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REGIONAL GROWTH OPPORTUNITIES

In Food & Beverage Processing Employment in New Zealand

FINAL REPORT; v1.00b; August 2019

CORIOLIS

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

NEW ZEALAND TRADE & ENTERPRISE
Te Taurapa Tūhono

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This project is targeted at a specific audience with clear objectives

Regional Government

Regional Economic Development Agencies

National Agencies

Potential Investors

Other Stakeholders

1. Provide clear guidance on opportunities to create regional employment in post-farmgate food & beverage processing industry, both within and beyond traditional activities
2. Provide fact based/data driven foundation analysis to the regions of New Zealand
3. Move beyond typical 'aspirational, narrative-based' approach to regional strategic thinking in regards to where to focus limited resources to achieve post-farmgate food & beverage growth
4. Benchmark relative performance to identify gaps
5. Provide inputs to various regional strategy formation initiatives (rather that proposing a strategy)
6. Do not duplicate previous research (trade data etc.) but add to existing findings

Source: Coriolis analysis

EXECUTIVE SUMMARY

FOOD IS IMPORTANT

New Zealand is a temperate climate country the size of Italy, Japan or the United Kingdom, but with the population of Singapore. Many of the regions of New Zealand are themselves the size of small countries. The country has an abundance of natural resources spread across a small population. Much of New Zealand's success to date in food has come from this simple fact.

From the 19th Century to today, the food and beverage industry has played an outsized role in the economy, the importance of which is difficult to overstate.

Food production uses almost half of New Zealand's land and much of the surrounding ocean. Food accounts for 32% of New Zealand's total manufacturing GDP. At $34b, food is the country's major export industry generating two thirds (65%) of merchandise exports and close to half (46%) of total exports (both goods and services).

The core production (on-farms and processing) parts of the food industry directly support 219,000 jobs. When the wider food chain is taken into account – which includes food service, food wholesaling and food retailing – the industry employs close to half a million people, or one in five workers. These jobs are not concentrated in Auckland; they are spread all across the country. In regions outside Wellington and Auckland, this chain directly employs 20–40% of the working population, making it the core economic base for both small rural communities and the larger regional cities.

CHANGE IS REQUIRED

The New Zealand food production system has evolved over many years to be a highly efficient producer of a few major commodities, with growth based on increasing volumes, and relentless productivity improvements.

Today New Zealand's pasture-based production system is being placed under pressure. Increasing dairy cow numbers are pushing up against local environmental limits. The methane emissions of New Zealand's animals are a major contributor to the country's total emissions footprint. The food industry must make significant changes in the coming years to reduce these impacts on the wider environment.

FARMING IS LOSING JOBS

Farming is under not only external pressures, but also internal ones. Farming is a dynamic industry undergoing a fundamental long-term shift to fewer, larger production units. Over the last two decades, New Zealand has seen a more than 30% fall in farm unit numbers. Total on-farm employment, including owner-operators, has seen a net loss of 12,300 jobs since 2000. On-farm jobs are down across most regions, other than Canterbury, Otago and the West Coast.

PROCESSING IS CREATING JOBS

At the same time, over the last two decades, the number of food processing firms has increased by 50% and more than 13,500 jobs have been created. These jobs are not just on the factory floor, but in a wide variety of roles such as marketing, sales, branding, package design, and new product development. This growth is occurring across all regions and most sectors.

REGIONAL NEW ZEALAND CAN CREATE MORE JOBS IN FOOD AND BEVERAGE PROCESSING

New Zealand has been missing out on processing jobs. New Zealand is the clear outlier when it comes to creating post-farmgate jobs from food. All peers create significantly more jobs per tonne of farm gate raw material than New Zealand. In fact, New Zealand food supports 5–10 times more jobs for others beyond the border than it currently does at home. A key reason for this is that our production and export system is configured to producing and exporting the ingredients which others then take and manufacture into the products that consumers buy. One way to think about this is that the export of commodities is also the export of jobs *(see diagram next page)*.

Peers suggest that by continuing to do more with raw ingredients, the regions of New Zealand can continue to create significant new **post farm gate** processing employment across multiple sectors.

This research finds New Zealand's largest industry is not "a sunset sector" that has limited growth potential. Precisely the opposite is true. Food exports are growing, outperforming most other export sectors. Much of this growth is driven by value added products such as processed foods, wine and nutraceuticals. This growth can continue on the back of rising global demand.

The New Zealand industry is "de-commodifying". The last 10 years has seen a significant "move up the value chain" through the development of a large and growing food processing sector. Processors are turning more and more of our abundant ingredients into finished consumer ready products, for example milk powder into infant formula. These are products that are ready to go into the back door of supermarkets or restaurants.

To continue the "de-commodification" trend New Zealand needs to find five to ten new growth platforms. This research identifies many product categories that can contribute to this, ranging from advanced dairy based medical nutritionals to pet food.

WHAT IS NEEDED?

Realising this employment growth opportunity requires three specific sets of potential investors to embrace the future: (1) existing large firms at scale need to reinvest, (2) new large investors with scale and skills need to be attracted, and (3) new and emerging firms need to be nurtured.

The regions of New Zealand that focus their investment of scarce time and resources in these identified growth sectors will be rewarded.

New Zealand is missing out on food manufacturing jobs

FIGURE 1: FLOW OF NEW ZEALAND MILK POWDER FROM THE FAMER TO CONSUMER

Simplified model

POTENTIAL NEW JOBS

FARMERS (milk)	DAIRY PROCESSORS (milk powder)	FOOD MANUFACTURERS (processed foods)	RETAILERS (products)	CONSUMERS (food)
	Fonterra Westland Milk Products Hokitika · New Zealand OpenCountry synlait	Baked goods Dairy products Infant formula Specialised nutritionals Proc. meat/analogs Beverages Nutrition bars Condiments Confectionery Dessert-type snacks Pet foods Savoury items	物美 WU MART hypermart Giant SHOPWISE Cold Storage The fresh food people Big C HyperPanda Pão de Açúcar Woolworths	

Photo credit: public domain; Source: Coriolis

DAIRY PROCESSING

New Zealand can create more dairy processing jobs by producing more complex products, rather than simple ingredients. Opportunities identified for growth include: (1) Medical Infant Formula, (2) Dairy-based Nutritionals, (3) Non-Cow dairy, and (4) Specialty Cheese.

MEAT PROCESSING

While meat processing is currently a major employer, it is unclear whether the sector can create significant new jobs going forward. Opportunities identified for growth include: (1) Meat-Based Snacks, (2) Branded Packaged Consumer-Ready Products, and (3) Consumer-Ready Convenience Meals.

POULTRY PROCESSING

Poultry processing can continue to create employment growth for New Zealand. Opportunities identified for growth include: (1) Further Domestic Consumption, (2) Targeting Key Export Markets, (3) Developing Value Added Products, and (4) Alternative Poultry Species.

SEAFOOD

Seafood is unlikely to create new jobs without new aquaculture coming into production. Opportunities identified for growth include: (1) Salmon, and (2) Region-Suitable Aquaculture.

PRODUCE PROCESSING/WHOLESALING

Produce wholesaling and processing is unlikely to create new jobs without significant new land coming into production. Opportunities identified for growth include: (1) Nuts, (2) Apples, (3) Kiwifruit, (4) Avocados, (5) Emerging Fruit, (6) Under Cover Crops, (7) Root Crops, and (8) Processing Vegetables.

GRAIN PROCESSING/WHOLESALING

Grain processing & wholesaling is unlikely to create significant new jobs going forward without developing new products. Opportunities identified for growth include: (1) High-Dairy Baked, (2) Oat "Milk," (3) Seeds, and (4) Hemp (for food and beverage usage).

PROCESSED FOODS

New Zealand can continue to grow employment in processed foods production. Opportunities identified for growth include: (1) Nutraceuticals, (2) Pet Food, (3) Confectionery/ Snacking, and (4) New & Innovative Foods.

WINE

Creating employment growth in New Zealand wine production will require regions outside Marlborough to grow. Opportunities identified for growth include: (1) Sparkling Wine, (2) "Cognac", and (3) Non-Marlborough Reds.

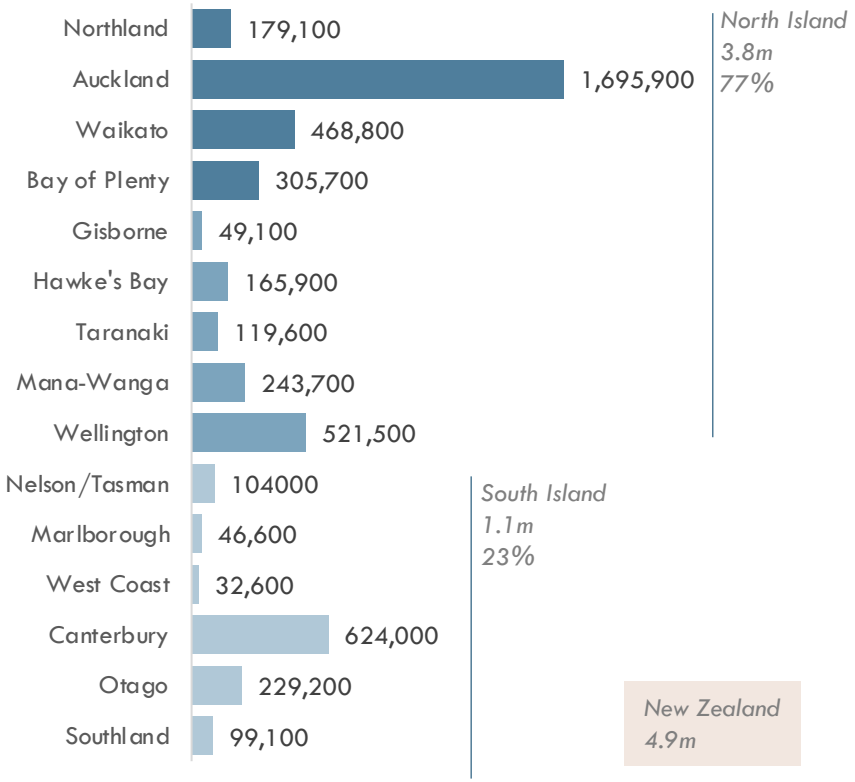
OTHER BEVERAGES

New Zealand can continue to grow employment in non-wine beverages. Opportunities identified for growth include: (1) Alcoholic Spirits, (2) Water, (3) Cider & Similar, and (4) Premium Non-Alcoholic.

This analysis is conducted at the level of New Zealand's fifteen regions*

NEW ZEALAND REGIONS
2019

POPULATION BY REGION
2018

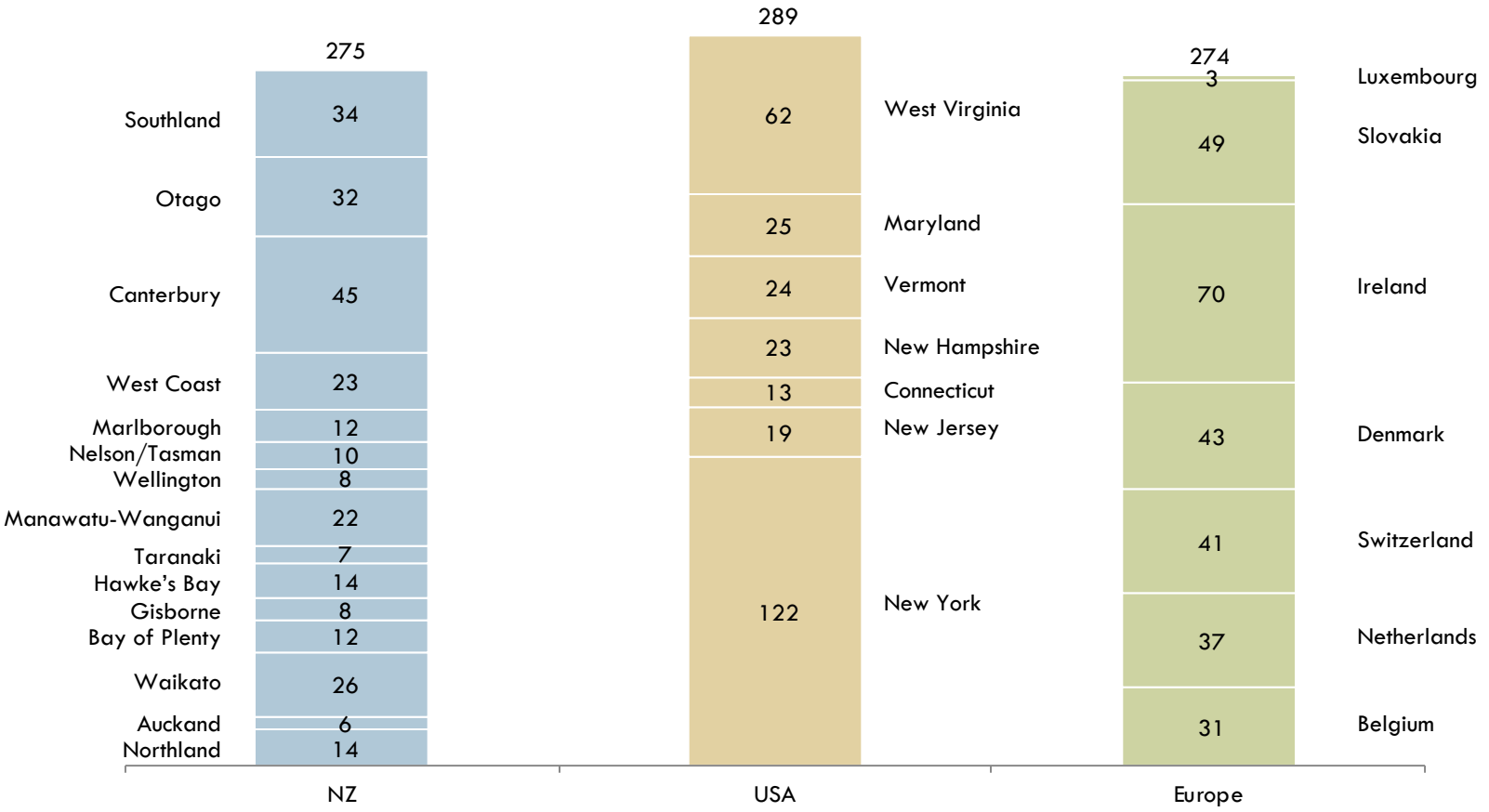


*Nelson and Tasman data combined in the research; See Appendix for Regional Snapshots; Source: MBIE Regional database, Coriolis analysis

As a reminder, New Zealand is not a small country; many regions are the size of major European countries or American states

TOTAL AREA: NEW ZEALAND VS. SELECT TEMPERATE DEVELOPED PEER COUNTRIES

km^2; 2018



Source: Wikipedia; CIA World Fact Book; Coriolis analysis

AGENDA

A. THE FOOD & BEVERAGE INDUSTRY IS IMPORTANT TO NEW ZEALAND

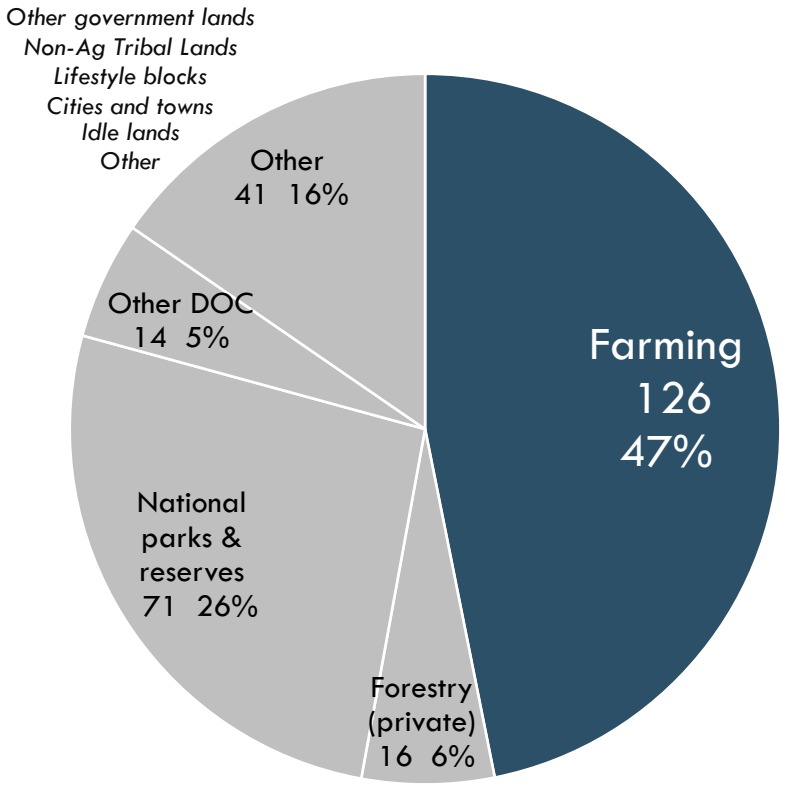
B. FOOD PROCESSING IS GROWING & CREATING JOBS POST FARMGATE

C. SECTORS VARY IN LIKELY JOB CREATION IN PROCESSING GOING FORWARD

Food production uses almost half of New Zealand's land and much of its oceans

NEW ZEALAND LAND USE

km²; 000; 2010



TOTAL = 268,000 km²

NZ ECONOMIC ZONE*

Area; depth; 2018

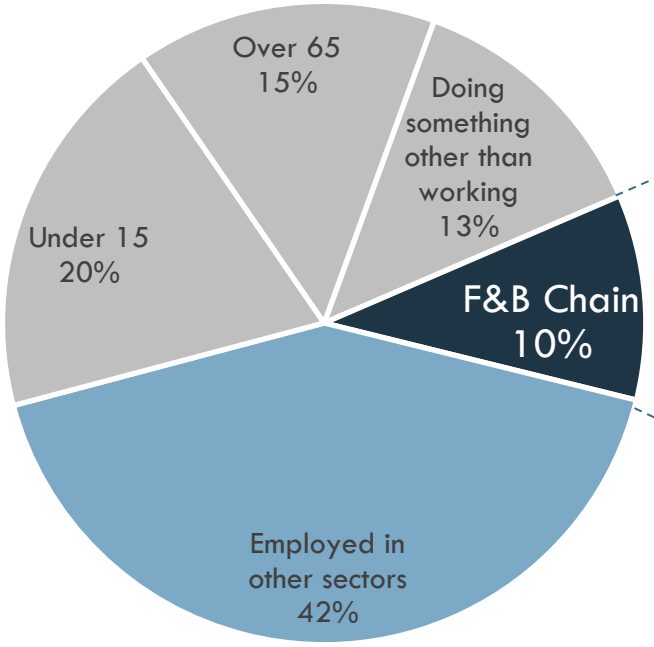
Defined as 200 nautical miles from coastline

**EEZ; Note: a nautical mile is 1,852 metres; Source: Statistics NZ; Department of Conservation; Sealord; Coriolis analysis*

The wider food chain directly employs one in five working people in the country

NZ POPULATION BY EMPLOYMENT

People; m; 2017



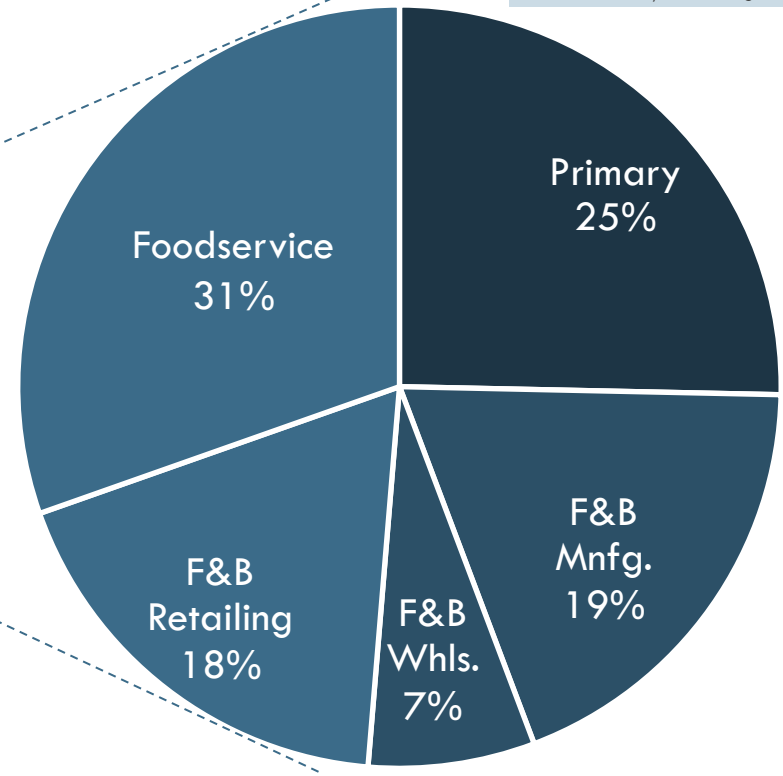
Total = 4.8m

… or one in five of working population

FOOD CHAIN EMPLOYMENT BY SECTOR

People; %; 2017

NOTE: Tight definition; excludes all inputs and support services; likely closer to 1/3 including those



Total = 493,000

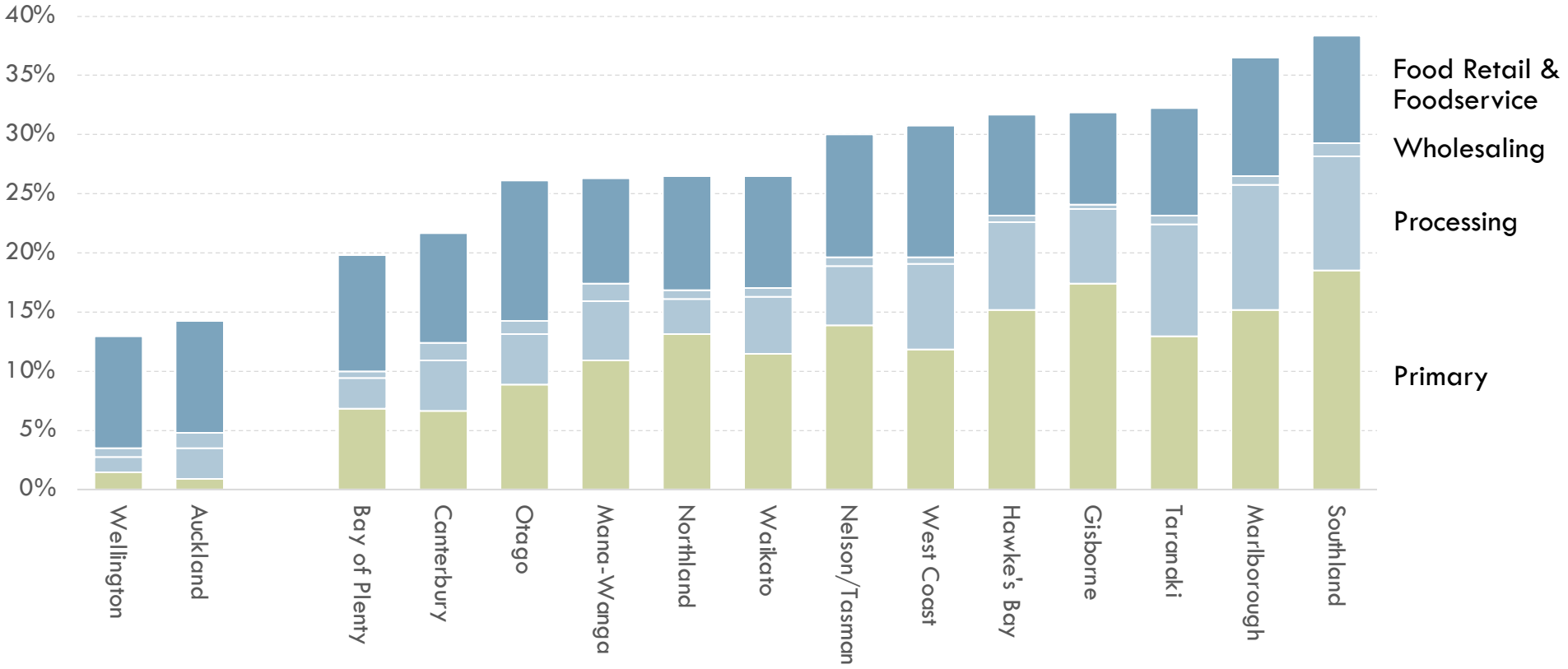
Whls – wholesaling; Mnfg – manufacturing; Source: Statistics NZ; Coriolis analysis and classifications

In regions outside of Wellington & Auckland, the wider food chain directly employs 20-40% of the working population

PERCENT OF REGIONAL EMPLOYMENT IN THE FOOD CHAIN

% of employees; 2018

NOTE: Tight definition; excludes all inputs and support services; likely closer to 1/3 including those

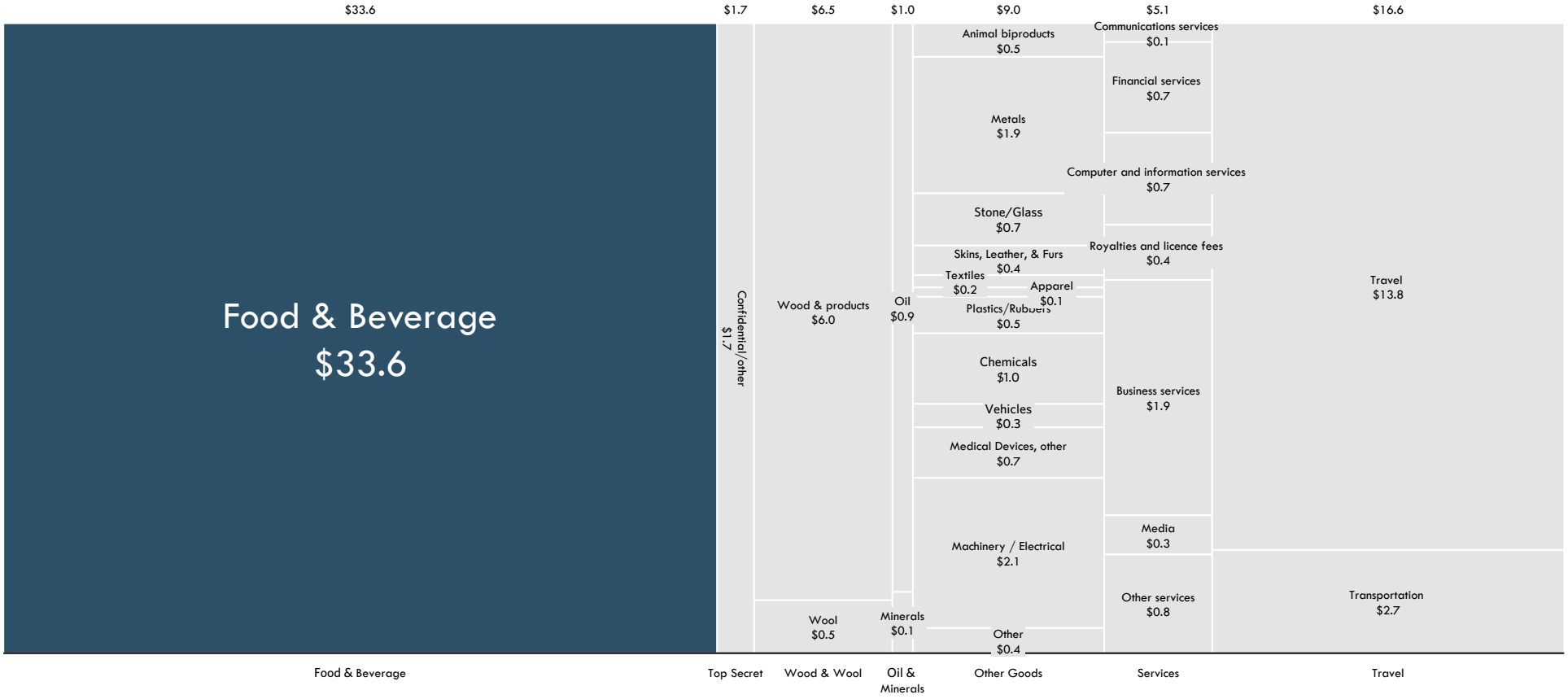


Source: Statistics NZ; Coriolis analysis and classifications

Food & beverage is the major New Zealand export industry, accounting for almost half of total goods and services exports

TOTAL NEW ZEALAND EXPORT OF GOODS AND SERVICES BY CATEGORY

NZ$; b; 2017

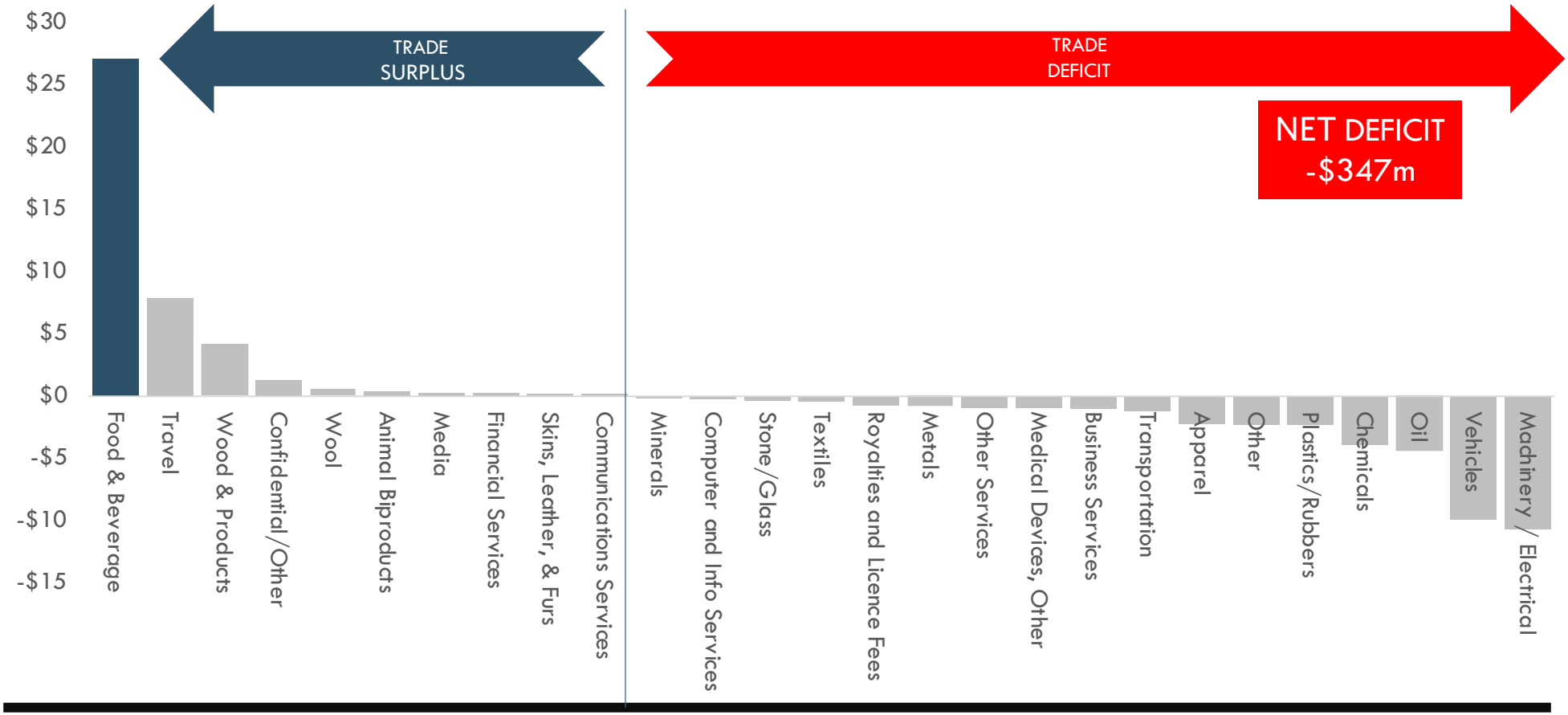


Source: SNZ; Coriolis analysis and classifications

The food & beverage industry achieves a large trade surplus, while most other sectors are underperforming or in deficit

NET TRADE POSITION IN TOTAL NEW ZEALAND TRADE (EXPORTS-IMPORTS)

NZ$; b; 2017



Source: SNZ; Coriolis analysis and classifications

Food & beverage is growing exports strongly, where most other sectors are underperforming or going backwards

10 YEAR NET CHANGE IN TOTAL NEW ZEALAND EXPORTS

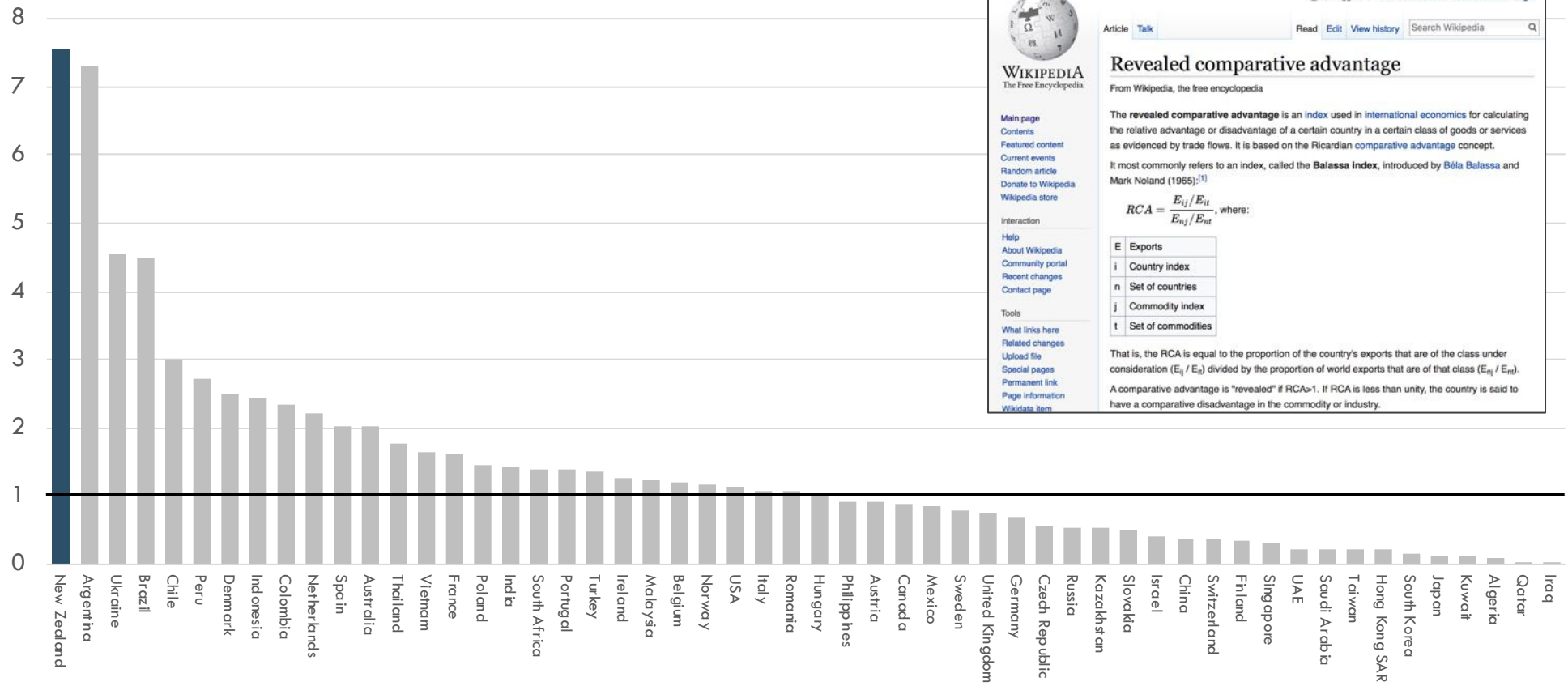
NZ$; b; 2007-2017

Source: SNZ; Coriolis analysis and classifications

New Zealand has the highest 'revealed comparative advantage' in food & beverage of any major exporter

REVEALED COMPARATIVE ADVANTAGE IN FOOD & BEVERAGE

RCI index; top 54 exporting countries; 2016



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Revealed comparative advantage

From Wikipedia, the free encyclopedia

The **revealed comparative advantage** is an index used in international economics for calculating the relative advantage or disadvantage of a certain country in a certain class of goods or services as evidenced by trade flows. It is based on the Ricardian comparative advantage concept.

It most commonly refers to an index, called the **Balassa index**, introduced by Béla Balassa and Mark Noland (1965):[1]

$$RCA = \frac{E_{ij}/E_{it}}{E_{nj}/E_{nt}}, \text{ where:}$$

E	Exports
i	Country index
n	Set of countries
j	Commodity index
t	Set of commodities

That is, the RCA is equal to the proportion of the country's exports that are of the class under consideration (E_{ij} / E_{it}) divided by the proportion of world exports that are of that class (E_{nj} / E_{nt}).

A comparative advantage is "revealed" if RCA>1. If RCA is less than unity, the country is said to have a comparative disadvantage in the commodity or industry.

