100-200 jobs
			TOTAL	200-300 jobs

*This estimate is higher than is currently achieved by NZ cow dairy (~2 jobs/million litres) as – from past work – we believe goat and sheep have higher labour per litre; total scaled back on the assumption there is some level of trade off between the two species; Source: Coriolis analysis and estimates

3.2 BANANAS & PINEAPPLES

New Zealand imports over 100,000 tonnes of fresh tropical and subtropical fruit, primarily bananas and pineapples

New Zealand fresh tropical and subtropical fruit import volumes have more than doubled in the last 30 years, driven by bananas

There is a growing interest in growing subtropical fruit in Northland, in particular bananas; which can be grown all year round

All of the banana plant can be utilised

More recently pineapples are being researched and developed

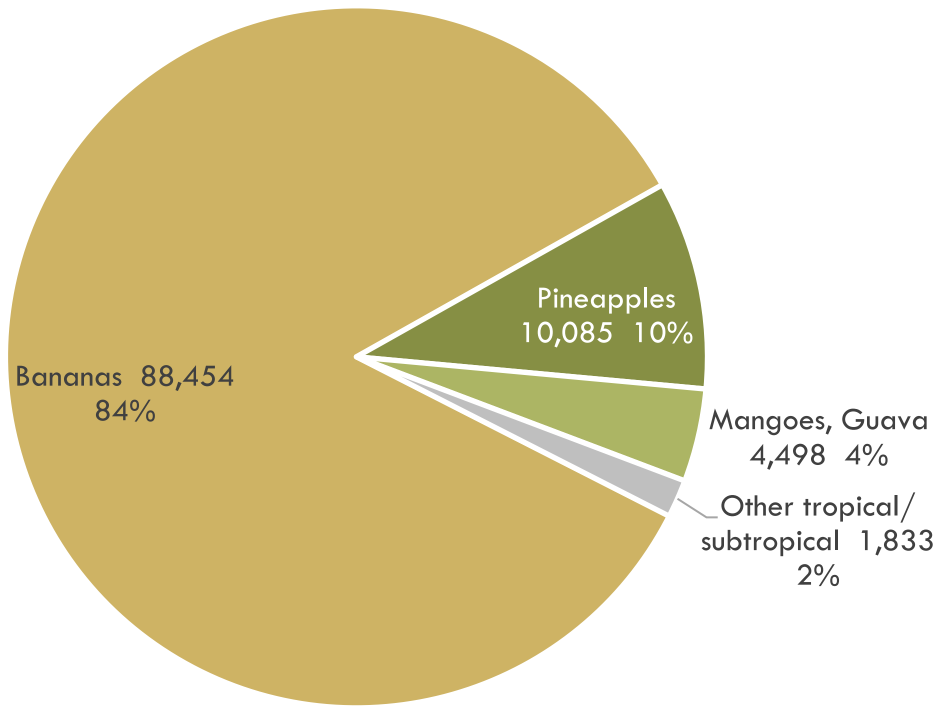
The key challenge for domestic producers seeking to increase volumes is the relatively low price of imported fruit

Bananas and pineapple have the potential to create at least 200-300 new jobs in Northland

New Zealand imports over 100,000 tonnes of fresh tropical and subtropical fruit, primarily bananas and pineapples

NZ TROPICAL/SUBTROPICAL FRUIT IMPORT VOLUME

T; 2018



TOTAL = 107,871 tonnes imported

COMMENTS/NOTES

Bananas and pineapples dominate New Zealand's tropical/subtropical fresh fruit imports with 94% of volume

This equates to over 21 kilograms per person per year in imported tropical and subtropical fruit

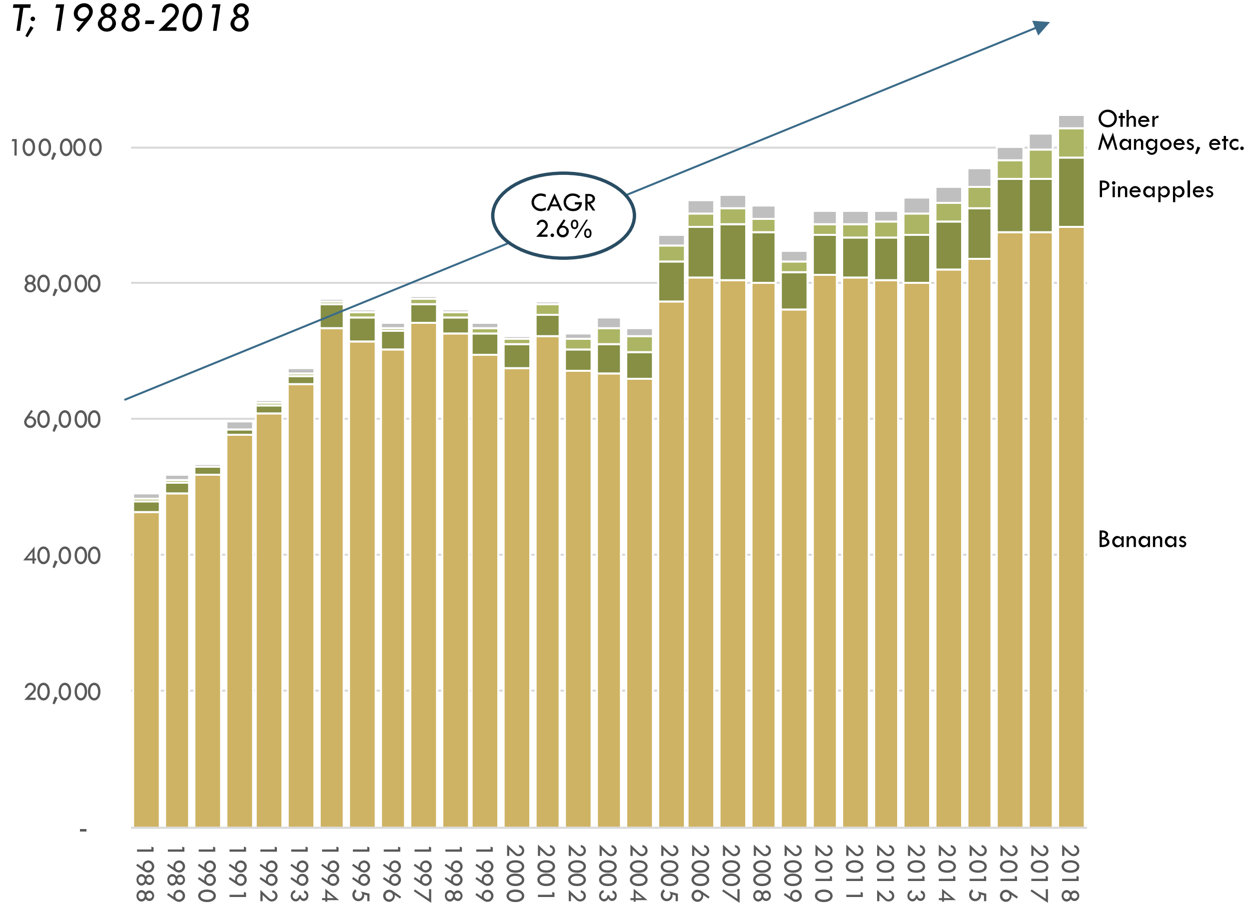
Data is fresh only; excludes dried, canned and as an ingredient in other imported foods

