

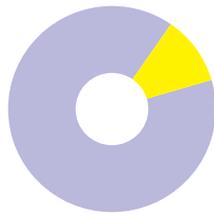
# FOOD AND FIBRE WORKFORCE: SNAPSHOT

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TE HUNGA KAIMAHI,  
KAI ME TE MUKA:  
HE TIROHANGA







# FOOD AND FIBRE WORKFORCE: SNAPSHOT

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KAI ME TE MUKA:  
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# PRIMARY SECTOR WORKFORCE DATASET AND FORECASTING WORKING GROUP

## TE OHU RARAUNGA KAIMAHI AHU MATUA ME TE MATAPAE

### FOREWORD

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The food and fibre sectors are vital to New Zealand. They generate income, provide employment, support communities and form part of our way of life. The sectors are growing and transforming in response to consumer demands and the transition to a zero-carbon future.

One in seven New Zealanders work in the food and fibre sectors, and in some regional communities over a quarter of the workforce are employed in these sectors. We have a goal to increase the number of New Zealanders in rewarding jobs in our sectors.

People with the right skills, knowledge and capability are needed now and as the sectors grow and transform.

Good information on the current workforce and the future skill needs will support industry bodies, government agencies, professional bodies and education providers to plan and take action to meet our future workforce needs.

We are very pleased to present the first *Food and Fibre Workforce Snapshot*. The snapshot is part of our commitment to growing our knowledge base and contributes to the Knowledge outcome in the *Food and Fibre Skills Action Plan 2019–2022* and the *Forestry and Wood Processing Workforce Action Plan 2020–2024*.

This report draws on the best available data to paint a picture of the food and fibre workforce and draws together what we know about the current workforce. Much of the data are created from a combination of databases maintained by Statistics New Zealand for which the 2019 year is the most recent available, prior to the impact of COVID-19.

In the future, we would like to be able to draw on more timely data and provide answers to a greater breadth of questions about the food and fibre workforce, but this report is an important step. This report pulls together the information that we do have, shows us where the gaps are, and highlights the work underway to improve the information we have available.

We hope this report will stimulate discussion and generate action to address skill shortages, make work more satisfying, and encourage people to see that there is a rewarding career in the food and fibre sectors.

**Workforce Data and Forecasting working group**

# MEMBERSHIP

The Workforce Dataset and Forecasting Working Group is made up of a range of individuals representing the food and fibre sectors, education and training providers, and government.

Representative	Title/Organisation
<b>Present members</b>	
Angela McFetridge	Design Lead, Beef + Lamb New Zealand
Blair Morgans	Primary ITO
Callum Neil	Insights and Capability Coordinator, Beef + Lamb New Zealand
Cathy Webb	Seafood Standards Manager, Seafood NZ
Christine Ewart	National Manager of Forestry, Competenz
David Evison	Forestry and Wood Processing Workforce Council & University of Canterbury
Dion Gamperle	Senior Insight Analyst, Employment, Education and Training Secretariat
Erin Simpson	Capability Manager Apples & Pears
Fraser Sloane	Chief Advisor, Information, TEC
Geoff Taylor	Associate Strategy & Investment Leader, DairyNZ
Gerald Minnee	Policy Director, Labour Market & Immigration, MBIE
Hugh Bigsby	Dean, Professor, Forestry Business, Agribusiness & Commerce, Lincoln University
Jay Bocoock	Te Awanui (Maori Economic Development)
Jeremy Baker	CEO, Muka Tangata, Workforce Development Council, NZ
Kerry Allen	Secretary/Treasurer of New Zealand Horticulture/ Agriculture Teachers Association
Marion Schrama	Manager, Skills, Training & Workplace Safety, MPI

Representative	Title/Organisation
Michelle Glogau	Chief Executive, PICA
Mike Murphy	Head of Communications & Strategic Projects, NZKGI
Nicola Crennan	External Relations Manager, New Zealand Winegrowers
Phil Williams	Accounts Manager of Forestry, Competenz
Melanie Phillips	Manager, Primary Sector Workforce Policy (PSWP), MPI
Richard Lynch	Principal Adviser, PSWP, MPI
Mark Hampshire	Principal Data Analyst, PSWP, MPI
Danny Young	Senior Data Analyst, PSWP, MPI
Maryanne Aynsley	Principal Adviser, PSWP, MPI
<b>Past members</b>	
Emma Boase	People Capability Manager, Horticulture New Zealand
Emma Sherwood	Business Analyst, NZAPI
Heather Burton	Labour and Workforce Contractor, NZKGI
Jeffrey Clarke	General Manager Advocacy & General Counsel, New Zealand Winegrowers
Linda Fitchett	Product Manager, Wintec
Mark Preece	Forestry and Wood Processing Workforce Council & Competenz
Nikki Johnson	Chief Executive, NZKGI
Stuart King	Labour Markets Manager, Labour Market & Immigration, MBIE
Hiraina Tangiora	Senior Policy Analyst, MPI
Michelle Taylor	Senior Advisor, Workforce Skills, Te Uru Rakau, MPI
Thea Wallace	Manager, Primary Sector Workforce Policy, MPI

# SUMMARY

## WHAKARĀPOPOTO

The workforce is critical to the success of the food and fibre sectors, which in turn are vital to New Zealand and the wellbeing of our communities, particularly in the regions. The food and fibre sectors' exports and technology innovations are a significant source of New Zealand's wealth and economic wellbeing.

**THESE SECTORS WERE RESPONSIBLE FOR IN EXCESS OF \$46 BILLION IN EXPORTS OR OVER 80 PERCENT OF MERCHANDISE EXPORTS IN 2019.**



Jobs in the sectors, the skills required and the numbers in different roles are changing and will continue to change as the sectors transform. The food and fibre sectors are facing rapid shifts in consumer demands, technology, regulation, competition, and community expectations, which will impact on workforce needs and the skills required.

Developing and growing the workforce of the future will require the food and fibre sectors to attract, upskill and retain people.

Employment conditions, actual and perceived, influence the willingness of people to train and gain the skills needed to work in the sector.

This report highlights the current state of the workforce and how it has changed. It is part of our commitment to growing our knowledge base and contributes to the Knowledge outcome in the *Food and Fibre Skills Action Plan 2019–2022* and the *Forestry and Wood Processing Workforce Action Plan 2020–2024*.

**The food and fibre sectors:**



**EMPLOY ONE IN SEVEN**

of the New Zealand workforce and



**EMPLOY ONE IN FOUR**

in regions with no city over 100,000.



**A GROWING SOURCE OF EMPLOYMENT.**



**DRAW ON A WIDE RANGE OF EDUCATION DISCIPLINES AND LEVELS.**



**A WORKFORCE THAT IS BROADLY COMPARABLE TO THE NEW ZEALAND WORKFORCE IN TERMS OF ETHNICITY, AGE, AND EMPLOYMENT STATUS,**

but there is variation within sectors and across regions and there are opportunities to improve diversity in sectors and across roles.

**A WORKFORCE THAT IS PREDOMINANTLY MALE:**

65 percent compared with 35 percent for the New Zealand workforce – while the gender balance has improved, there is room for further improvement.



**A LOWER LEVEL OF FORMAL QUALIFICATIONS IN THE 15-TO 29-YEAR-OLD AGE GROUP**

compared to the level of formal qualifications for this New Zealand age group.



**A WIDE RANGE OF EMPLOYMENT OPPORTUNITIES**

for people with lower levels of formal qualifications and experience, for those who wish to learn on the job, and for those with the highest level of formal qualification and technical skill.

# SKILLS ACTION PLANS

The *Food and Fibre Skills Action Plan 2019–2022* and the *Forestry and Wood Processing Workforce Action Plan 2020–2024* are a partnership between the food and fibre sectors and government, with the goal to shift behaviour, practice and system settings to achieve positive outcomes and enhance the wellbeing of all New Zealanders.

The two action plans set out a range of actions to increase our knowledge of the workforce, strengthen our attraction and education pipelines, and improve employment practices and retention by delivering on the following four focus areas.

## KNOWLEDGE

Food and fibre sectors understand and can articulate their workforce needs and can make decisions from a well developed base of data and information.

## ATTRACTION

Food and fibre education and employment opportunities are widely understood and respected by job seekers and influencers, and sought after by job seekers.

## EDUCATION

People have the skills, knowledge and capabilities to be successful in food and fibre careers.

## EMPLOYMENT

People thrive in food and fibre workplaces with excellent conditions, fulfilling work and career opportunities.



[www.mpi.govt.nz/  
dmsdocument/37751-  
food-fibre-skills-action-  
plan-webv2-pdf](http://www.mpi.govt.nz/dmsdocument/37751-food-fibre-skills-action-plan-webv2-pdf)

[www.mpi.govt.nz/  
dmsdocument/40366-  
Forestry-Wood-  
Processing-Workforce-  
Action-Plan-20202024](http://www.mpi.govt.nz/dmsdocument/40366-Forestry-Wood-Processing-Workforce-Action-Plan-20202024)



This report contributes to the Knowledge outcome in the action plans.

# HOW TO USE THIS REPORT AND WHERE THE INFORMATION COMES FROM

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This report has three key sections.

## 1 WHAT DOES THE FOOD AND FIBRE WORKFORCE LOOK LIKE TODAY?

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Key facts about the workforce based on Statistics New Zealand data and MPI data.

## 2 FOOD AND FIBRE WORKFORCE SECTOR-BY-SECTOR ANALYSIS

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Facts, trends, and observations by sector based on Statistics New Zealand and MPI data.

## 3 GROWING OUR KNOWLEDGE BASE

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Data limitations and next steps for workforce data and forecasting.

The report does not include information on hours worked or income in the food and fibre sectors. Income data can provide valuable insights and serve as a workforce indicator, but there are currently data limitations in this area as is discussed in the “Improving income data” section of the report.

# THE FOOD AND FIBRE VALUE CHAIN

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In this report we take a value chain approach to the food and fibre sectors that includes those who grow food and fibre (production) and those who turn our food and fibre into products for the consumer (processing/commercialisation). Colloquially these are known as “before the farm or forest gate” and “after the farm or forest gate” or from water to waiter.

Using the Australian and New Zealand standard industry codes (ANZSIC), the food and fibre workforce has been grouped into seven main sectors within the food and fibre sectors:

- **arable;**

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- **dairy;**

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- **forestry and wood processing;**

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- **horticulture;**

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- **red meat and wool;**

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- **seafood;**

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- **pork, poultry, bees and other.**

Within the report, the definition of the food and fibre workforce has been kept reasonably broad to reflect the wide range of roles, occupations and skills needed for the sectors to be successful. The detailed breakdown of the categories in the industry codes is in Appendix 1.

We also look at support services. “Support services” include services that span the food and fibre sectors and other industries, or support more than one of the food and fibre sectors. For example, veterinary services provide services to the dairy and red meat and wool sectors, as well as to the wider public, and transport services will be used by all of the food and fibre sectors but also by other industries. Support services also include other roles that are important but are not unique to the food and fibre sectors, such as truck drivers and engineers.