Source: UN Comtrade; SNZ; Wikipedia; Coriolis analysis and classifications

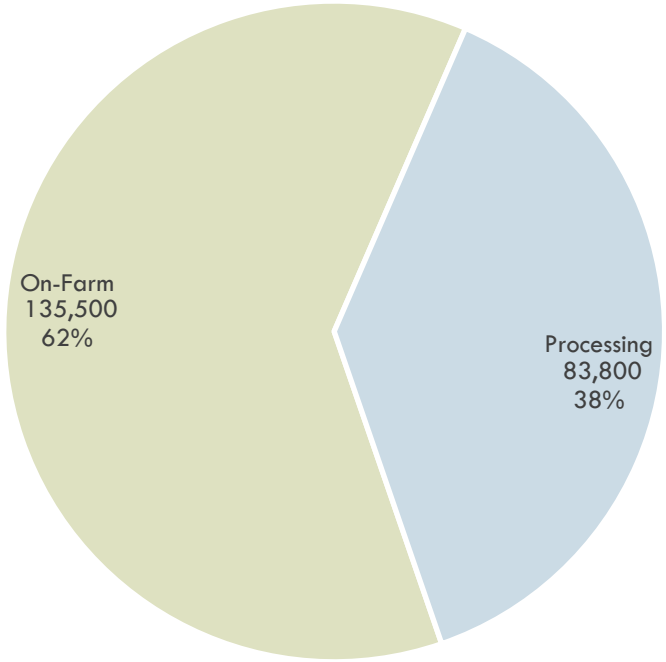
AGENDA

1. THE FOOD & BEVERAGE INDUSTRY IS IMPORTANT TO NEW ZEALAND
2. FOOD PROCESSING IS GROWING & CREATING JOBS POST FARMGATE
3. SECTORS VARY IN LIKELY JOB CREATION IN PROCESSING GOING FORWARD

The core New Zealand food & beverage industry (on-farm & processing) has a total headcount of about 219,000

F&B JOBS BY LOCATION*

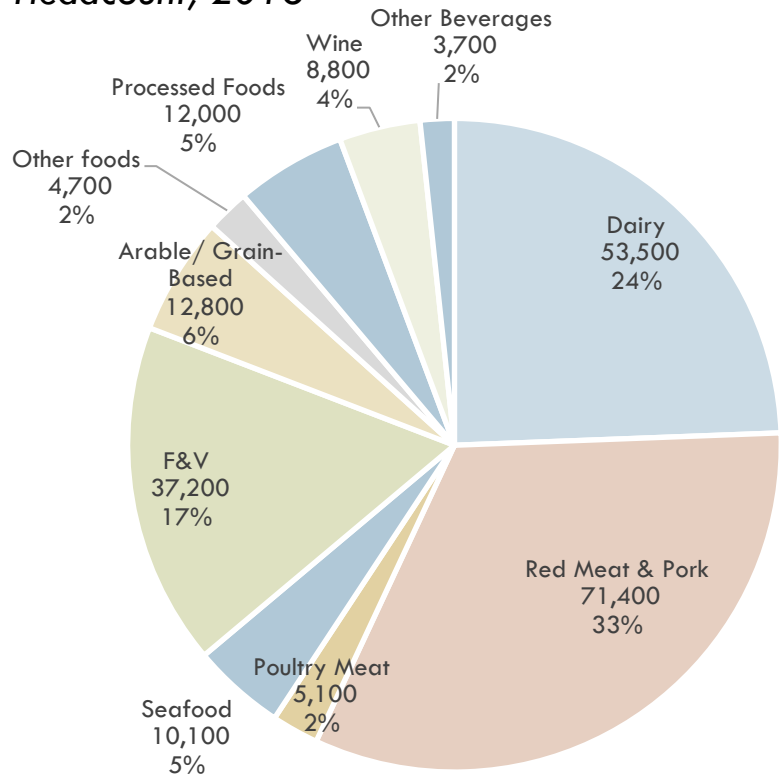
Headcount; 2018



Total = ~219,000

F&B JOBS BY SECTOR*

Headcount; 2018



Total = 219,000

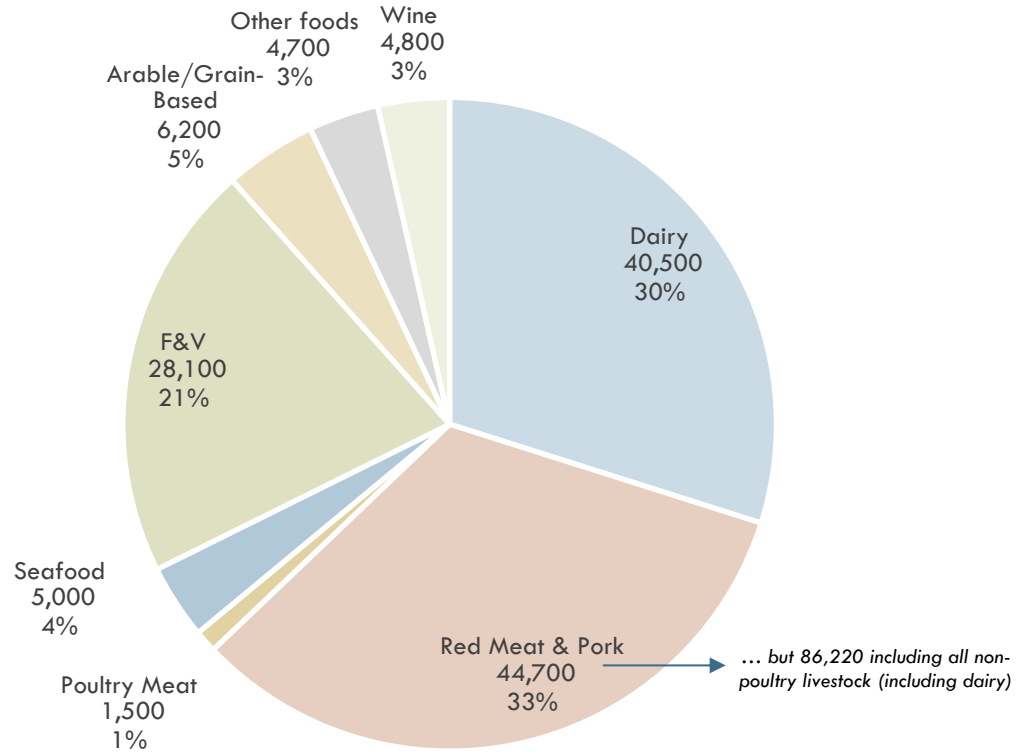
TOTALS ROUNDED

*Note: Actual total will be larger as this data does not include contract labour (e.g. picking gangs) and other direct labour services to farming; *Including assumed owner-operators (i.e. non-PAYE); does not include most wholesaling (only seafood and F&V); Source: Statistics NZ; Coriolis estimates, modelling and analysis*

On-farm currently accounts for about 60% of jobs; post farmgate processing 40%

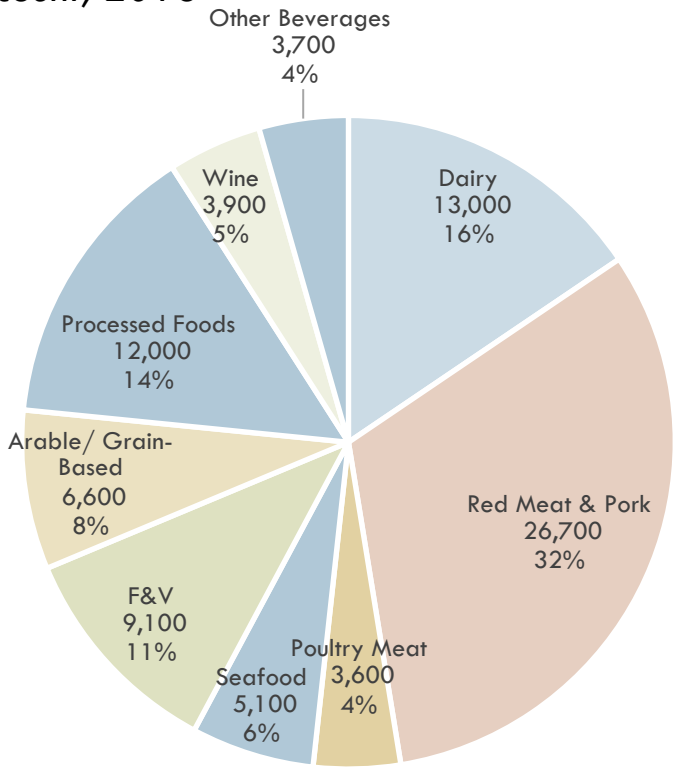
F&B JOBS ON-FARM*

Headcount; 2018



F&B JOBS IN PROCESSING**

Headcount; 2018



Total = 135,500
~60%

Total = ~219,000

Total = 83,800
~40%

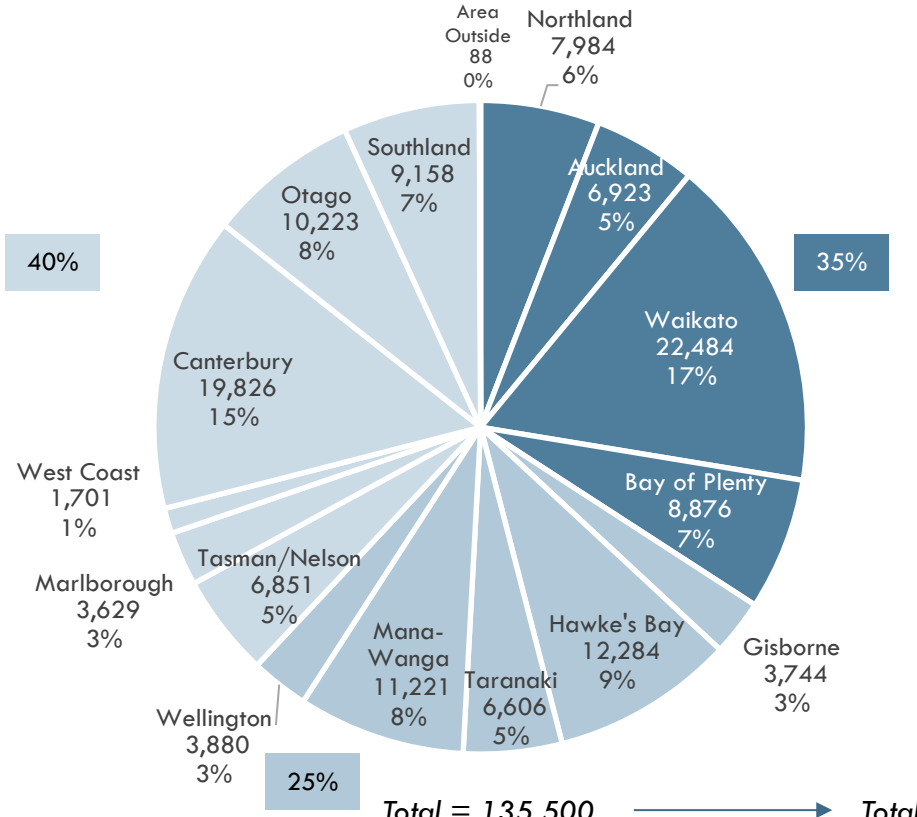
TOTALS ROUNDED

**Including assumed owner-operators (i.e. non-PAYE); **Some sectors include wholesaling; Note: Other foods (honey & eggs), when processed, are not broken out by Statistics NZ and are therefore included in our defined 'processed foods'; Source: Statistics NZ; Coriolis estimates, modelling and analysis*

Both on-farm and processing jobs are spread across the country

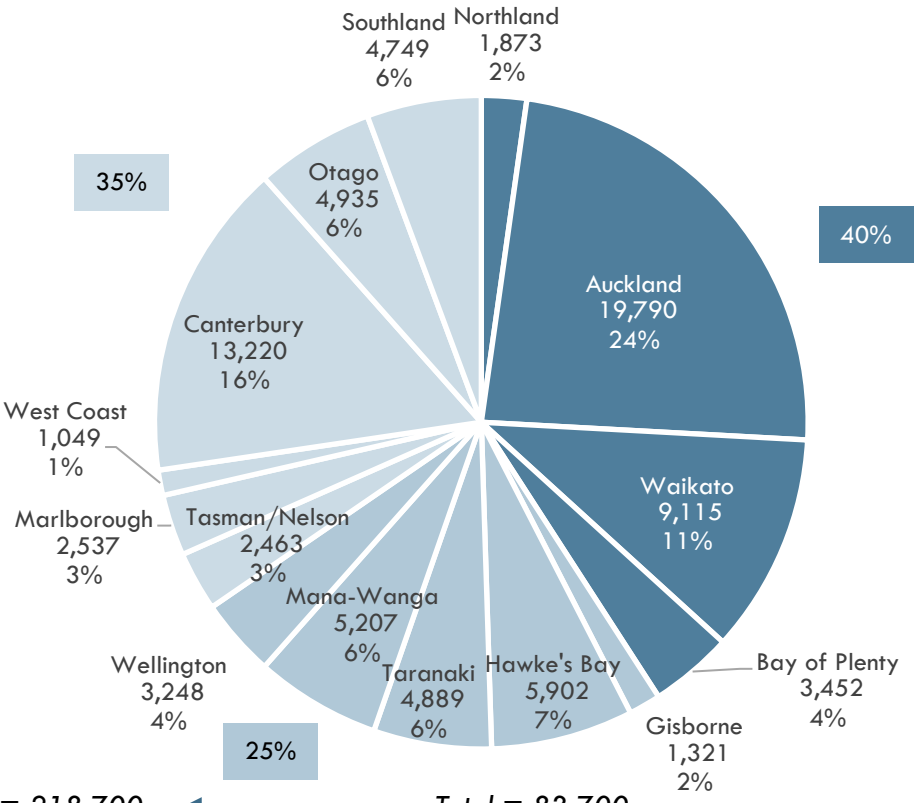
F&B JOBS ON-FARM*

Headcount; 2018



F&B JOBS IN PROCESSING**

Headcount; 2018



Total = 135,500 → *Total = 218,700* ← *Total = 83,700*

~60% *~40%*

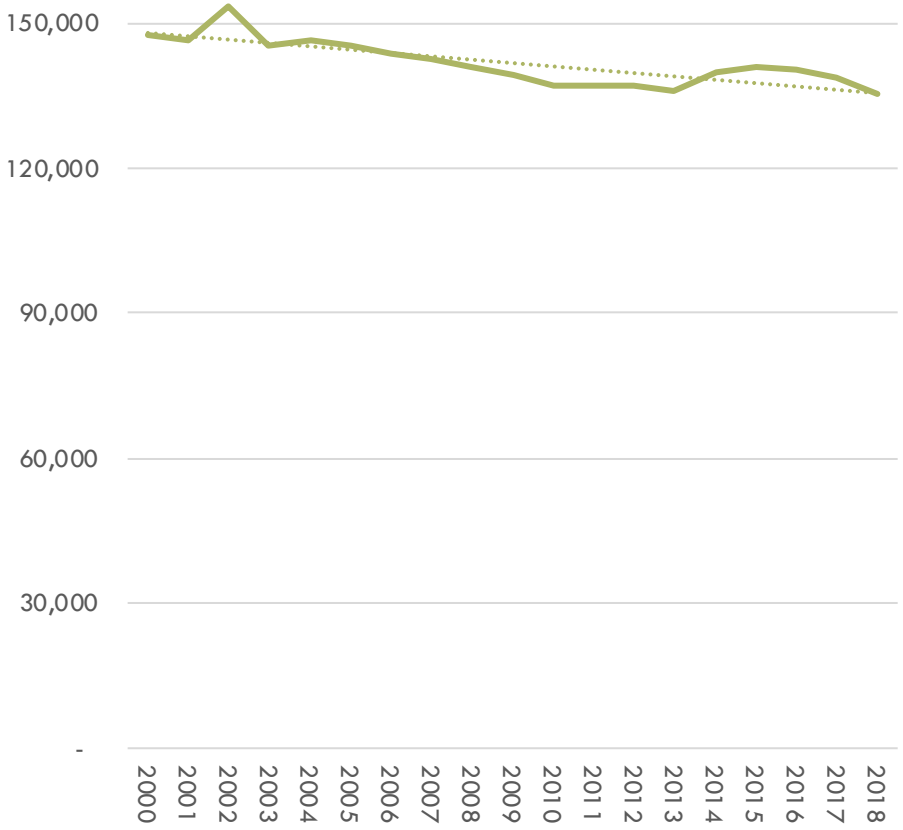
TOTALS ROUNDED

*Note: Area Outside = at sea; *Including assumed owner-operators (i.e. non-PAYE); **Some sectors include wholesaling; Source: Statistics NZ; Coriolis estimates, modelling and analysis*

On-farm employment is falling while processing employment is growing; NZ is adding more jobs (or value) beyond the farm

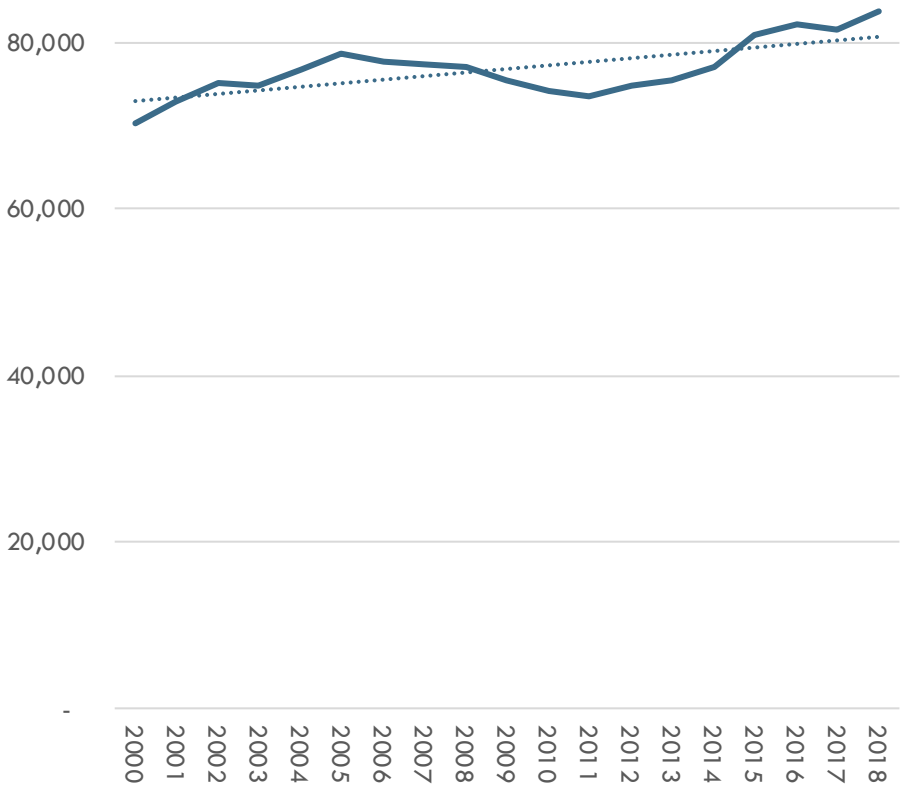
F&B JOBS ON-FARM*

Headcount; 2000-2018



F&B JOBS IN PROCESSING**

Headcount; 2000-2018



**Including assumed owner-operators (i.e. non-PAYE); **Some sectors include wholesaling; Note: Other foods (honey & eggs), when processed, are not broken out by Statistics NZ and are therefore included in our defined 'processed foods'; Source: Statistics NZ; Coriolis estimates, modelling and analysis*

However, regions vary in their performance in post-farmgate food & beverage processing job creation

See Appendix for Details

PROCESSING JOBS 18 YEAR CHANGE BY REGION

Absolute change; 2000 vs. 2018

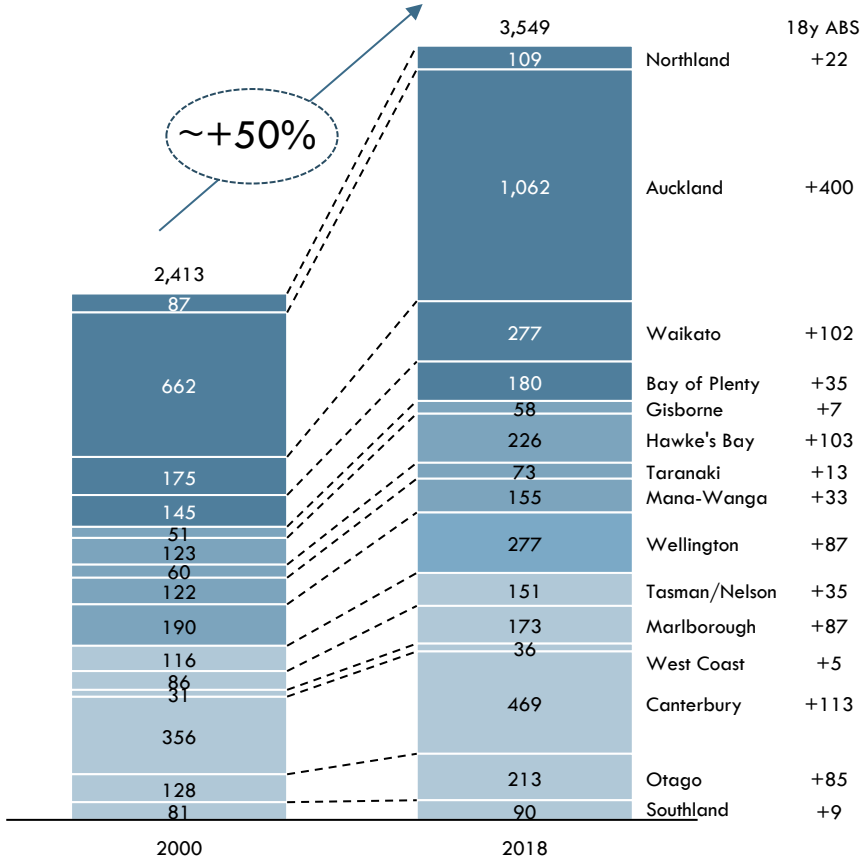
	Northland	Auckland	Waikato	Bay of Plenty	Gisborne	Hawke's Bay	Taranaki	Manawatu-Wanganui	Wellington	Nelson/ Tasman	Marlborough	West Coast	Canterbury	Otago	Southland	TOAL NZ
Dairy	-80	1,220	1,450	-120	45	100	-100	340	-30	-64	-61	360	1,460	0	210	4,730
Red Meat & Pork	-155	570	360	-281	264	-445	315	840	250	-57	-220	99	300	-318	-300	1,222
Poultry Meat	0	590	560	-30	0	0	370	3	-85	-3	0	0	290	-31	-85	1,579
Seafood	3	210	-51	100	-27	45	-40	-48	-117	-1,062	-17	70	-485	-242	-115	-1,776
Produce	64	880	117	370	35	-410	9	-80	110	93	-72	-12	-30	-228	-18	828
Grain-Based	-141	555	-113	-31	-6	-76	-56	-102	-421	-8	-15	-3	245	27	-97	-242
Processed Foods	187	1,080	1,235	513	-12	283	83	359	434	177	83	9	25	81	-8	4,529
Wine	35	130	-21	20	20	280	-6	3	40	45	700	0	140	215	3	1,604
Other Beverages	0	490	107	-60	18	109	6	-21	216	106	7	-13	-60	86	12	1,003
TOTAL	-87	5,725	3,644	481	337	-114	581	1,294	397	-773	405	510	1,885	-410	-398	13,477

Source: Statistics NZ; DairyNZ; MAF/MPI; Coriolis analysis and estimates

New Zealand has a large and growing food processing sector that is creating new firms

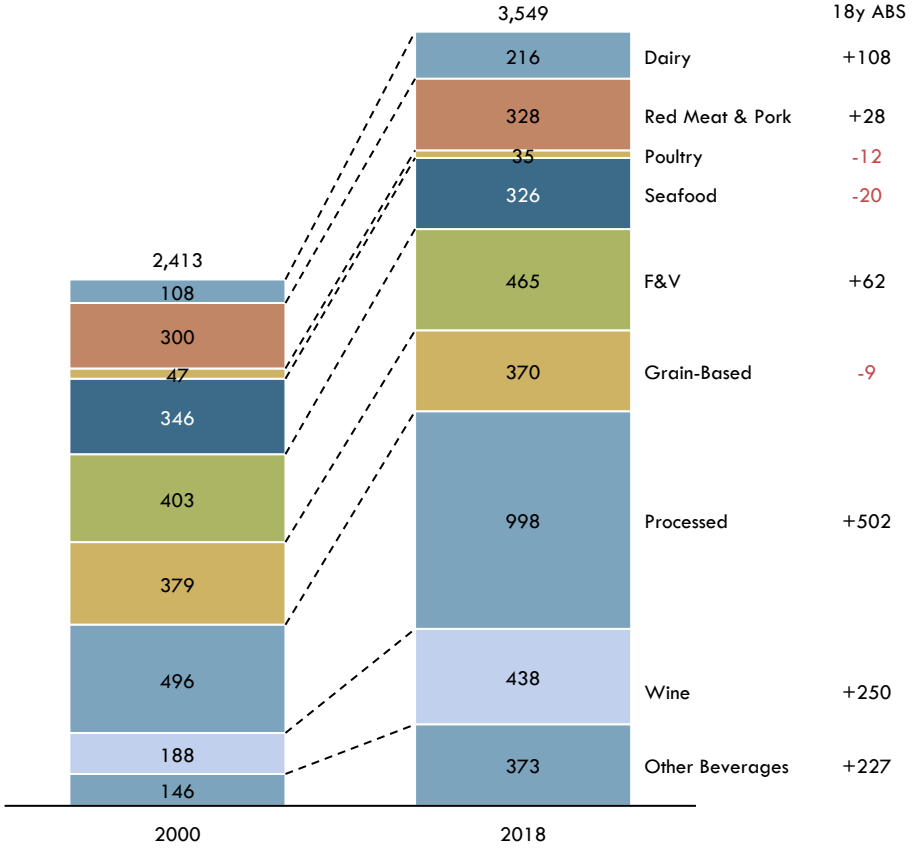
OF PROCESSING UNITS BY REGION

Geographic units; 2000 vs 2018



OF PROCESSING UNITS BY SECTOR

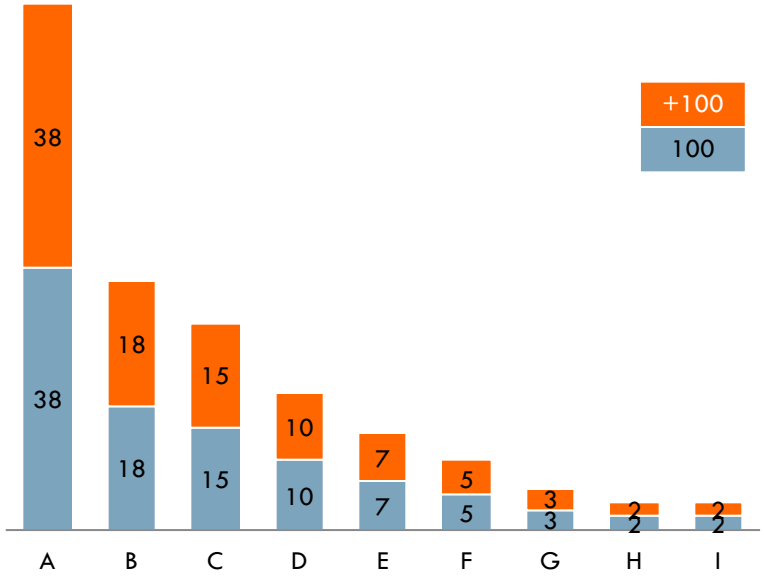
Geographic units; 2000 vs 2018



Source: Statistics NZ; Coriolis estimates, modelling and analysis

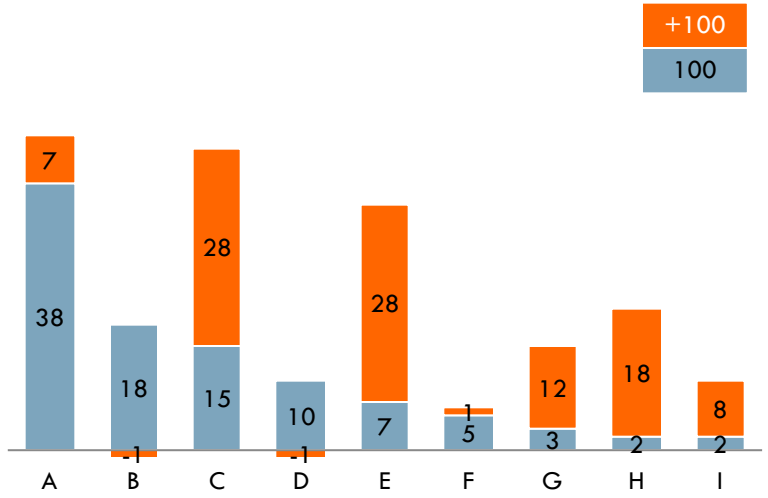
Continued growth will require some sectors to grow much larger, as other sectors have growth constraints

MODEL 1: EVERYTHING DOUBLES



- Simple story: "Rising tide lifts all ships"
- Assumes all sectors can double in the timeframe
- Often how it is "spun" politically
- Unlikely in reality

MODEL 2: SOME GROW/OTHER NO



- More complex story: "The Good, the Bad and the Ugly"
- Assumes some sectors cannot grow significantly
- Other sectors will need to grow 5x or 10x to compensate
- Peer group regions suggest this is the likely outcome

Source: Coriolis

Numerous product categories have been identified that can contribute to this growth

IDENTIFIED PRODUCT CATEGORIES THAT CAN CONTRIBUTE TO GROWTH

Model; 2019

DAIRY	RED MEAT	POULTRY	SEAFOOD	F&V
Advanced/Medical Infant Formula	Meat-Based Snacks	Further Domestic Consumption	Atlantic Salmon	Under Cover/Glasshouse
				Root Crops
Dairy-Based Nutritionals	Branded, Packaged Consumer Case Ready	Target Key Export Markets		Processing Vegetables
				Nuts
Non-Cow Dairy		Develop Value Added Products	Region Suitable Aquaculture	Apples
	Consumer-Ready Convenience Meals			Kiwifruit
Specialty Cheese		Alternative Poultry Species		Avocados
				Emerging Fruit
ARABLE/GRAIN	**OTHER FOODS**	**PROCESSED FOODS**	**WINE**	**OTHER BEVERAGES**
High Dairy Baked	Honey	Nutraceuticals	Sparkling Wine	Alcoholic Spirits
Oat 'Milk'		Pet Food	'Cognac'	Water
Seeds	Eggs	Confectionery/Snacking		Cider & Similar
Hemp (F&B usage)		New & Innovative Foods	Non-Marlborough Reds	Premium Non-Alcoholic

Source: Coriolis analysis

Realising this growth opportunity requires three specific sets of potential investors

EXISTING LARGE FIRMS AT SCALE

REINVESTMENT

- *Remove barriers to investment*
- *Ensure available capital is reinvested in New Zealand (not elsewhere)*
- *Sell New Zealand; make the case for investment in F&B here*

NEW LARGE INVESTORS WITH SCALE AND SKILLS

ATTRACTION

- *Identify the right investors (rather than 'waiting for the phone to ring')*
- *Focus on firms able to add value to New Zealand volume*
- *Sell New Zealand; make the case for investment in F&B here*

NEW AND EMERGING FIRMS

NURTURING

- *Encourage both existing small firms and new start-ups*
- *Focus effort on scaling small and medium firms into large, globally competitive firms at scale (currently could do more here)*

Source: Coriolis analysis

AGENDA

1. THE FOOD & BEVERAGE INDUSTRY IS IMPORTANT TO NEW ZEALAND
2. FOOD PROCESSING IS GROWING & CREATING JOBS POST FARMGATE
3. SECTORS VARY IN LIKELY JOB CREATION IN PROCESSING GOING FORWARD

Sectors vary in likely job creation in processing going forward

1. New Zealand can create more **dairy processing** jobs by producing more complex products, rather than simple ingredients
2. While **meat processing** is currently a major employer, it is unclear whether the sector can create significant new jobs going forward
3. **Poultry processing** can continue to create employment growth for New Zealand
4. **Seafood** is unlikely to create new jobs without new aquaculture coming into production
5. **Produce wholesaling and processing** is unlikely to create new jobs without significant new land coming into production
6. **Grain processing & wholesaling** is unlikely to create significant new jobs going forward without developing new products
7. New Zealand can continue to grow employment in **processed foods** production
8. Creating employment growth in New Zealand **wine production** will require regions outside Marlborough to grow
9. New Zealand can continue to grow employment in **non-wine beverages**

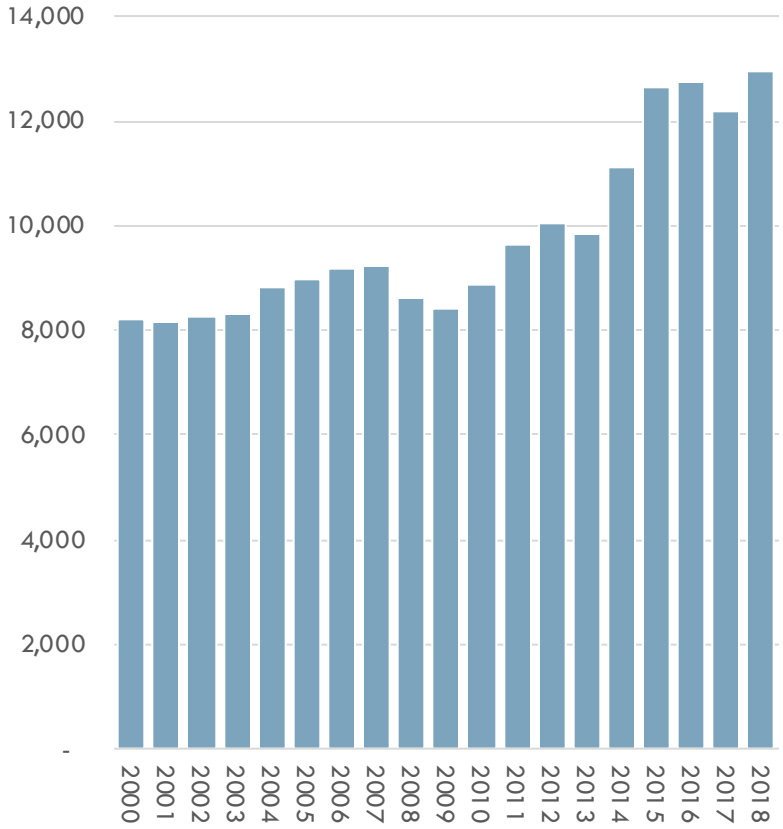
*1. New Zealand can create more **dairy processing** jobs by producing more complex products, rather than simple ingredients*

- Dairy processing in New Zealand is creating jobs and jobs are spread across regions
- Regions vary significantly in terms of how many regional dairy processing jobs they create from regional milk
- Only three regions (Auckland, West Coast & Canterbury) have created more processing jobs from their milk over the last decade
- Looking beyond New Zealand shows most peers create more jobs from their milk and this confirms more jobs can be created
- Significant new dairy processing jobs would be created if New Zealand could match the performance of global peers
- Four broad standout opportunities exist to drive growth in the dairy processing industry

Dairy processing in New Zealand is creating jobs and and jobs are spread across regions

DAIRY PROCESSING EMPLOYMENT

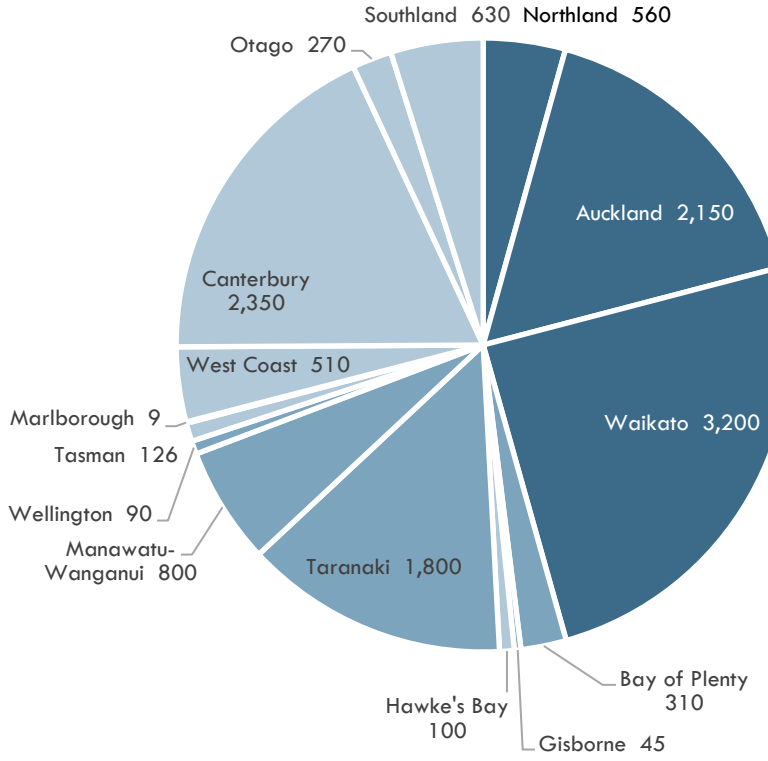
Headcount; 2000-2018



DAIRY PROCESSING JOBS BY REGION

Headcount; 2018

TOTAL = 12,950 dairy processing employees

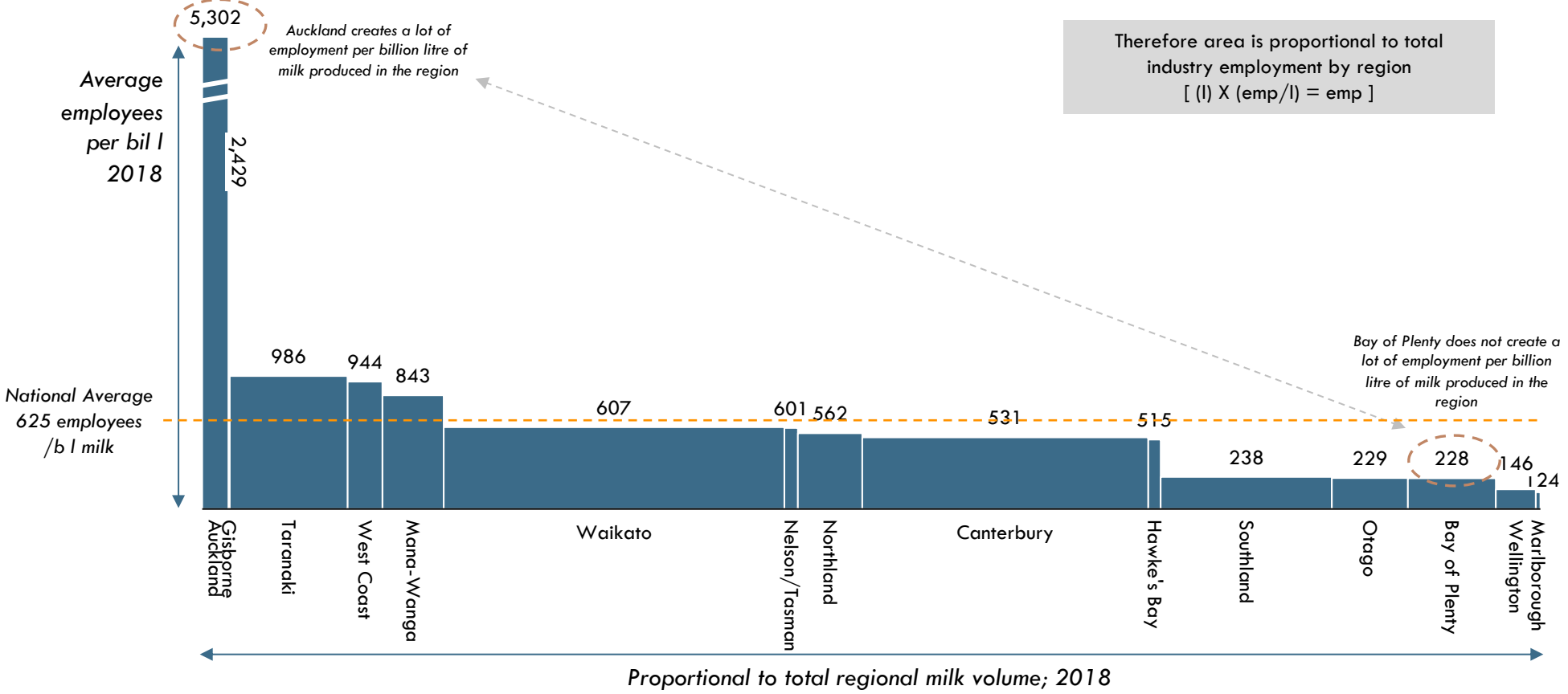


Source: Statistics NZ; Coriolis analysis

Regions vary significantly in terms of how many regional dairy processing jobs they create from regional milk