Source: Statistics NZ; Coriolis analysis

New Zealand fresh tropical and subtropical fruit import volumes have more than doubled in the last 30 years, driven by bananas

NZ TROPICAL/SUBTROPICAL FRUIT IMPORT VOLUME

T; 1988-2018



COMMENTS/NOTES

Bananas and pineapples dominate New Zealand's tropical/subtropical fruit imports with 94% of volume

This equates to over 21 kilograms per person per year in imported tropical and subtropical fruit

Source: Statistics NZ; Coriolis analysis

There is a growing interest in growing subtropical fruit in Northland, in particular bananas…

"Bananas are grown in Awanui, Kaitia, Kerikeri and Whangarei. There are some really interesting things happening in tropical fruits. Bananas are showing strong uptake. The region is also growing pineapples, sugar cane, passionfruit, coffee, papaya, melons and cherimoya. It's amazing what you can grow."

Tropical Fruit Grower, Northland

"Tropical fruits are a niche. There aren't large tracts of land available or under production. At the moment it's piecemeal. It shows what is possible. They grow annually, so there is constant supply."

Advisor, Northland

"Mass produced bananas could soon be grown in New Zealand. It took about 18 months for a banana plant to grow and produce fruit but through their research group, it could take 12-16 weeks. We could be in a position to create hundreds of thousands of plants in 3 months." *Wajid Hussan, AgResearch, Feb 2019*

stuff

"Bananas are a huge opportunity, we are growing 17 varieties that are great flavours, they grow fast and do really well in Northland. We consume about $82m worth of bananas nationally all from imports. If we can replace some of the those imports, then we would be happy. Some farmers are getting $30,000/ha return. We need to invest in a packhouse as an industry to wash, weigh, wax and promote the products. We can move into frozen chunks for Foodservice. We need a co-op model."

Tropical Fruit Representative, Northland

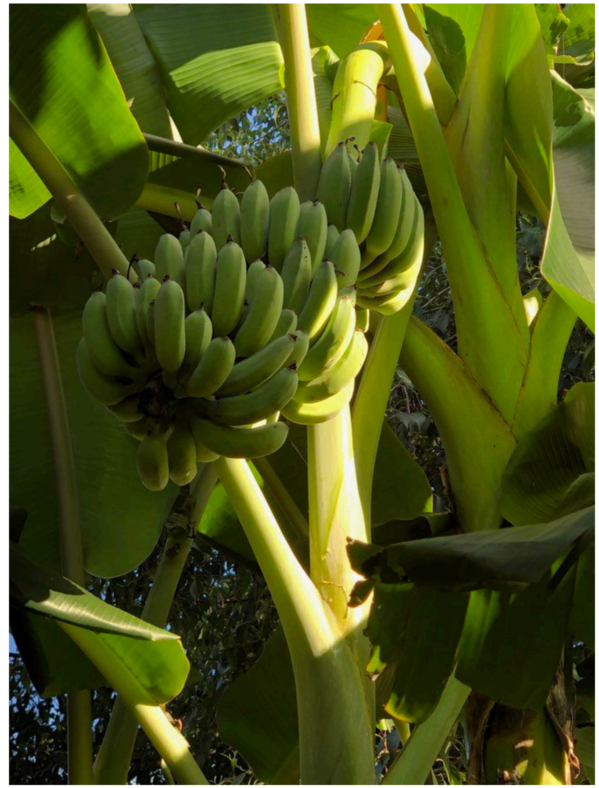
"Many chefs and hotels in Auckland and beyond are keen to have local tropical products. It's a great promotional angle for them. We can add so much value to bananas: smoothies, flour, dried, plates, cutlery cattle feed, flowers can be used, leaves can be used."

Tropical Fruit Representative, Northland

Source: articles; interviews; Coriolis analysis

…which can be grown all year round

Bananas, Northland



Bananas, Whangarei Heads

Source: Coriolis

All of the banana plant can be utilised

Leaf – cooking, wrapping food

Fruit – eating fresh, processing into flour, making bread, smoothies

Flower – Asian cooking

Stem – animal feed, pressed plates, cutlery

Source: Coriolis

More recently pineapples are being researched and developed

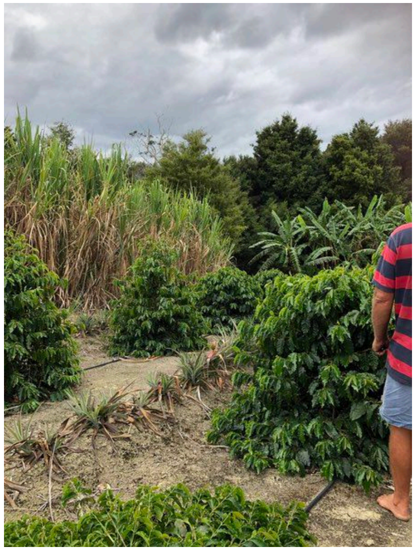
"The industry is beginning to research pineapples and to start a breeding program."