## **WHERE TO FIND OTHER RELATED INFORMATION**

The MPI website page [Future workforce skills for the primary industries](https://www.mpi.govt.nz/funding-rural-support/future-skills/) has more information about this subject, including data used to prepare this report.

[www.mpi.govt.nz/funding-rural-support/future-skills/](https://www.mpi.govt.nz/funding-rural-support/future-skills/)

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That information includes:

- [Fact sheets: Primary industries workforce](#)
  - [Human capability in the primary industries: Part 1, 2004 to 2019 – an overview](#)
  - [Human capability in the primary industries: Part 2, 2015 to 2019 – qualification analysis by region](#)
  - [Monthly composition of the Primary Sector workforces over a year](#)
  - [Infometrics Future capability needs for the primary industries in New Zealand report 2014](#)
-

# 1 WHAT DOES THE FOOD AND FIBRE WORKFORCE LOOK LIKE TODAY?

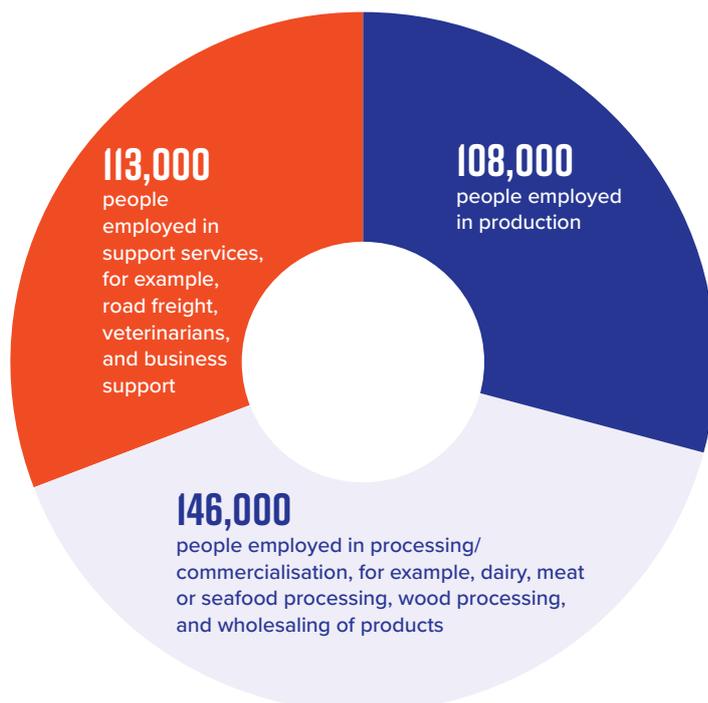
E PEHEA ANA TE ĀHUA  
O TE HUNGA KAIMAHI  
KAI ME TE MUKA I  
ĒNEI RĀ?



The food and fibre workforce is large and has many different roles and skill requirements. Producing food and fibre means managing complex biological, food safety, and logistic systems and being able to respond to and meet customer needs. The food and fibre sectors' value chain brings together production, processing/commercialisation, and supporting roles. Some products are transformed during processing/commercialisation, for example, milk into cheese, grapes into wine, and logs into engineered timber. For other products, the focus is on ensuring food reaches consumers in the best fresh state it can, for example, apples, meat, and kiwifruit. The value of highly perishable food products is directly impacted by the availability of workers to harvest and pack at the right time.

## WORKFORCE NUMBERS

The food and fibre sectors are a large and growing source of employment. In 2019 the sectors employed 367,000 people – 13.4 percent of the New Zealand workforce, equivalent to one in seven. Broken down, this includes:



It is interesting to note that the processing/commercialisation workforce is 35 percent larger than the production workforce. This highlights the importance of processing and commercialisation activities to ensure that consumers both in New Zealand and international markets receive high-quality, safe food and fibre.

There are challenges in defining the value chain in the food and fibre sectors and different approaches can give different workforce numbers. The approach in this report is based on the 2014 Infometrics report *Future capability needs for the primary industries in New Zealand*.

Ranking the seven sectors on the basis of numbers employed from largest to smallest shows variation in the mix of production and processing/commercialisation workers in each sector. The dairy sector has the second largest workforce, the largest production workforce and one of the smaller processing/commercialisation workforces, which reflects the highly automated nature of dairy processing/commercialisation. The arable sector, in comparison, has the second smallest workforce overall, with the smallest production workforce and the third largest processing/commercialisation workforce, which reflects the wide variety of downstream industries.

Table 1: Ranking numbers employed by food and fibre sector

	Total Workforce	Production Workforce	Processing/ Commercialisation Workforce
Higher 7 icons	Red meat (64,055)	Dairy (33,100)	Red meat (35,015)
6 icons	Dairy (49,080)	Red meat (29,040)	Forestry (32,335)
5 icons	Forestry (40,835)	Horticulture (24,930)	Arable (20,865)
4 icons	Horticulture (38,730)	Forestry (8,500)	Pork, poultry, bees & other (17,700)
3 icons	Pork, poultry, bees & other (24,220)	Pork, poultry, bees & other (6,520)	Dairy (15,980)
2 icons	Arable (23,395)	Seafood (3,285)	Horticulture (13,800)
Lower 1 icon	Seafood (13,335)	Arable (2,530)	Seafood (10,050)

The food and fibre workforce decreased between 2005 and 2013 (workforce reductions in the red meat and wool sector and forestry sector were partly due to changing land use and production practices). Since 2013,

however, the food and fibre workforce has been growing. In 2019 there were 7,000 more people in the workforce than the previous peak in 2005 (360,000).

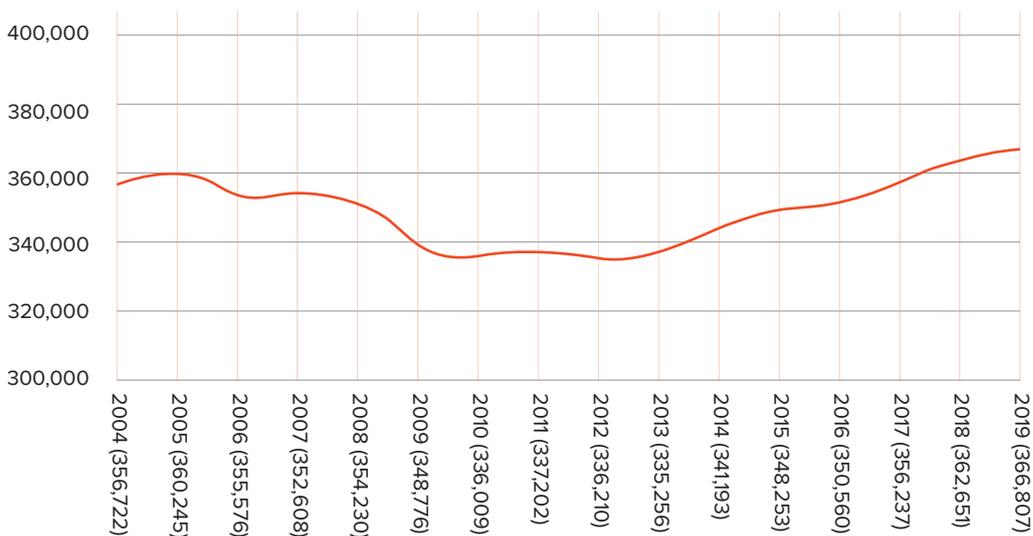


Figure 1: Employment counts for the food and fibre sectors from 2004 to 2019

In each of the seven sectors, the level of employment has continued to change as land use, production practices and processing/commercialisation practices evolve, as illustrated below.



**SINCE 2004, EMPLOYMENT IN THE ARABLE SECTOR'S WORKFORCE HAS INCREASED BY OVER 3,000.**



**EMPLOYMENT IN THE DAIRY SECTOR HAS BEEN RELATIVELY STABLE**

since 2004, although over this period the dairy sector has seen an increase in land use and dairy cow numbers.



Employment in the forestry and wood processing sector declined by over 13,000 between 2004 and 2012 but is now growing **AND HAS INCREASED BY ALMOST 3,000 BETWEEN 2012 AND 2019.**



**EMPLOYMENT IN THE HORTICULTURE SECTOR HAS DECLINED BY ABOUT 1,700 SINCE 2004,**

although these figures may not capture seasonal peaks.



**SINCE 2004, THE PORK, POULTRY, BEES AND OTHER SECTOR'S WORKFORCE HAS INCREASED BY ALMOST 8,000.**



**SINCE 2004, THE RED MEAT AND WOOL SECTOR'S WORKFORCE HAS DECLINED BY OVER 20,000.**

Over the same period land use has decreased with an increase in other land uses, particularly dairy.



**SINCE 2004, THE SEAFOOD WORKFORCE HAS DECLINED BY ALMOST 2,000.**



**IN ADDITION, THE ESTIMATED SUPPORT SERVICES WORKFORCE HAS INCREASED BY OVER 35,000 SINCE 2004.**

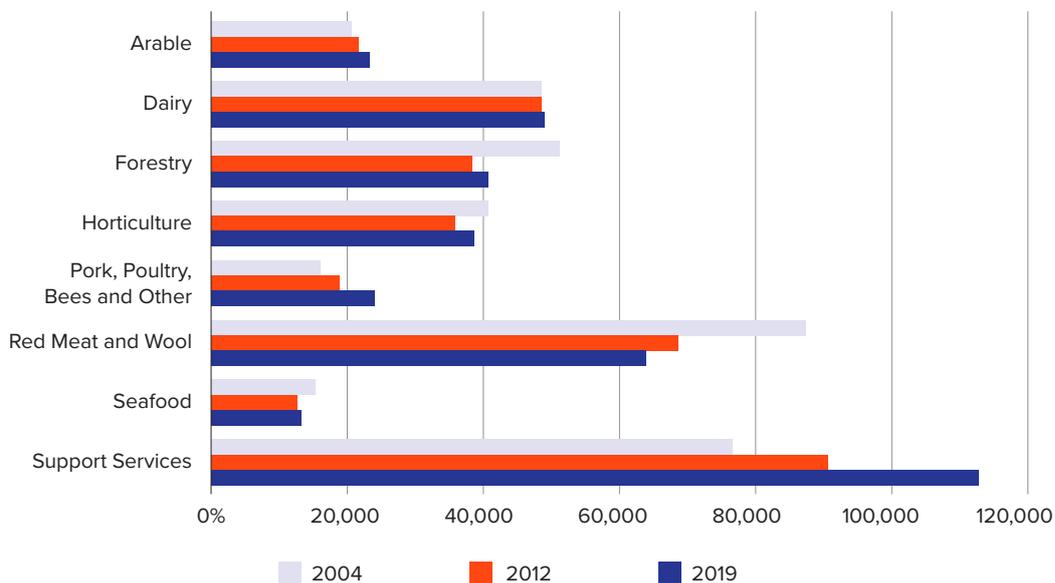


Figure 2: Food and fibre sectors – industry level changes 2004, 2012 and 2019

# DEMOGRAPHICS

The food and fibre workforce is broadly similar to the New Zealand workforce in terms of age, ethnicity and education. The food and fibre workforce is not as gender balanced as the New Zealand workforce with a higher proportion of men. The demographics of the workforce also varies across sectors and regions, which highlights areas with potential gains from improving diversity.