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

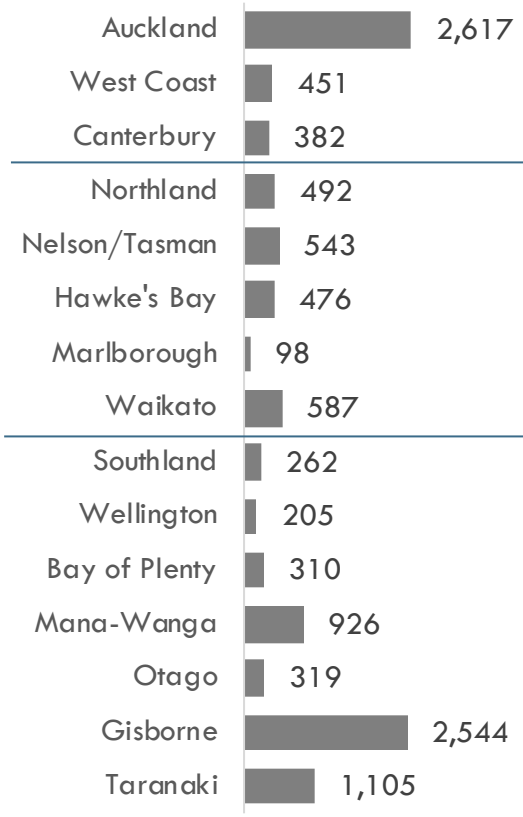
Bil l; employment per b litre of regional milk; 2018



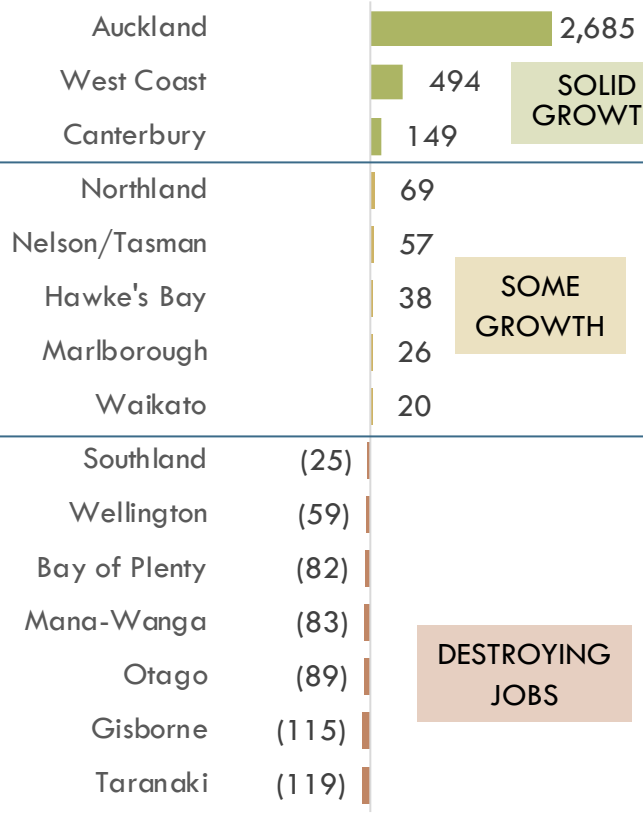
**Not adjusted for inter-regional transfer; Significant volumes of milk will move between regions (e.g. Gisborne to Hawke's Bay, Waikato to Auckland); Source: Statistics NZ; DairyNZ; Coriolis analysis*

Only three regions (Auckland, West Coast & Canterbury) have created more processing jobs from their milk over the last decade

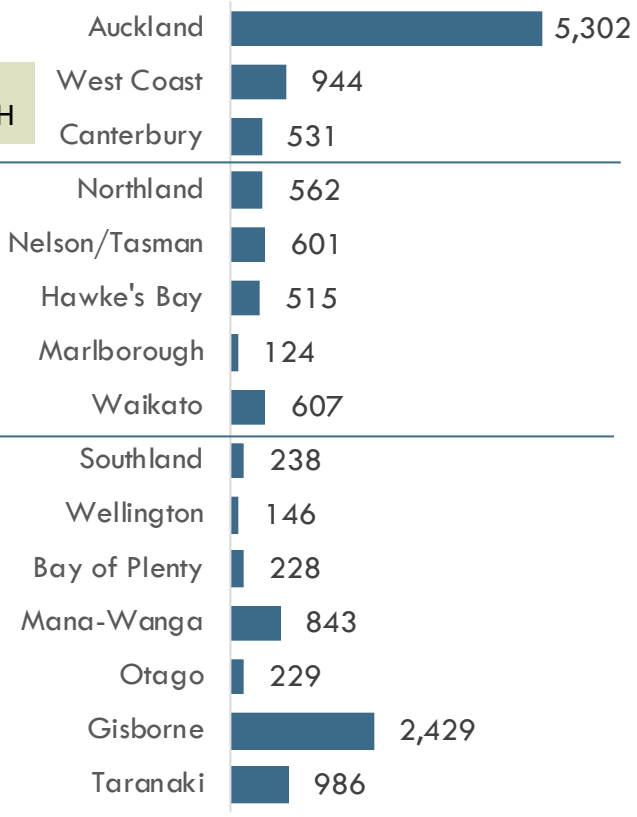
JOBS/BIL L IN 2008
Headcount/bil l; 2008



10Y CHANGE JOBS/BIL L
Headcount/bil l; 08vs18



JOBS/BIL L IN 2018
Headcount/bil l; 2018

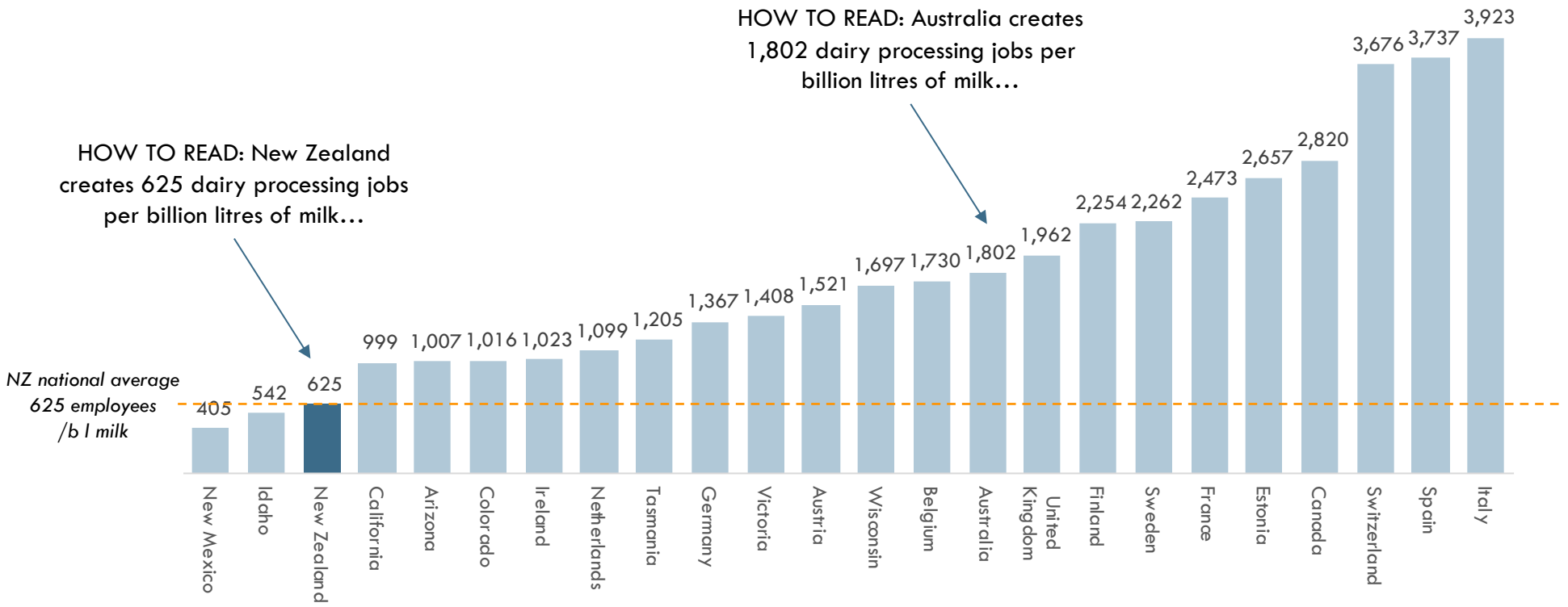


Source: Statistics NZ; DairyNZ; Coriolis analysis

Looking beyond New Zealand shows most peers create more jobs from their milk and this confirms more jobs can be created

JOBS CREATED FROM MILK: NEW ZEALAND VS PEERS

Headcount/bil l or kg; 2018 or as available

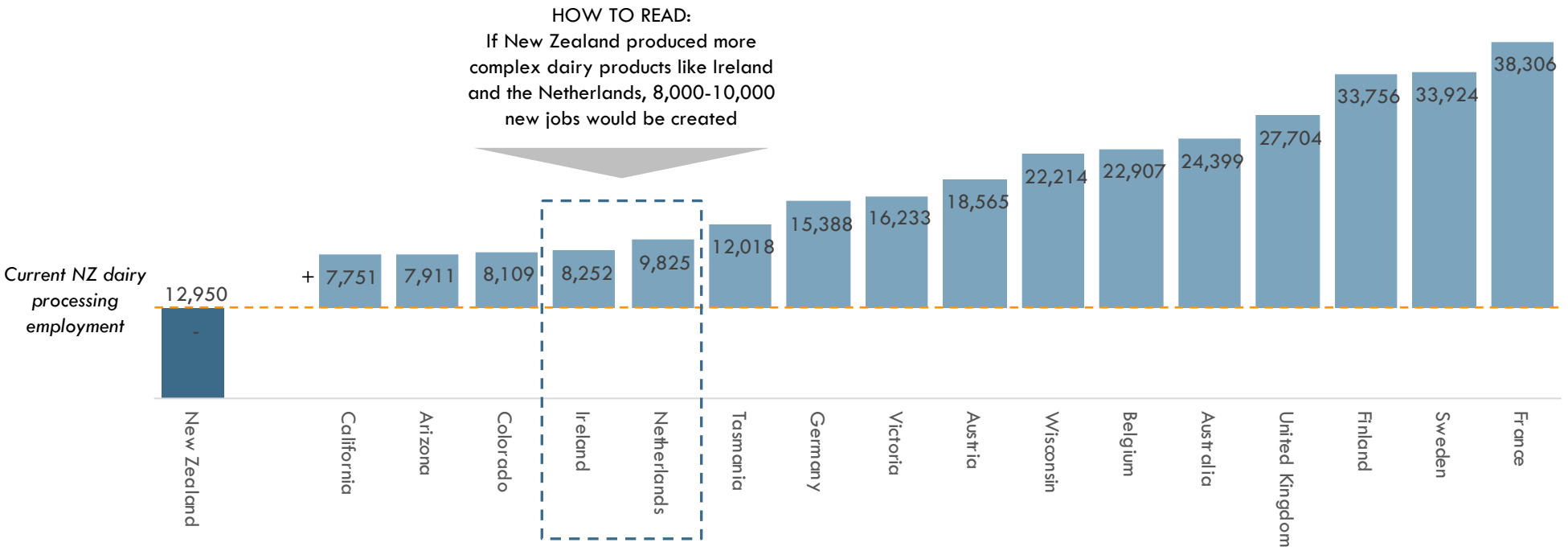


Source: Statistics NZ; DairyNZ; EuroStat; UN FAO; Statistics Canada; US BLS; USDA NASS; Coriolis analysis

Significant new dairy processing jobs would be created if New Zealand could match the performance of global peers

HYPOTHETICAL NEW DAIRY PROCESSING JOBS IN NEW ZEALAND

Model; headcount; 2018 vs model



How many new dairy processing jobs would be created if New Zealand could create post-farmgate employment from milk like these countries/regions?

Source: Statistics NZ; DairyNZ; EuroStat; UN FAO; Statistics Canada; US BLS; Coriolis analysis

Four broad standout opportunities exist to drive growth in the dairy processing industry

1 ADVANCED/MEDICAL INFANT FORMULA

- High value dairy segment - US$9b global import value (2016)
- Export growth platform
- Leverages NZ capabilities and reputation
- NZ achieves a premium in the global market

2 DAIRY-BASED NUTRITIONALS

- Growth in protein based nutritionals
- Aging population requiring specialty diets

3 NON-COW DAIRY (GOAT & SHEEP)

- Leverages NZ capabilities and reputation
- Growth in alternative dairy categories
- Multiple added value categories

4 PROCESSED/PIZZA CHEESE

- Leverages NZ capabilities in cheese
- Attract new investment to a growth segment in Asia

Photo credit: various firms or fair use; low resolution; complete product/brand for illustrative purposes; Source: Coriolis analysis and estimates

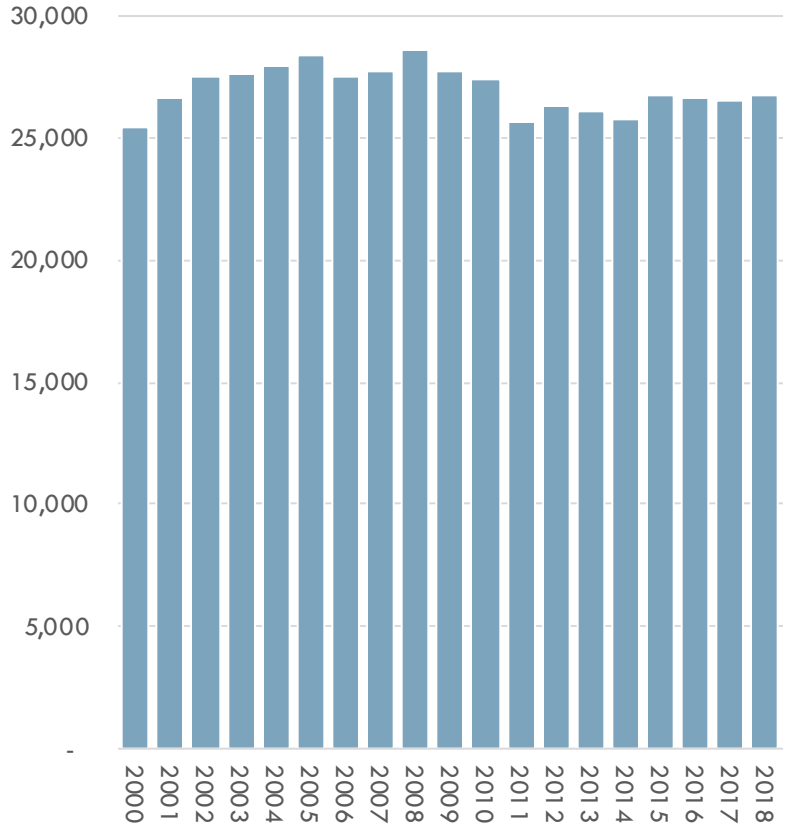
*2. While **meat processing** is currently a major employer, it is unclear whether the sector can create significant new jobs going forward*

- Meat processing supports a large number of jobs across all regions of the country, but employment is not growing
- About half of regions are creating significant new meat processing employment, the other half are shrinking
- It is not immediately obvious that there is significant processing employment per tonne upside (increased automation and robotics)
- Three broad standout opportunities exist to drive growth in the meat processing industry

Meat processing supports a large number of jobs across all regions of the country, but employment is not growing

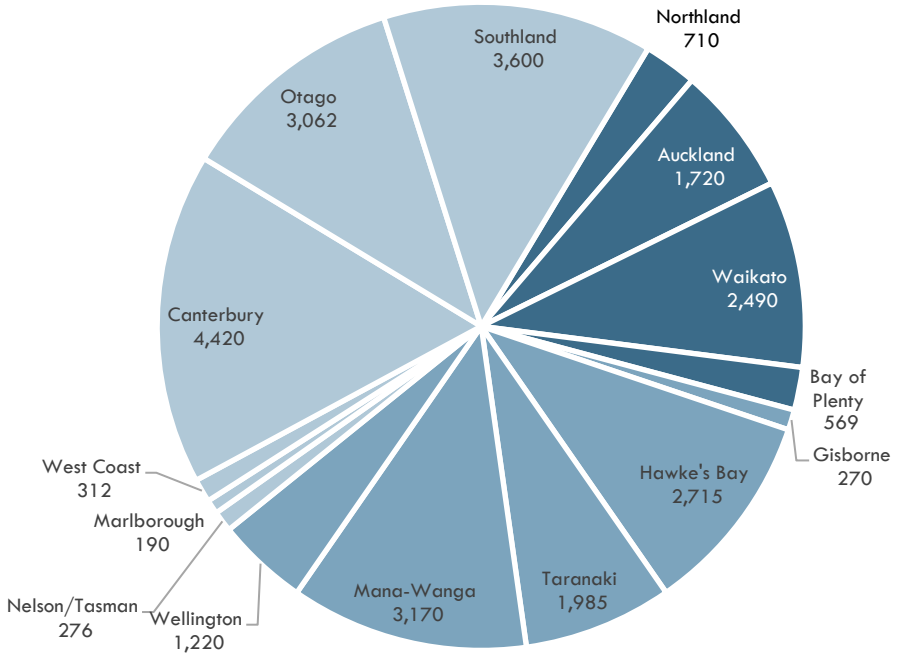
MEAT PROCESSING EMPLOYMENT

Headcount; 2000-2018



MEAT PROCESSING JOBS BY REGION

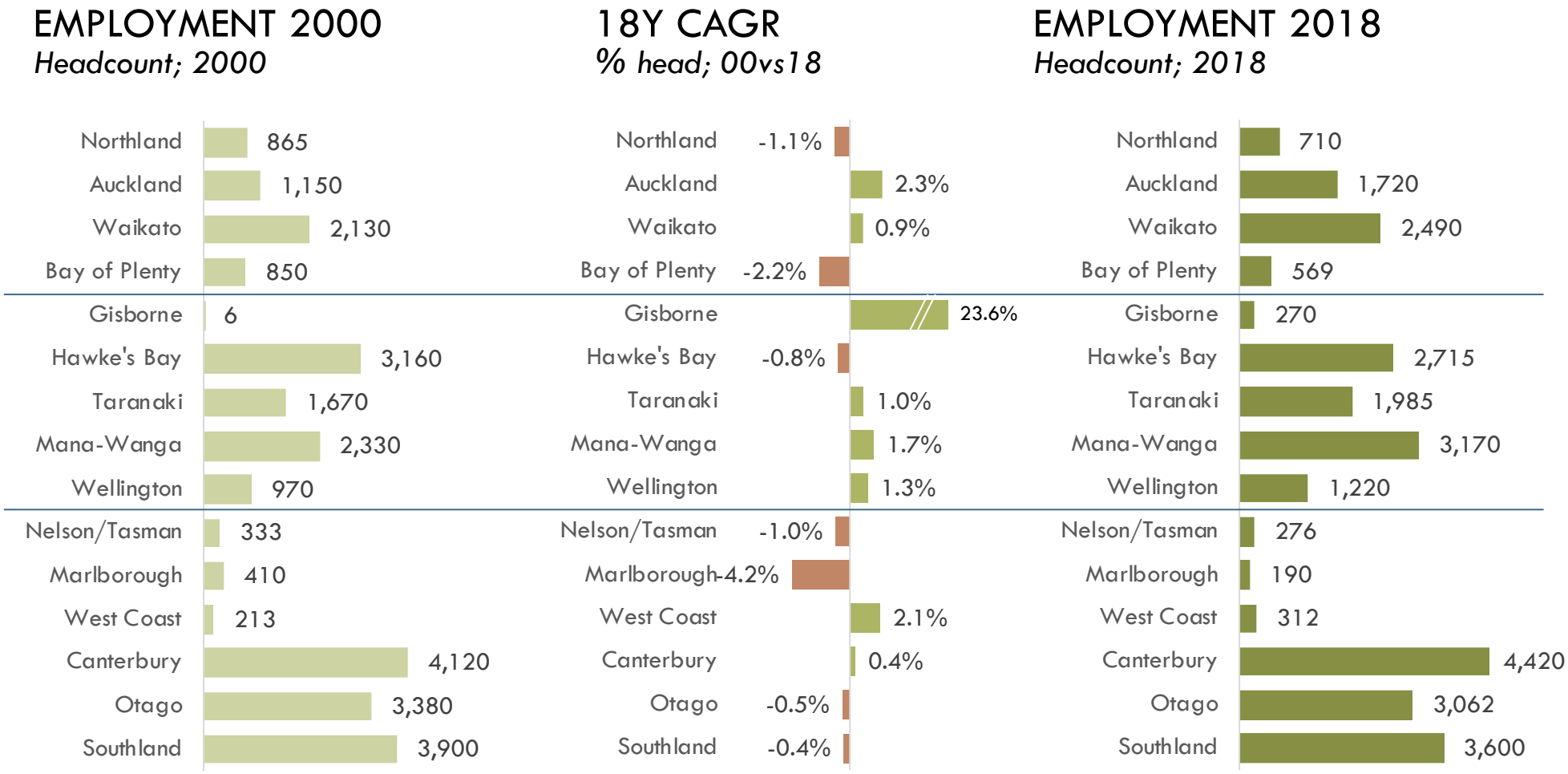
Headcount; 2018



TOTAL = 26,709 meat processing employees

Source: Statistics NZ; Coriolis analysis

About half of regions are creating significant new meat processing employment, the other half are shrinking

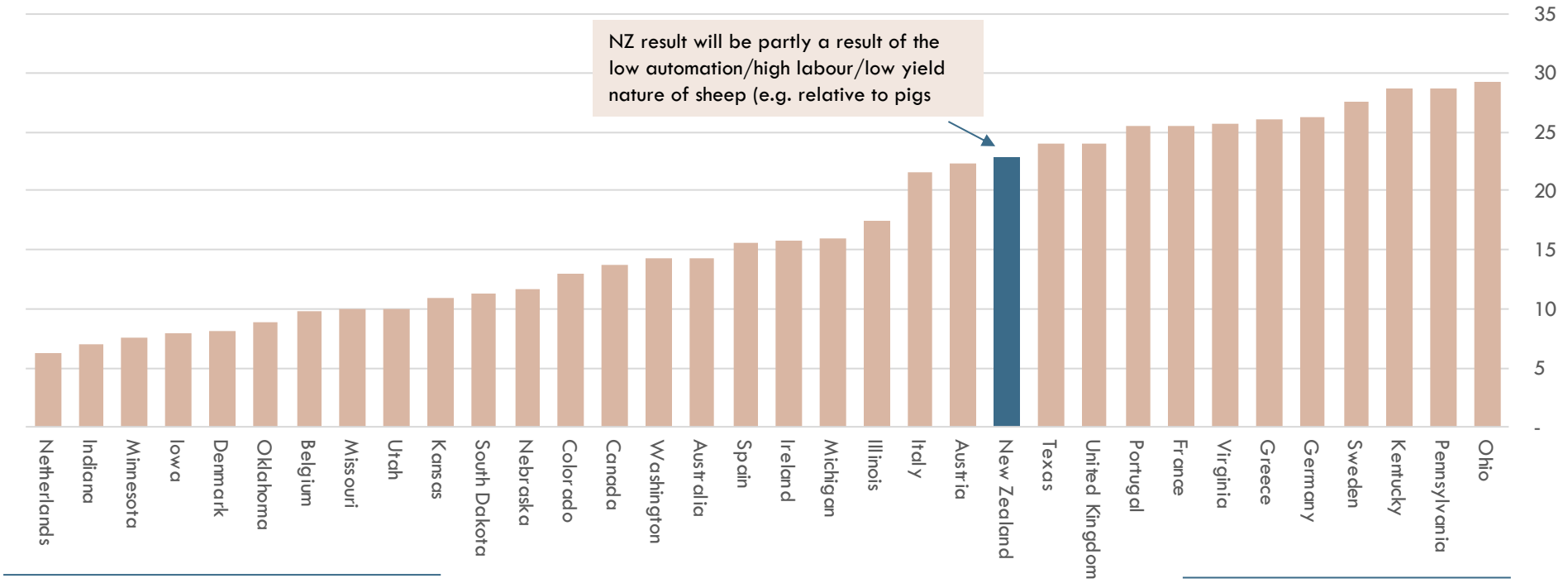


Source: Statistics NZ; UN FAO; MAF/MPI; Coriolis analysis

It is not immediately obvious that there is significant processing employment per tonne upside (increased automation and robotics)

PROCESSING JOBS PER THOUSAND TONNES: NZ VS PEERS

Headcount/1,000t; 2018 or as available



Likely either (1) exporting jobs to neighbouring regions or (2) highly automated, low complexity products and 'simple' species (e.g. pigs)

Likely either (1) more difficult to automate or (2) producing higher complexity products (e.g. case ready rather than carcass/primal)

* Source: Statistics NZ; Eurostat; UN FAO; US DOL; USDA NASS; Coriolis analysis and estimates

Three broad standout opportunities exist to drive growth in the meat processing industry

1

MEAT-BASED SNACKS

- High value product $80-$100/kg
- Leverages NZ capabilities and reputation
- Growing global demand
- Growth in snacking and high protein snacking

2

BRANDED PACKAGED CONSUMER READY PRODUCTS

- Brand and story develops loyalty
- Leverages NZ reputation
- Premium consumers in key export markets

3

Processed Foods adjacency

CONSUMER READY CONVENIENCE MEALS

- Leverages NZ capabilities and reputation
- Growth in convenience categories
- Multiple added value categories

Photo credit: various firms or fair use; low resolution; complete product/brand for illustrative purposes; Source: Coriolis estimates

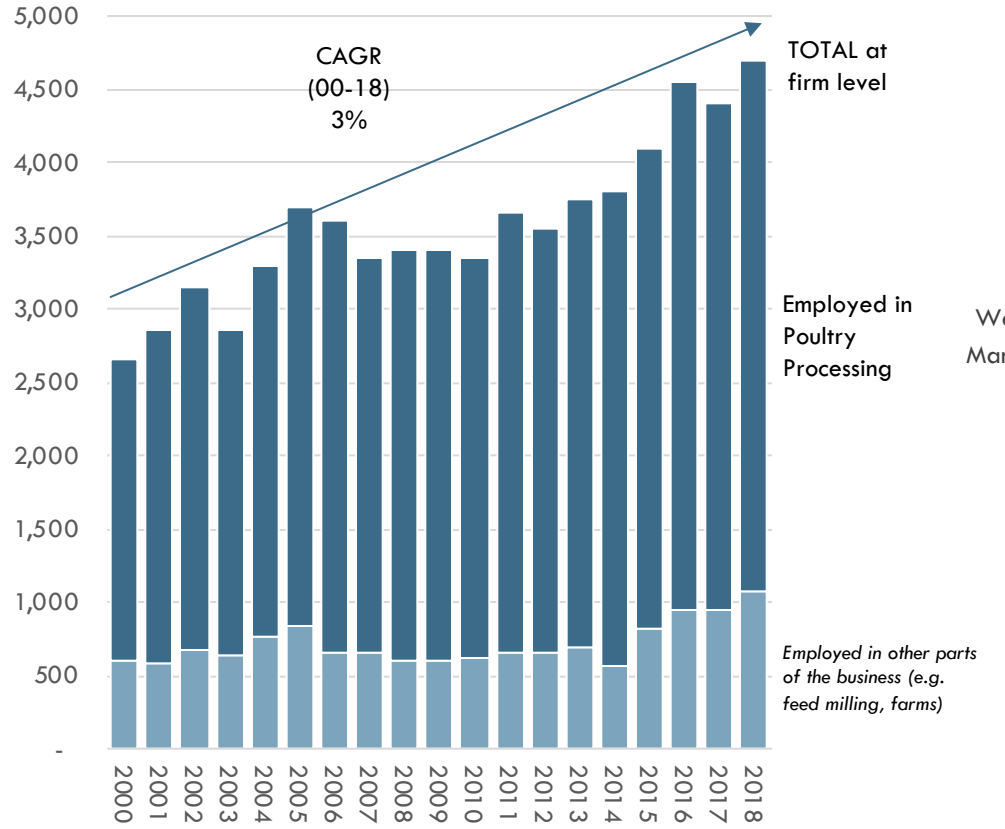
3. ***Poultry processing*** *can continue to create employment growth for New Zealand*

- Poultry processing in New Zealand is creating jobs, but jobs are currently located primarily in four regions
- Only these four key regions – Auckland, Waikato, Taranaki and Canterbury – are creating significant new processing employment
- There appears to be potential to create more processing jobs from existing volumes
- New Zealand poultry meat production can continue to grow
- Future employment growth will either come from (1) existing regions getting bigger or (2) a new region emerging
- Four broad opportunities exist to drive growth in the poultry industry

Poultry processing in New Zealand is creating jobs, but jobs are currently located primarily in four regions

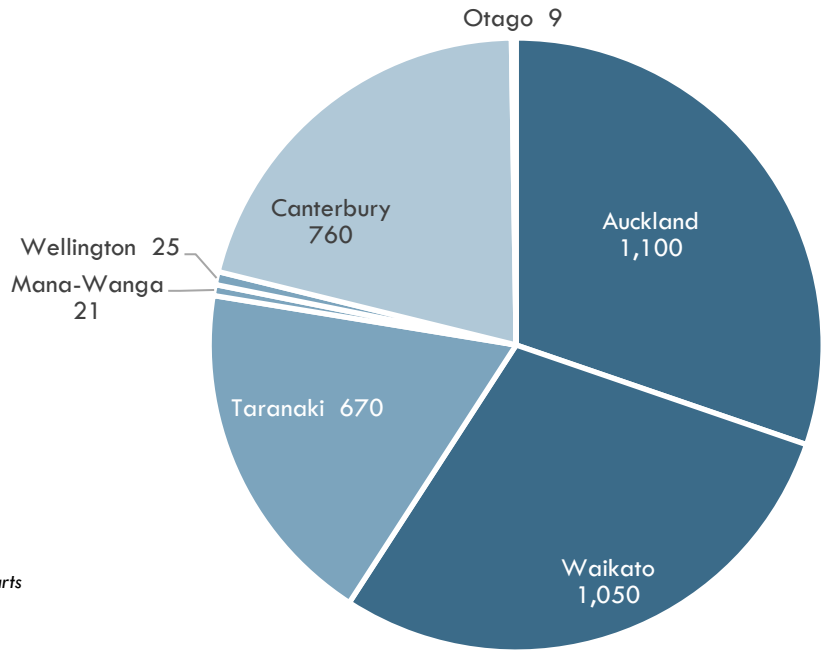
POULTRY PROCESSING EMPLOYMENT

Headcount; 2000-2018



POULTRY PROCESSING JOBS BY REGION

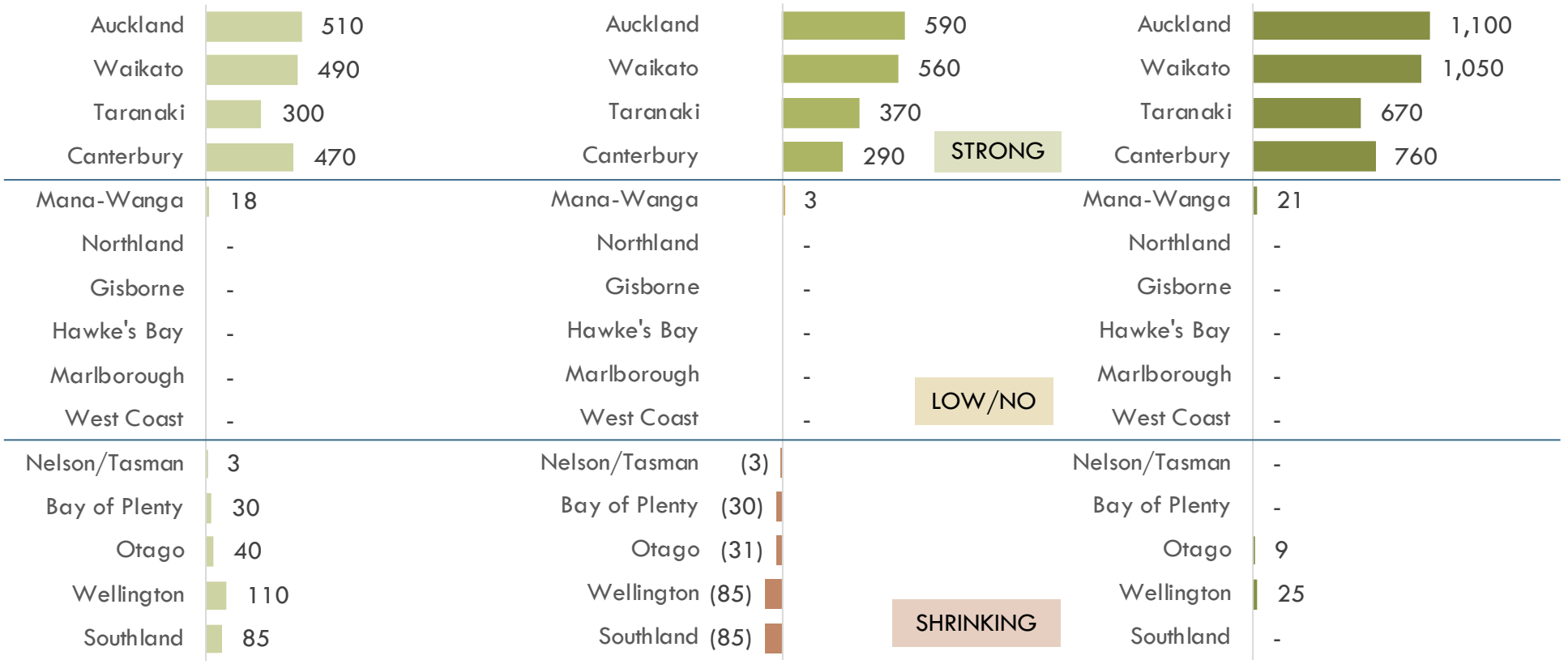
Headcount; 2018



TOTAL = 3,635 poultry processing employees

Source: Statistics NZ; Coriolis analysis

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

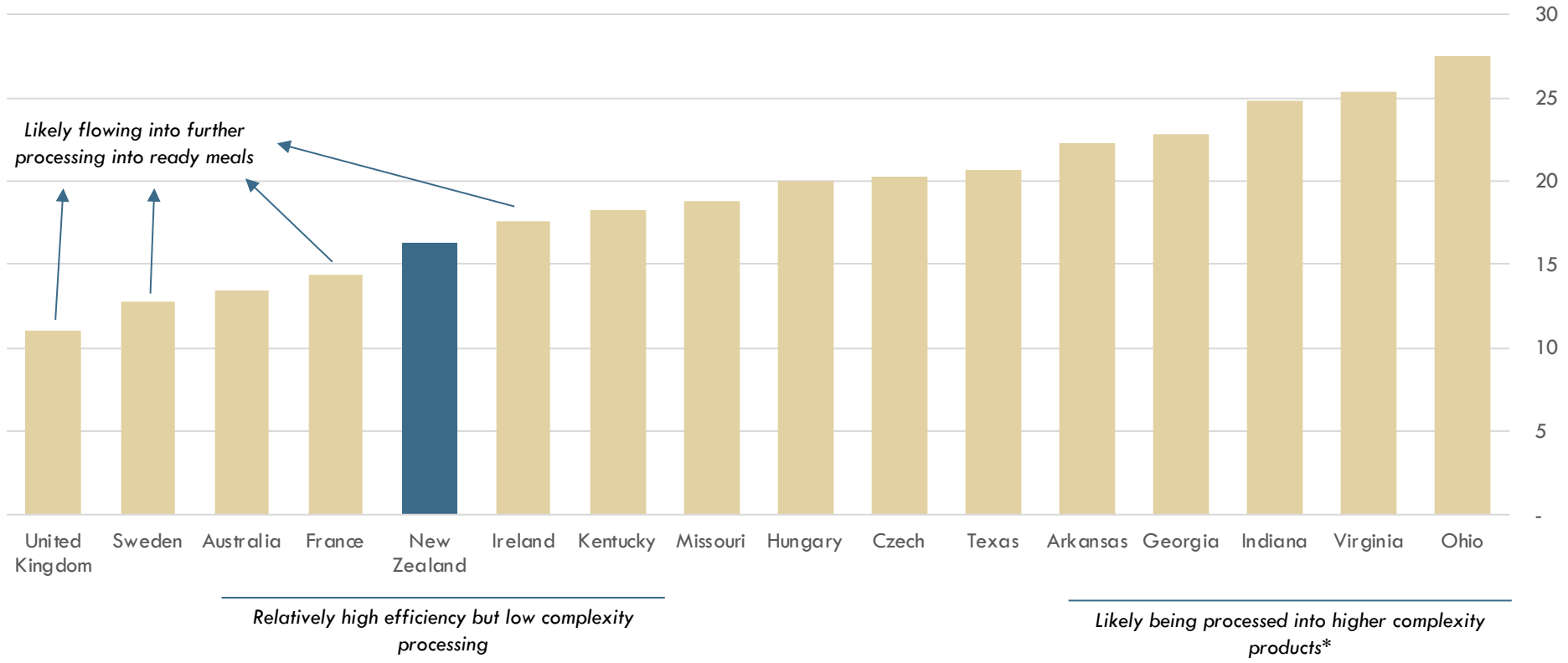


Source: Statistics NZ; UN FAO; MAF/MPI; Coriolis analysis

There appears to be potential to create more processing jobs from existing volumes