Tropical Fruit Grower, Northland

"There is an opportunity with pineapples, but the tissue cultures take a long time to develop and grow. We aren't able to bring in pineapples so we have to grow pups and use the old heads. It takes time. I want to get to 50,000 plants/ha. This will take time."

Tropical Fruit Representative, Northland

Pineapples – Whangarei Heads



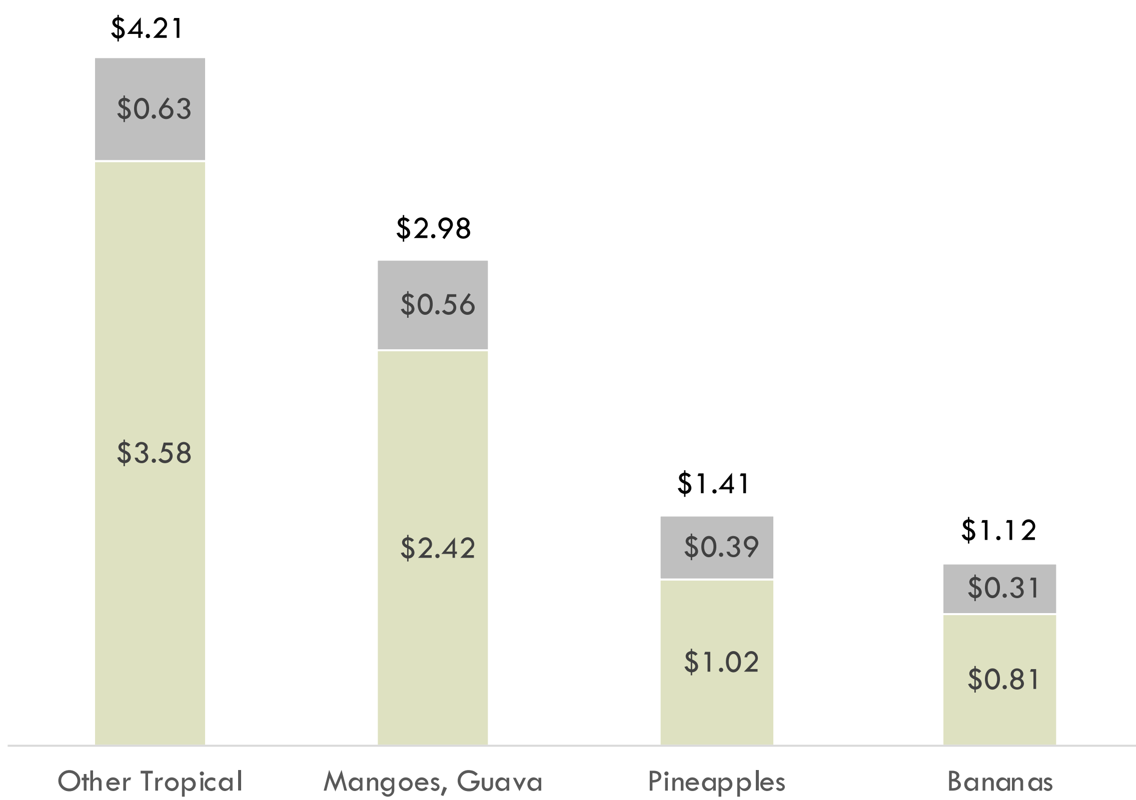
Pineapples, sugar cane, coffee, bananas, cherimoya (custard apple) – Whangarei Heads

Source: interviews; Coriolis analysis

The key challenge for domestic producers seeking to increase volumes is the relatively low price of imported fruit

AVERAGE LANDED PRICE PER KILOGRAM

NZ$/kg; 2018



COMMENTS/NOTES

Local producers in Northland are producing small quantities of bananas and pineapples sold locally and through foodservice

As these volumes grow, basic economic theory says prices will need to fall

Whangarei Farmers Market, May 2019

Bananas and pineapple have the potential to create at least 200-300 new jobs in Northland

SIMPLE CONCEPTUAL MODEL OF POTENTIAL OF BANANAS/PINEAPPLES IN NORTHLAND

Various; 2019 or as available

Current NZ import volume	Estimated share of imports that can be replaced with premium NZ grown fruit	Therefore, potential tonnes produced in region	Estimated jobs created per t of fruit*	Potential jobs in Northland
Bananas 88,454 t	0.5% of all Bananas***	4,400 t	0.58**	200-300 jobs
Pineapples 10,085 t	0.5% of all pineapples***	300 t	0.58*	100-200 jobs
			TOTAL	200-300 jobs

NOTE: These share estimates are relatively conservative; were local fruit to achieve even 5% of domestic demand, this would result in 3,000+ new jobs in the region

** Excludes seasonal picking labour;** New Zealand fruit industry average (19,992 jobs on fruit farms/34,500t of fruit produced); *** or one in two hundred units sold; Source: Coriolis analysis and estimates*

3.3 MEAT POULTRY

Poultry meat has been a long term growth platform for NZ; a simple model suggests production will exceed lamb by 2028

Only four regions – Auckland, Waikato, Taranaki and Canterbury – are creating significant new poultry processing employment