Relative to the New Zealand workforce the food and fibre workforce has the following characteristics.



## MORE MEN THAN WOMEN IN THE WORKFORCE, PARTICULARLY IN THE OLDER AGE COHORTS.

Women are an increasing proportion of new entrants, although the gender balance for new entrants is still less than the gender balance of the New Zealand workforce.



## MORE PEOPLE WHO ARE SELF-EMPLOYED IN THE WORKFORCE.



## THE WORKFORCE HAS A SIMILAR AGE PROFILE, WITH SLIGHTLY FEWER PEOPLE AGED 55 AND OVER.



## THERE ARE MORE PEOPLE WHO IDENTIFY AS MĀORI AND PACIFIC, AND FEWER WHO IDENTIFY AS ASIAN.



While there is a wide range of formal qualifications held by people working in the food and fibre sectors, the highest level of formal qualifications attained by 15 to 29 year olds are lower overall than the general population. While degrees are necessary for some roles, the food and fibre sectors also provide employment opportunities for people with lower-level formal qualifications.

## SPOTLIGHT:

# MĀORI ARE STRONGLY REPRESENTED AS WORKERS AND ASSET OWNERS

Overall, nearly one in five workers (19 percent) identifies as Māori or Māori and one or more other ethnicities. Māori are strongly represented in some sectors with at least one in five workers (20 percent) identifying as Māori in the forestry and wood processing/commercialisation, the red meat and wool, and the seafood sectors.

Māori are even more strongly represented in some subsectors. For example, Māori make up 37 percent of forestry production and 28 percent of red meat processing/commercialisation.

There is also a regional overlay with most of the Māori workforce located in the North Island and in Canterbury.

Māori own over \$23b of food and fibre assets, more than in any other industry. In 2018, these assets added nearly \$2.5b to the country's GDP<sup>1</sup> By sector, the largest Māori investments are in sheep and beef farming (\$8.6b), dairy (\$4.9b), forestry (\$4.3b), and seafood (\$2.9b).<sup>2</sup>

The future food and fibre workforce can build on this strong base of Māori workers and asset owners, aiming for strong Māori representation in all levels and sectors.

**NEARLY ONE IN FIVE WORKERS (19 PERCENT) IDENTIFIES AS MĀORI OR MĀORI AND ONE OR MORE OTHER ETHNICITIES.**

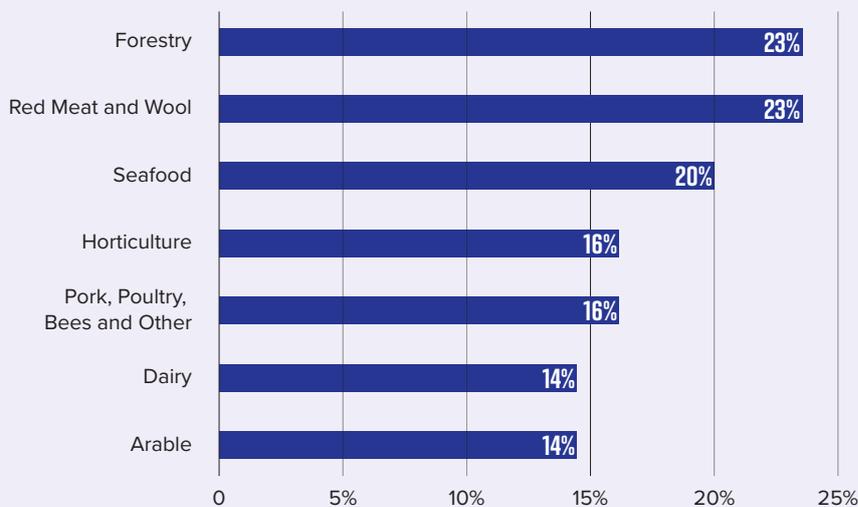


Figure 3: Representation of Māori by sector

1 BERL (2021) *Te Ōhanga Māori 2018*, A report prepared for the Reserve Bank of New Zealand. Business and Economic Research Ltd, New Zealand, p.17.

2 BERL (2021) *Te Ōhanga Māori 2018*, p.20

# GENDER REPRESENTATION IN THE FOOD AND FIBRE WORKFORCE

The food and fibre workforce is nearly two-thirds male (65 percent). From 2012 to 2019 the number of women working in the food and fibre sectors increased, lifting the proportion of females employed in the sectors from 33.3 percent to 35 percent.

The gender balance varies widely in the food and fibre sectors with some large workforces having some of the highest male proportions which makes lifting the overall proportion of females challenging. For example, forestry and wood processing with the third largest sector workforce (excluding support services) is more than 80 percent male, while the arable sector, with the second smallest workforce, is 53 percent male. The gender balance in the arable sector is similar to the gender balance in the New Zealand workforce.

There have been increases in the number and proportion of females working in the food and fibre sectors. While the gender balance has improved, there is more to do as the balance is still significantly lower than the New Zealand workforce (52 percent male). Moving the dial further on gender representation will take time and continued effort.

**WHILE THE GENDER BALANCE HAS IMPROVED, THERE IS MORE TO DO AS THE BALANCE IS STILL SIGNIFICANTLY LOWER THAN THE NEW ZEALAND WORKFORCE.**

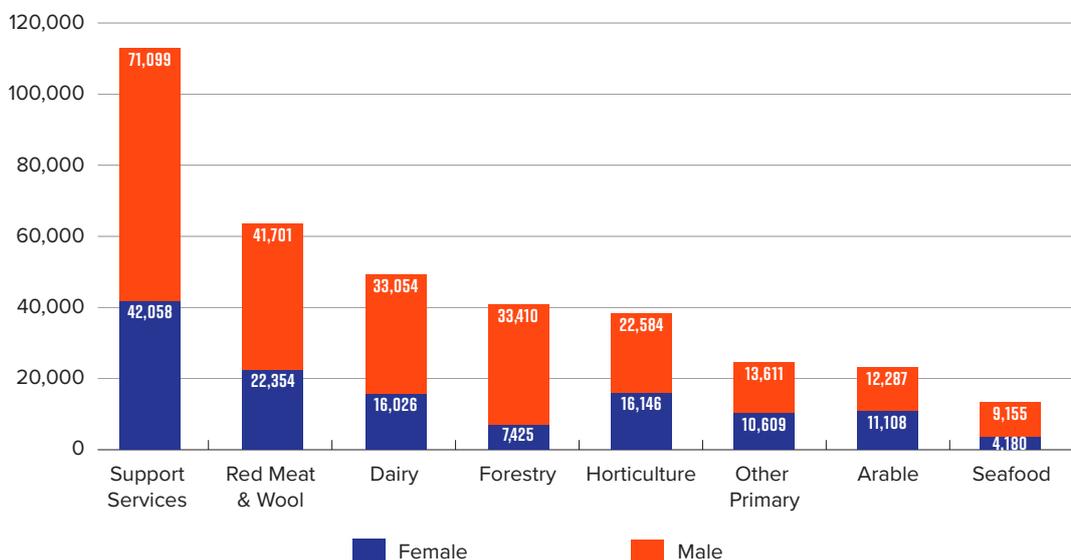


Figure 4: Gender representation for the food and fibre workforce (2019)

# SELF-EMPLOYMENT IN THE FOOD AND FIBRE WORKFORCE

The food and fibre workforce has a higher number of people in self-employment than the national average (10 percent).

Self-employment is often associated with business (including contractors) and land ownership. The highest levels of self-employment within the workforce are found in the production sections of both the dairy sector (28 percent) and red meat and wool sector (30 percent).

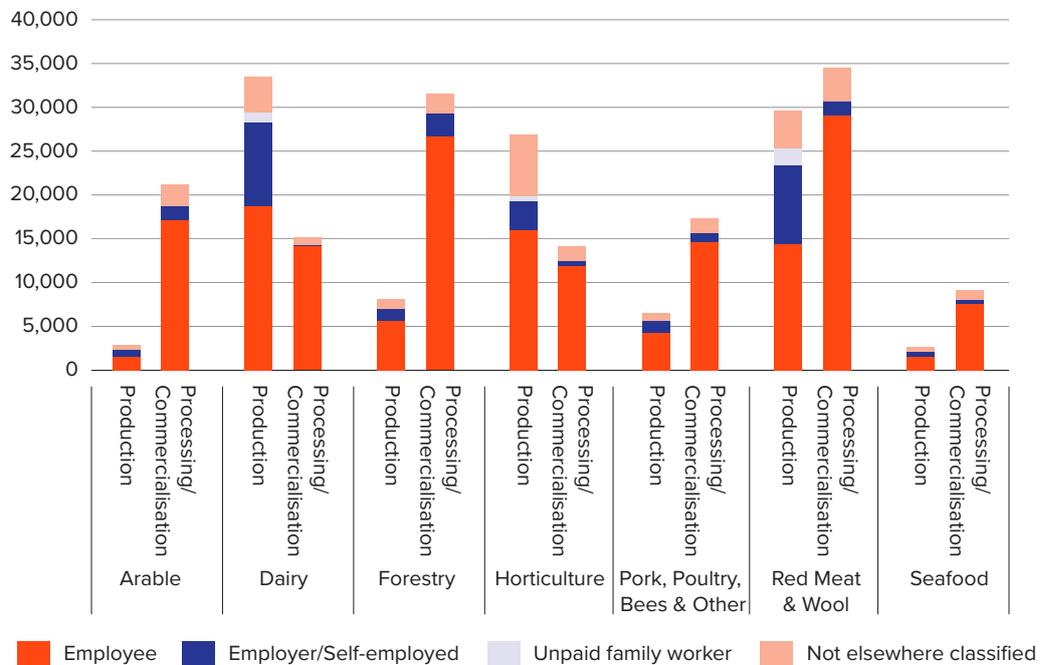


Figure 5: Food and fibre workforce by sector and employment type (census year 2018)



# AGE PROFILE OF THE FOOD AND FIBRE WORKFORCE

The food and fibre workforce age profile is broadly comparable with the age profile of the New Zealand workforce.

At an aggregate level, the production workforce is younger than the processing/commercialisation workforce. There is wide variation between the sectors, for example, 47 percent of workers in horticulture production are aged under 30 years, conversely, 31 percent of workers in red

meat and wool production are aged 55 and over. The age breakdown for each sector is provided in the -sector snapshots.

Age intersects with ethnic diversity and employment type. The younger cohort is more ethnically diverse, and less likely to be self-employed or own a business. The median age of employees is 30–41, and the median age of self-employed workers (which includes farm, orchard, or factory owners) is 48–58. There is significant variation in the age profile of each sector as highlighted in Figure 6 and Figure 7.