PROCESSING JOBS PER THOUSAND TONNES: NZ VS PEERS

Headcount/1,000t; 2018 or as available

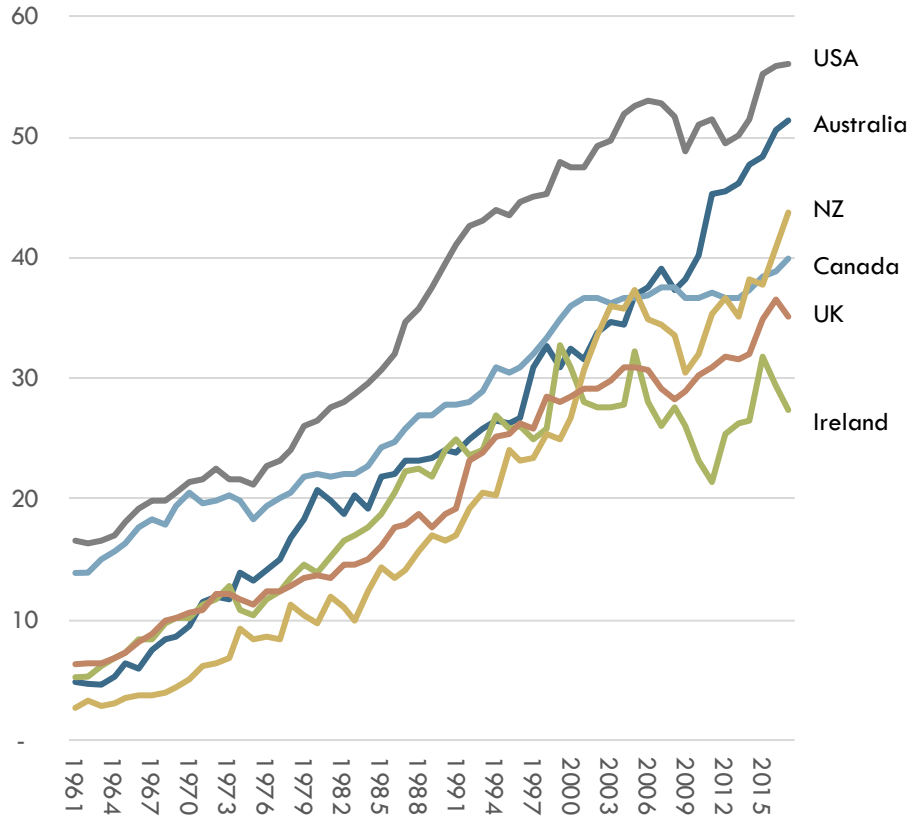


**As an example, compare the processed chicken range of Tyson (US) with Inghams (NZ); Source: Statistics NZ; Eurostat; UN FAO; US DOL; USDA NASS; Coriolis analysis and estimates*

New Zealand poultry meat production can continue to grow

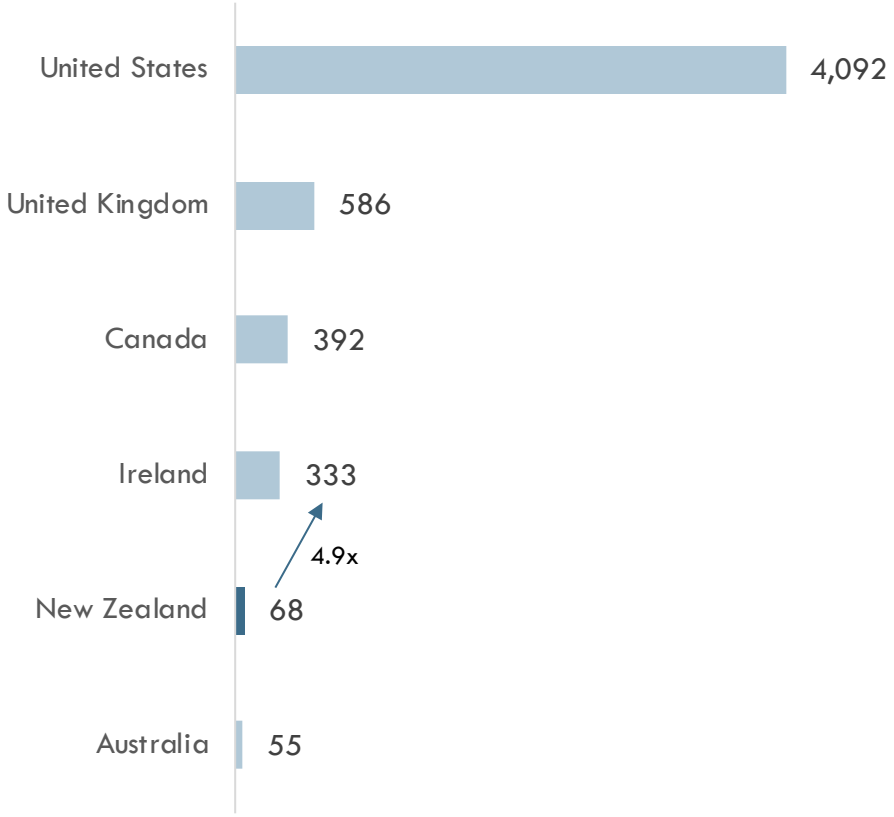
POULTRY CONSUMPTION PER CAPITA

Kg/person/year; 1961-2017



POULTRY EXPORT VOLUME

T; 000; 2018 or as available

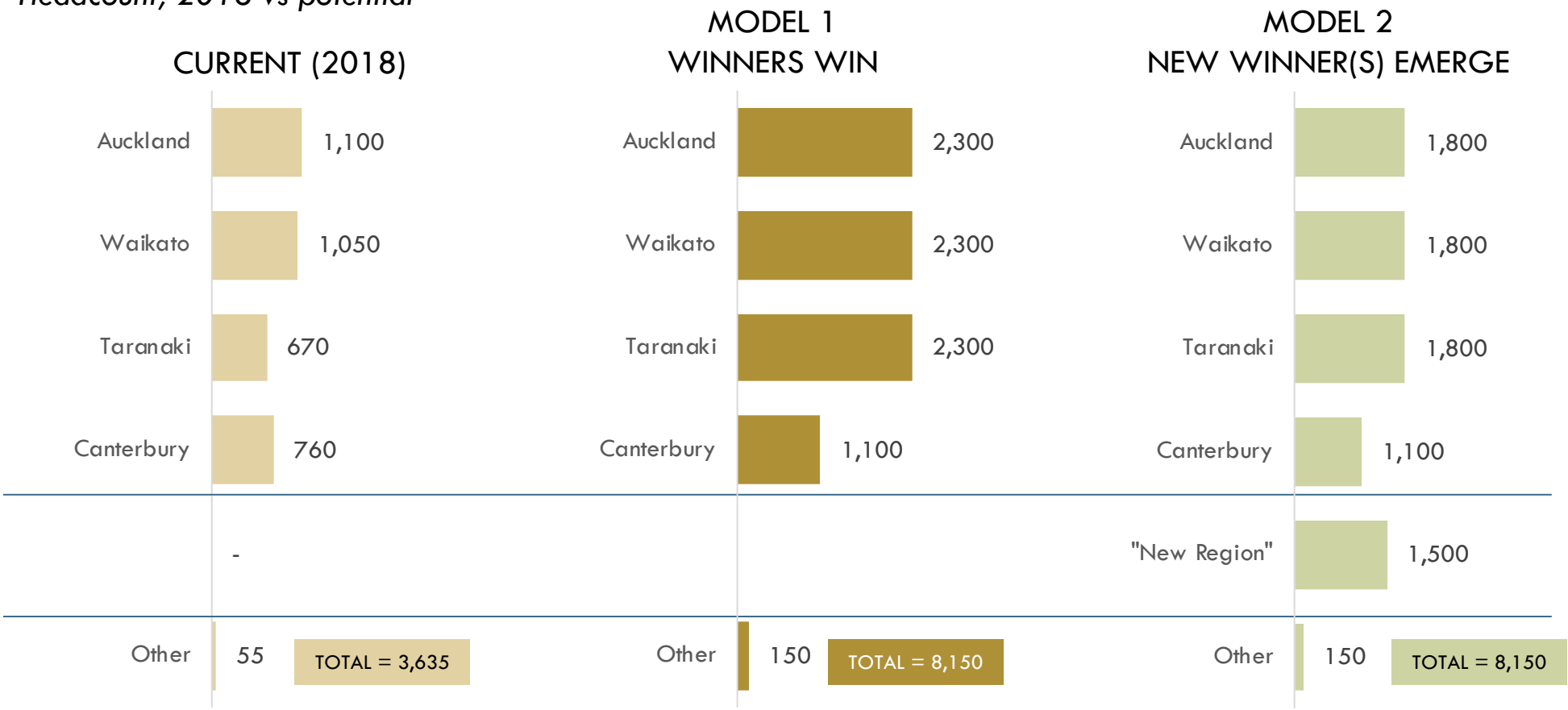


Source: UN FAO; MAF/MPI; UN Comtrade; Coriolis analysis

Future employment growth will either come from (1) existing regions getting bigger or (2) a new region emerging

SIMPLE MODEL OF POTENTIAL FUTURE POULTRY PROCESSING EMPLOYMENT BY REGION

Headcount; 2018 vs potential



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

Four broad opportunities exist to drive growth in the poultry industry

1

INVEST IN GROWTH OF DOMESTIC CONSUMPTION

- Growing chicken consumption in NZ

2

TARGET KEY EXPORT MARKETS

- Growing global demand for protein (in particular chicken)
- Leverages NZ capabilities and reputation (free-from)
- Premium consumers in key export markets

3

DEVELOP VALUE-ADDED PRODUCTS

- High value product
- Leverages NZ capabilities and reputation

4

INVEST IN ALTERNATIVE POULTRY SPECIES (DUCK, TURKEY)

- Brand and story develops loyalty
- Leverages NZ reputation
- Premium consumers in key export markets
- Duck favoured species in parts of Asia

Photo credit: various firms or fair use; low resolution; complete product/brand for illustrative purposes; Source: Coriolis estimates

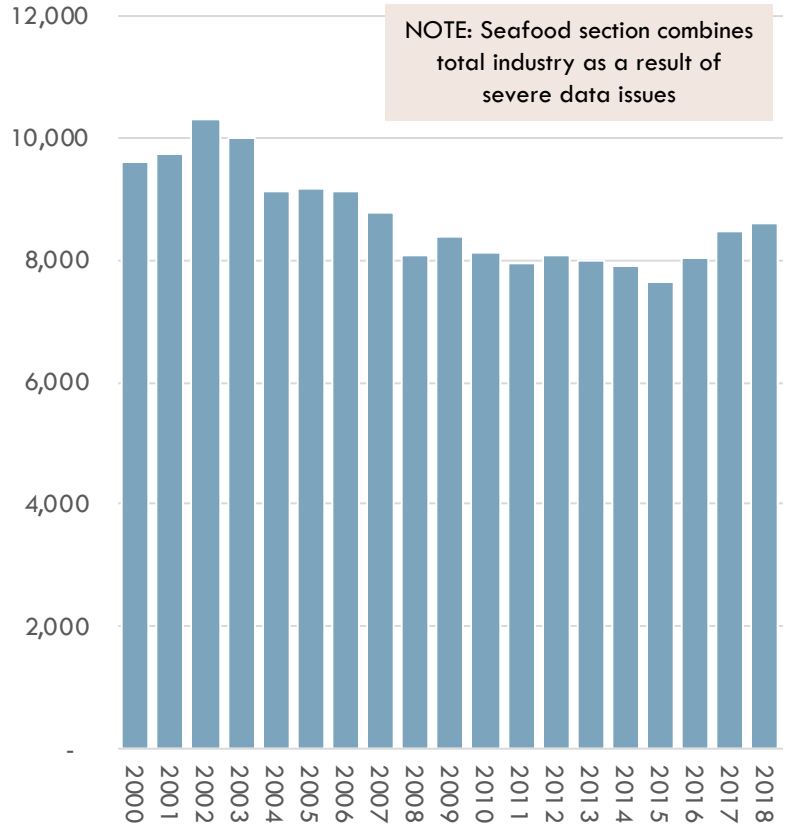
*4. **Seafood** is unlikely to create new jobs without new aquaculture coming into production*

- Seafood production & processing employment in New Zealand is concentrated in key regions and overall employment is falling
- Seafood is creating jobs in some regions, but not others; job losses in Nelson/Tasman are the standout
- New Zealand has an abundance of coastline spread across all regions; however, only Nelson/Tasman and Canterbury stand out as creating significant seafood jobs from their coastline
- Realised production of wild capture per kilometre of coastline has been falling and aquaculture has stalled
- New Zealand achieves a moderate wild catch per kilometre of coastline relative to many peers
- New Zealand has clear potential to produce more aquaculture
- NZ seafood industry jobs per kilometre of coastline is lower than European peers supporting the potential for employment growth; if New Zealand could match any peer, significant new jobs would result
- Two broad opportunities to drive growth in seafood are highlighted: (1) Salmon and (2) Region Suitable Aquaculture (e.g. opportunity for inland acquaculture on rough coasts)

Seafood production & processing employment in New Zealand is concentrated in key regions and overall employment is falling

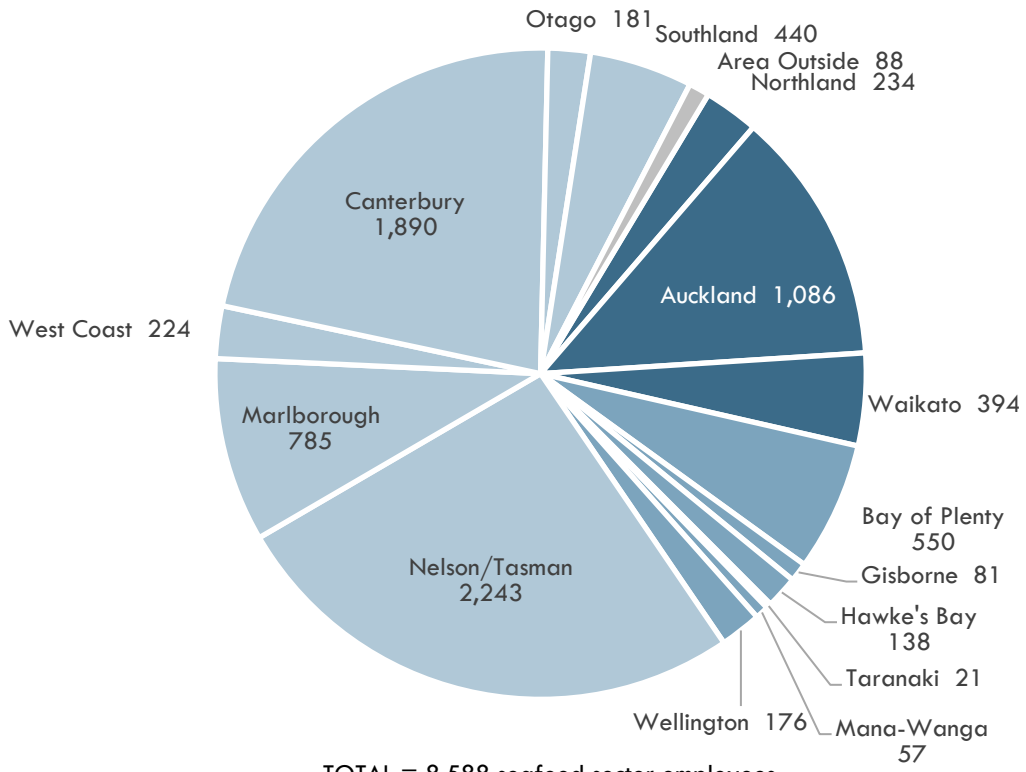
TOTAL SEAFOOD SECTOR EMPLOYMENT

Headcount; 2000-2018



SEAFOOD SECTOR JOBS BY REGION

Headcount; 2018

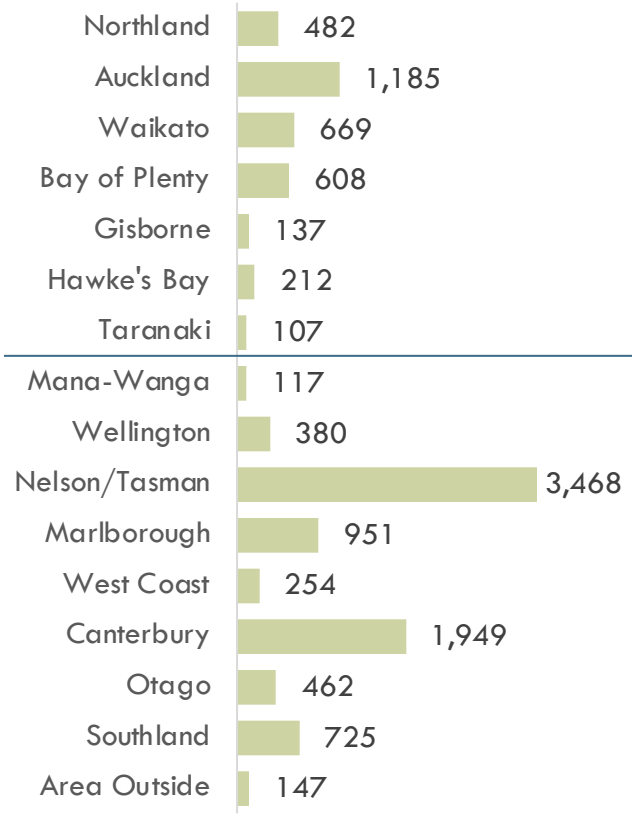


TOTAL = 8,588 seafood sector employees

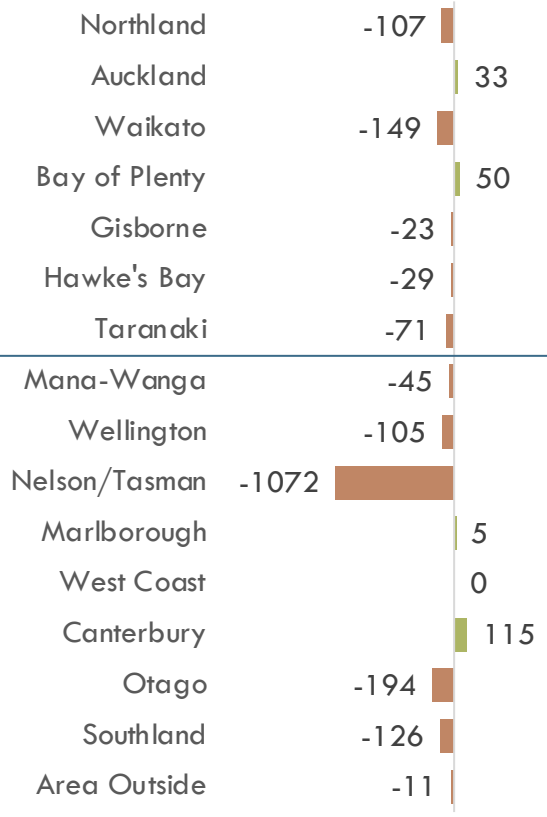
Source: Statistics NZ; Coriolis analysis

Seafood is creating jobs in some regions, but not others; job losses in Nelson/Tasman are the standout

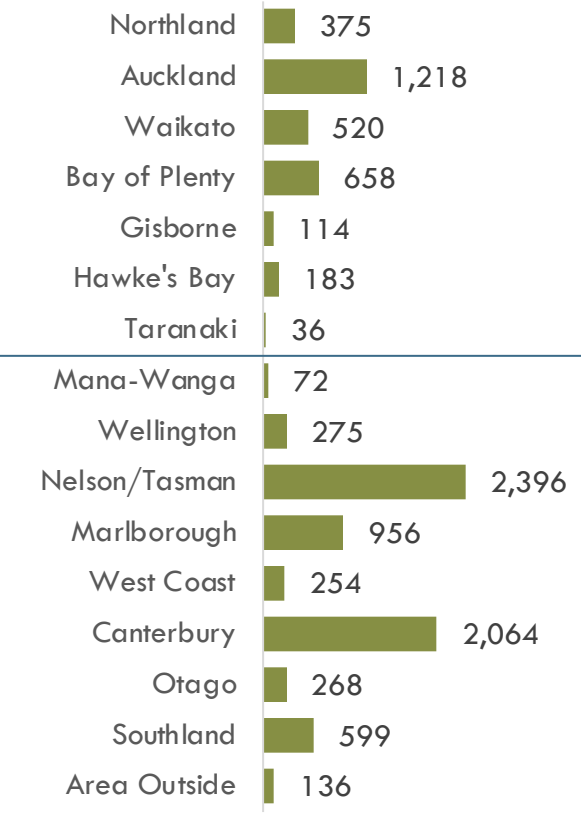
EMPLOYMENT 2000
Headcount; 2000



18Y CHANGE
Headcount; 00vs18



EMPLOYMENT 2018
Headcount; 2018

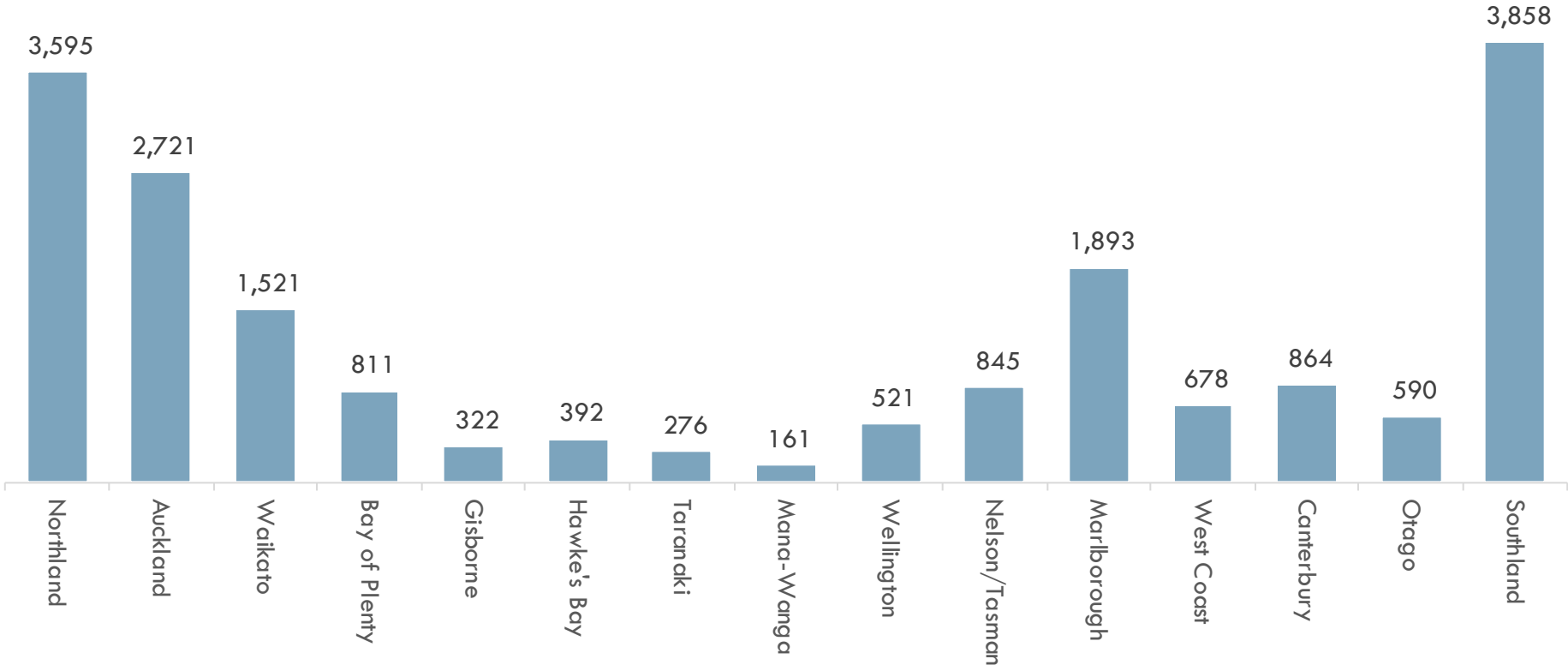


Note: Area Outside = at sea; Source: Statistics NZ; UN FAO; MAF/MPI; Coriolis analysis

New Zealand has an abundance of coastline spread across all regions

COASTLINE BY REGION

Km; 2019

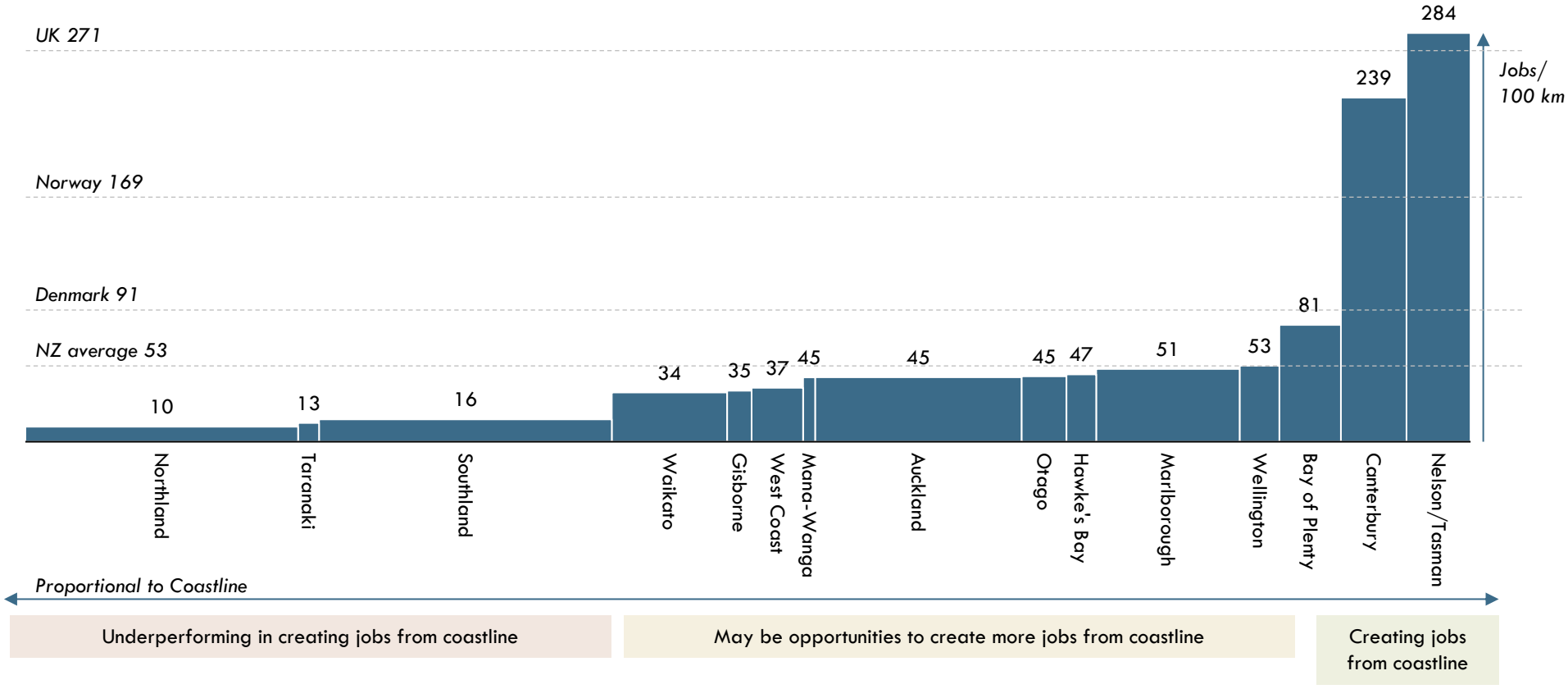


Note: May not be comparable to other sources, but uses common measure (polygon size) across all regions; Source: LINZ dataset; Statistics NZ; Coriolis analysis

Only Nelson/Tasman and Canterbury stand out as creating significant seafood jobs from their coastline

TOTAL SEAFOOD INDUSTRY EMPLOYMENT PER KILOMETRE OF COASTLINE

Headcount/100 km; 2018

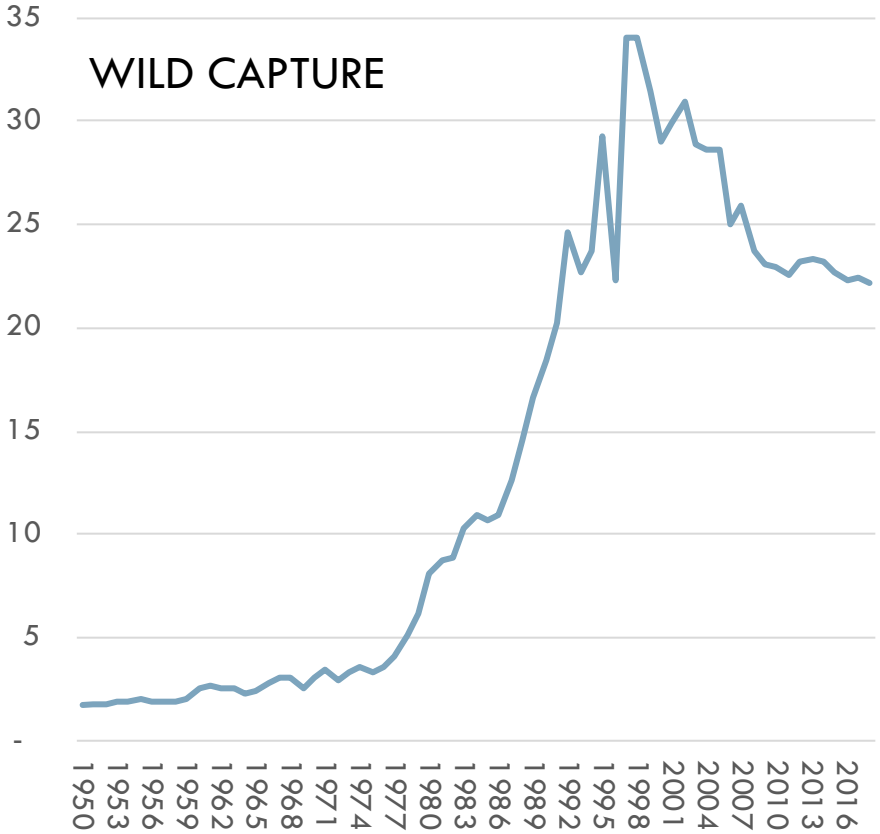


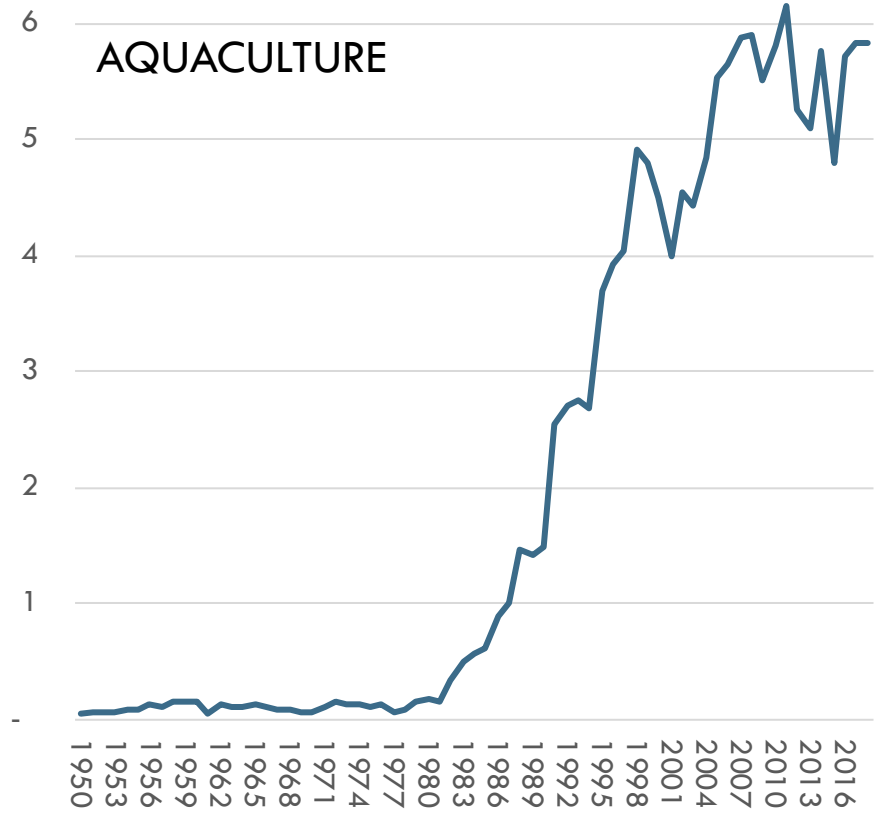
Source: Statistics NZ; Coriolis analysis

Realised production of wild capture per kilometre of coastline has been falling and aquaculture has stalled

LANDED TONNES PER KM COASTLINE

T/km; 1950-2018



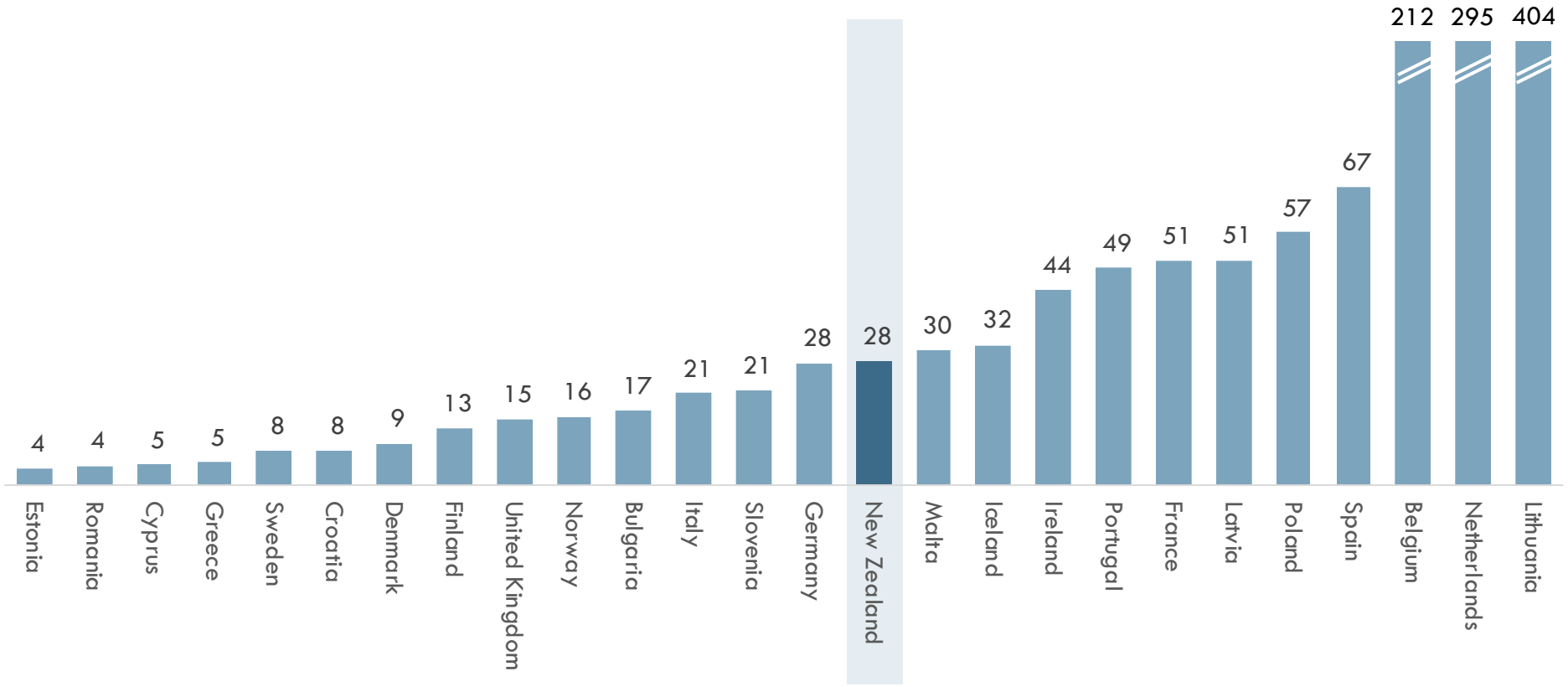


Source: UN FishStat; Statistics NZ; MPI/MAF/MoF; Coriolis analysis

New Zealand achieves a moderate wild catch per kilometre of coastline relative to many peers