There is an opportunity for Northland to become a major poultry region

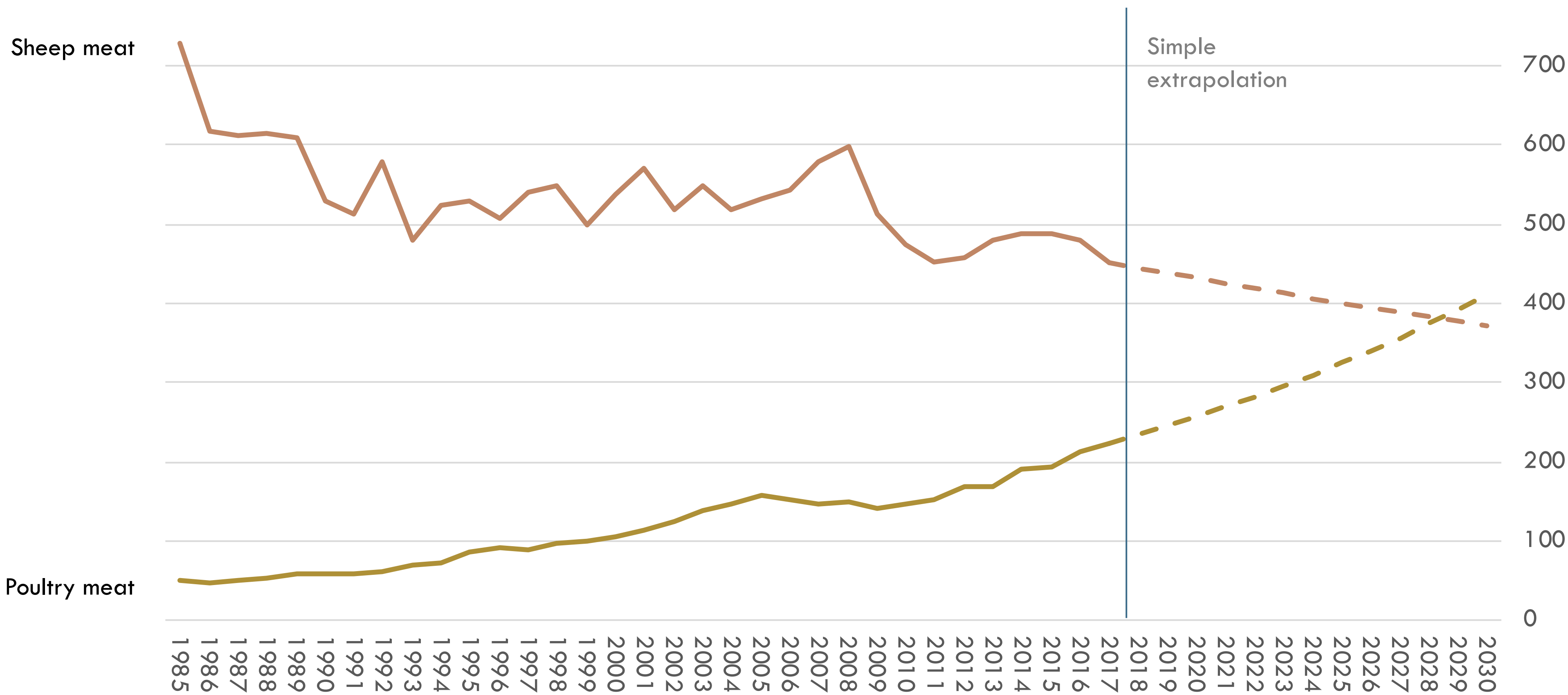
Poultry meat has the potential to create 500-1,000 new jobs in Northland

SIMPLE MODEL
TREAT AS DIRECTIONAL

Poultry meat has been a long term growth platform for NZ; a simple model suggests production will exceed lamb by 2028

NEW ZEALAND MEAT PRODUCTION VOLUME: LAMB VS POULTRY

T; 000; 1985-2017; 2017-2030f



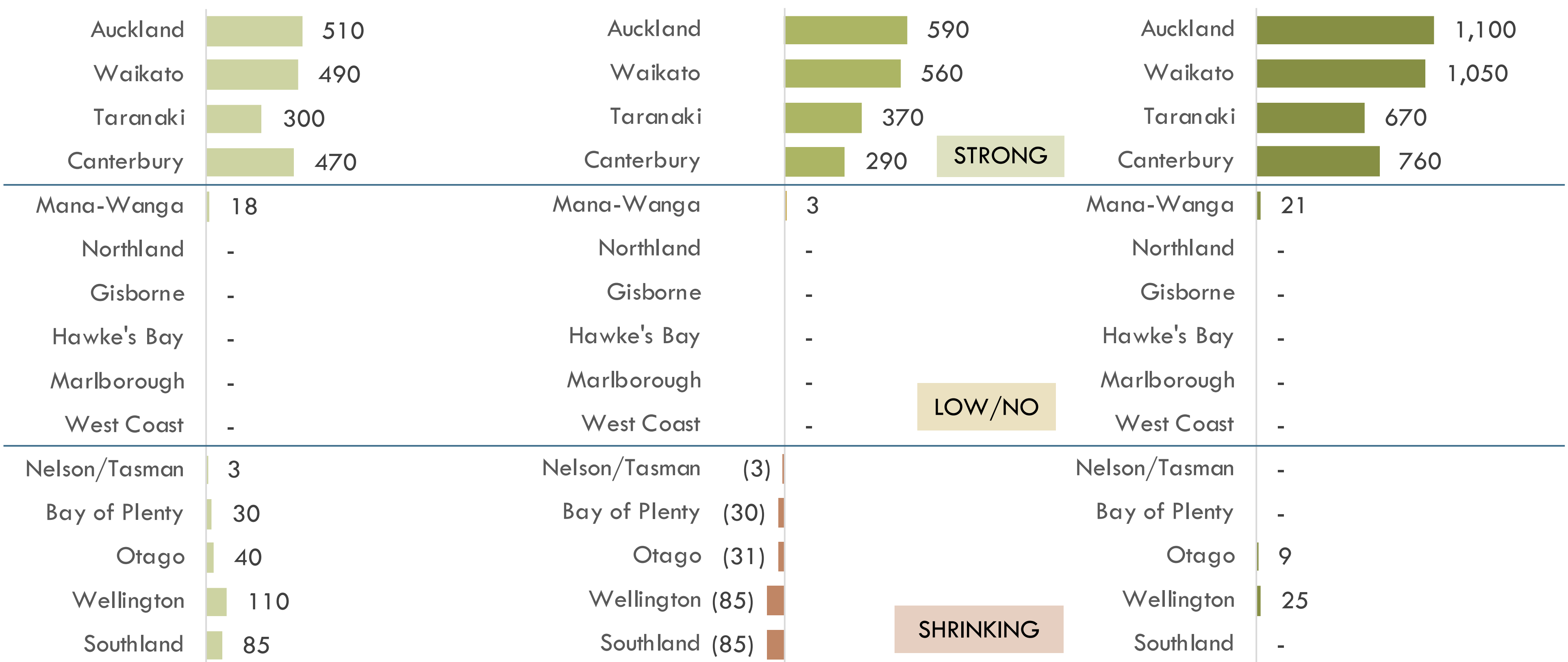
Source: MAF/MPI; UN FAO; Coriolis analysis