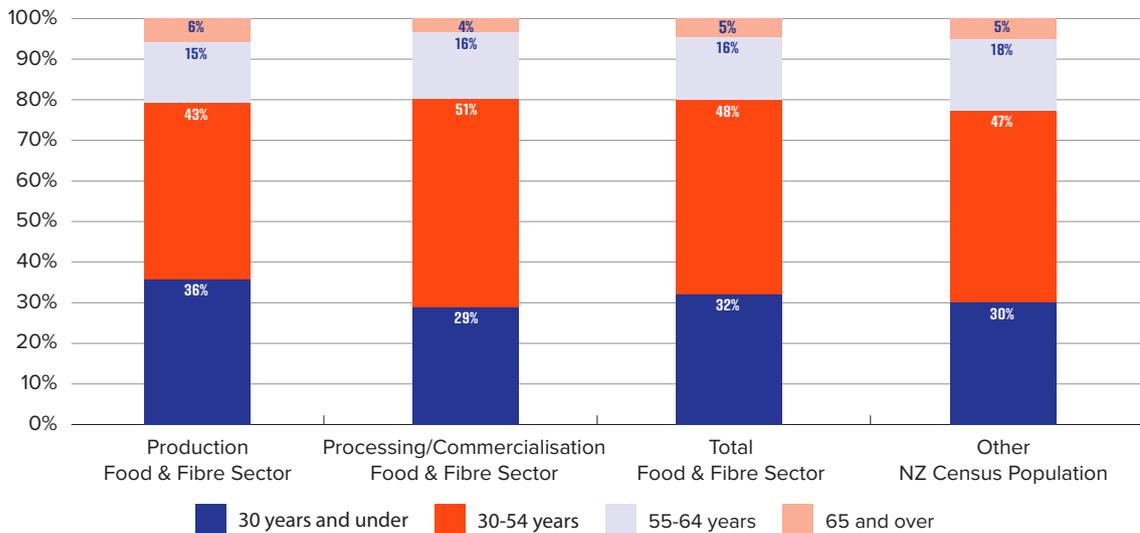


Figure 6: Age profiles of the food and fibre workforce (year ending March 2019)

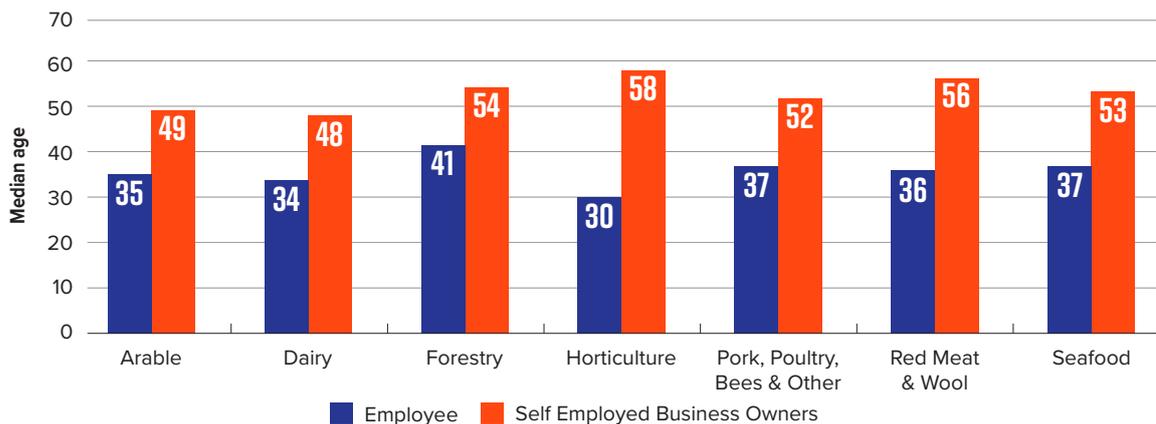


Figure 7: Median age of the food and fibre workforce by sector and employment status (year ending March 2019)

# ETHNIC REPRESENTATION IN FOOD AND FIBRE SECTORS

Consistent with the New Zealand population, the majority of workers across all sectors and value chains identify as European. The following graph illustrates the ethnic diversity within each sector.

The proportion of people who identify as Māori is higher in the food and fibre workforce than in the general New Zealand working age population, with the exception of the arable and dairy sectors. People who identify as Pacific peoples are underrepresented in all production sectors, except horticulture. The Recognised Seasonal Employment (RSE) scheme where workers from eligible Pacific countries come to New Zealand for seasonal work in the horticulture and

viticulture industries may explain this overrepresentation. People who identify as Pacific peoples are overrepresented in all processing/commercialisation sectors except dairy possibly due to large processing/commercialisation workforces being based in the Auckland region. People who identify as Asian are underrepresented overall with some overrepresentation in arable processing/commercialisation and red meat processing/commercialisation.

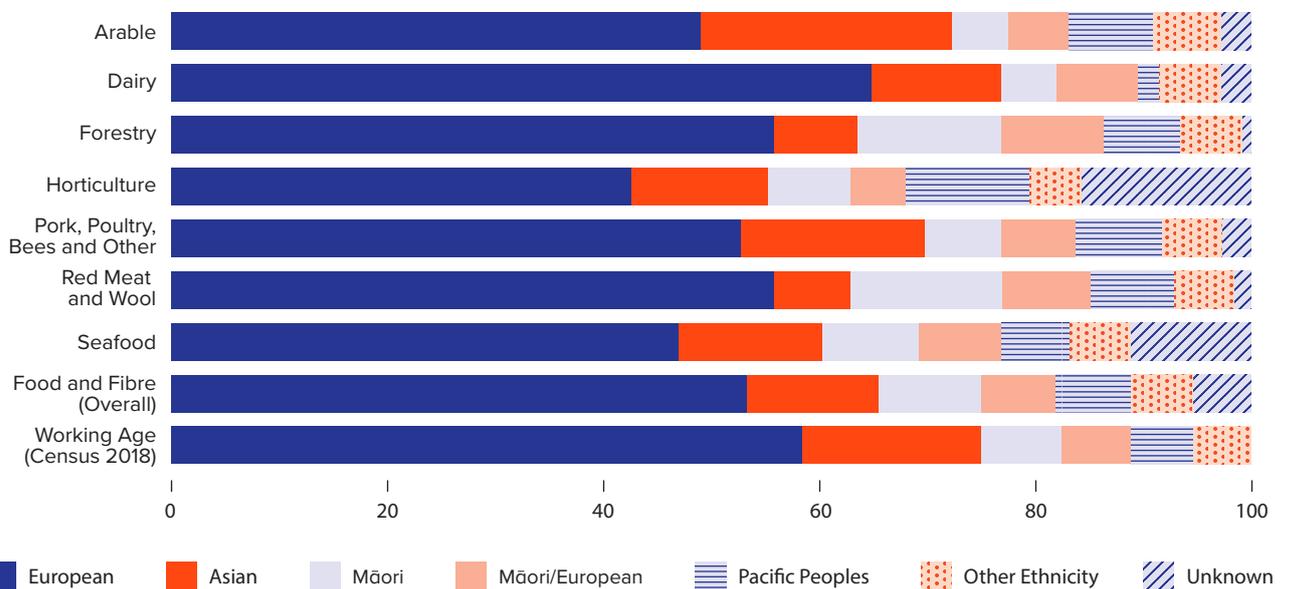


Figure 8: Ethnicity of the food and fibre workforce by sector and employment status (2019)

# REGIONAL EMPLOYMENT

The food and fibre sector employment varies across the regions.

The food and fibre sector employment varies across the regions. In regions without a city of 100,000 or more residents, the food and fibre sectors employ more than 20 percent of the workforce. Southland has the highest proportion at 28 percent of the workforce and the Wellington region has the lowest proportion at 8 percent of the workforce.

While the food and fibre sectors dominate the workforce in rural regions as a proportion of the workforce, the number of people working in the food and fibre sectors is highest in Auckland, Canterbury and Waikato.

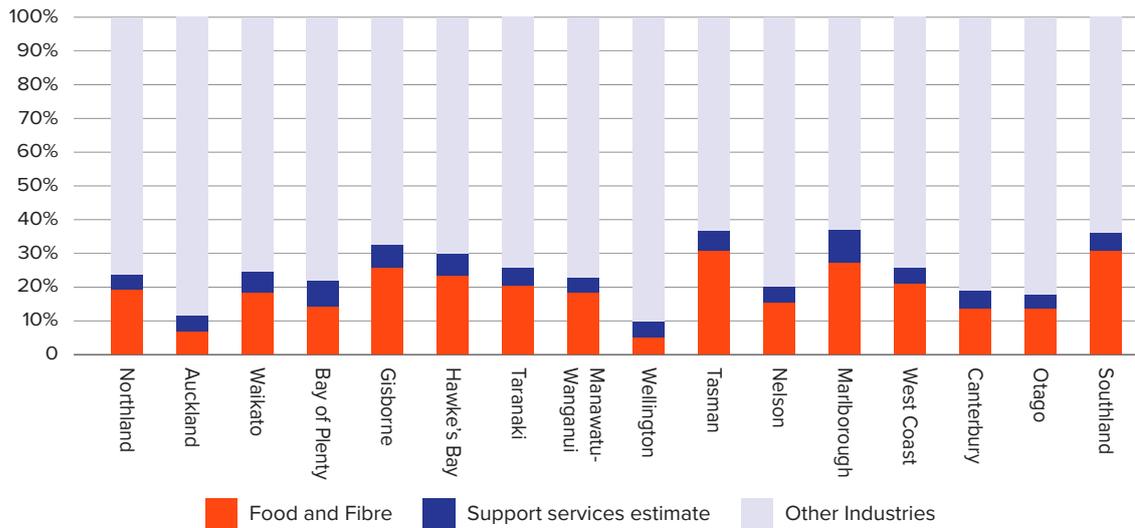


Figure 9: Food and fibre workforce as a proportion of regional workforce

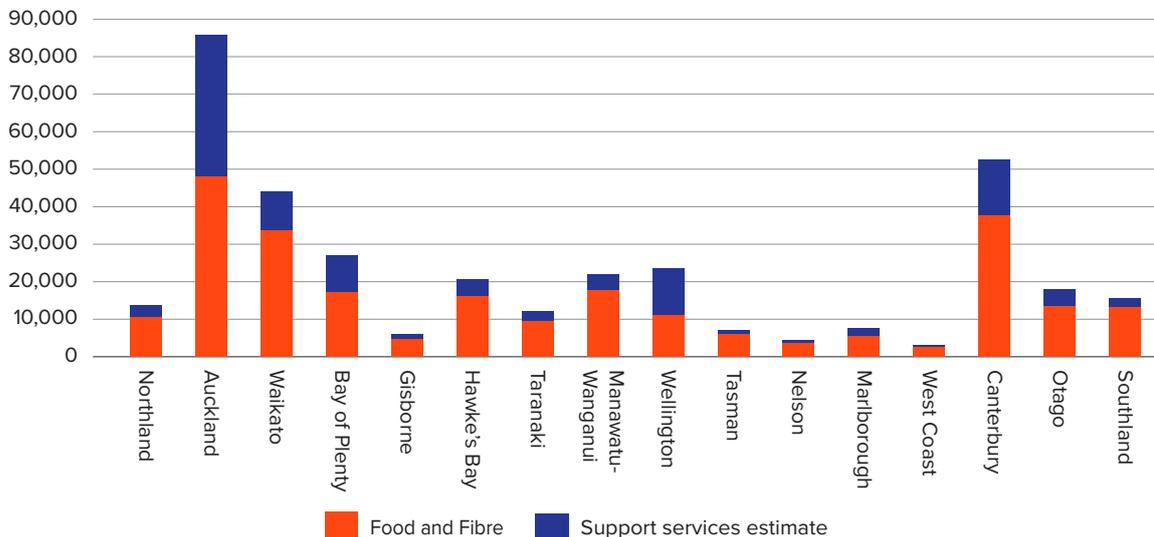


Figure 10: Food and fibre workforce count by region

# WORKFORCE OVER A YEAR

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There is monthly variation in the size of the workforce across sectors and the value chain. Sectors, such as horticulture, have short seasonal workforce peaks where thousands of additional workers are required for specific activities, such as picking fruit. Other sectors, such as red meat processing/commercialisation, also have a seasonal peak; however, additional workers are required for a longer period. Other sectors, while they also have seasonal activities, such as calving and tree planting, tend to maintain a relatively stable workforce through the year. The monthly variation in the size of each workforce is covered in the sector-by-sector analysis.