LANDED WILD CATCH PER KILOMETRE OF COASTLINE: NZ VS EUROPE

T/km; 2018 or as available

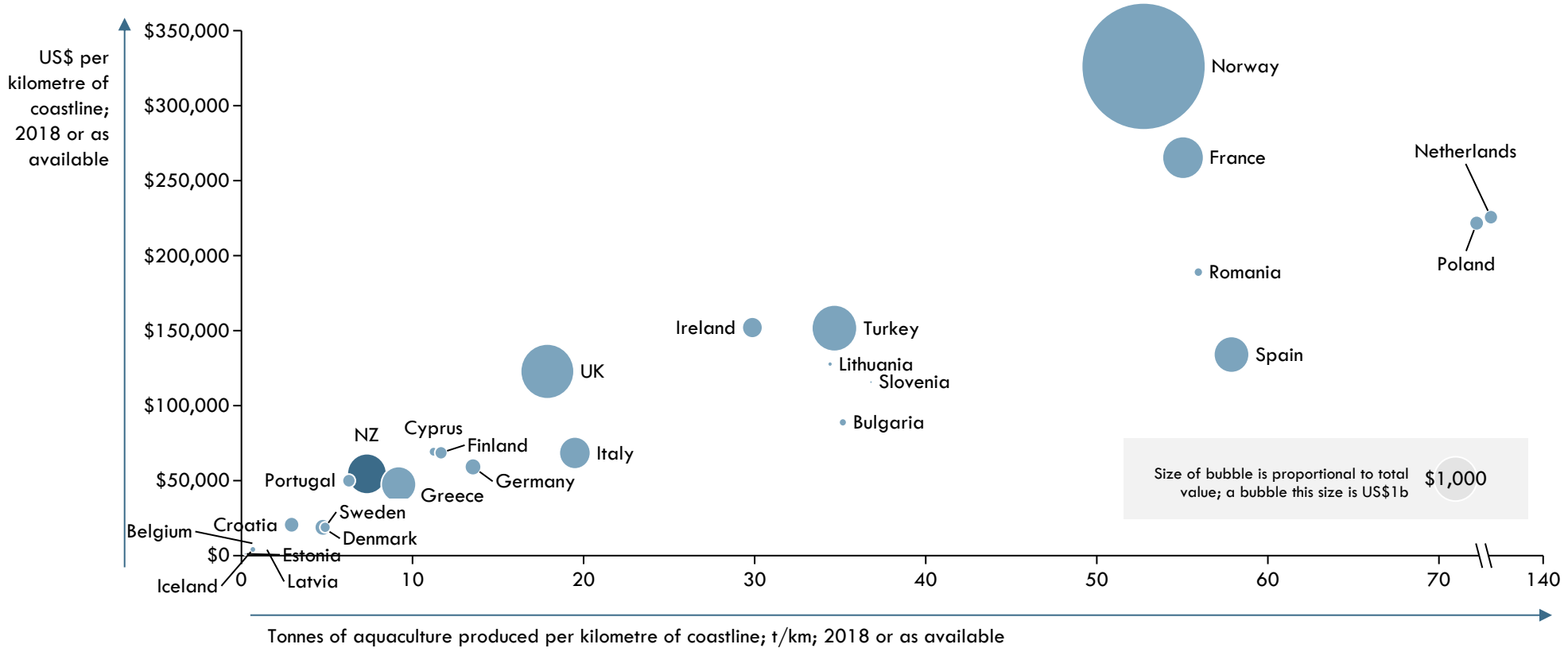


Source: UN FAO FishStat; Eurostat; MPI; CIA World Fact Book; Coriolis analysis

New Zealand has clear potential to produce more aquaculture

MATRIX: TONNES/KILOMETRE VS DOLLARS/KILOMETRE VS TOTAL INDUSTRY VALUE

T/km (actual); US$/km (actual); total US$m; 2018 or as available

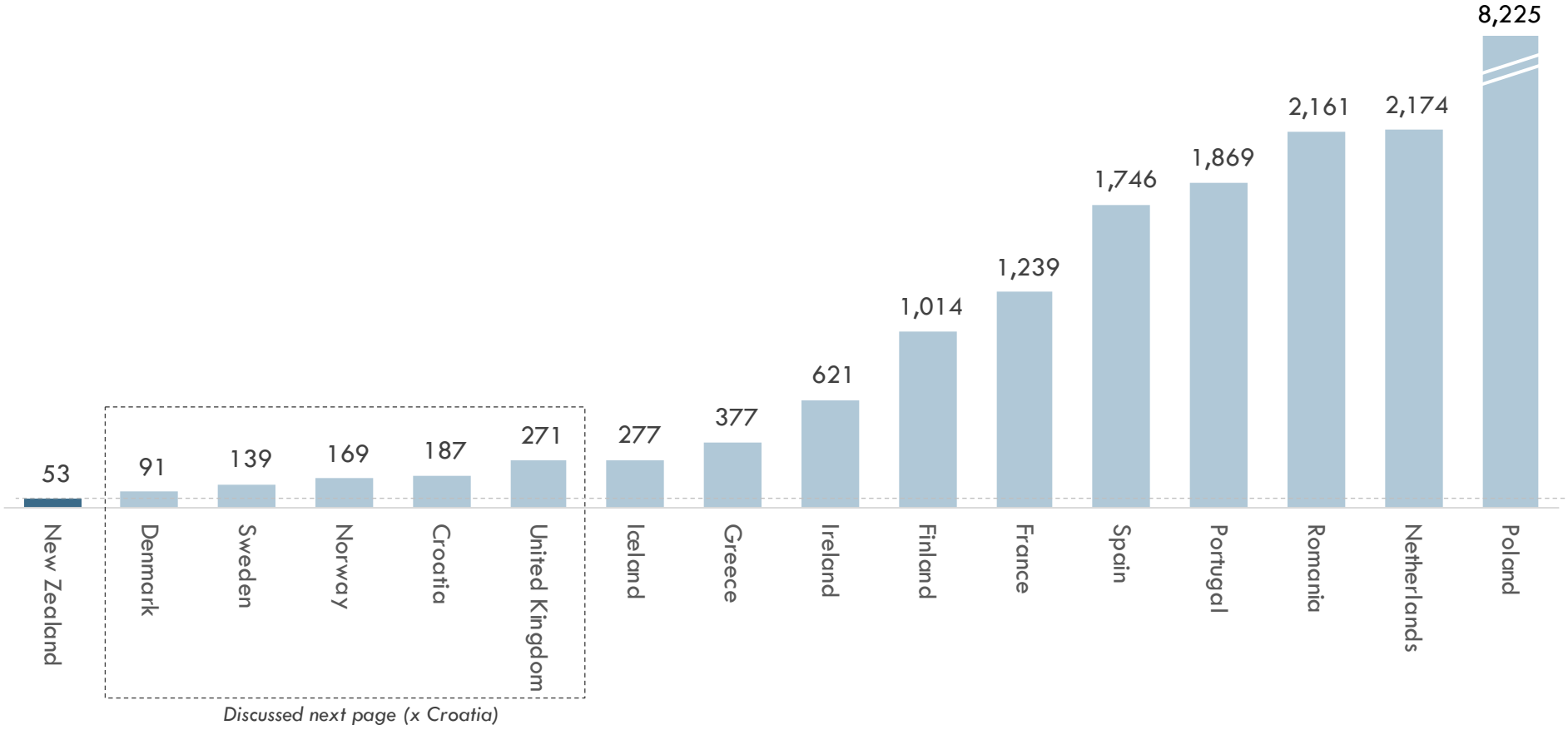


Source: UN FAO FishStat; Eurostat; MPI; CIA World Fact Book; Coriolis analysis

NZ seafood industry jobs per kilometre of coastline is lower than European peers supporting the potential for employment growth

FISHING/AQUACULTURE/PROCESSING SEAFOOD INDUSTRY EMPLOYMENT PER KM

Headcount/km; 2018 or as available

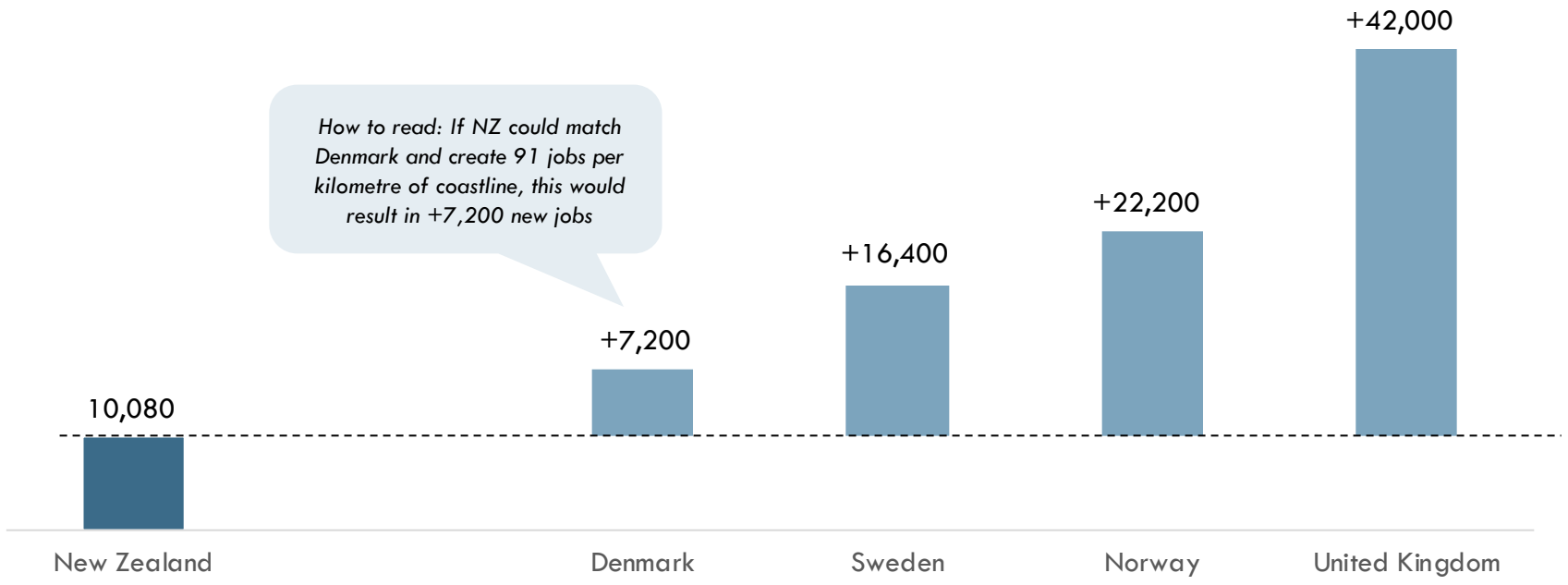


Note: New Zealand total includes wholesale but other do not; Source: UN FAO FishStat; Eurostat; MPI; CIA World Fact Book; Coriolis analysis

If New Zealand could match any peer, significant new jobs would result

MODEL: NUMBER OF JOBS CREATED IF NZ COULD MATCH PERFORMANCE OF…

Headcount; 2018 versus modelled potential



	New Zealand	Denmark	Sweden	Norway	United Kingdom
Seafood jobs per kilometre of coastline	*53*	*91*	*139*	*169*	*271*

Note: New Zealand total includes wholesale but other do not; Denmark excludes Greenland and Faroe Is. data (cf. Kingdom of Denmark); Source: UN FAO FishStat; Eurostat; MPI; CIA World Fact Book; Coriolis analysis

Two broad opportunities to drive growth in seafood are highlighted: (1) Salmon and (2) Region Suitable Aquaculture

1

ATLANTIC & PACIFIC SALMON

- 41% of NZ peers[1] produced Atlantic salmon (2015)
- Global trade $15.1b in 2015
- Capabilities in salmon farming
- High quality omegas and oils

2

IDENTIFY REGION SUITABLE AQUACULTURE

- Opportunity to develop aquaculture beyond mussels, oysters and salmon
- Extensive coastline (10th longest in the world)
- Aquaculture global growth story vs wild

1. Defined as North America, EU, Japan, Chile, Argentina, South Africa, Australia; Photo credit: various firms or fair use; low resolution; complete product/brand for illustrative purposes; Source: Coriolis estimates

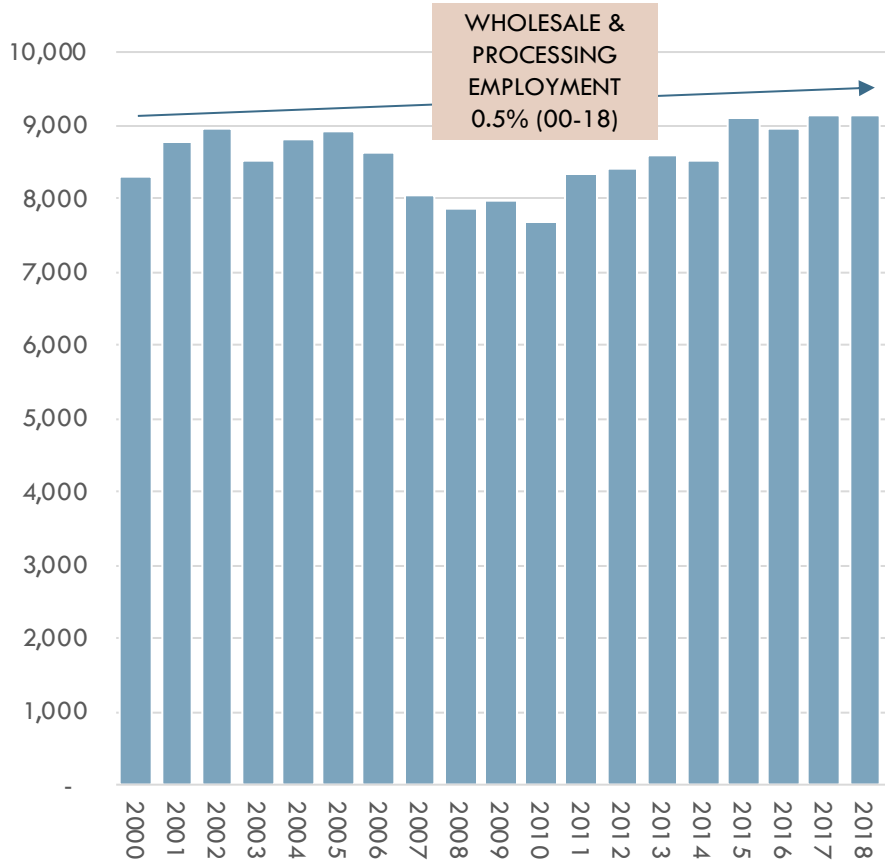
*5. **Produce wholesaling & processing** is unlikely to create new jobs without significant new land coming into production*

- New Zealand F&V processors/wholesalers are creating modest numbers of new jobs and jobs are spread across all regions
- Mild overall employment growth masks regional shifts, with the Upper North Island leading growth and many others declining
- New Zealand turns its abundant fruit and vegetables into few processing jobs, particularly relative to major US regions
- There is a clear case that all regions of New Zealand can increase area in fruit and vegetables
- Eight broad opportunities to drive growth in the fruit, nut and vegetable industry are highlighted

New Zealand F&V processors/wholesalers are creating modest numbers of new jobs and jobs are spread across all regions

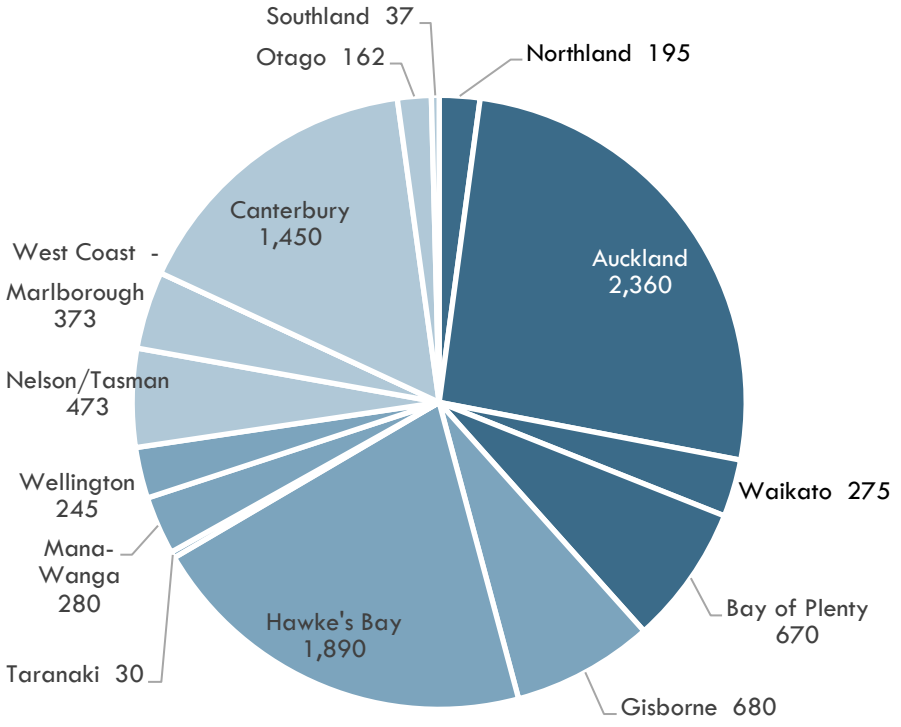
F&V PROC/WHLS EMPLOYMENT

Headcount; 2000-2018



F&V PROC/WHLS EMPLOYMENT

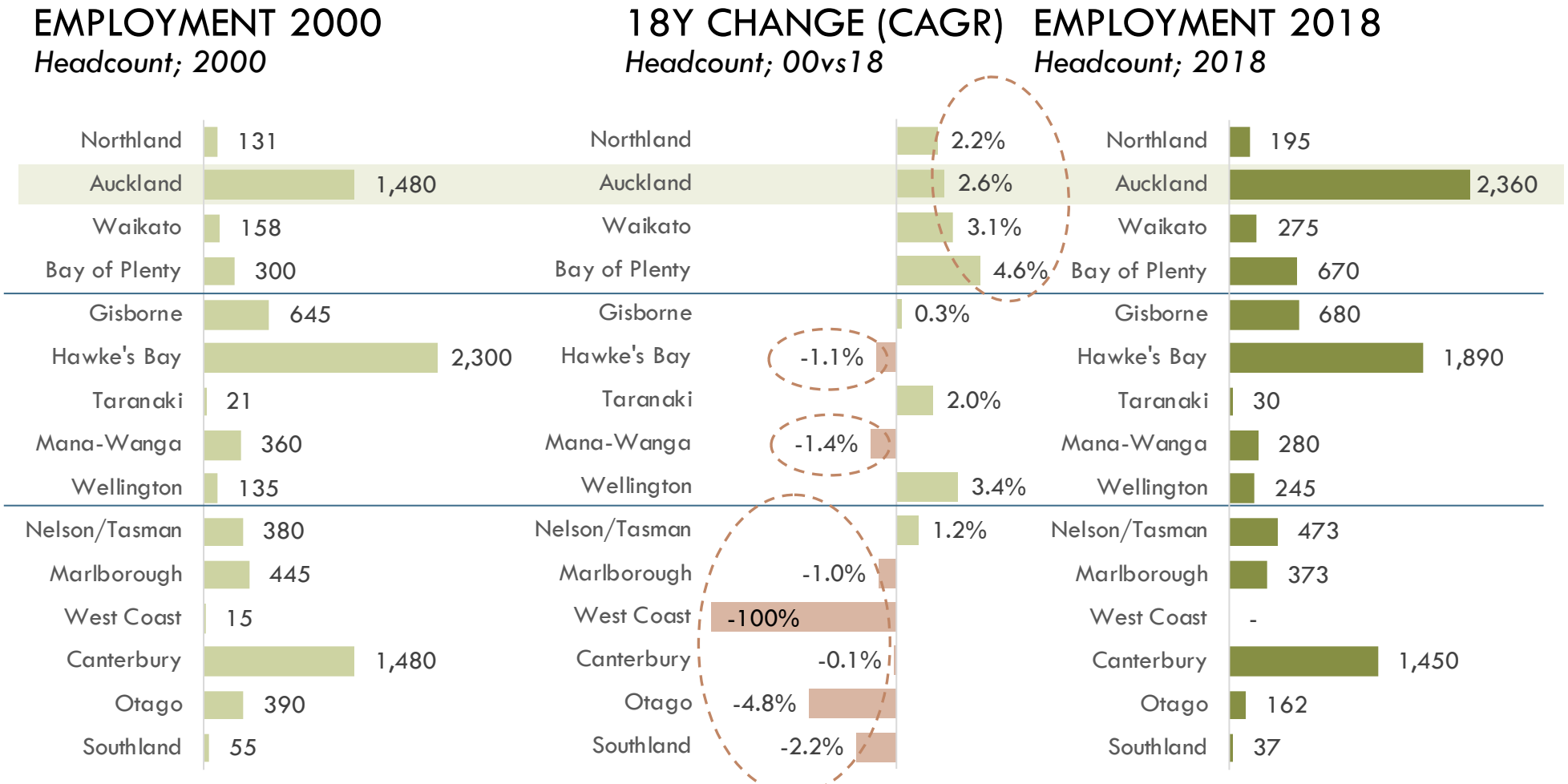
Headcount; 2018



TOTAL = 9,120 employees

Source: Statistics NZ; Coriolis analysis

Mild overall employment growth masks regional shifts, with the Upper North Island leading growth and many others declining

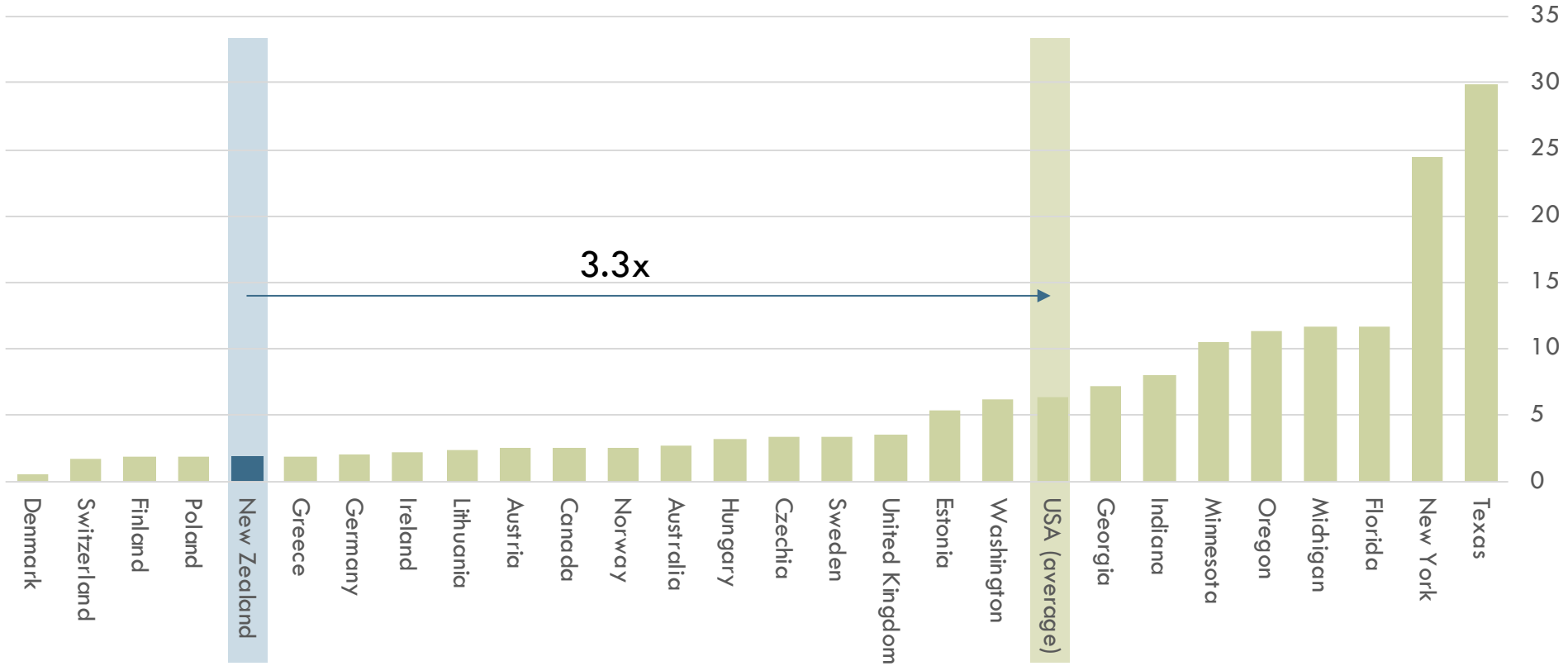


Source: Statistics NZ; UN FAO; MAF/MPI; Coriolis analysis

New Zealand turns its abundant fruit and vegetables into few processing jobs, particularly relative to major US regions

PROCESSING EMPLOYMENT PER 1,000 TONNE OF F&V: NZ VS SELECT PEERS

Headcount/1,000t processed/handled; 2018 or as available

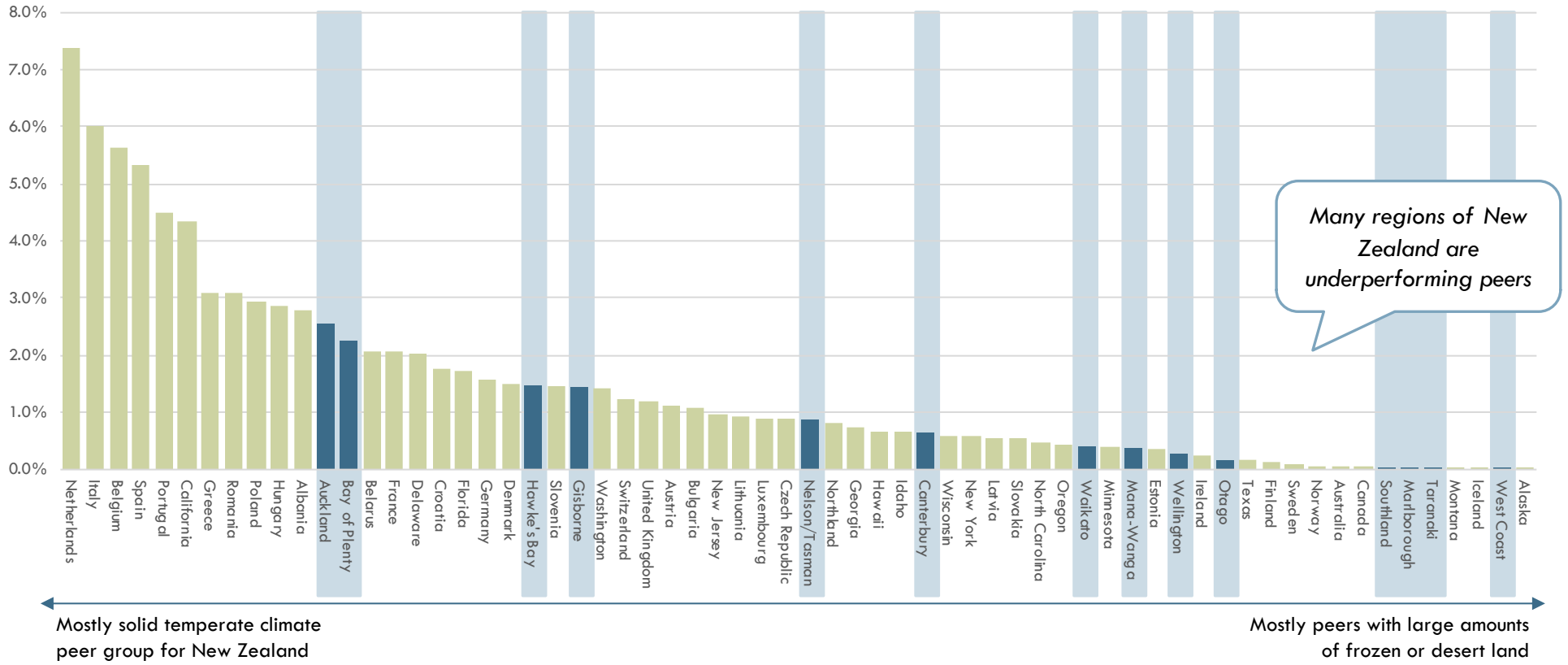


Note: This specific analysis excludes wholesaling for data availability reasons (comparing apples with apples); Source: UN FAO; USDA NASS; USDA Census of Agriculture; Eurostat; MPI; Coriolis analysis and classifications

There is a clear case that all regions of New Zealand can increase area in fruit and vegetables

SHARE OF TOTAL LAND AREA IN FRUIT & VEGETABLES

% of sq km; 2018 or as available



Source: UN FAO; USDA Census of Agriculture; Eurostat; OIV; CIA World Fact Book; Statistics NZ; Coriolis analysis

Three broad opportunities to drive growth in the vegetable industry are highlighted

1

UNDER COVER/ GLASSHOUSE

- Increase industry scale
- Attract new investment from Europe
- Target high value markets, particularly AU and developed Asia

2

ONIONS, POTATOES & OTHER ROOT CROPS

- New Zealand achieves world class yields
- Need to scale up and increase average farm sizes
- Targeting value added processed products for Asian markets

3

OTHER PROCESSING VEGETABLES

- Attract new investment
- Need to scale up and increase average farm sizes
- Targeting value added processed products for Asian markets

Photo credit: various firms or fair use; low resolution; complete product/brand for illustrative purposes; Source: Coriolis estimates

Five broad opportunities to drive growth in the fruit & nut industry are highlighted

4 NUTS*

- Huge growth in healthy foods and snacking categories
- High $/kilo*

5 APPLES

- Leverage market access and capabilities in apples
- #3 Southern Hemisphere producer
- Growth in new varieties

6 KIWIFRUIT

- Leverage market access and capabilities in kiwifruit
- #1 global exporter
- Strong export growth

7 AVOCADOS

- Significant growth in plantings/production
- Growth in global consumption
- Growth in NZ exports to AU and Asia
- Strong promotion of health benefits

8 CHERRIES, BERRIES & OTHER EMERGING FRUIT

- Significant growth in plantings/production
- Growth in global consumption
- Growth in NZ exports to AU and Asia
- Strong promotion of health benefits

**For more detail on nuts see 'What does Asia want for dinner' https://www.mbie.govt.nz/dmsdocument/2237-what-does-asia-want-for-dinner-part-1-pdf; Note: Jobs includes on-farm and processing; Photo credit: various firms or fair use; low resolution; complete product/brand for illustrative purposes; Source: Coriolis estimates*

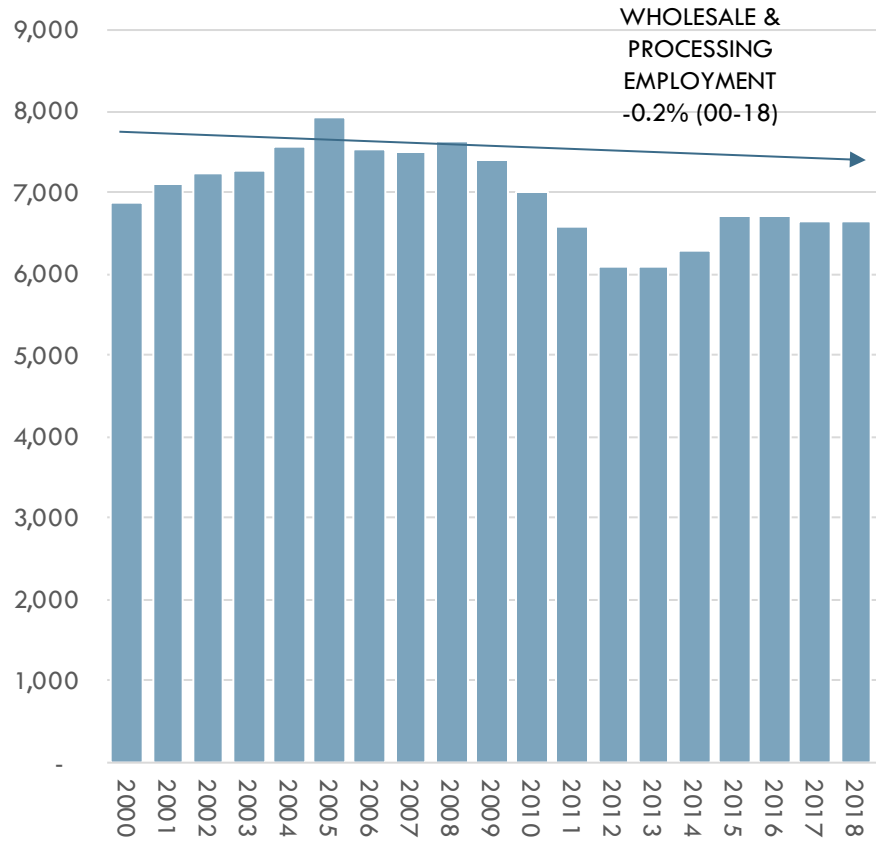
*6. **Grain processing & wholesaling** is unlikely to create significant new jobs going forward without developing new products*

- Grain processors/wholesalers jobs are predominantly in Auckland and Canterbury and employment is not growing
- Mild overall decline masks regional shifts, with Auckland, Canterbury and Otago growing jobs while all others are declining
- New Zealand is not obviously underperforming peers in turning area in market grains into grain-processing jobs
- Four broad opportunities to drive growth in the grain-based foods industry are highlighted

Grain processors/wholesalers jobs are predominantly in Auckland and Canterbury and employment is not growing

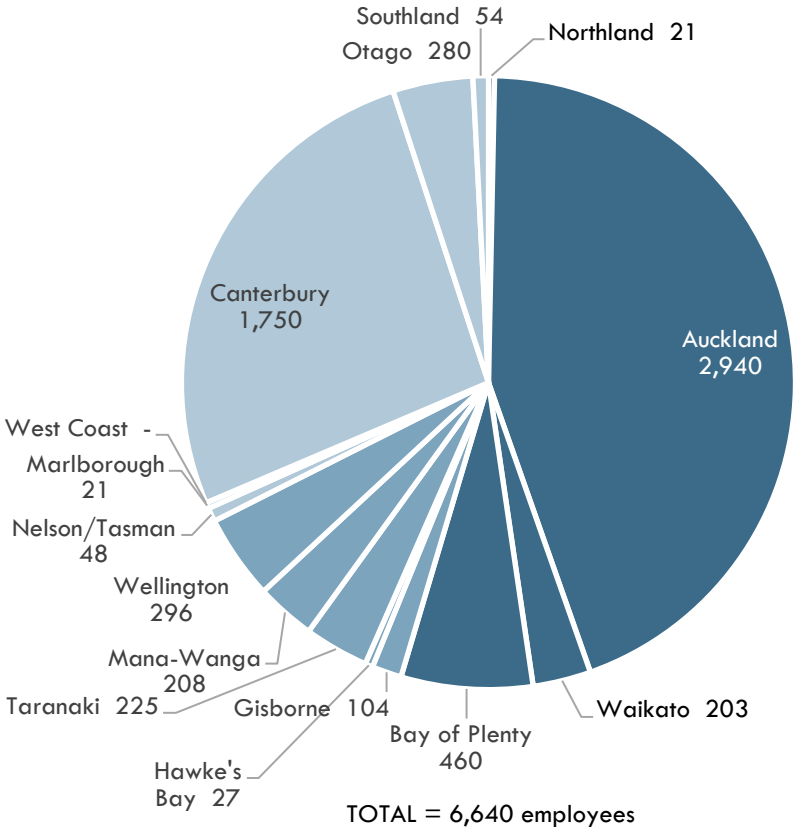
GRAIN PROC/WHLS EMPLOYMENT

Headcount; 2000-2018



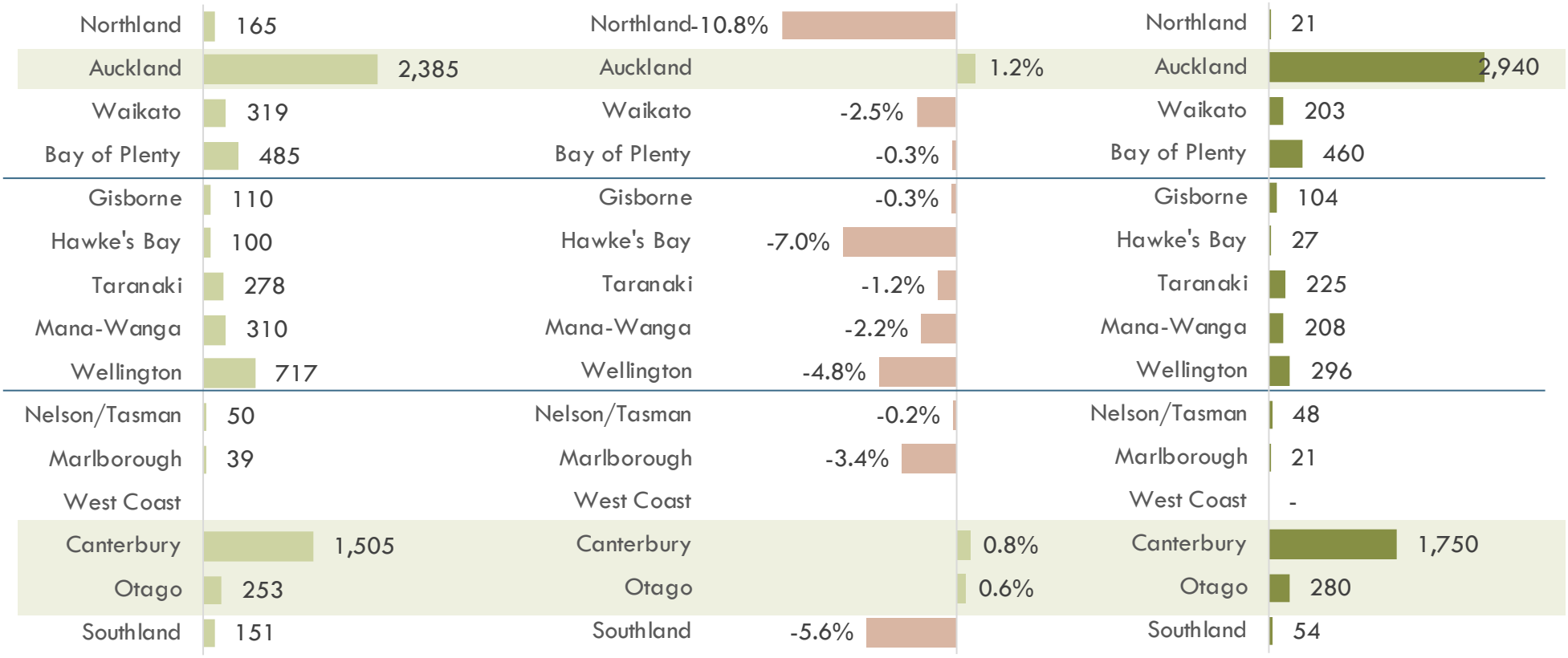
GRAIN PROC/WHLS EMPLOYMENT

Headcount; 2018



Source: Statistics NZ; Coriolis analysis

Mild overall decline masks regional shifts, with Auckland, Canterbury and Otago growing jobs while all others are declining