Only four regions – Auckland, Waikato, Taranaki and Canterbury – are creating significant new poultry processing employment

EMPLOYMENT 2003
Headcount; 2003

15Y CHANGE
Headcount; 03vs18

EMPLOYMENT 2018
Headcount; 2003



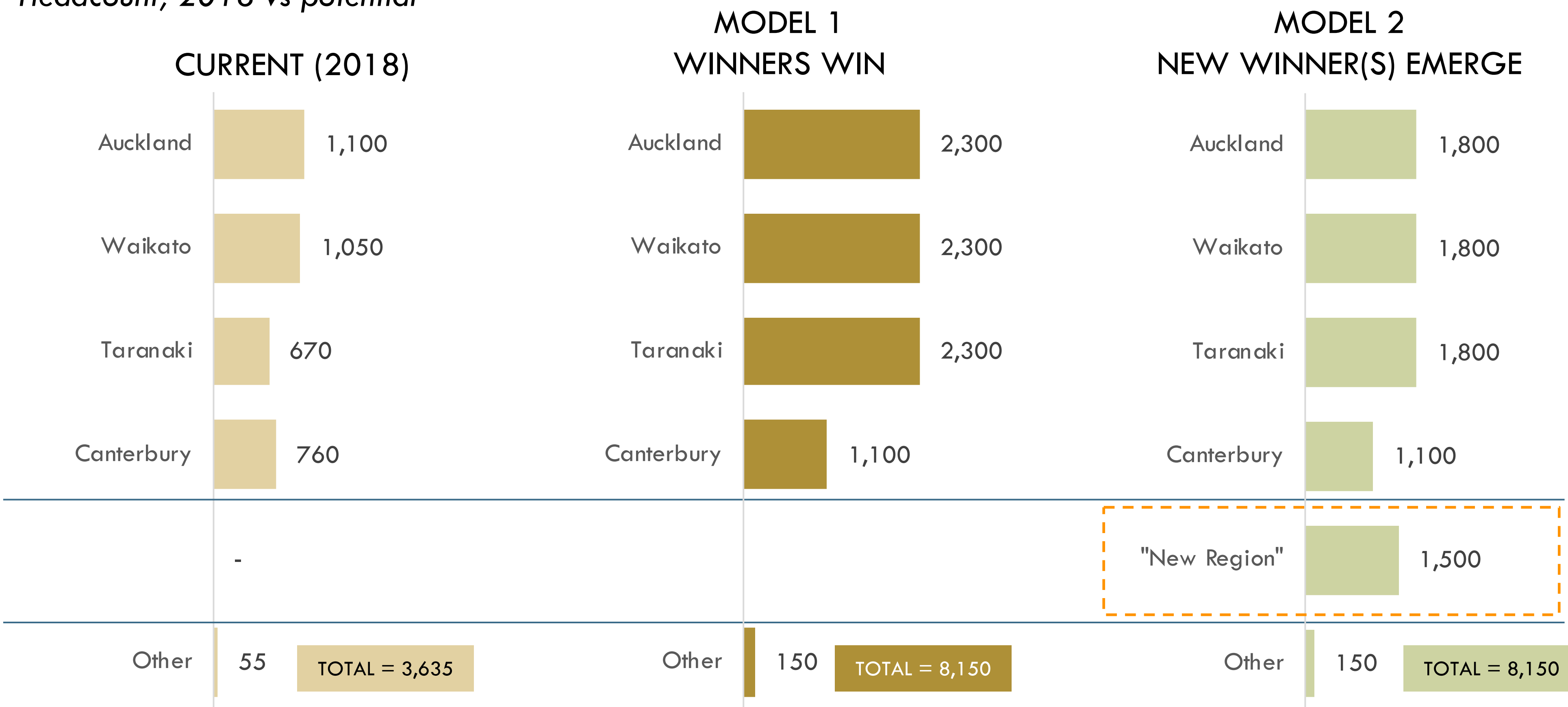
Source: Statistics NZ; UN FAO; MAF/MPI; Coriolis analysis

SIMPLE MODEL
TREAT AS DIRECTIONAL

There is an opportunity for Northland to become a major poultry region

POULTRY PROCESSING EMPLOYMENT

Headcount; 2018 vs potential



Source: Statistics NZ; UN FAO; MAF/MPI; Coriolis analysis, estimates and modelling

Poultry meat has the potential to create 500-1,000 new jobs in Northland

SIMPLE CONCEPTUAL MODEL OF POTENTIAL OF POULTRY MEAT IN NORTHLAND

Various; 2019 or as available

Potential on-farm jobs		Potential poultry processing jobs		Potential jobs in Northland
200-600 jobs	+	0-500 jobs*	=	500-1,000 jobs
Based on range achieved in for key current New Zealand poultry regions		*Based on range achieved in for key current New Zealand poultry regions*		

**Low end of range assume all birds shipped south to Auckland for processing in existing facilities; Source: Coriolis analysis and estimates*

3.4 OTHER BEVERAGES (NON-WINE)

Northland has the beginnings of a vibrant beverage sector

Northland appears to have the required ingredients for success in non-wine beverages