The food and fibre sectors also manage seasonal demand by employing contractors to undertake specific tasks such as shearing, land cultivation, making supplementary feed (for example, silage) and harvesting grains. Some contractors, particularly from industries that provide services to both food and fibre businesses and other business, will not be visible in the workforce data. This can mean that sector employment estimates can be undercounts with seasonal variation also undercounted. One area of particular concern is labour-hire. This is an area where we would like to improve our understanding of how these workers are captured in official data sources – refer to the discussion on the forecasting project.

## **Contribution of temporary migrants to the workforce**

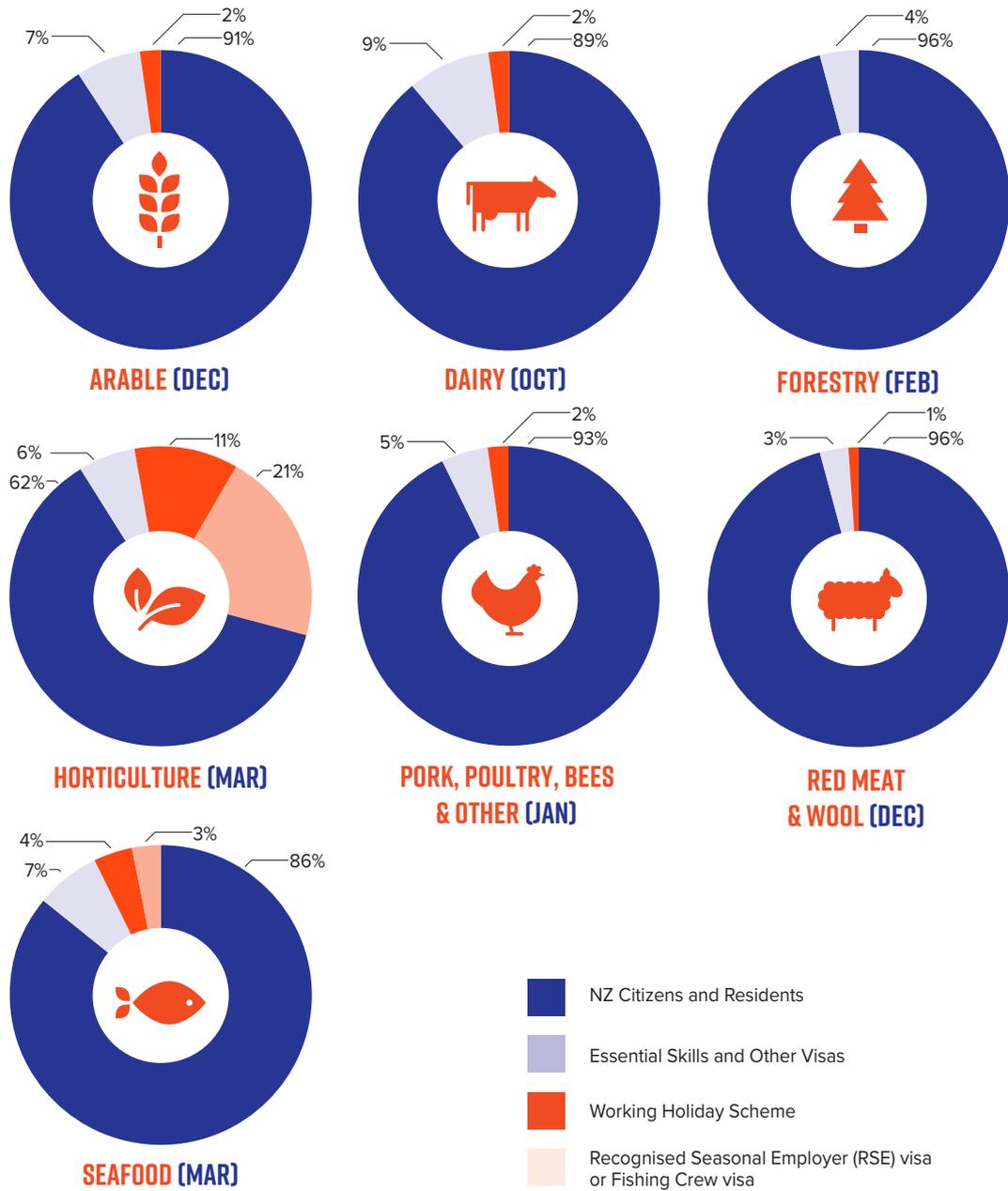
The food and fibre workforce is primarily New Zealand citizens and residents. Temporary migrants are also an important part of the workforce. In horticulture almost a third of the peak month workforce in 2019 were temporary migrants on Recognised Seasonal Employer (RSE) visas and Working Holiday Scheme (and Extension) visas. Temporary migrants on Essential Skills Work visas and other visas holders were over 10 percent of the peak month workforces for dairy, pork, poultry, bees and other and seafood. For some specialist roles there is also an international labour force that follows the Southern Hemisphere and Northern Hemisphere growing seasons, such as sheep pregnancy scanners and agricultural machine operators.

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**THE FOOD AND FIBRE SECTORS  
ALSO MANAGE SEASONAL DEMAND  
BY EMPLOYING CONTRACTORS TO  
UNDERTAKE SPECIFIC TASKS.**

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Figure 11: Source of workers for peak month by sector 2019



Note: The figures in Figure 11 are calculated on a different basis than the workforce count figures which are calculated on a quarterly averages' basis. The monthly peak workforce figures are higher than the workforce count figures. Because migrant labour is often used to help manage peak labour demand, the percentage of migrants listed above is likely to represent peak migrant numbers and the average number of migrants will be below what is listed.

**RSE scheme and Working Holiday scheme – a seasonal labour source for horticulture**

The annual pattern of employing RSE visa holders and Working Holiday visa holders in the horticulture sector is reasonably consistent, with the number employed in both groups reaching their peak around March.

As shown in Figure 12, the number of onshore RSE workers employed reaches a peak in March and then drops sharply.

Working Holiday visa holder participation follows a similar pattern, with peaks during harvest in summer and autumn, and lowest numbers in early spring. Unlike RSE, this represents a fraction of the up to more than 45,000 Working Holiday visa holders onshore, and is an estimate of participation, based on 2016/17 and 2018/19 participation data.

Both RSE visa holders and Working Holiday visa holders make an important contribution to the horticulture sector. RSE visa holders who return each year bring valuable skills and experience. A 2019 survey of employers found that most employed the same workers under the scheme as they did the previous year.<sup>3</sup> Working Holiday visa holders also make important contributions and, unlike RSE, as employers do not have to be accredited, may work for a greater range of employers.

It is likely that more Working Holiday visa holders work in the sector than the data shows, as the previously discussed limitations around contract labour make it difficult to identify everyone working in the sector.

The RSE scheme allows horticulture and viticulture employers to recruit workers, primarily from the Pacific. The visas issued under this scheme enable visa holders to stay in New Zealand for 7 months in any 11-month period, and to work in seasonal horticultural and viticultural roles.

The number of RSE visas is limited (when borders are open) by an annual cap. This cap has steadily increased and was kept at 14,400 for 2020/21.

As well as providing an important source of workers, the money workers can send home is important for Pacific communities.

Research about the scheme and its impacts can be found on Immigration New Zealand’s website [www.immigration.govt.nz/about-us/research-and-statistics/research-reports/recognised-seasonal-employer-rse-scheme](http://www.immigration.govt.nz/about-us/research-and-statistics/research-reports/recognised-seasonal-employer-rse-scheme)

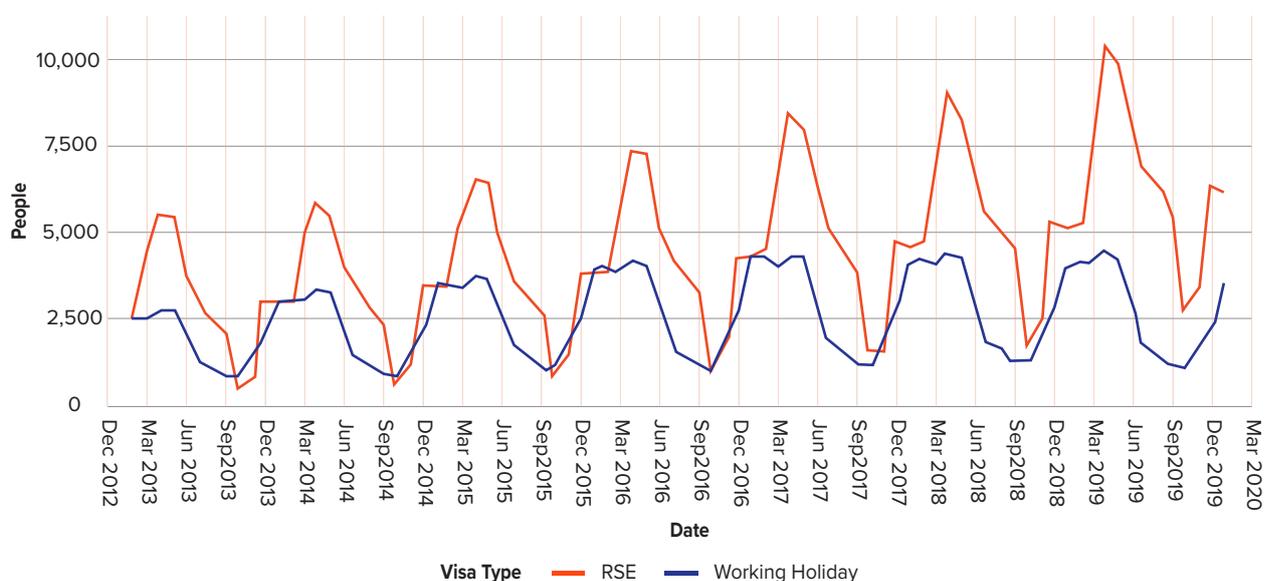


Figure 12: Estimate of Migrant Horticultural Workforce – Working Holiday and RSE

3 Research New Zealand (December 2018) 2019 RSE Survey, A report prepared for the Ministry of Business, Innovation and Employment.