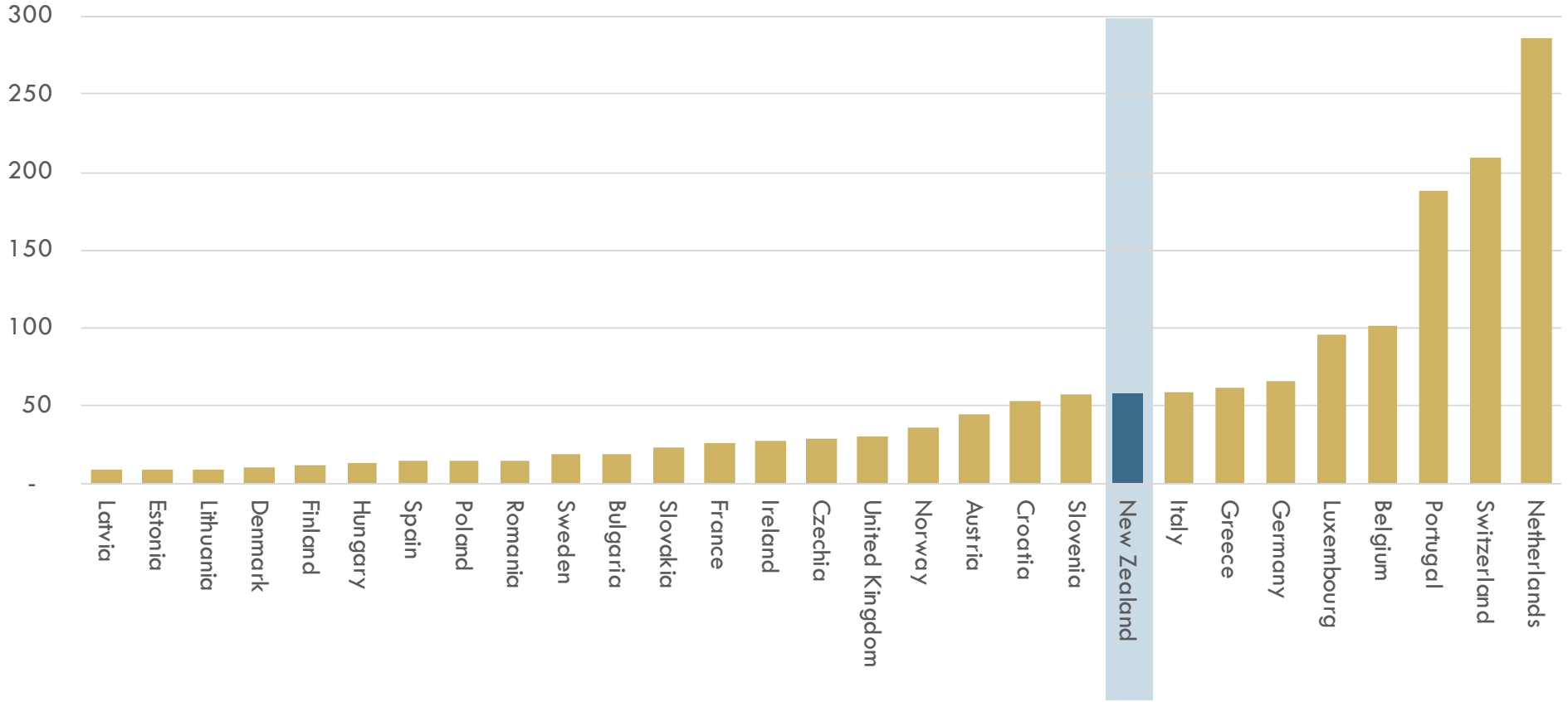


Source: Statistics NZ; UN FAO; MAF/MPI; Coriolis analysis

New Zealand is not obviously underperforming peers in turning area in market grains into grain-processing jobs

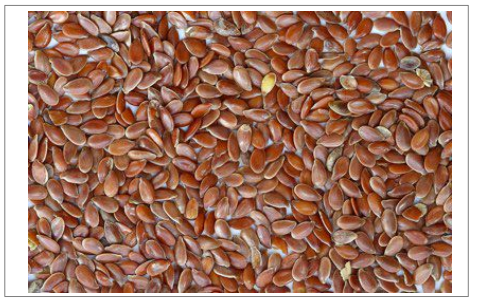
POST FARMGATE GRAIN-BASED PROCESSED FOOD JOBS PER HECTARE OF GRAINS*

Headcount/ha; 2018 or as available



*Uses grains and pulses (excludes fodder crops); Note: not adjusted for imports/exports (it is out of scope, but performance would be poorer if this was included); there is clearly further scope for import substitution; Source: Statistics NZ; UN FAO; MAF/MPI; Eurostat; Coriolis analysis

Four broad opportunities to drive growth in the grain-based foods industry are highlighted



1

HIGH DAIRY COMPONENT BAKED PRODUCTS

- Par-baked frozen categories growing

2

OAT 'MILK'

- Add value to existing and new oat crops

3

SEEDS

- Counter-seasonal clean seed production
- Climatically suited to wide range of crops (pasture, vegetable, grains, seed, forage)

4

HEMP (F&B USAGE)

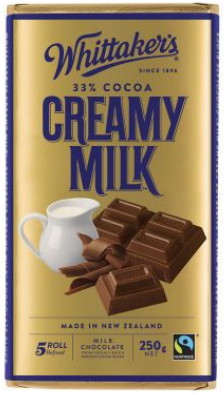
- Significant source of essential amino acids, omegas
- Growth in plant based proteins
- Leverage growing capabilities

Photo credit: various firms or fair use; low resolution; complete product/brand for illustrative purposes; Source: Coriolis estimates

*7. New Zealand can continue to grow employment in **processed foods** production*

- 'Processed foods' captures a wide range of products that are made from a combination of ingredients
- New Zealand has large and growing volumes of raw materials suitable for making processed foods
- New Zealand's food & beverage exports are currently still over-weighted to low value-added, unprocessed ingredients
  - However, New Zealand's exports of value-added processed foods and beverages are growing strongly long term
- Processed foods is creating jobs; however, jobs are currently concentrated in Auckland
- Employment growth varies by region; Northland, Hawke's Bay, Wellington and Nelson/Tasman achieving high growth rates
- Peers suggest New Zealand can create more processed foods jobs from its abundant raw materials
  - If New Zealand could match key peers, ~3,000 to 30,000 new jobs would result
- Four broad opportunities to drive growth in the processed foods industry are highlighted

'Processed foods' captures a wide range of products that are made from a combination of ingredients



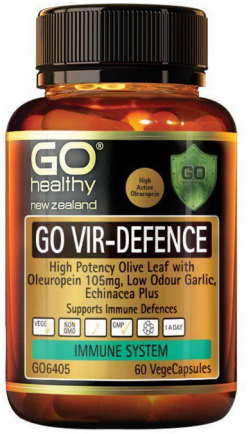
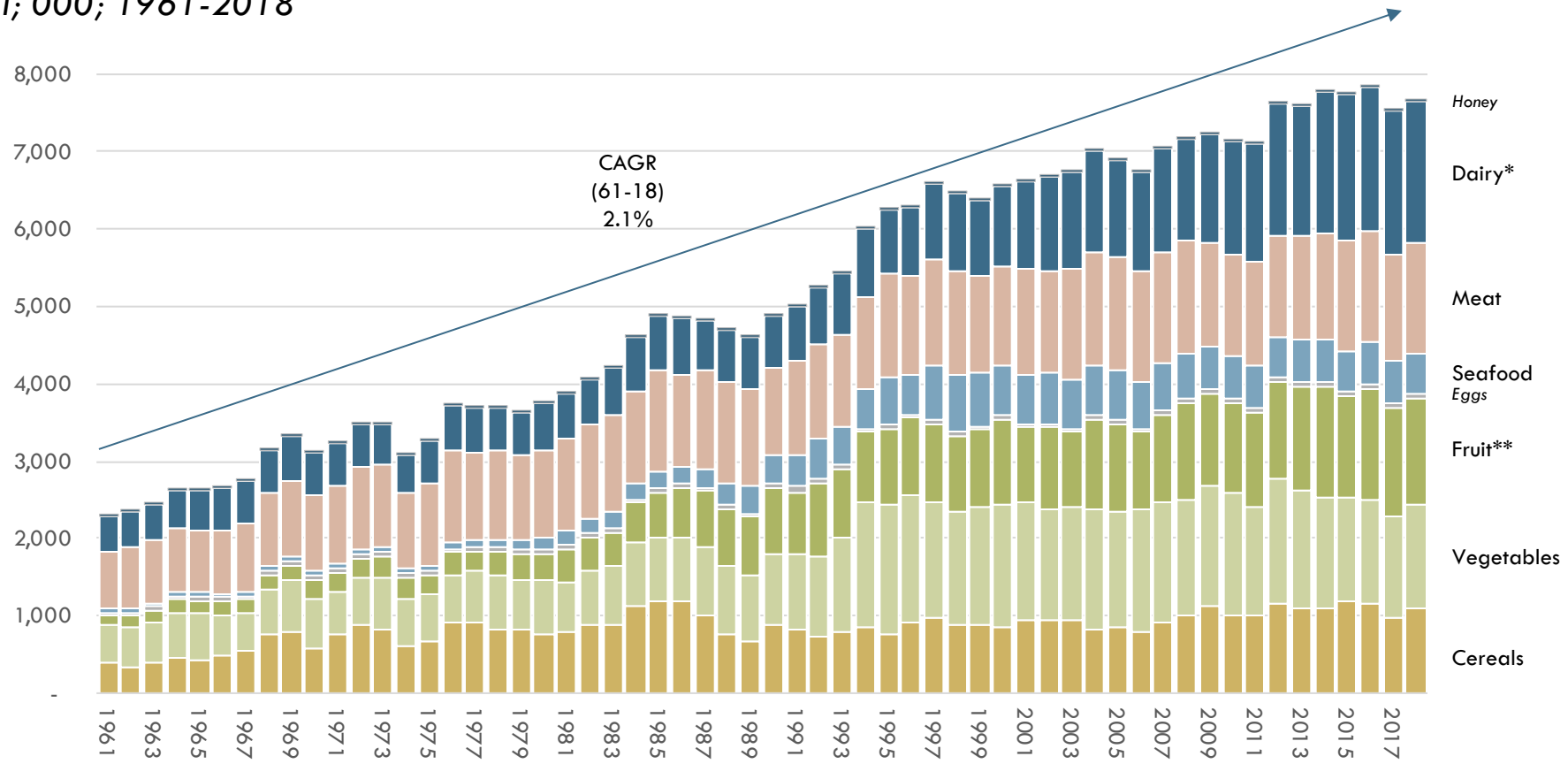


Photo credit: various firms or fair use; low resolution; complete product/brand for illustrative purposes; Source: Coriolis analysis

New Zealand has large and growing volumes of raw materials suitable for making processed foods

TOTAL NEW ZEALAND FOOD PRODUCTION VOLUME AT FARM GATE[1]

T; 000; 1961-2018

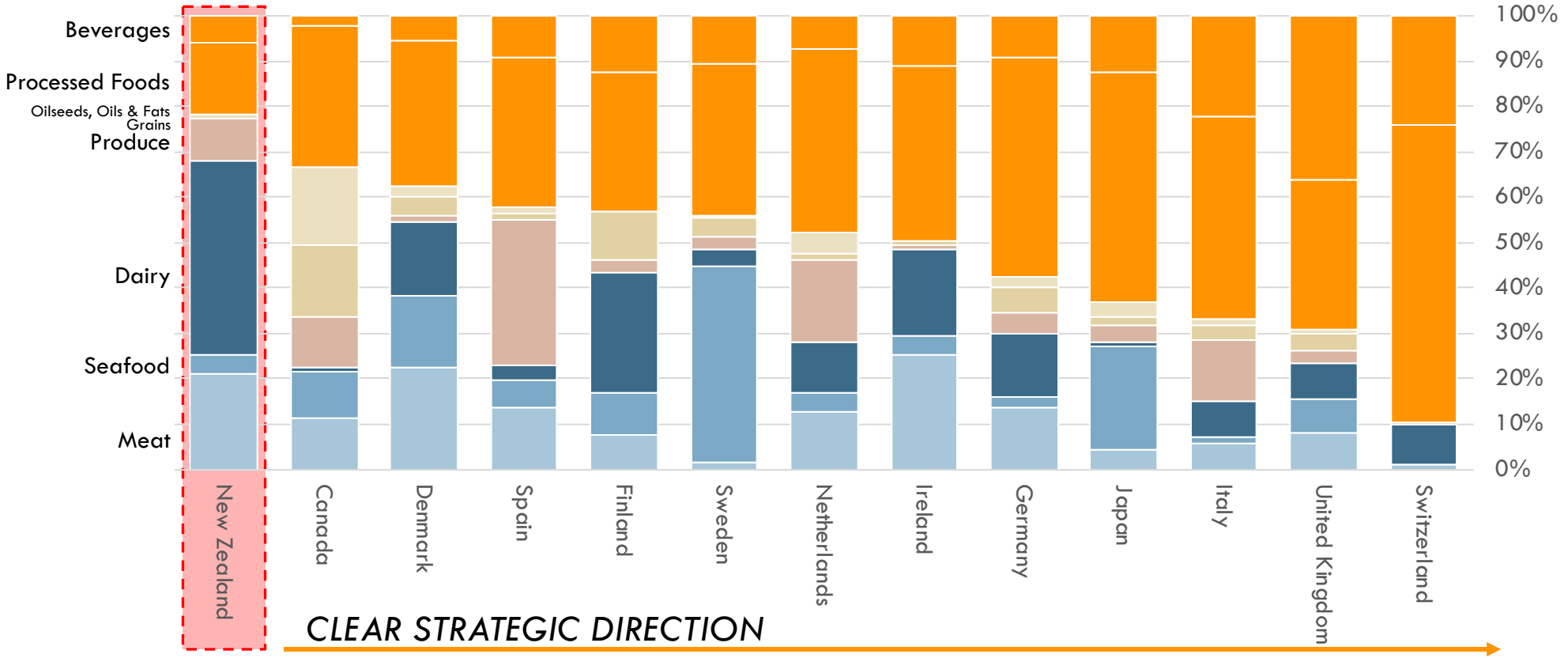


*1. Dockside for seafood production; *Milk is milk solids; meat is dressed but bone-in; seafood is green weight as reported; **Fruit includes wine grapes; honey line is thickened to make it visible;*
Source: United Nations FAOStat & FishStat; MAF/MPI; Coriolis analysis

New Zealand's food & beverage exports are currently still over-weighted to low value-added, unprocessed ingredients

AGRIFOOD EXPORTS VALUE SHARE BY SEGMENT: NZ VS OTHER RICH COUNTRIES

% of value; 2017

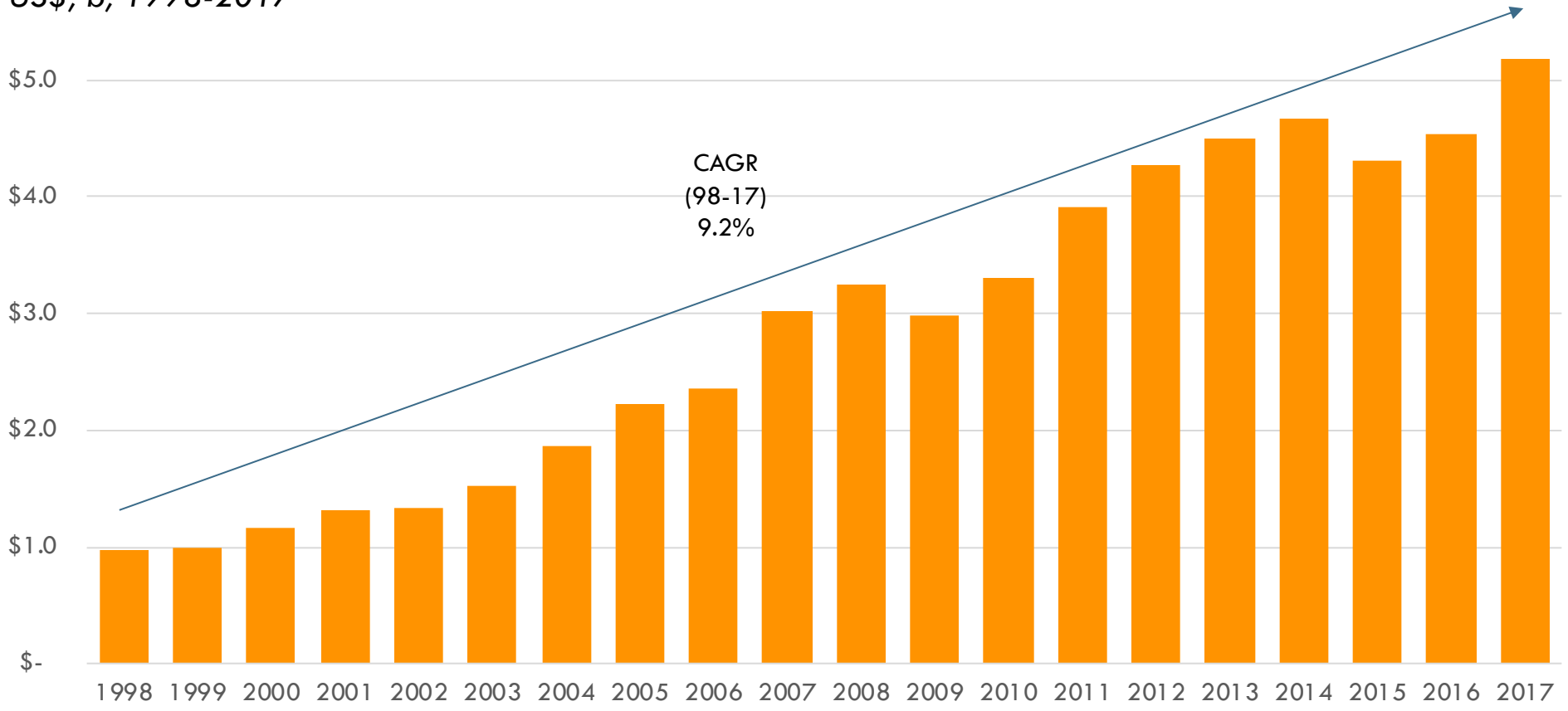


Source: UN Comtrade database; Coriolis classifications and analysis

However, New Zealand's exports of value-added processed foods and beverages are growing strongly long term

NEW ZEALAND VALUE-ADDED PROCESSED FOODS & BEVERAGE EXPORTS

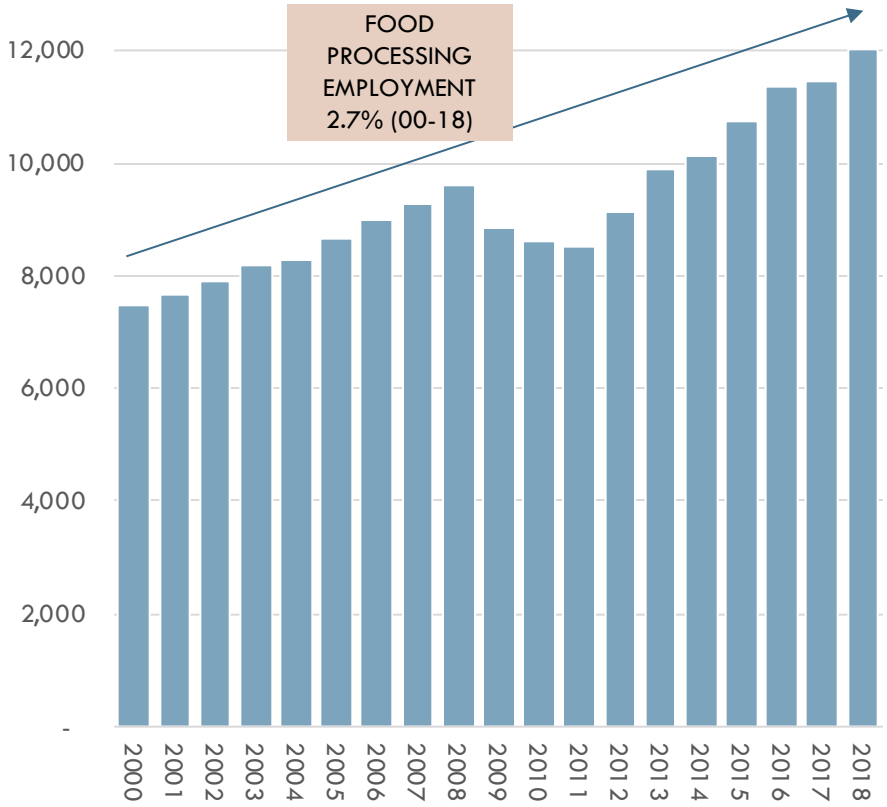
US$; b; 1998-2017



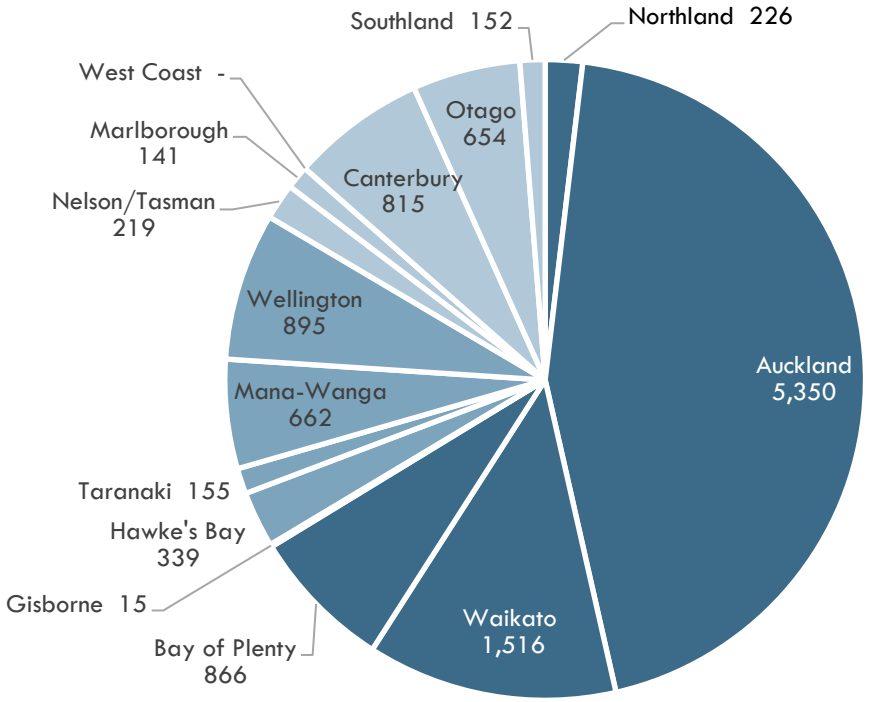
Source: UN Comtrade database; Coriolis classifications and analysis

Processed foods is creating jobs; however, jobs are currently concentrated in Auckland

PROCESSING EMPLOYMENT
Headcount; 2000-2018



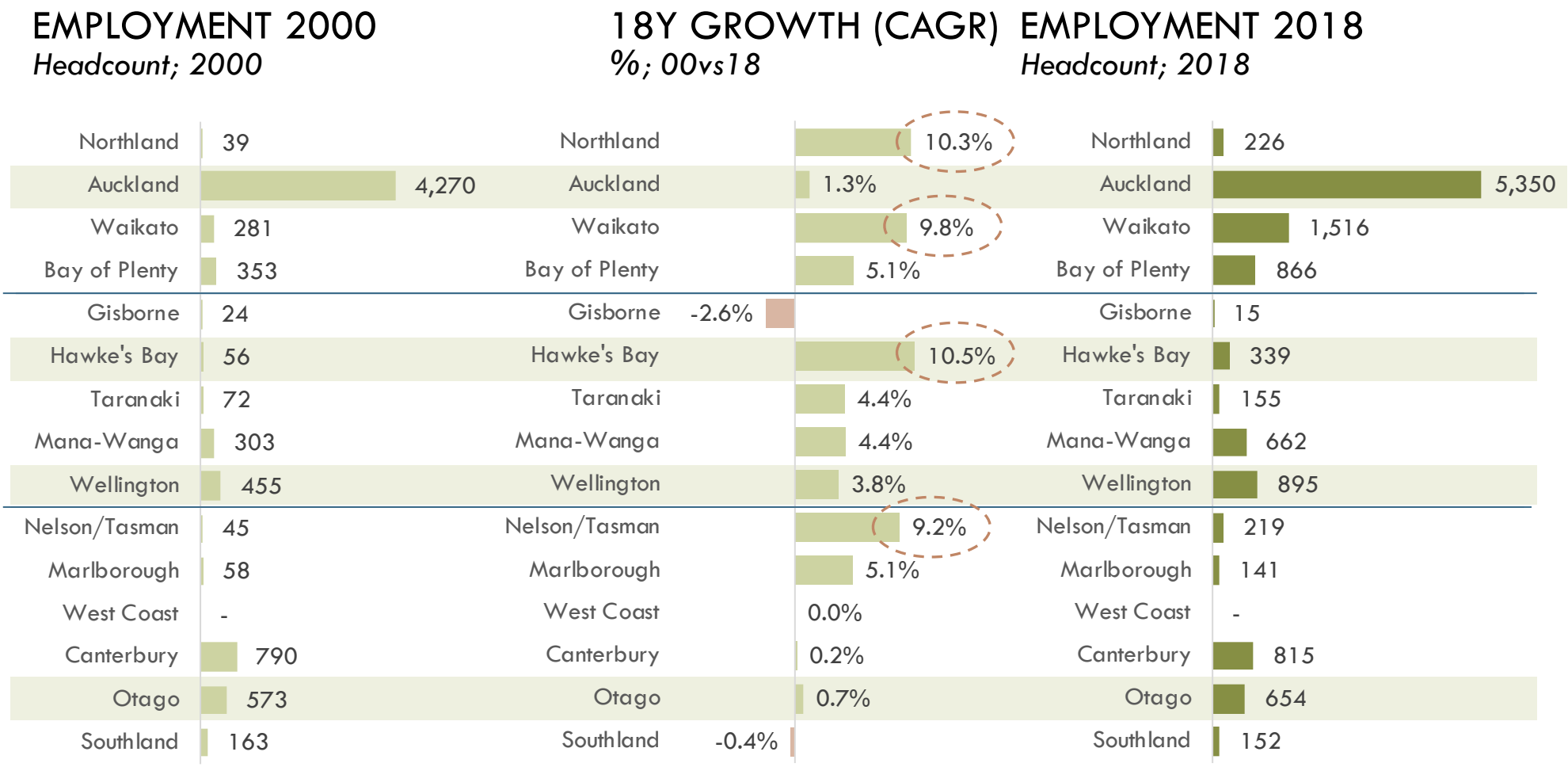
PROCESSING EMPLOYMENT
Headcount; 2018



TOTAL = 12,005 processed foods employees

Source: Statistics NZ; Coriolis analysis

Employment growth varies by region; Northland, Hawke's Bay, Wellington and Nelson/Tasman achieving high growth rates

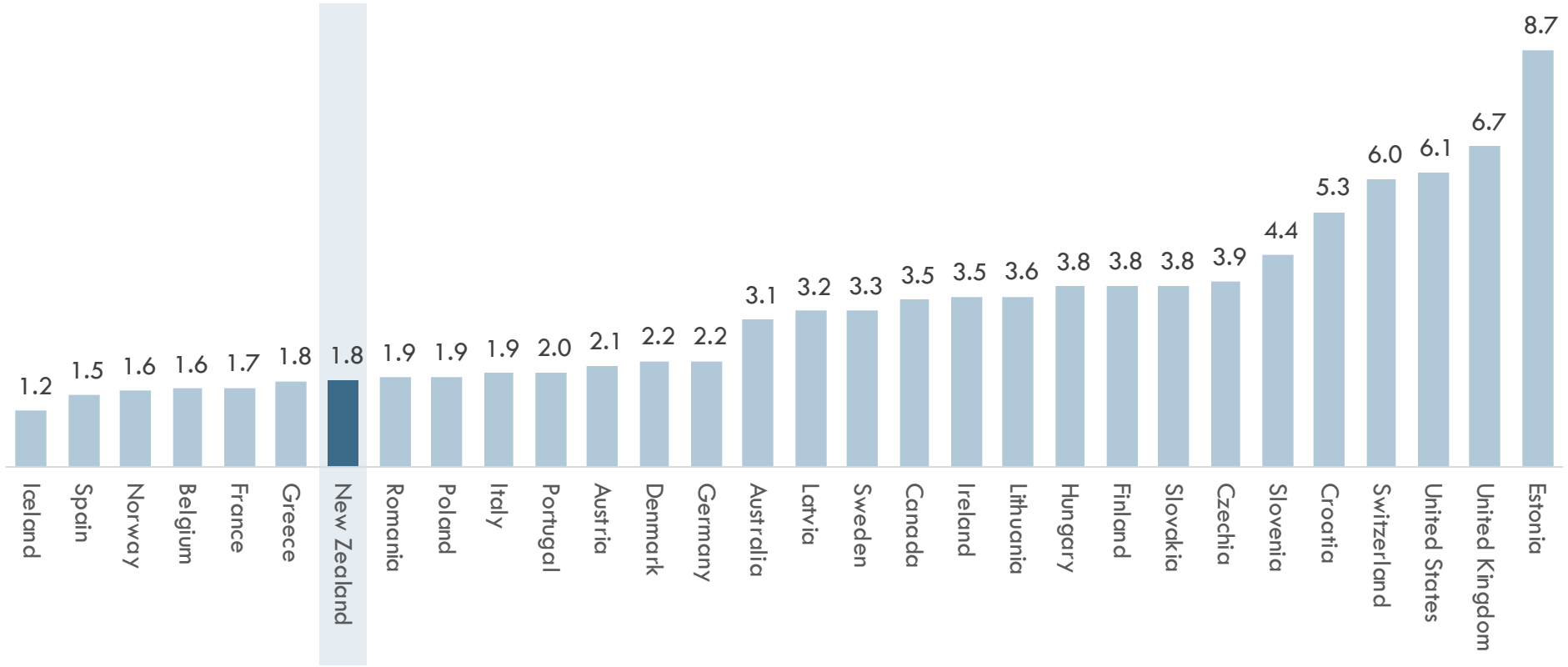


Source: Statistics NZ; UN FAO; MAF/MPI; Coriolis analysis

Peers suggest New Zealand can create more processed foods jobs from its abundant raw materials

PROCESSED FOODS JOBS PER 1,000 TONNE RAW MATERIALS*

Headcount/1,000t; 2018 or as available

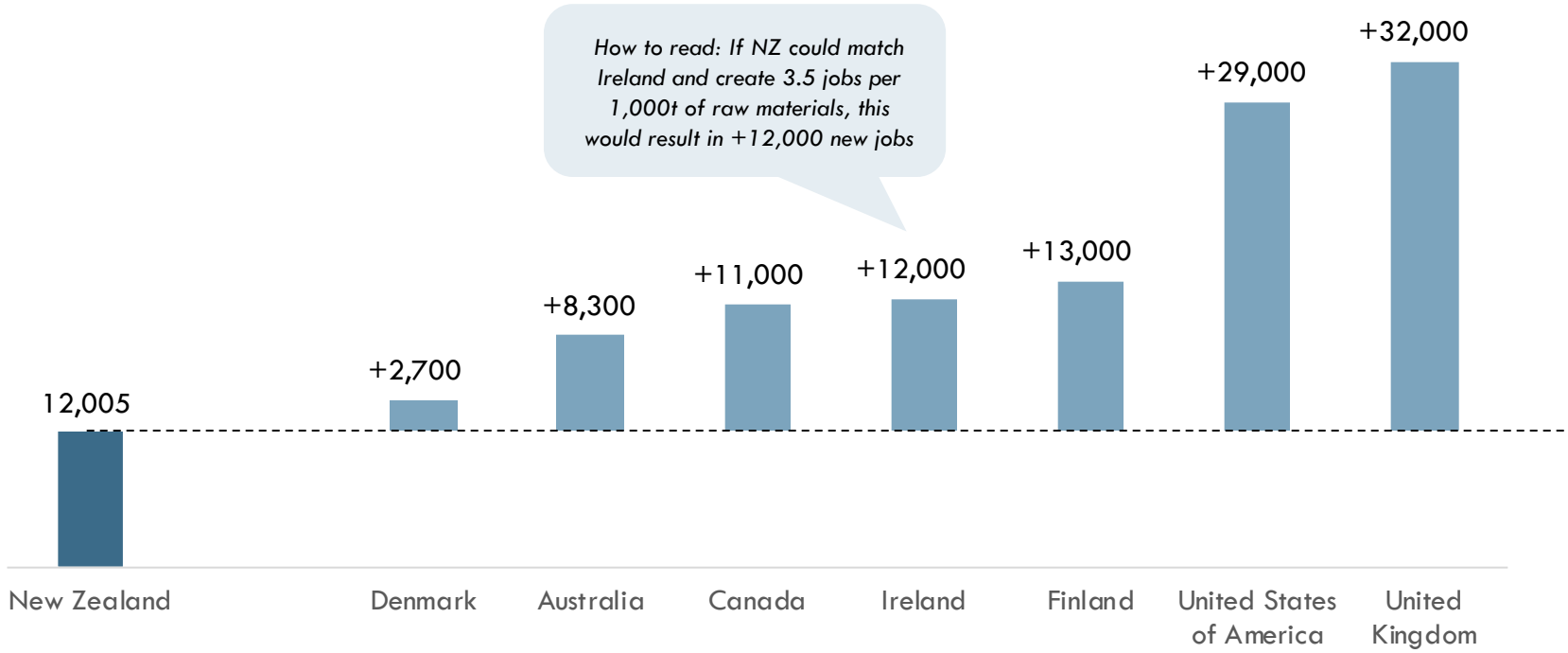


**Non-grain based (see previous section for grain); Source: UN FAO AgStat; UN FAO FishStat; Eurostat; Statistics Canada; US DOL; USDA NASS; Statistics NZ; Australian Bureau of Statistics; Coriolis classification and analysis*

If New Zealand could match key peers, ~3,000 to 30,000 new jobs would result

MODEL: NUMBER OF JOBS CREATED IF NZ COULD MATCH PERFORMANCE OF…

Headcount; 2018 versus modelled potential



	New Zealand	Denmark	Australia	Canada	Ireland	Finland	United States of America	United Kingdom
Processed food jobs per 1,000t raw materials	*1.8*	*2.2*	*3.1*	*3.5*	*3.5*	*3.8*	*6.1*	*6.7*

**Non-grain based (see previous section for grain); Source: UN FAO AgStat; UN FAO FishStat; Eurostat; Statistics Canada; US DOL; USDA NASS; Statistics NZ; Australian Bureau of Statistics; Coriolis classification and analysis*

Four broad opportunities to drive growth in the processed foods industry are highlighted

1

NUTRACEUTICALS

- High value product
- Leverages NZ capabilities and reputation
- Growing global demand

2

PET FOOD

- Leverages NZ reputation
- Premium consumers in key export markets
- High growth category
- Global Pet food category ~US$100b

3

CONFECTIONERY & SNACKS

- Leverages NZ capabilities and reputation
- Growth in convenient, portable, snacking categories
- Multiple added value options across multiple categories
- Global category +US$100b

4

NEW & INNOVATIVE FOODS*

- New products and categories that didn't previously exist
- Segment is demonstrating strong export driven growth
- Leveraging NZ innovation

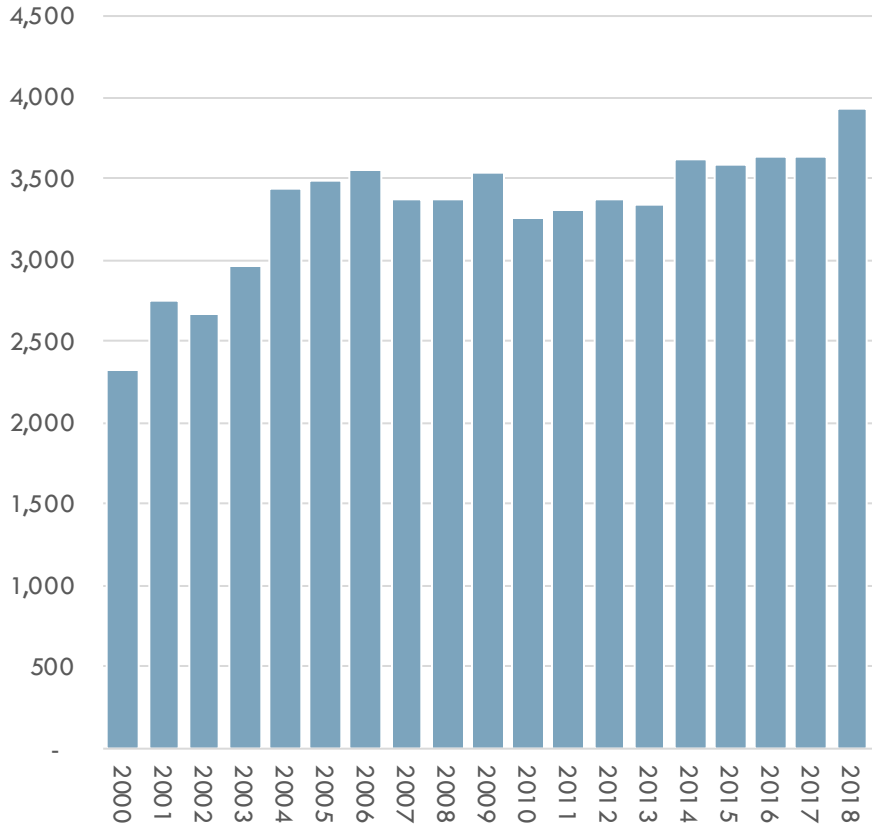
**Defined by Coriolis as global trade code HS210690 'Other Food Not Elsewhere Classified'; Photo credit: various firms or fair use; low resolution; complete product/brand for illustrative purposes; Source: Coriolis estimates*