Peers support that Northland can export more non-wine beverages

The experience of the U.K. suggests Northland (and other New Zealand regions) should have many more beverage jobs

Non-wine beverages have the potential to create 100-500 new jobs in Northland

Northland has the beginnings of a vibrant beverage sector

SPIRITS	BEER	NON-ALCOHOLIC
BLACK COLLAR DISTILLERY BAY OF ISLANDS, NZ ALL NATURAL, HIGH QUALITY SPIRITS	McLeod's BREWERY	K4 CULTURED FOODS IT'S GOOD FOR YOU
SHELSWELL DISTILLERIES LIMITED	PHAT HOUSE BREWING	renês KOMBUCHA CULTURED TEA DRINK WITH TULSI
Sovrano Original Recipe Limoncello	Kainui Brew Co	NUTRITION BY NATURE
	EST. 2011 SCHIPPER'S	
	SAWMILL	

Source: Coriolis analysis

Northland appears to have the required ingredients for success in non-wine beverages

KEY INPUTS

- Water
- Fruit
- Crops
- Sugar

PICTURESQUE LANDSCAPE

- Bay of Islands
- Tāne Mahuta
- Ninety Mile Beach
- Hokianga
- Cape Reinga
- Etc., etc., etc…

SKILLS & CAPABILITIES

- Farming
- Food and beverage processing
- Making spirits since the 1800's

IMAGE & STORIES

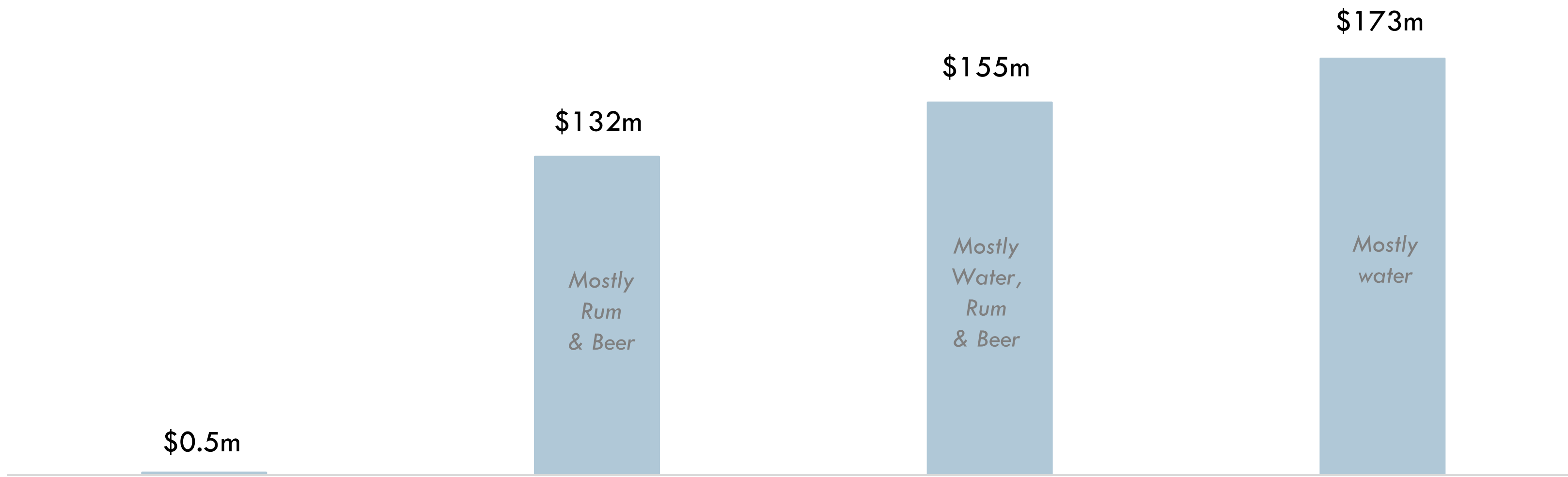
- Māori culture
- Arrival of Kupe
- Whalers
- Missionaries
- Waitangi
- Russell "The Hell Hole of the Pacific"*

**Russell was once regarded as "the hell hole of the Pacific" – now, a long way from being such. This is great narrative (think, for example, about the association of pirates with rum); Source: Coriolis analysis*