# SKILLS, EXPERIENCE AND EDUCATION

Measuring skills is challenging. Education, experience and remuneration can all be used as possible indicators of skills. This section collates a variety of information on those who are entering the food and fibre sectors, along with some information on the broad Field of Study and NZQA level of study for those aged 15 to 29 years within the food and fibre sectors.<sup>4</sup>

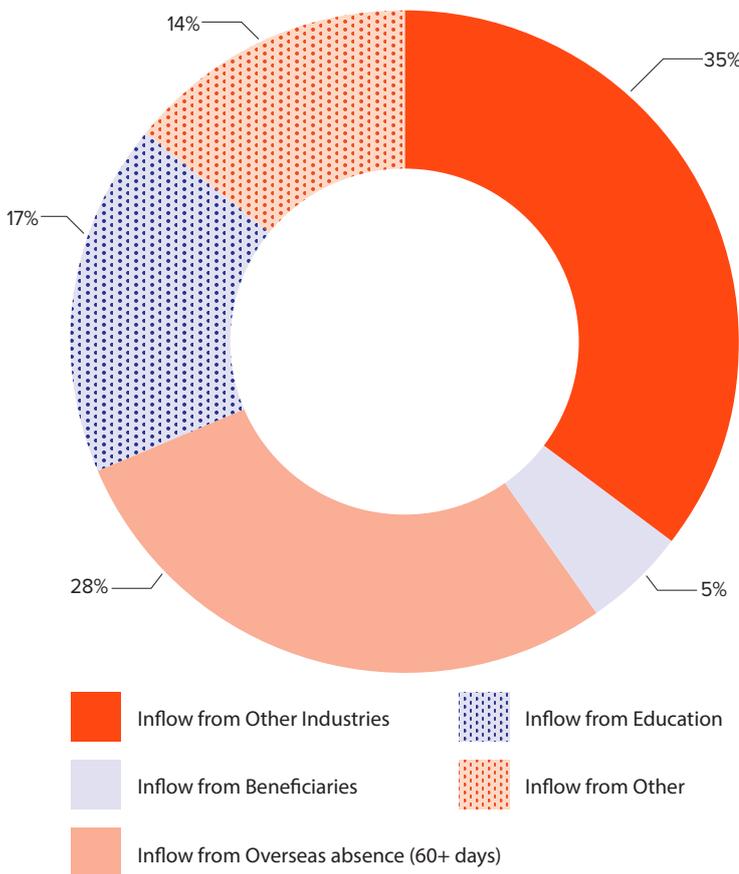


Figure 13: Source of entrants into the food and fibre workforce

Note: In this figure, “Other” refers to a group of people who have no evidence of earning any income (no tax record), no evidence of going overseas, and no evidence of having been in the education system. They could be people on parental leave, caregivers, doing voluntary work or unpaid family work, in hospital or prison, etc.

The data show that the New Zealand workforce is very dynamic. People move in and out of the food and fibre sectors. The largest inflow of new entrants in 2016 was from people working in other sectors, followed by New Zealanders returning from overseas.

Analysis of the fields of study of those aged 15 to 29 years shows that people with a very wide range of skills can find rewarding careers within the food and fibre sectors. Finally, the level of study suggests that, like the workforce in general, most people who hold formal qualifications are more likely to have a foundation level of qualification (levels 1 to 3).

### New entrants<sup>5</sup>

In the year ending March 2016,<sup>6</sup> 50,000 new entrants began working in the food and fibre sectors. Most new entrants were young, with 66 percent being under the age of 30. There were also over 13,500 people (27 percent) aged 30 to 54 years and over 2,000 people aged 55 years and over who worked in the food and fibre sectors for the first time in 2016.

The new entrants in 2016 had a higher proportion of women (42 percent) than the food and fibre sector (35 percent).

The largest source of new entrants in 2016 was people moving from other industries (35 percent), followed by people moving to New Zealand from overseas (28 percent).

4 Education information has been focused on those aged 15 to 29 years because the quality of data for this age band is better and it will be slightly easier to see if levels of formal education are changing overtime if we monitor the age bands of those more likely to be involved in formal education.  
 5 A new entrant is defined as someone who has not worked in the food and fibre sectors (or when considering new entrants by sector, the relevant sector) in the last 10 years.  
 6 For this analysis, 2016 is the reference year because we are also interested in understanding the movement of new entrants over the subsequent next three years.

The source of new entrants varies for the food and fibre workforce. The horticulture sector’s largest source of new entrants in 2016 was from overseas (41 percent). For all other sectors, the largest source of new entrants was from other industries (range 32 percent to 49 percent). More information is provided in the sector-by-sector analysis.

The largest source of new entrants for the food and fibre sectors was from other industries, and over 40 percent of these

new entrants came from three industries: accommodation and food services; retail trade; and administrative and support services. These three industries were the highest source of new entrants from other industries for all sectors except forestry and wood processing; and pork, poultry, bees and other. In these two sectors, construction was in the top three as a source for new entrants. More information is provided in the sector analysis.

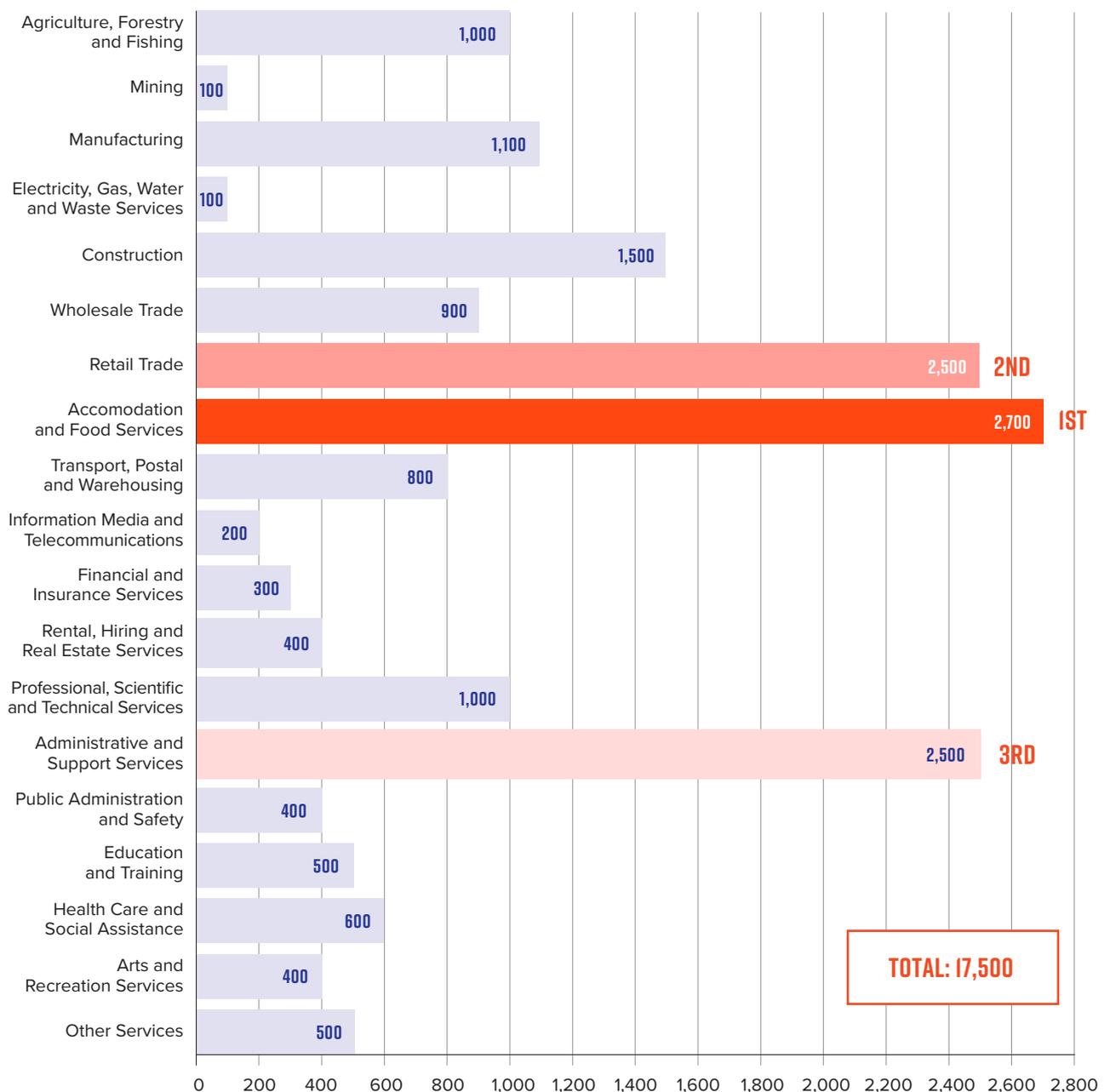


Figure 14: Entrants into the food and fibre workforce from other industries

Note: The people in "Agriculture, Forestry and Fishing" are from "other agriculture and fishing support services" and are not linked to any specific food and fibre sector. They work across the sectors and as such they are classified in Support Services and therefore mapped into other industries.

While there were 50,000 new entrants to the food and fibre workforce in 2016, there were 64,000 people who were new to a specific sector, indicating 14,000 people moved from one sector to another. Table 2 illustrates the movements in new entrants.