*8. Creating employment growth in New Zealand **wine production** will require regions outside Marlborough to grow*

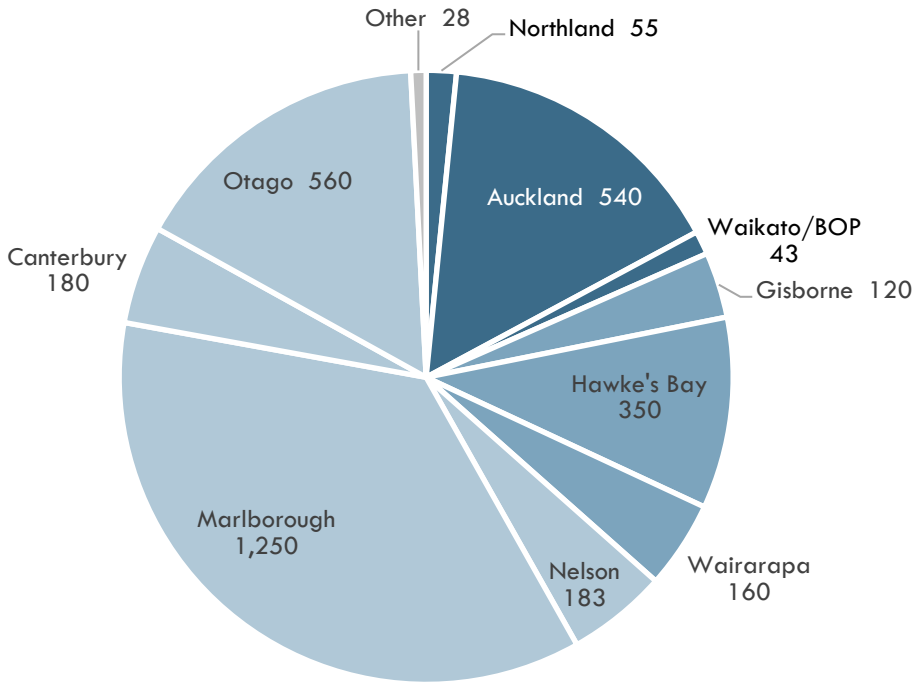
- New Zealand wineries are creating jobs and jobs are spread across key regions; however, only four regions – Marlborough, Auckland, Otago and Nelson – are creating significant new wine processing employment
- NZ is unlikely to squeeze more processing jobs out of each tonne of grapes; more jobs will need to come from more grapes
- Can New Zealand produce more wine grapes?
  - New Zealand regions vary in terms of the share of total area that is in wine grapes; only Marlborough (2.4%) stands out
  - Relative to other countries and regions, only Marlborough has wine grapes at a relatively high proportion of land area
  - New Zealand is growing wine grape production, though this been driven primarily by new land in Marlborough
  - New Zealand is overweighted to one wine region; older, more mature climatic peers have a more balanced portfolio of regions; when New Zealand balances its portfolio, significant new area will come into production
- Three broad opportunities to drive growth in the wine industry are highlighted

New Zealand wineries are creating jobs and jobs are spread across key regions

WINE PROCESSING EMPLOYMENT
Headcount; 2000-2018



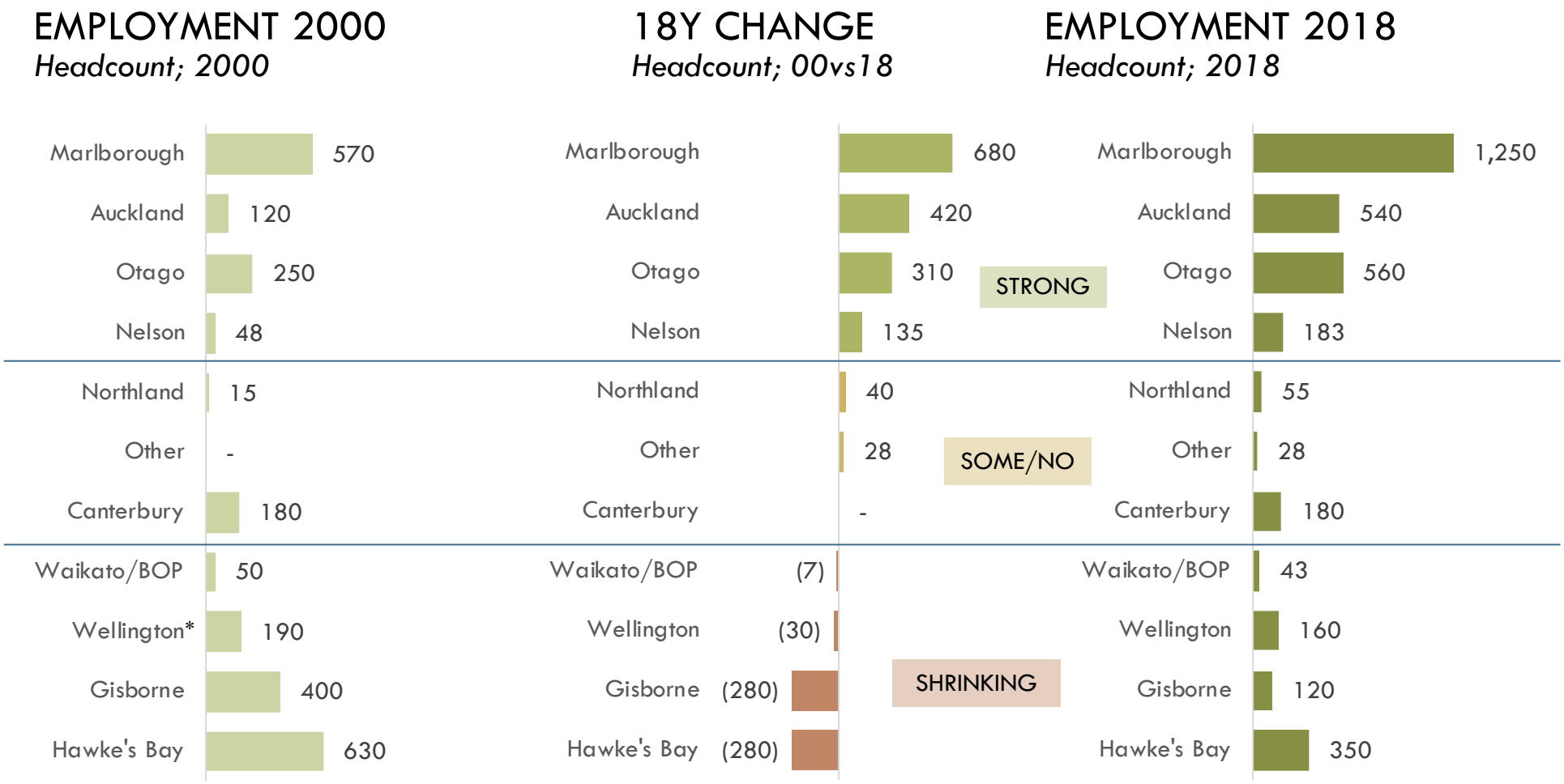
WINE PROCESSING EMPLOYMENT
Headcount; 2018



TOTAL = 3,469 wine processing employees

Source: Statistics NZ; Coriolis analysis

Only four regions – Marlborough, Auckland, Otago and Nelson – are creating significant new wine processing employment

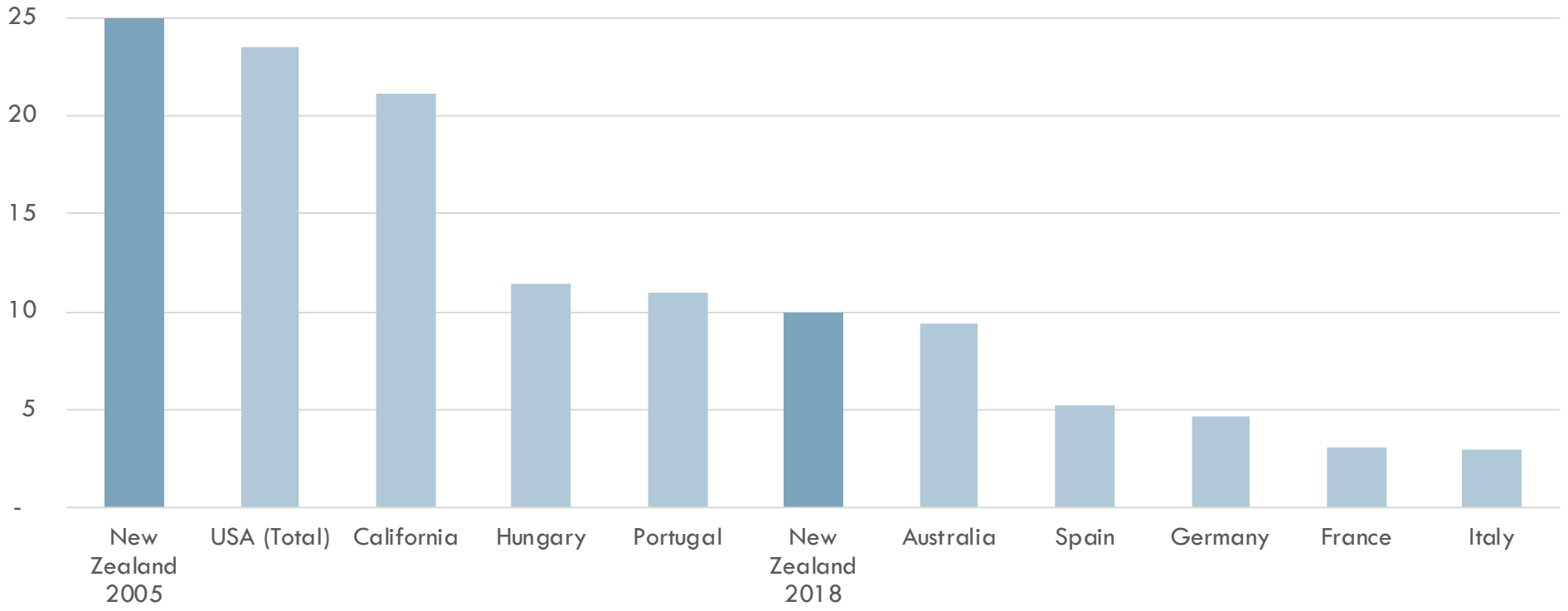


**Primarily in the Wairarapa; Source: Statistics NZ; UN FAO; MAF/MPI; Coriolis analysis*

NZ is unlikely to squeeze more processing jobs out of each tonne of grapes; more jobs will need to come from more grapes

WINERY EMPLOYMENT PER 1,000 TONNE OF GRAPES

Headcount/1,000t processed; 2018

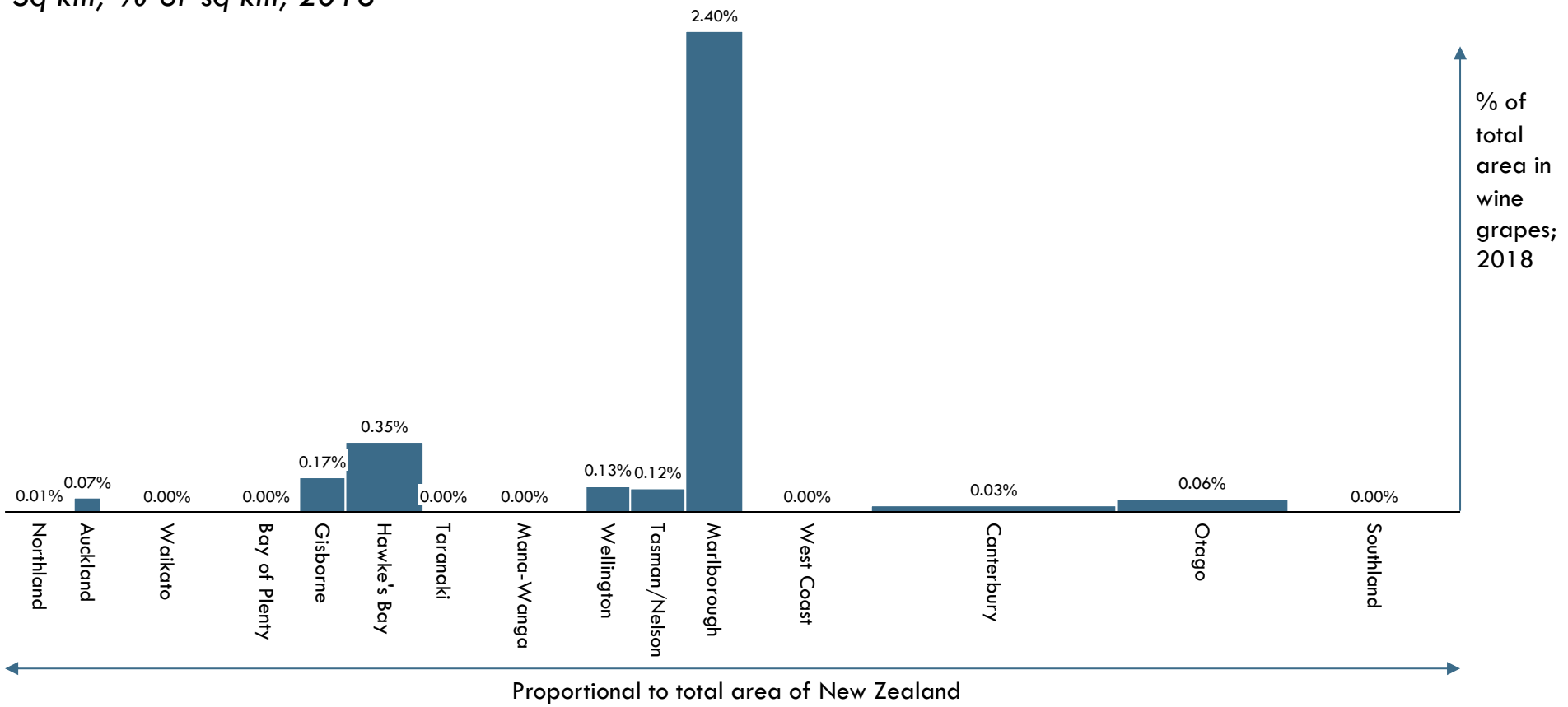


Note: European data captures wine manufacturing facilities; appears to exclude significant cellar door activities; Source: OIV; Eurostat; USDA; Wine Institute; Wine America; WineNZ; Statistics NZ; Coriolis analysis and estimates

New Zealand regions vary in terms of the share of total area that is in wine grapes; only Marlborough (2.4%) stands out

AREA VS SHARE OF TOTAL AREA IN WINE GRAPES

Sq km; % of sq km; 2018

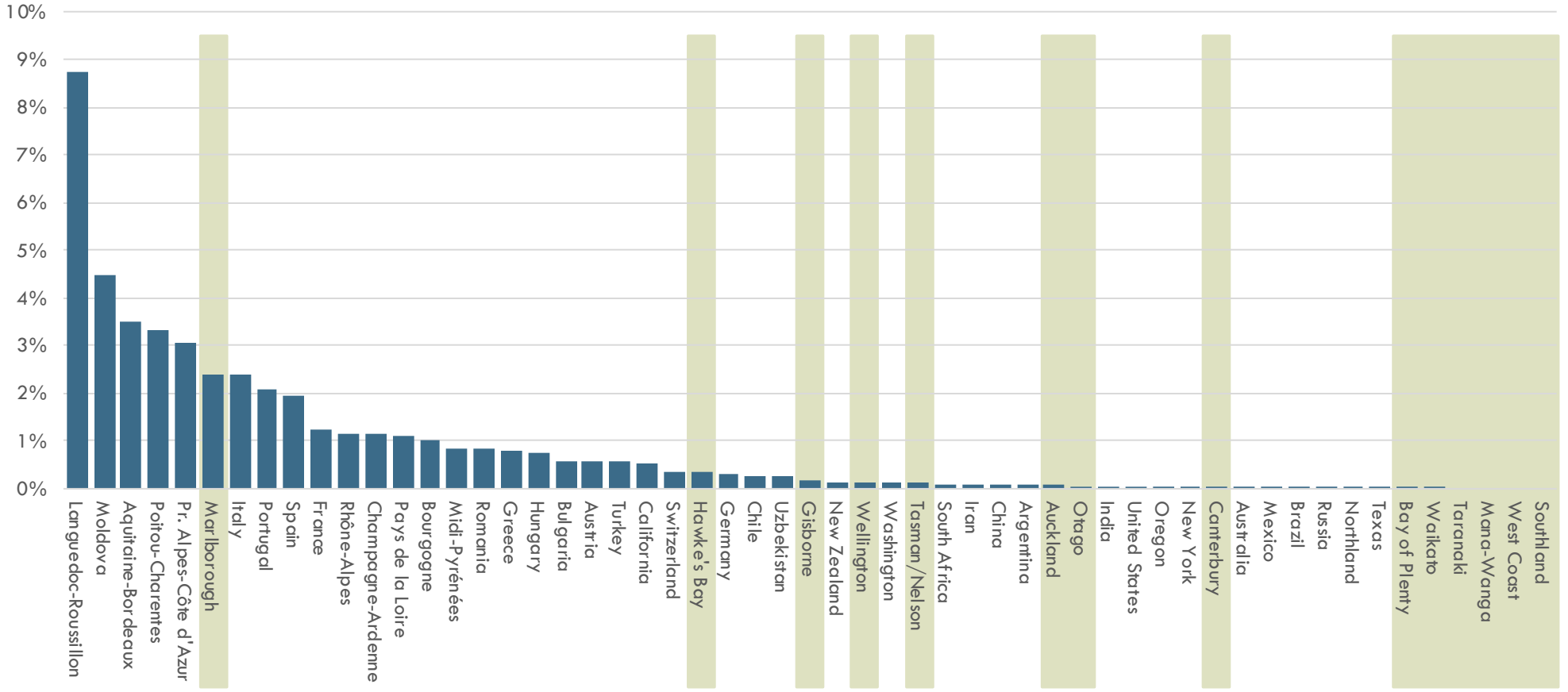


Source: WineNZ; Statistics NZ; Coriolis analysis and estimates

Relative to other countries and regions, only Marlborough has wine grapes at a relatively high proportion of land area

SHARE OF TOTAL AREA OF COUNTRY/REGION THAT IS IN WINE GRAPES

% of area; 2018 or as available

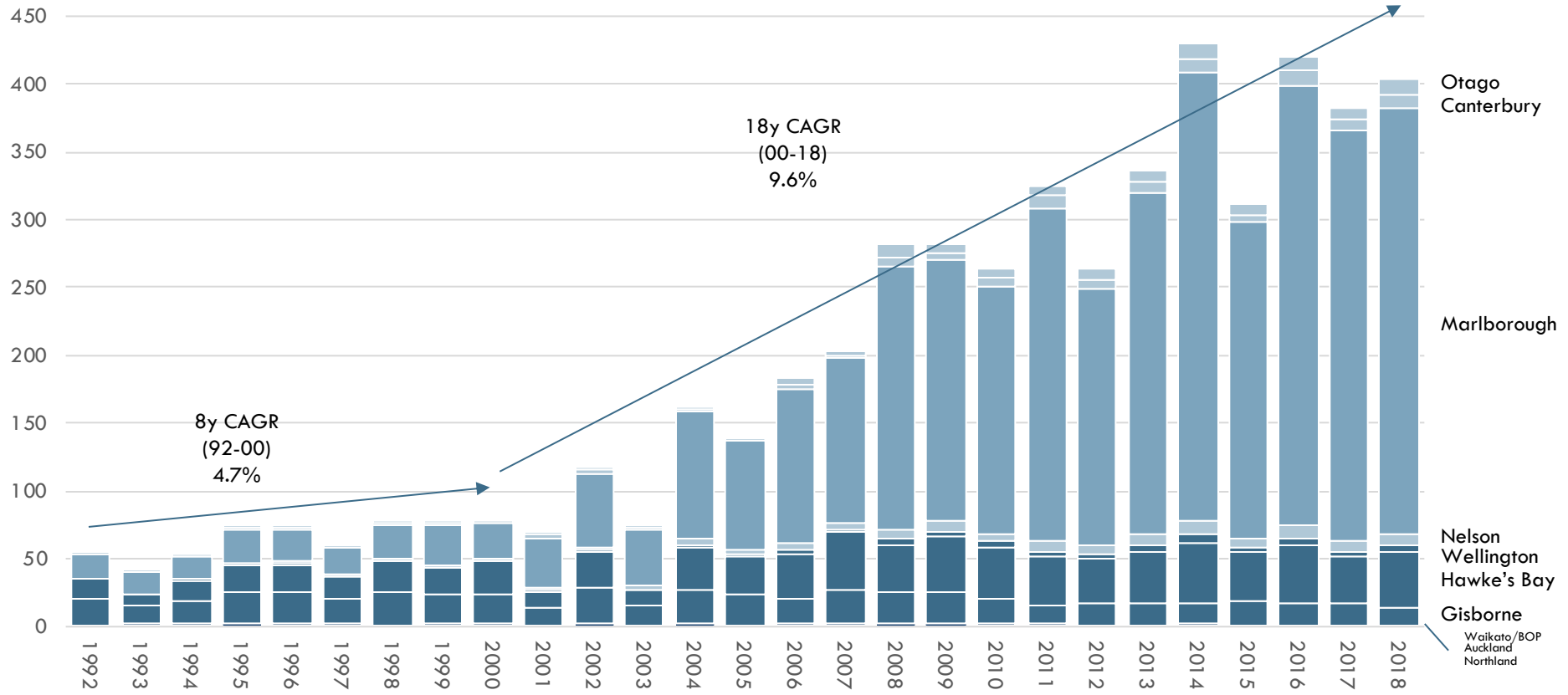


Source: OIV; Eurostat; USDA; Wine Institute; Wine America; WineNZ; Statistics NZ; Coriolis analysis and estimates

New Zealand is growing wine grape production, though this been driven primarily by new land in Marlborough

TOTAL NEW ZEALAND WINE GRAPE PRODUCTION

T; 000; 1992-2018

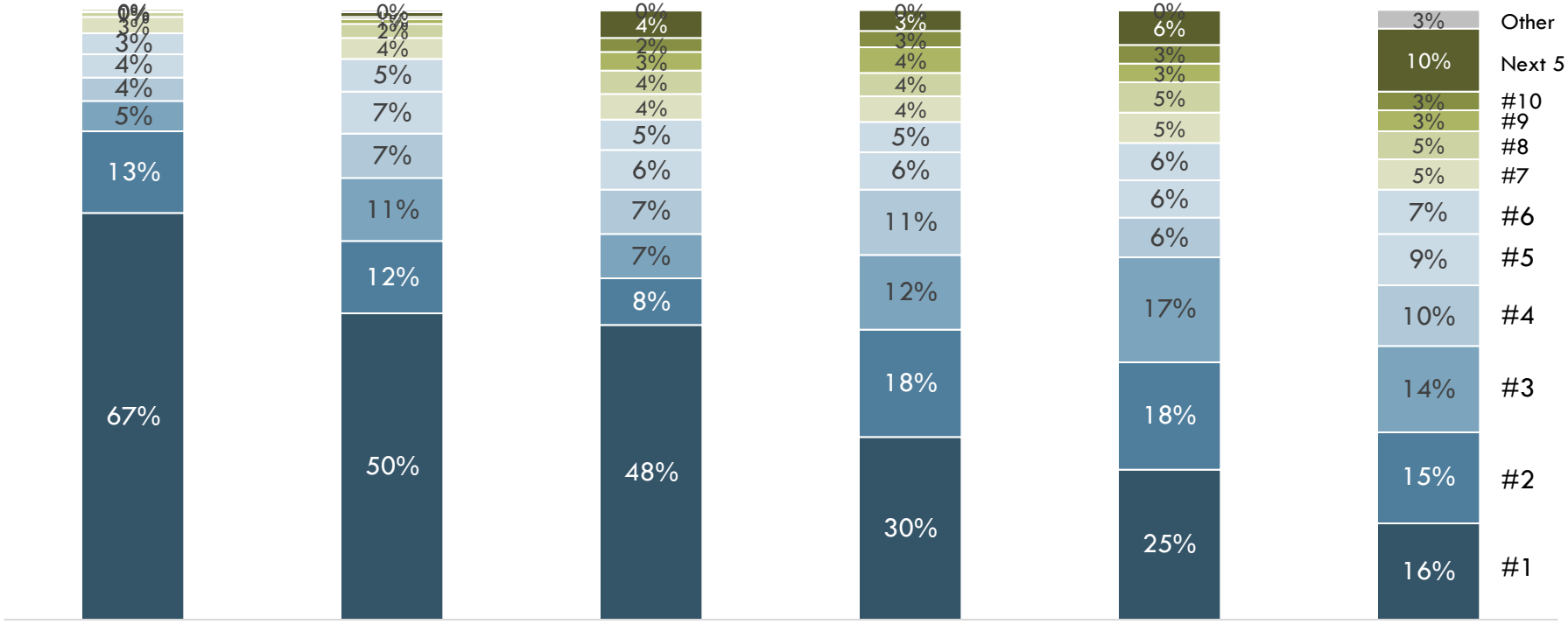


Source: Statistics NZ; UN FAO; MAF/MPI; New Zealand Winegrowers; Coriolis analysis

New Zealand is overweighted to one wine region; older, more mature climatic peers have a more balanced portfolio of regions

SHARE OF WINE GRAPE AREA TOP TEN REGIONS & OTHER: NZ VS SELECT

% of ha; 2018 or as available



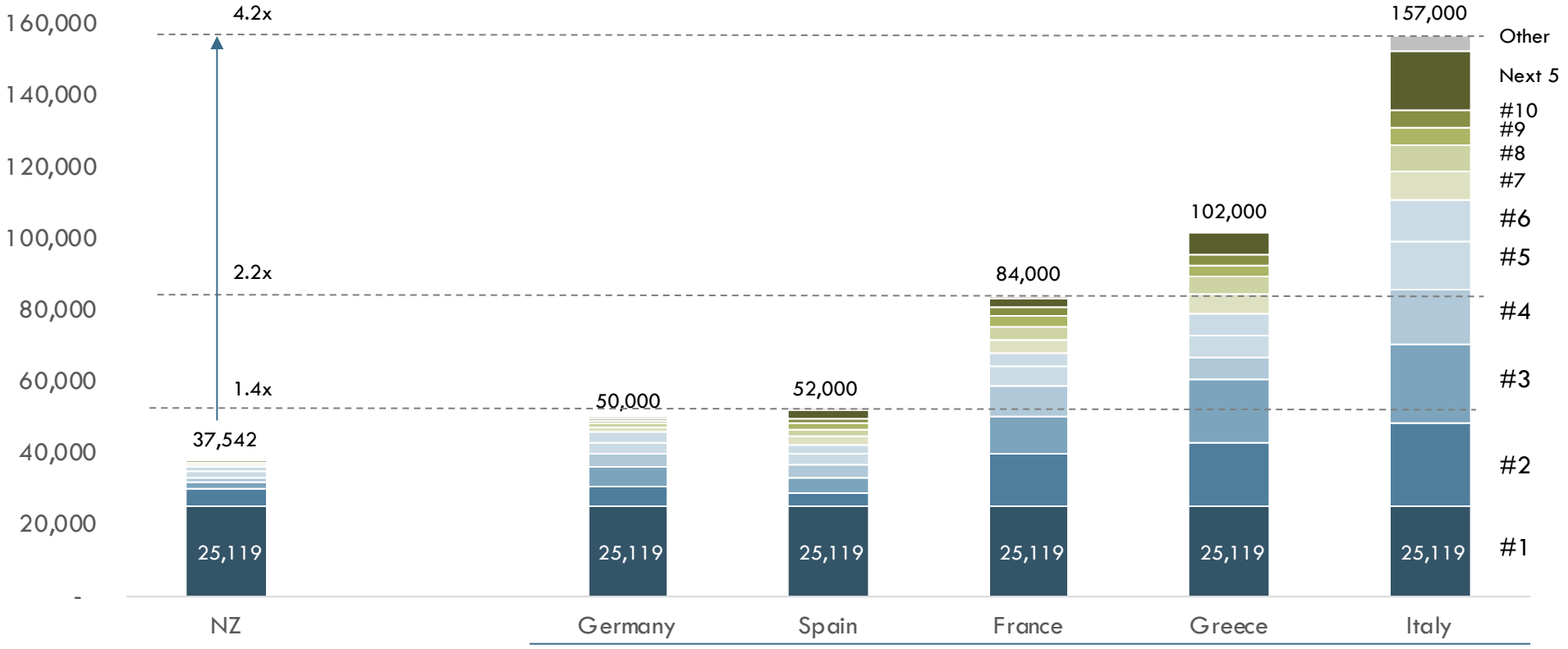
	NZ	Germany	Spain	France	Greece	Italy
Country Size Km²; 000	270	357	506	633	132	301

Note: Europe uses NUTS2 regions (which are not the same as the commonly known wine regions, which are smaller); Source: NZ Winegrowers; Eurostat; Coriolis analysis

When New Zealand balances its portfolio, significant new area will come into production

MODEL: NEW ZEALAND WINE AREA IF IT MATCHES REGIONAL MIX OF SELECT PEERS

Ha; 2018 vs hypothetical future



What if Marlborough were to stay the same size and other regions match ratios of this country?

Note: Europe uses NUTS2 regions (which are not the same as the commonly known wine regions, which are smaller); Source: NZ Winegrowers; Eurostat; Coriolis analysis

Three broad opportunities to drive growth in the wine industry are highlighted

1

SPARKLING WINE

- Leverage NZ capabilities in beverages
- Growth in (non-Champagne) category e.g. Prosecco/Cava
- Long term growth of category
- NZ needs to identify its sparkling variety

2

'COGNAC'

- Opportunity for NZ to find it's high quality brandy
- Leverage NZ capabilities in wine
- +US$6b traded in 2015
- US$2.1b retail value of luxury cognac by 2020

3

NON-MARLBOROUGH RED REGION

- Leverage NZ reputation for quality wine
- Red high value category

Photo credit: various firms or fair use; low resolution; complete product/brand for illustrative purposes; Source: Coriolis estimates

*9. New Zealand can continue to grow employment in **non-wine beverages***

- Non-wine beverages are mostly water and some plant-based ingredients; as such they are not supply constrained
- Beverage processing is creating jobs; however, most jobs are currently concentrated in Auckland
- As a contrast, the beverage industry in the United Kingdom creates 95% of jobs outside London
- Beverage employment growth varies by region; Auckland, Waikato, Hawke's Bay, Wellington and Otago doing well
- New Zealand should be able to match the jobs per square kilometre performance of Ireland or Denmark
- Looked at a different way, NZ should at least be able to grow non-wine exports per capita, and thus jobs, to match peers
- Four broad opportunities to drive growth in the beverage industry are identified

Non-wine beverages are mostly water and some plant-based ingredients; as such they are not supply constrained

BEER

Water (~90-95%)
Barley/other grains
Hops
Flavours

SPIRITS

Water (60-70%)
Alcohol (whey or other)
Flavours

SOFT DRINKS

Water (90%+)
Juices
Sugar/sweeteners
Caffeine (from coffee)
Flavours

JUICE

Fruit
(Water 85-90%)

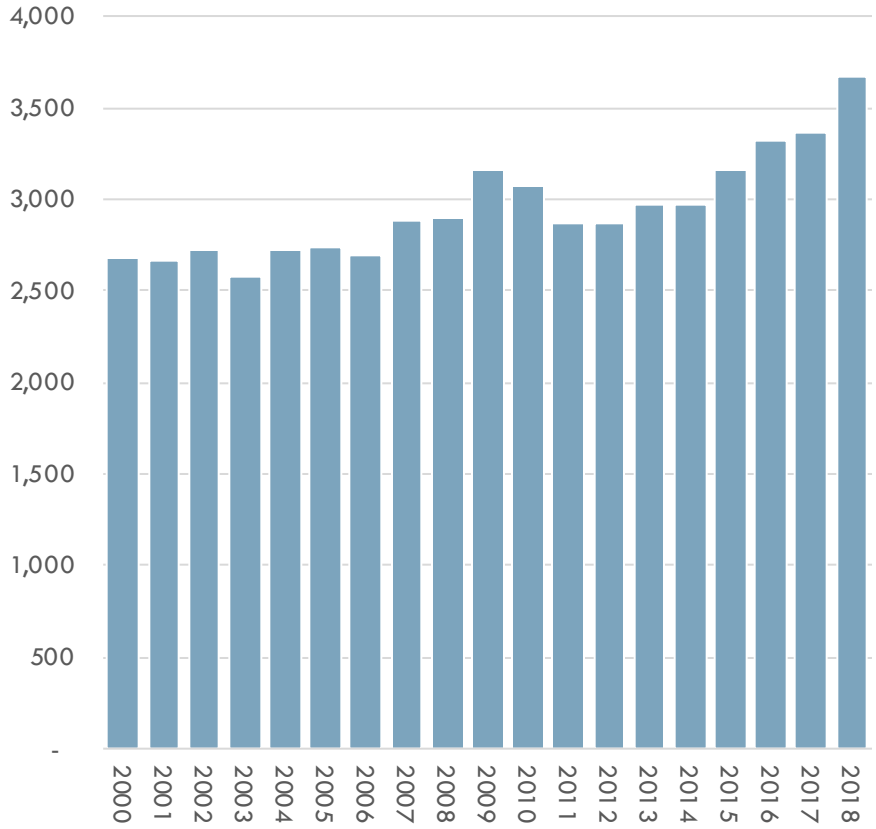
WATER

Water

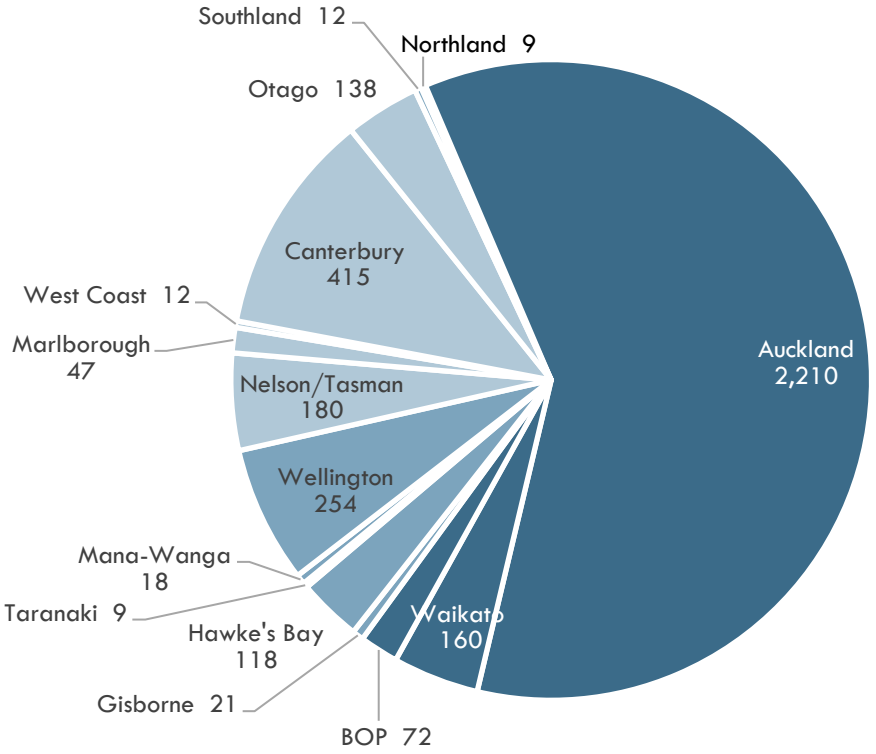
Photo credit: various firms or fair use; low resolution; complete product/brand for illustrative purposes; Source: Coriolis analysis

Beverage processing is creating jobs; however, most jobs are currently concentrated in Auckland