Peers support that Northland can export more non-wine beverages

BENCHMARKING NORTHLAND NON-WINE BEVERAGE EXPORTS WITH PEERS

US$; m; sq km; 2018



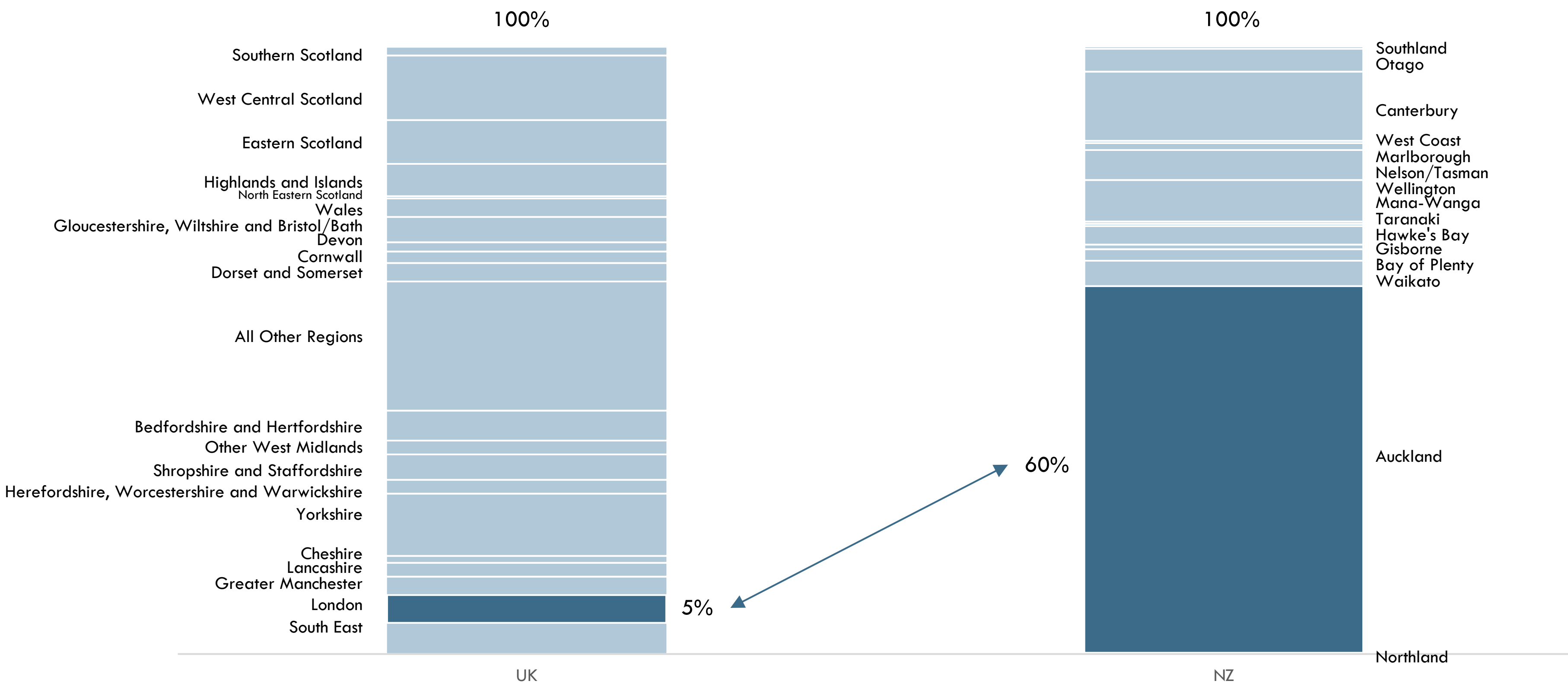
	Northland	Jamaica	Dominican Rep.	Fiji
Area (sq km)	13,789	10,991	48,671	18,274
Other Beverage exports per sq km (US$)	$37*	$12,020	$3,177	$9,474
How much would Northland export if it could match this country? (US$m)		$166m	$43m	$131m

**Northland other non-wine beverages export value is a pro-rata estimate; treat as indicative/directional; Source: UN Comtrade database; Statistics NZ; Coriolis analysis, modelling and estimates*

The experience of the U.K. suggests Northland (and other New Zealand regions) should have many more beverage jobs

SHARE OF NON-WINE BEVERAGE PROCESSING JOBS BY REGION: UK VS NZ

% of beverage manufacturing employment; NZ 2018/UK 2016



Note: West Central Scotland creates more non-wine beverage jobs on its own than all of NZ; Source: Statistics NZ; Eurostat; Coriolis analysis

Non-wine beverages have the potential to create 100-500 new jobs in Northland

SIMPLE CONCEPTUAL MODEL OF POTENTIAL OF OTHER BEVERAGES IN NORTHLAND

Various; 2019 or as available

	Estimated non-wine beverages litres produced in region		Estimated NZ industry ration of jobs/million litres		Potential jobs in Northland
CURRENT	1-3 m	+	3-4 jobs/million litres	=	Under 20 jobs
WHAT IF WE COULD ACHIEVE 10% OF THE DOMINICAN REPUBLIC?	25-100 m	+	3-4 jobs/million litres	=	100-500 jobs

Source: Coriolis analysis, modelling and estimates

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APPENDIX

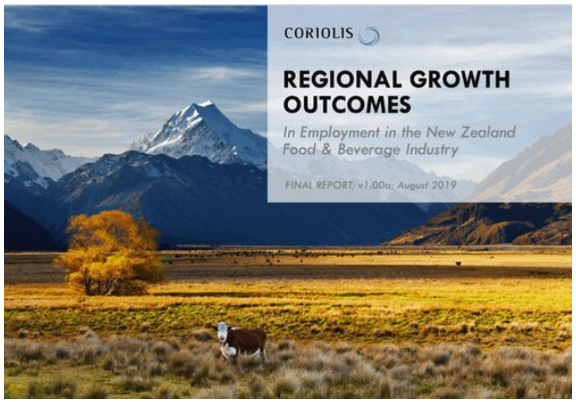
A1. Regional Growth Opportunities context

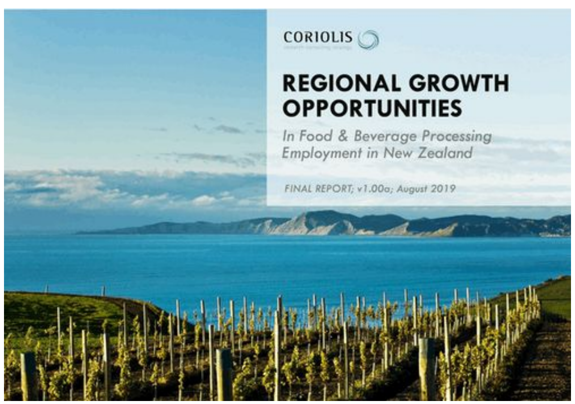
A2. Regional Metrics Snapshot

A3. Abbreviations

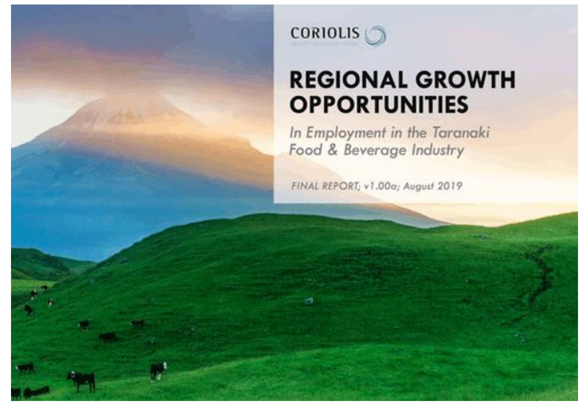
A1: This work is part of the Regional Growth Opportunities research