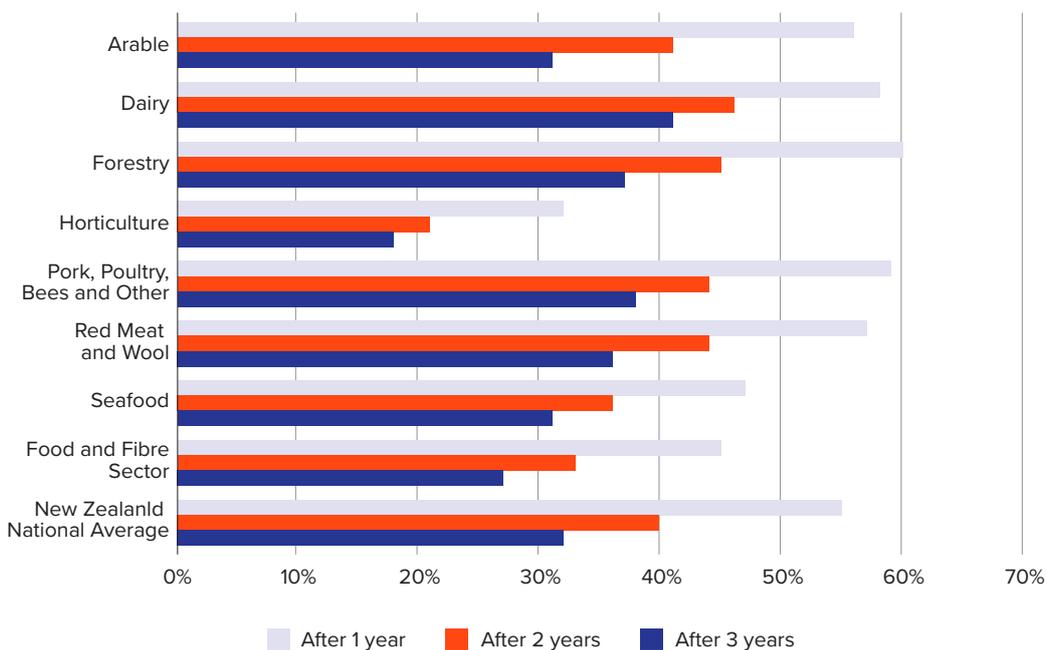
**New entrant retention rates**

The proportion of people who entered the sector in 2016 and who are still working after

one, two and three years varies for each sector. Figure 15 shows that the new entrant retention rates for the dairy; forestry and wood processing; pork, poultry, bees and other; and red meat and wool sectors are above the New Zealand new entrant retention rate. The arable sector has a similar rate to the New Zealand new entrant retention rate. The rates for the horticulture and seafood sectors are below it.

**Table 2: New entrants to the food and fibre workforce by sector**

INDUSTRY	COHORT SIZE OF PEOPLE ENTIRELY NEW TO ANY OF THE FOOD AND FIBRE WORKFORCES	COHORT SIZE OF PEOPLE NEW TO THIS INDIVIDUAL SECTOR <small>(This also includes those who may have come from a different food and fibre workforce but this is the first time ever in this particular sector)</small>
Arable	5,000	7,000
Dairy	6,400	8,500
Forestry	5,000	6,700
Horticulture	17,300	19,200
Pork, Poultry, Bees and Other	5,000	7,300
Red meat and wool	8,500	11,700
Seafood	2,800	3,600
<b>Food and Fibre Workforce</b>	<b>50,000</b>	<b>64,000</b>



**Figure 15: Retention rate of new entrants (2016 cohort)**

# FORMAL QUALIFICATION LEVELS OF FOOD AND FIBRE WORKFORCE

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Reliable datasets on formal qualification levels are available for those in the 15–29 age band, so discussion on formal qualifications is limited to this age group. Qualification data are based on the New Zealand Qualification Authority framework:

- levels 1 to 3 are certificates;
- levels 4 to 6 are certificates and diplomas;
- levels 7 to 10 are degrees, graduate and postgraduate diplomas, masters and PhDs.

## **Qualifications at all levels are desired in the food and fibre sectors.**

The food and fibre sectors offer a wide range of opportunities for people with a wide range of skills and qualifications. There are many positions with low barriers to entry where people can start working while they gain experience and qualifications. It is important to recognise that while many people may not have formal qualifications, they are highly skilled. These skills are developed through on-the-job training and experience.

Qualifications at levels 1 to 3 are important for many entry-level jobs that require some knowledge of the role, such as farm and orchard workers. These roles require the skills to ensure that people remain safe, and that what is produced is fit for purpose. These qualifications provide a foundation for higher level qualifications, either through on-the-job training or formal study. They are a valuable part of a food and fibre ‘pipeline’ approach to increasing the diversity and skill base of the workforce.

Qualifications at levels 4 to 6 are increasingly seen as important for roles supporting good management practices associated with increasing productivity, improving sustainable land and water management, and managing people, along with supporting people that have responsibility for compliance with regulations (such as animal welfare, biosecurity, chemical management and food safety).

Qualifications at levels 7 to 10 are required for specialised roles, such as rural consultants, environmental managers, engineer specialists and senior managerial roles (such as orchard managers and forest managers). Advanced degrees (Masters and PhDs) are particularly important for research and development roles and helping adoption and adaptation of new technologies into our production systems. For example, farm systems that integrate precision agriculture technologies have the potential to significantly lift farm productivity, and improve sustainability, animal welfare and food safety outcomes.

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**THERE ARE MANY POSITIONS WITH LOW BARRIERS TO ENTRY WHERE PEOPLE CAN START WORKING WHILE THEY GAIN EXPERIENCE AND QUALIFICATIONS.**

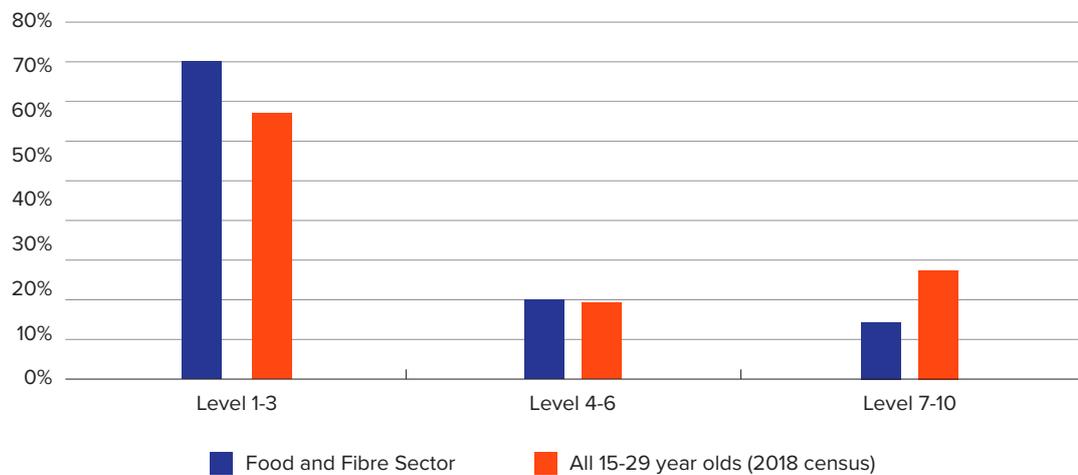
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**Qualification distribution**

People aged 15 to 29 years working in the food and fibre workforce have lower levels of formal qualifications than the equivalent New Zealand population.

**Table 3: Highest achieved level of formal Qualification in Food and Fibre Workforce compared to the New Zealand Population**

HIGHEST LEVEL OF FORMAL QUALIFICATIONS	FOOD AND FIBRE WORKFORCE	NEW ZEALAND POPULATION
Levels 7 -10	12%	24%
Levels 4 -6	18%	17%
Levels 1 -3	71%	59%



**Figure 16: Highest achieved formal qualification level in the food and fibre workforce for those aged 15 to 29 years compared to New Zealand average**

A higher proportion of workers with qualifications at levels 7 to 10 are found in the processing/commercialisation part of the value chain (15 percent) compared to the production part of the value chain (7 percent). This higher proportion of workers with qualifications at levels 7 to 10 holds for all sectors with the proportion ranging from slightly higher for the seafood sector and the red meat and wool sector (1 percent point difference) to significantly higher for the dairy sector (37 percent compared to 7 percent).

Relative to other sectors, the pork, poultry, bees and other sector has the highest proportion of workers with qualifications at levels 7 to 10. The number of people with qualifications at levels 7 to 10 is highest in the dairy sector. For workers whose highest qualifications are at levels 4 to 6, forestry has the highest proportion (25 percent). The proportion for other sectors for qualifications at levels 4 to 6 ranges from 14 percent to 19 percent broadly similar to the food and fibre sectors overall (18 percent) and New Zealand (17 percent) proportions.

**A HIGHER PROPORTION OF WORKERS WITH QUALIFICATIONS AT LEVELS 7 TO 10 ARE FOUND IN THE PROCESSING/COMMERCIALISATION PART OF THE VALUE CHAIN (15 PERCENT) COMPARED TO THE PRODUCTION PART OF THE VALUE CHAIN (7 PERCENT).**

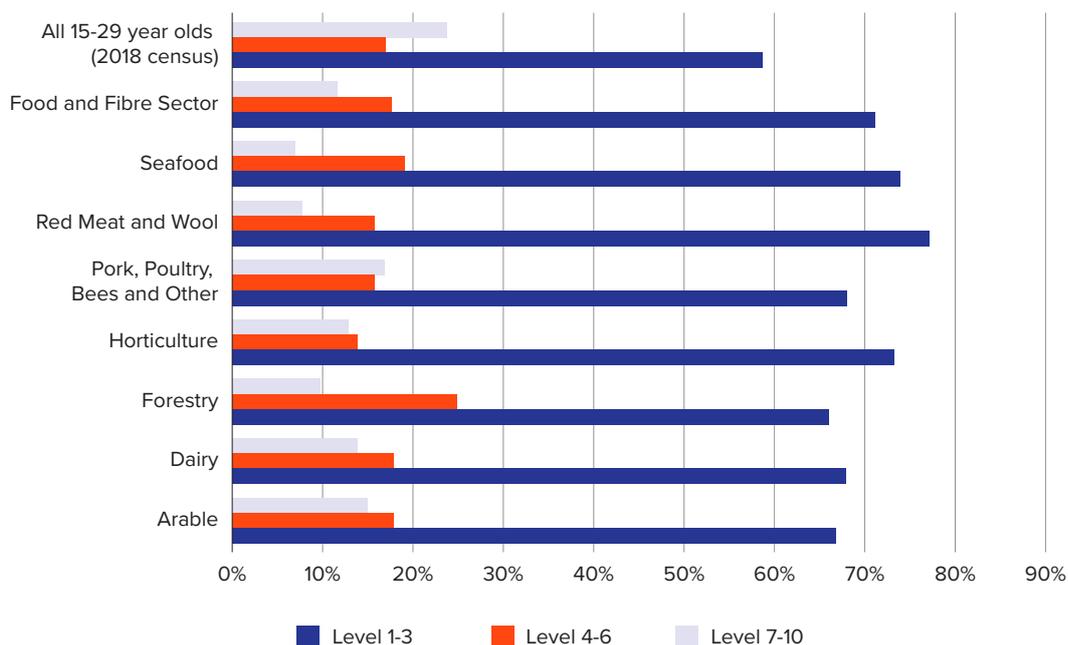


Figure 17: Formal qualification level in the food and fibre workforce by sector for those aged 15 to 29 years

# FIELDS OF STUDY

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There is a wide diversity of fields of study represented in those employed in the food and fibre sectors. As expected, Agriculture, Environmental and Related Studies which includes horticulture, forestry and fisheries studies, along with Natural and Physical Sciences are important, but also Engineering and Related Technologies, and Management and Commerce. Information Technology also features significantly in support services.