BEVERAGE PROCESSING EMPLOYMENT
Headcount; 2000-2018



BEVERAGE PROCESSING EMPLOYMENT
Headcount; 2018



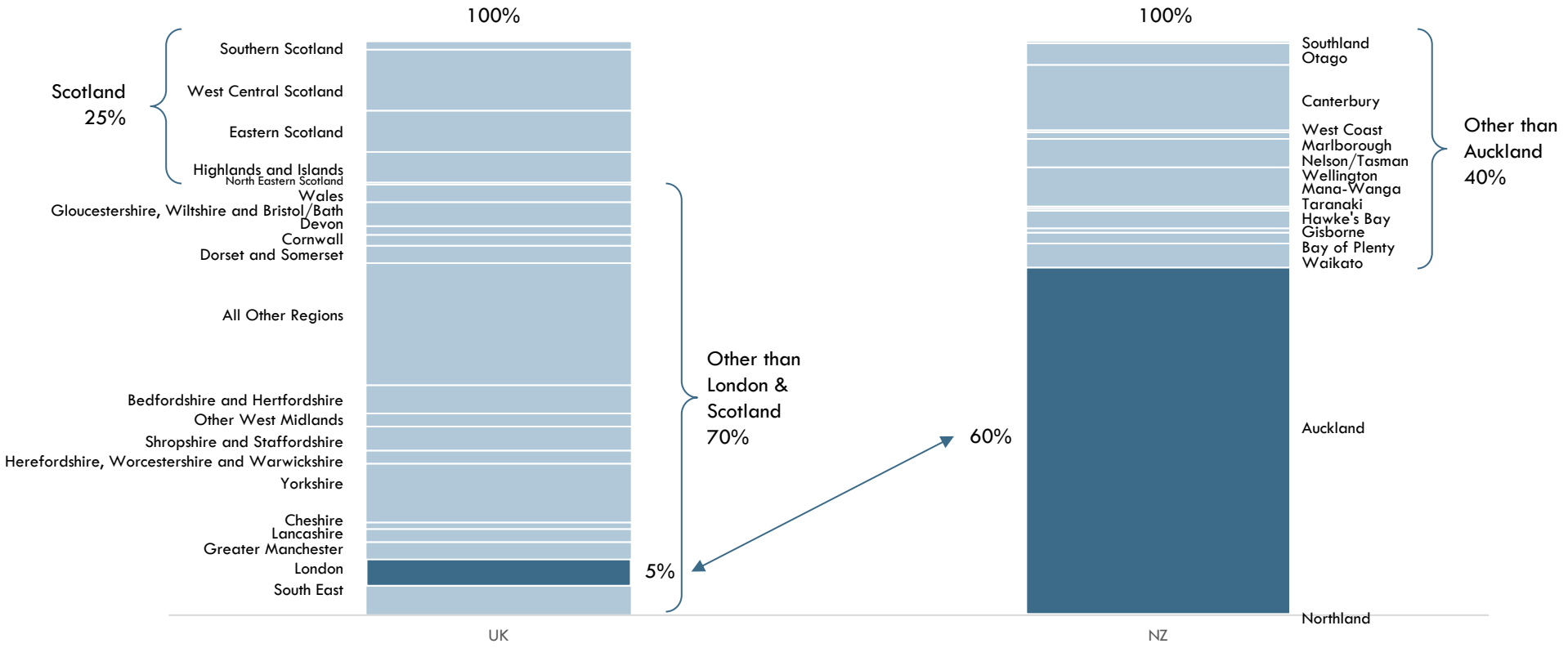
TOTAL = 3,675 processing employees

Source: Statistics NZ; Coriolis analysis

As a contrast, the beverage industry in the United Kingdom creates 95% of jobs outside London

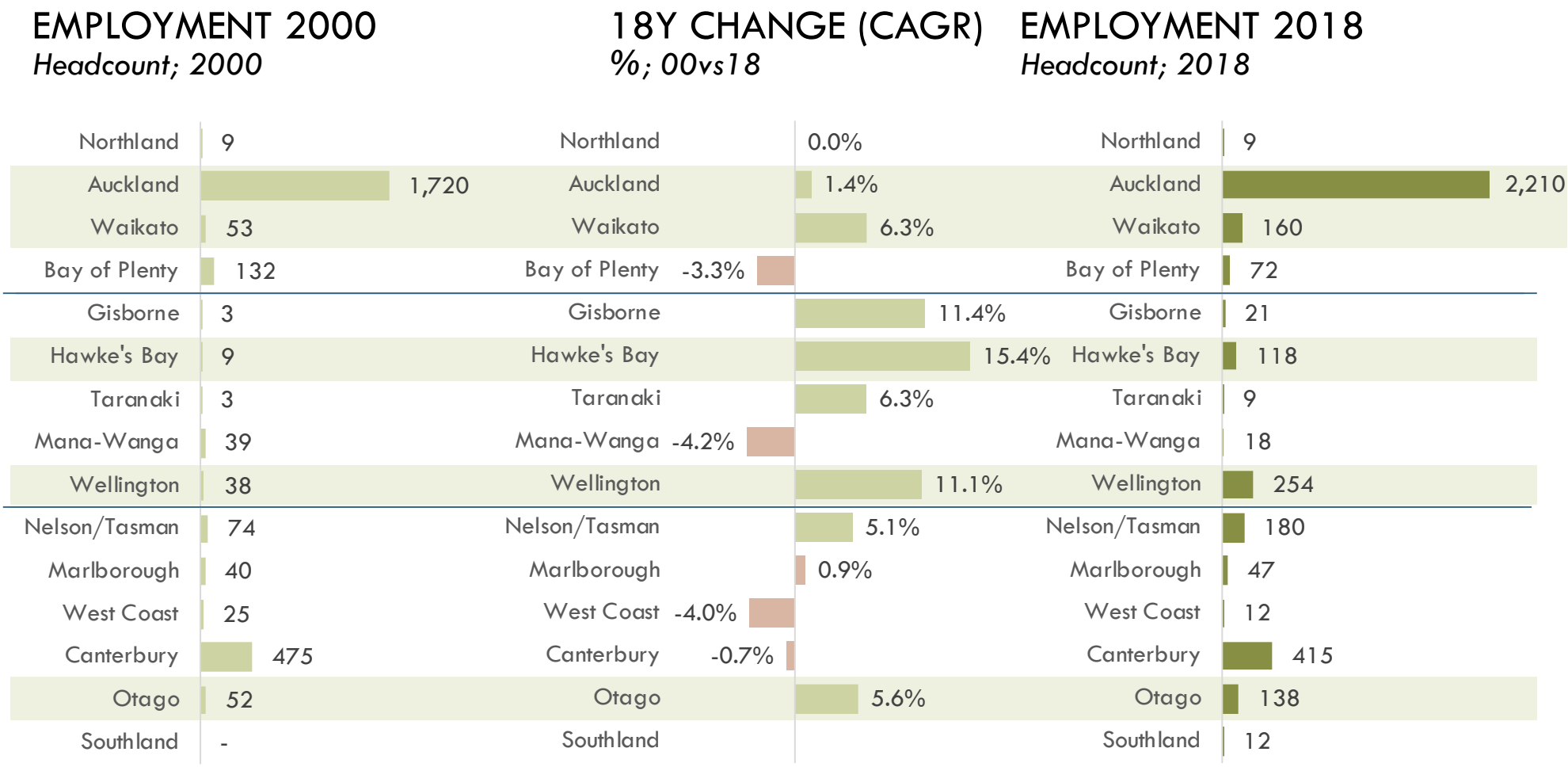
SHARE OF NON-WINE BEVERAGE PROCESSING JOBS BY REGION: UK VS NZ

% 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

Beverage employment growth varies by region; Auckland, Waikato, Hawke's Bay, Wellington and Otago doing well

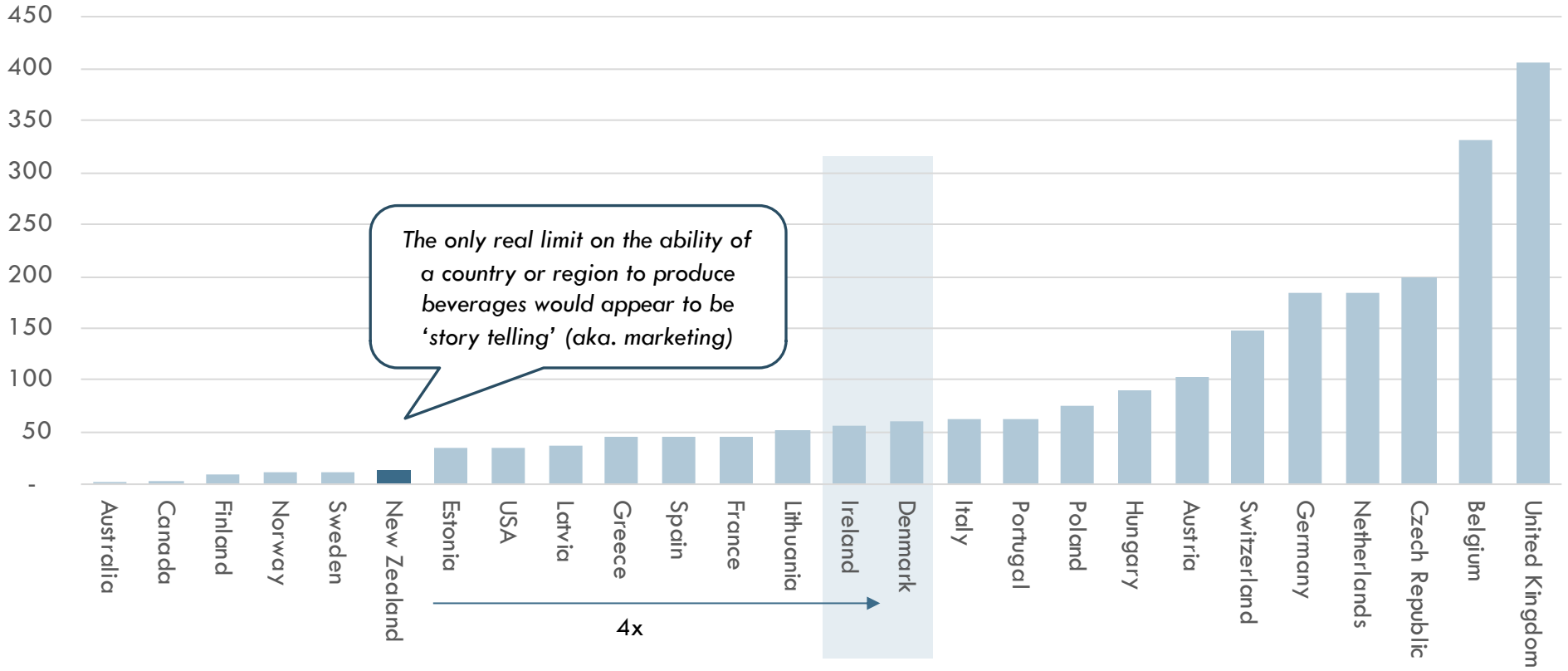


Source: Statistics NZ; UN FAO; MAF/MPI; Coriolis analysis

New Zealand should be able to match the jobs per square kilometre performance of Ireland or Denmark

NON-WINE BEVERAGE JOBS PER 1,000 SQUARE KILOMETRE OF COUNTRY

Headcount/1,000 km$^{2;}$ 2018 or as available

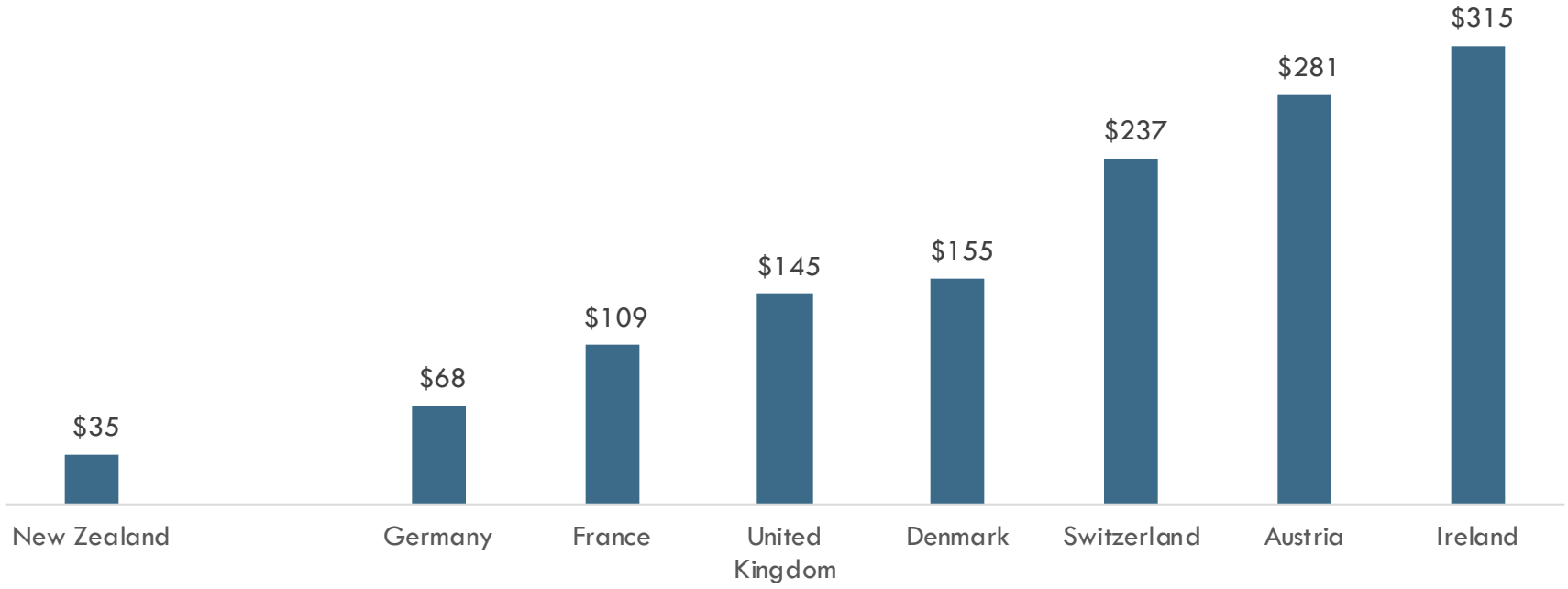


Source: US DOL; Eurostat; ABS; Statistics NZ; Coriolis classification and analysis

Looked at a different way, NZ should at least be able to grow non-wine exports per capita, and thus jobs, to match peers

NON-WINE EXPORT VALUE PER CAPITA: NZ VS SELECT PEERS

US$/capita; 2018 or as available



*How many new jobs would be created if NZ could match this country?**	+300	+700	+1,000	+1,100	+1,900	+2,300	+2,600

*Conservatively assumes 1 direct beverage processing job per NZ$730,000 in export revenue (no magic multipliers, etc.); Source: UN Comtrade; Statistics NZ; Coriolis analysis and classification

Four broad opportunities to drive growth in the beverage industry are identified

1 **ALCOHOLIC SPIRITS**

- Build on position in premium wine
- ~US$35b globally traded in 2015

2 **WATER**

- Premium water opportunities
- High volumes of water available in NZ
- ~US$2.4b globally traded in 2015

3 **CIDER & SIMILAR**

- Add value to apple and other fruits sector
- Britain uses 45% of its apples to make cider (NZ ~1%)
- ~US$1.4b globally traded in 2015

4 **PREMIUM NON-ALCOHOLIC BEVERAGES**

- Strong growth category
- Growing premium segment
- Good fit with New Zealand country image

Photo credit: various firms or fair use; low resolution; complete product/brand for illustrative purposes; Source: Coriolis estimates

APPENDIX

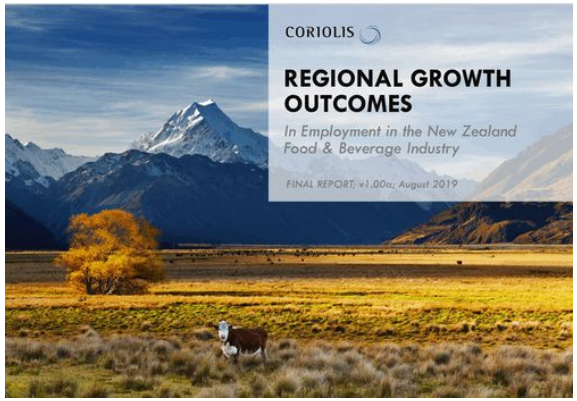
A1. Regional Growth Opportunities project context

A2. Regional Metrics Snapshot

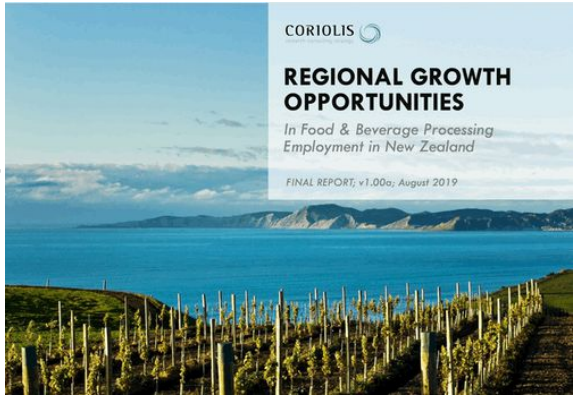
A3. Abbreviations

A1: This work is part of the Regional Growth Opportunities research for the Food and Beverage Information Project (F&BIP)

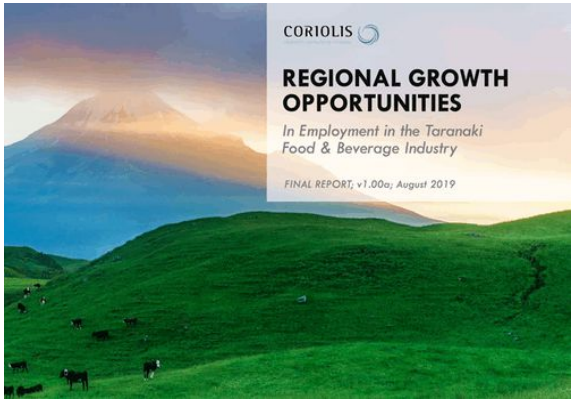
NATIONAL

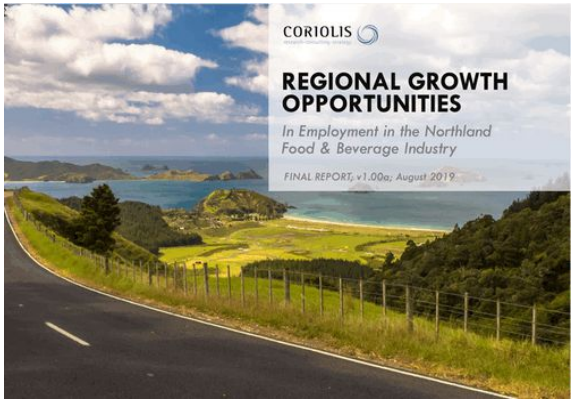


This Report

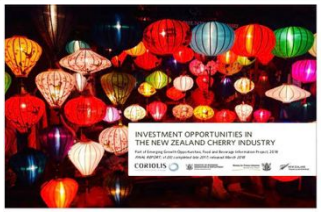


SELECT REGIONS





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

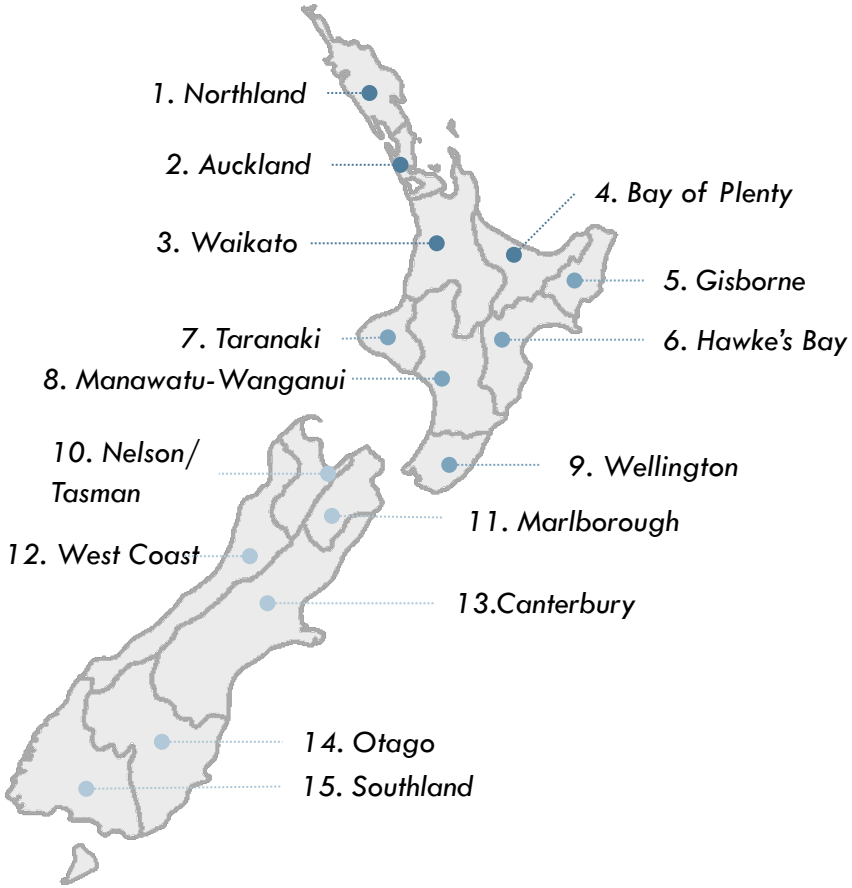


See previous research reports at

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. APPENDIX: REGIONAL F&B PROCESSING EMPLOYMENT

REGIONS OF NEW ZEALAND PROFILED



1. 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%	↑
Produce	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

2. AUCKLAND – PROCESSING

PROCESSING QUANTITATIVE METRICS SCORECARD: AUCKLAND

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	63	29.2%	42	39%	6.3%	↑	2,150	16.6%	1,220	26%	4.8%	↑
Red Meat & Pork	54	16.5%	0	0%	0.0%	↓	1,720	6.4%	570	47%	2.3%	↑
Poultry Meat	12	34.3%	0	0%	0.0%	↑	1,100	30.3%	590	37%	4.4%	↑
Seafood	105	32.2%	6	-	0.3%	↑	980	19.2%	210	-	1.3%	↑
Produce	147	31.6%	9	15%	0.4%	↓	2,360	25.9%	880	106%	2.6%	↑
Grain-Based	138	37.3%	45	-	2.2%	↑	2,940	44.2%	555	-	1.2%	↑
Processed Foods	348	34.9%	187	37%	4.4%	↑	5,350	44.5%	1,080	24%	1.3%	↓
Wine	75	17.1%	33	13%	3.3%	↓	980	24.9%	130	8%	0.8%	↓
Other Beverages	120	32.2%	78	34%	6.0%	↑	2,210	60.1%	490	49%	1.4%	↓
TOTAL	1,062	29.9%	400	35%	2.7%	↑	19,790	23.6%	5,725	42%	1.9%	↑

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

3. *WAIKATO – PROCESSING*

PROCESSING QUANTITATIVE METRICS SCORECARD: WAIKATO

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	39	18.1%	15	14%	2.7%	↓	3,200	24.7%	1,450	31%	3.4%	↑
Red Meat & Pork	36	11.0%	-3	-11%	-0.4%	↓	2,490	9.3%	360	29%	0.9%	↑
Poultry Meat	9	25.7%	6	-	6.3%	↑	1,050	28.9%	560	35%	4.3%	↑
Seafood	21	6.4%	3	-	0.9%	↑	209	4.1%	-51	-	-1.2%	↑
Produce	21	4.5%	6	10%	1.9%	↑	275	3.0%	117	14%	3.1%	↑
Grain-Based	27	7.3%	6	-	1.4%	↑	206	3.1%	-113	-	-2.4%	↓
Processed Foods	85	8.5%	45	9%	4.3%	↑	1,516	12.6%	1,235	27%	9.8%	↑
Wine	6	1.4%	0	0%	0.0%	↓	9	0.2%	-21	-1%	-6.5%	↓
Other Beverages	33	8.8%	24	11%	7.5%	↑	160	4.4%	107	11%	6.3%	↑
TOTAL	277	7.8%	102	9%	2.6%	↑	9,115	10.9%	3,644	27%	2.9%	↑

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

4. BAY OF PLENTY – PROCESSING

PROCESSING QUANTITATIVE METRICS SCORECARD: BAY OF PLENTY

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	9	4.2%	6	6%	6.3%	↑	310	2.4%	-120	-3%	-1.8%	↓
Red Meat & Pork	16	4.9%	3	11%	1.2%	↑	569	2.1%	-281	-23%	-2.2%	↓
Poultry Meat	-	0.0%	-1	-	-100.0%	↓	-	0.0%	-30	-2%	-100.0%	↓
Seafood	21	6.4%	3	-	0.9%	↑	415	8.1%	100	-	1.5%	↑
Produce	48	10.3%	12	19%	1.6%	↑	670	7.3%	370	45%	4.6%	↑
Grain-Based	16	4.3%	-14	-	-3.4%	↓	460	6.9%	-31	-	-0.4%	↓
Processed Foods	58	5.8%	27	5%	3.5%	↓	866	7.2%	513	11%	5.1%	↑
Wine	6	1.4%	5	2%	10.5%	↑	90	2.3%	20	1%	1.4%	↓
Other Beverages	6	1.6%	-6	-3%	-3.8%	↓	72	2.0%	-60	-6%	-3.3%	↓
TOTAL	180	5.1%	35	3%	1.2%	↓	3,452	4.1%	481	4%	0.8%	↓

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

5. GISBORNE – PROCESSING

PROCESSING QUANTITATIVE METRICS SCORECARD: GISBORNE

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	3	1.4%	3	3%	N/A	↑	45	0.3%	45	1%	N/A	↑
Red Meat & Pork	3	0.9%	-3	-11%	-3.8%	↓	270	1.0%	264	22%	23.6%	↑
Poultry Meat	-	0.0%	0	0%	N/A	↑	-	0.0%	0	0%	N/A	↑
Seafood	7	2.1%	-2	-	-1.4%	↓	46	0.9%	-27	-	-2.5%	↓
Produce	15	3.2%	3	5%	1.2%	↑	680	7.5%	35	4%	0.3%	↓
Grain-Based	8	2.2%	-2	-	-1.2%	↓	104	1.6%	-6	-	-0.3%	↓
Processed Foods	6	0.6%	-1	0%	-0.9%	↓	15	0.1%	-12	0%	-3.2%	↓
Wine	12	2.7%	6	2%	3.9%	↓	140	3.6%	20	1%	0.9%	↓
Other Beverages	4	1.1%	3	1%	8.0%	↑	21	0.6%	18	2%	11.4%	↑
TOTAL	58	1.6%	7	1%	0.7%	↓	1,321	1.6%	337	3%	1.6%	↑

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

6. HAWKE'S BAY – PROCESSING

PROCESSING QUANTITATIVE METRICS SCORECARD: HAWKE'S BAY

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%	6	6%	N/A	↑	100	0.8%	100	2%	N/A	↑
Red Meat & Pork	30	9.1%	9	32%	2.0%	↑	2,715	10.2%	-445	-36%	-0.8%	↓
Poultry Meat	-	0.0%	0	0%	N/A	↑	-	0.0%	0	0%	N/A	↑
Seafood	12	3.7%	6	-	3.9%	↑	123	2.4%	45	-	2.6%	↑
Produce	51	11.0%	18	29%	2.4%	↑	1,890	20.7%	-410	-50%	-1.1%	↓
Grain-Based	7	1.9%	-3	-	-2.0%	↓	27	0.4%	-76	-	-7.2%	↓
Processed Foods	33	3.3%	20	4%	5.3%	↑	339	2.8%	283	6%	10.5%	↑
Wine	66	15.1%	33	13%	3.9%	↓	590	15.0%	280	17%	3.6%	↑
Other Beverages	21	5.6%	14	6%	6.3%	↑	118	3.2%	109	11%	15.4%	↑
TOTAL	226	6.4%	103	9%	3.4%	↑	5,902	7.0%	-114	-1%	-0.1%	↓

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

7. TARANAKI – PROCESSING

PROCESSING QUANTITATIVE METRICS SCORECARD: TARANAKI

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%	↓	1,800	13.9%	-100	-2%	-0.3%	↓
Red Meat & Pork	21	6.4%	11	39%	4.2%	↑	1,985	7.4%	315	26%	1.0%	↑
Poultry Meat	1	2.9%	-5	-	-9.5%	↓	670	18.4%	370	23%	4.6%	↑
Seafood	3	0.9%	-6	-	-5.9%	↓	15	0.3%	-40	-	-7.0%	↓
Produce	3	0.6%	-3	-5%	-3.8%	↓	30	0.3%	9	1%	2.0%	↑
Grain-Based	9	2.4%	0	0%	0.0%	↑	225	3.4%	-56	-	-1.2%	↓
Processed Foods	21	2.1%	14	3%	6.3%	↑	155	1.3%	83	2%	4.4%	↑
Wine	-	0.0%	-1	0%	-100.0%	↓	-	0.0%	-6	0%	-100.0%	↓
Other Beverages	9	2.4%	3	1%	2.3%	↓	9	0.2%	6	1%	6.3%	↑
TOTAL	73	2.1%	13	1%	1.1%	↓	4,889	5.8%	581	4%	0.7%	↓

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

8. MANAWATU-WANGANUI – PROCESSING

PROCESSING QUANTITATIVE METRICS SCORECARD: MANAWATU-WANGANUI

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	12	5.6%	6	6%	3.9%	↓	800	6.2%	340	7%	3.1%	↑
Red Meat & Pork	33	10.1%	6	21%	1.1%	↑	3,170	11.9%	840	69%	1.7%	↑
Poultry Meat	3	8.6%	-3	-	-3.8%	↓	21	0.6%	3	0%	0.9%	↓
Seafood	6	1.8%	-1	-	-0.9%	↓	45	0.9%	-48	-	-4.0%	↓
Produce	21	4.5%	3	5%	0.9%	↑	280	3.1%	-80	-10%	-1.4%	↓
Grain-Based	14	3.8%	-16	-	-4.1%	↓	208	3.1%	-102	-	-2.2%	↓
Processed Foods	54	5.4%	30	6%	4.6%	↑	662	5.5%	359	8%	4.4%	↑
Wine	3	0.7%	3	1%	N/A	↑	3	0.1%	3	0%	N/A	↑
Other Beverages	9	2.4%	5	2%	4.6%	↓	18	0.5%	-21	-2%	-4.2%	↓
TOTAL	155	4.4%	33	3%	1.3%	↓	5,207	6.2%	1,294	10%	1.6%	↑

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

9. WELLINGTON – PROCESSING

PROCESSING QUANTITATIVE METRICS SCORECARD: WELLINGTON

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	15	6.9%	9	8%	5.2%	↑	90	0.7%	-30	-1%	-1.6%	↓
Red Meat & Pork	15	4.6%	-9	-32%	-2.6%	↓	1,220	4.6%	250	20%	1.3%	↑
Poultry Meat	3	8.6%	2	-	6.3%	↑	25	0.7%	-85	-5%	-7.9%	↓
Seafood	24	7.4%	-6	-	-1.2%	↓	103	2.0%	-117	-	-4.1%	↓
Produce	21	4.5%	-3	-5%	-0.7%	↓	245	2.7%	110	13%	3.4%	↑
Grain-Based	28	7.6%	-11	-	-1.8%	↓	296	4.5%	-421	-	-4.8%	↓
Processed Foods	90	9.0%	45	9%	3.9%	↓	895	7.4%	434	10%	3.8%	↑
Wine	33	7.5%	21	8%	5.8%	↑	120	3.0%	40	2%	2.3%	↓
Other Beverages	48	12.9%	39	17%	9.7%	↑	254	6.9%	216	22%	11.1%	↑
TOTAL	277	7.8%	87	8%	2.1%	↓	3,248	3.9%	397	3%	0.7%	↓

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

10. NELSON/TASMAN – PROCESSING

PROCESSING QUANTITATIVE METRICS SCORECARD: NELSON/TASMAN

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	12	5.6%	6	6%	3.9%	↓	126	1.0%	-64	-1%	-2.3%	↓
Red Meat & Pork	6	1.8%	-3	-11%	-2.2%	↓	276	1.0%	-57	-5%	-1.0%	↓
Poultry Meat	-	0.0%	-3	-	-100.0%	↓	-	0.0%	-3	0%	-100.0%	↓
Seafood	18	5.5%	-9	-	-2.2%	↓	998	19.6%	-1,062	-	-3.9%	↓
Produce	30	6.5%	3	5%	0.6%	↓	473	5.2%	93	11%	1.2%	↑
Grain-Based	10	2.7%	0	0%	0.0%	↑	48	0.7%	-8	-	-0.9%	↓
Processed Foods	33	3.3%	20	4%	5.3%	↑	222	1.8%	177	4%	9.3%	↑
Wine	24	5.5%	12	5%	3.9%	↓	140	3.6%	45	3%	2.2%	↓
Other Beverages	18	4.8%	9	4%	3.9%	↓	180	4.9%	106	11%	5.1%	↑
TOTAL	151	4.3%	35	3%	1.5%	↓	2,463	2.9%	-773	-6%	-1.5%	↓

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

11. MARLBOROUGH – PROCESSING

PROCESSING QUANTITATIVE METRICS SCORECARD: MARLBOROUGH

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	3	1.4%	0	0%	0.0%	↓	9	0.1%	-61	-1%	-10.8%	↓
Red Meat & Pork	6	1.8%	3	11%	3.9%	↑	190	0.7%	-220	-18%	-4.2%	↓
Poultry Meat	-	0.0%	0	0%	N/A	↑	-	0.0%	0	0%	N/A	↑
Seafood	12	3.7%	0	0%	0.0%	↑	453	8.9%	-17	-	-0.2%	↑
Produce	12	2.6%	0	0%	0.0%	↓	373	4.1%	-72	-9%	-1.0%	↓
Grain-Based	9	2.4%	4	-	3.3%	↑	24	0.4%	-15	-	-2.7%	↓
Processed Foods	22	2.2%	14	3%	5.8%	↑	141	1.2%	83	2%	5.1%	↑
Wine	105	24.0%	66	26%	5.7%	↑	1,300	33.0%	700	44%	4.4%	↑
Other Beverages	4	1.1%	0	0%	0.0%	↓	47	1.3%	7	1%	0.9%	↓
TOTAL	173	4.9%	87	8%	4.0%	↑	2,537	3.0%	405	3%	1.0%	↓

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

12. WEST COAST – PROCESSING

PROCESSING QUANTITATIVE METRICS SCORECARD: WEST COAST

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	3	1.4%	0	0%	0.0%	↓	510	3.9%	360	8%	7.0%	↑
Red Meat & Pork	9	2.7%	5	18%	4.6%	↑	312	1.2%	99	8%	2.1%	↑
Poultry Meat	-	0.0%	0	0%	N/A	↑	-	0.0%	0	0%	N/A	↑
Seafood	6	1.8%	-6	-	-3.8%	↓	203	4.0%	70	-	2.4%	↑
Produce	3	0.6%	-3	-5%	-3.8%	↓	3	0.0%	-12	-1%	-8.6%	↓
Grain-Based	-	0.0%	-3	-	-100.0%	↓	-	0.0%	-3	-	-100.0%	↓
Processed Foods	9	0.9%	9	2%	N/A	↑	9	0.1%	9	0%	N/A	↑
Wine	-	0.0%	0	0%	N/A	↑	-	0.0%	0	0%	N/A	↑
Other Beverages	6	1.6%	3	1%	3.9%	↓	12	0.3%	-13	-1%	-4.0%	↓
TOTAL	36	1.0%	5	0%	0.8%	↓	1,049	1.3%	510	4%	3.8%	↑

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

13. CANTERBURY – PROCESSING

PROCESSING QUANTITATIVE METRICS SCORECARD: CANTERBURY

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	24	11.1%	9	8%	2.6%	↓	2,350	18.1%	1,460	31%	5.5%	↑
Red Meat & Pork	48	14.6%	6	21%	0.7%	↑	4,420	16.5%	300	25%	0.4%	↑
Poultry Meat	6	17.1%	-3	-	-2.2%	↓	760	20.9%	290	18%	2.7%	↓
Seafood	42	12.9%	0	0%	0.0%	↑	1,010	19.8%	-485	-	-2.2%	↓
Produce	48	10.3%	15	24%	2.1%	↑	1,450	15.9%	-30	-4%	-0.1%	↓
Grain-Based	67	18.1%	-11	-	-0.8%	↓	1,750	26.3%	245	-	0.8%	↑
Processed Foods	138	13.8%	41	8%	2.0%	↓	815	6.8%	25	1%	0.2%	↓
Wine	48	11.0%	30	12%	5.6%	↑	250	6.4%	140	9%	4.7%	↑
Other Beverages	48	12.9%	26	11%	4.4%	↓	415	11.3%	-60	-6%	-0.7%	↓
TOTAL	469	13.2%	113	10%	1.5%	↓	13,220	15.8%	1,885	14%	0.9%	↓

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

14. OTAGO – PROCESSING

PROCESSING QUANTITATIVE METRICS SCORECARD: OTAGO

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	9	4.2%	3	3%	2.3%	↓	270	2.1%	0	0%	0.0%	↓
Red Meat & Pork	15	4.6%	-3	-11%	-1.0%	↓	3,062	11.5%	-318	-26%	-0.5%	↓
Poultry Meat	1	2.9%	-2	-	-5.9%	↓	9	0.2%	-31	-2%	-8.0%	↓
Seafood	7	2.1%	-5	-	-3.0%	↓	100	2.0%	-242	-	-6.6%	↓
Produce	24	5.2%	3	5%	0.7%	↓	162	1.8%	-228	-28%	-4.8%	↓
Grain-Based	24	6.5%	3	-	0.7%	↑	280	4.2%	27	-	0.6%	↑
Processed Foods	48	4.8%	22	4%	3.5%	↓	654	5.4%	81	2%	0.7%	↓
Wine	51	11.6%	39	16%	8.4%	↑	260	6.6%	215	13%	10.2%	↑
Other Beverages	34	9.1%	25	11%	7.7%	↑	138	3.8%	86	9%	5.6%	↑
TOTAL	213	6.0%	85	7%	2.9%	↑	4,935	5.9%	-410	-3%	-0.4%	↓

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

15. SOUTHLAND – PROCESSING

PROCESSING QUANTITATIVE METRICS SCORECARD: SOUTHLAND

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%	3	3%	3.9%	↓	630	4.9%	210	4%	2.3%	↓
Red Meat & Pork	24	7.3%	6	21%	1.6%	↑	3,600	13.5%	-300	-25%	-0.4%	↓
Poultry Meat	-	0.0%	-3	-	-100.0%	↓	-	0.0%	-85	-5%	-100.0%	↓
Seafood	27	8.3%	0	0%	0.0%	↑	255	5.0%	-115	-	-2.0%	↓
Produce	6	1.3%	-1	-2%	-0.9%	↓	37	0.4%	-18	-2%	-2.2%	↓
Grain-Based	7	1.9%	-4	-	-2.5%	↓	57	0.9%	-97	-	-5.4%	↓
Processed Foods	16	1.6%	4	1%	1.6%	↓	155	1.3%	-8	0%	-0.3%	↓
Wine	3	0.7%	3	1%	N/A	↑	3	0.1%	3	0%	N/A	↑
Other Beverages	1	0.3%	1	0%	N/A	↑	12	0.3%	12	1%	N/A	↑
TOTAL	90	2.5%	9	1%	0.6%	↓	4,749	5.7%	-398	-3%	-0.4%	↓

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	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	Year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