NATIONAL

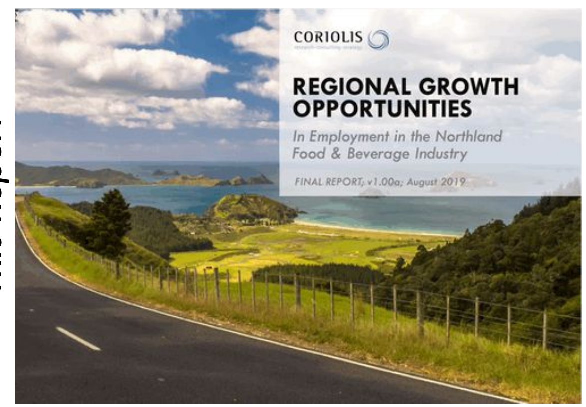




SELECT REGIONS



This Report



This work builds on previous research as part of the F&BIP

See previous research reports at

https://www.mbie.govt.nz/business-and-employment/economic-development/growing-the-food-and-beverage-sector/food-and-beverage-information-project/
and
https://coriolisresearch.com/coriolis-research/reports/

A2. REGIONAL SNAPSHOT - NORTHLAND – ON-FARM

ON-FARM QUANTITATIVE METRICS SCORECARD: NORTHLAND

Various units as given; 2000-2018

	Share of NZ area*	Units (2018)	% NZ units of this sector	Units 18y ABS (00-18)	Units 18y CAGR (00-18)	On-farm jobs (2018)	% NZ on-farm jobs in this sector	Employment 18y ABS (00-18)	Employment 18y CAGR (00-18)
Dairy	8.3%	1,008	6.8%	-1,077	-4.0%	2,358	5.8%	-777	-1.6%
Red Meat & Pork	4.2%	2,172	8.9%	-645	-1.4%	3,048	6.8%	-691	-1.1%
Poultry Meat	N/A	6	2.0%	-24	-8.6%	6	0.4%	-27	-9.0%
Seafood	18.9%	141	9.2%	-75	-2.3%	276	5.5%	-110	-1.8%
Arable Crops	2.0%	70	1.6%	49	6.9%	129	2.1%	96	7.9%
F&V	6.2%	411	12.8%	-135	-1.6%	1,667	5.9%	-164	-0.5%
Other Foods	N/A	147	12.3%	123	10.6%	427	9.1%	362	11.0%
Grapes	0.2%	18	1.3%	6	2.3%	73	1.5%	46	5.7%
TOTAL	4.7%	3,973	7.7%	-1,778	-2.0%	7,984	5.9%	-1,265	-0.8%

*ABS = Absolute change; CAGR = Compound Annual Growth Rate; *Seafood uses share of coastline; poultry meat and other foods (eggs and honey) are not directly area dependent; Source: Statistics NZ; DairyNZ; MAF/MPI; MfE; Coriolis analysis and estimates*

REGIONAL SNAPSHOT - NORTHLAND – PROCESSING

PROCESSING QUANTITATIVE METRICS SCORECARD: NORTHLAND

Various units as given; 2000-2018

	Units (2018)	Region has this % of all NZ units in this sector	18y ABS (00-18)	% of new unit growth in sector (00-18)	18y CAGR (00-18)	18y CAGR vs NZ average	Processing jobs (2018)	Region has this % all NZ processing jobs in this sector	18y ABS (00-18)	% of new NZ employment growth in sector (00-18)	18y CAGR (00-18)	18y CAGR vs NZ average
Dairy	6	2.8%	0	0%	0.0%	↓	560	4.3%	-80	-2%	-0.7%	↓
Red Meat & Pork	12	3.7%	0	0%	0.0%	↓	710	2.7%	-155	-13%	-1.1%	↓
Poultry Meat	-	0.0%	0	0%	N/A	↑	-	0.0%	0	0%	N/A	↑
Seafood	15	4.6%	-3	-	-1.0%	↓	99	1.9%	3	-	0.2%	↑
F&V	15	3.2%	0	0%	0.0%	↓	195	2.1%	64	8%	2.2%	↑
Grain-Based	6	1.6%	-3	-	-2.2%	↓	24	0.4%	-141	-	-10.2%	↓
Processed Foods	37	3.7%	25	5%	6.5%	↑	226	1.9%	187	4%	10.3%	↑
Wine	6	1.4%	0	0%	0.0%	↓	50	1.3%	35	2%	6.9%	↑
Other Beverages	12	3.2%	3	1%	1.6%	↓	9	0.2%	0	0%	0.0%	↓
TOTAL	109	3.1%	22	2%	1.3%	↓	1,873	2.2%	-87	-1%	-0.3%	↓

ABS = Absolute change; CAGR = Compound Annual Growth Rate; Source: Statistics NZ; DairyNZ; MAF/MPI; Coriolis analysis and estimates

A3. ABBREVIATIONS

ABS	Absolute change
ANZSIC	AU/NZ Standard Industry Classification
AU	Australia
Australasia	Australia and New Zealand
b /bi	Billion
CAGR	Compound Annual Growth Rate
F&B	Food and Beverage
F&V	Fruit and Vegetables
FAO	Food and Agriculture Organisation of the United Nations
FOB	Free on Board
f	Forecast
GEO	Geographic (unit)
Ha	Hectare
HS Code	Harmonized Commodity Description and Coding System
JV	Joint venture
kg	Kilogram
L	Litre
m/ml	Million
MFtE	Ministry for the Environment
MPI	Ministry of Primary Industries
mT	Metric Tonne
n/a	Not available/not applicable
Nec/nes/nei	Not elsewhere classified/specified/indicated
N/C	Not calculable
NZ	New Zealand
NZD/NZ$	New Zealand Dollar
T	Tonne
US/USA	United States of America
US$/USD	United States dollar
Y/Yr	Year

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