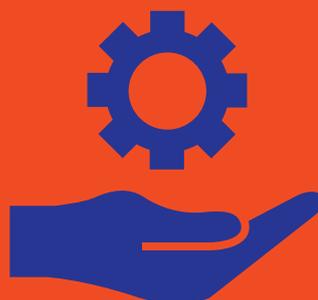
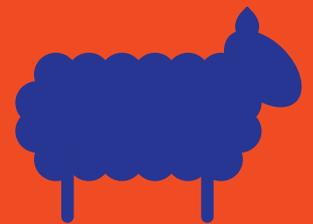
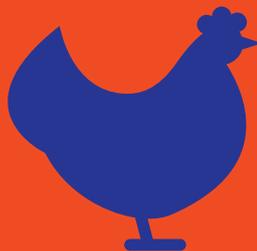
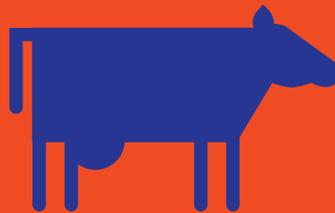
For those aged 15-29 years working in the food and fibre sectors with formal qualifications, the most common fields of study are as follows.

- For qualifications at levels 7 to 10, the most common fields of study are Management and Commerce, followed by Natural and Physical Sciences for both men and women. The third most common field of study is Agriculture, Environmental and Related Studies for men and Society and Culture for women.
- For qualifications at levels 4 to 6, the most common fields of study for men are Agriculture, Environmental and Related Studies, followed by Engineering and Related Technologies, and Architecture and Building. For women the most common fields of study are Management and Commerce, Food, Hospitality and Personal Services, and Society and Culture.
- For qualifications at levels 1 to 3 the most common fields of study are Blended/ other (two or more fields of study) and Agriculture, Environmental and Related Studies for both men and women. The third most common field of study is Engineering and Related Technologies for men and Food, Hospitality and Personal Services for women.

# 2 THE FOOD AND FIBRE WORKFORCE BY SECTOR

This section of the report looks the food and fibre workforce by each of the seven sectors and support services. The sectors broadly share many key characteristics in terms of the food and fibre workforce, but there are differences that are important to note.

## TE HUNGA KAIMAHI KAI ME TE MUKA Ā-RĀNGAI





# ARABLE

## TĀMATA

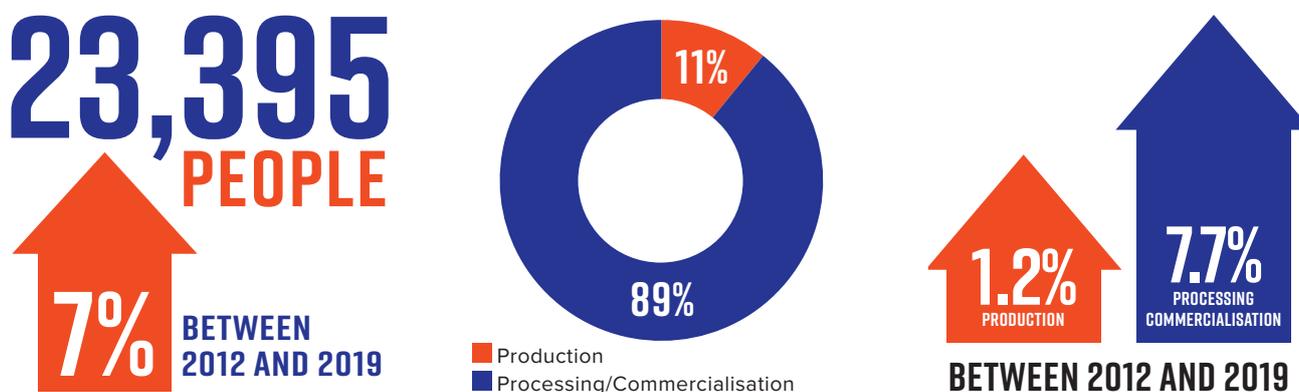
The arable sector includes grain and seed production, along with a diverse range of downstream industries such as flour milling, bread, bakery, cake and beer manufacturing. It also includes grain storage and wholesaling.



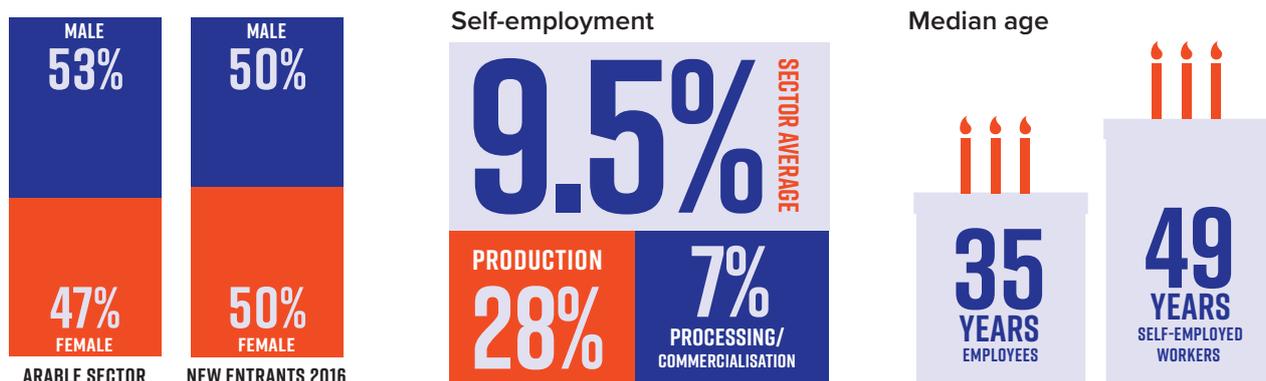


## Workforce count

The arable workforce makes up 6 percent of the food and fibre workforce. Almost 9 out of 10 workers are in processing/commercialisation, especially flour milling, bread making, baking, and beer brewing.



## Demographics



## Age profile

The production workforce has a higher proportion of workers aged under 25 years and aged over 55 years than the processing/commercialisation workforce. Over one-quarter (26 percent) of the production workforce is aged 55 and over.

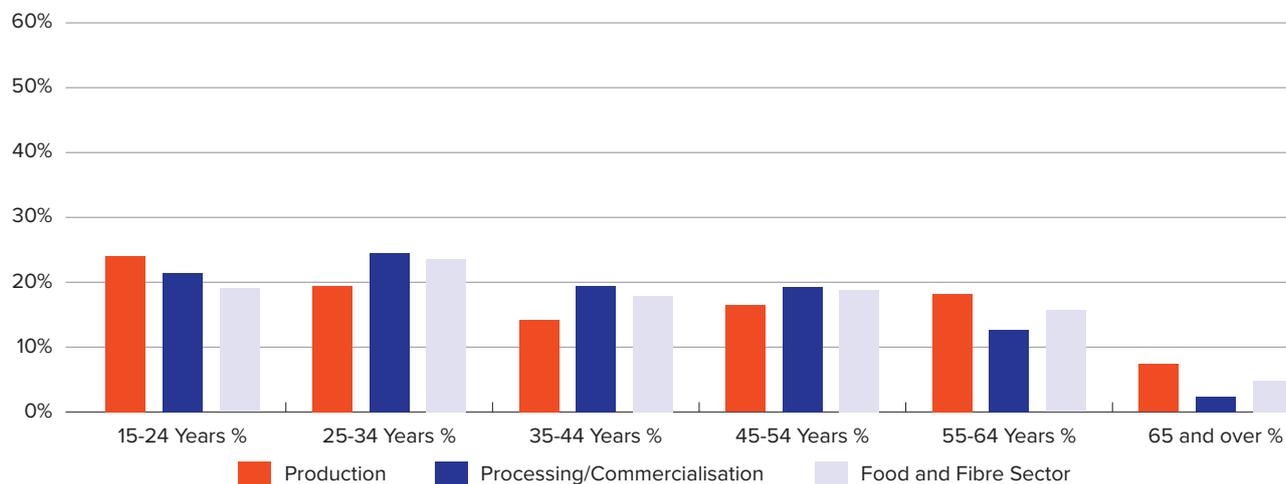


Figure 18: Age profile of the food and fibre workforce for the arable sector

### Ethnicity profile

The ethnicity profile in the arable sector varies between the production and processing/commercialisation workforces.

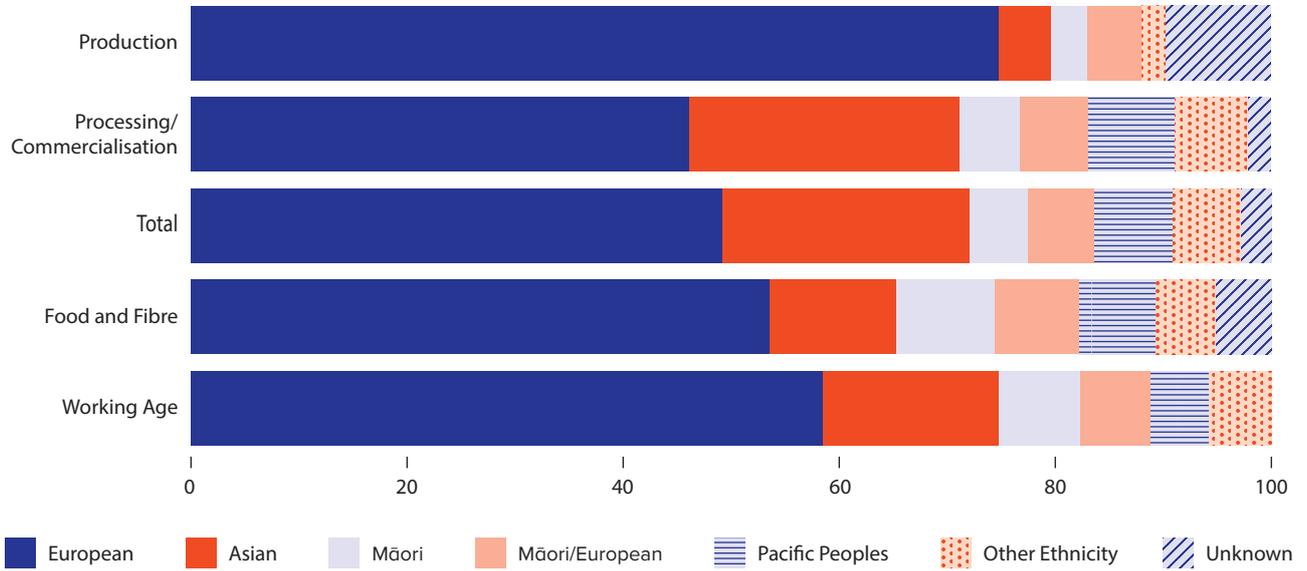


Figure 19: Ethnicity profile of the food and fibre workforce for the arable sector (2019)

The production workforce is more European than the New Zealand population with under representation of other ethnic groups. The processing/commercialisation workforce has a different profile with Asian and Pacific

peoples being overrepresented and European and Māori being underrepresented compared to the New Zealand population proportions.

### Arable 2019

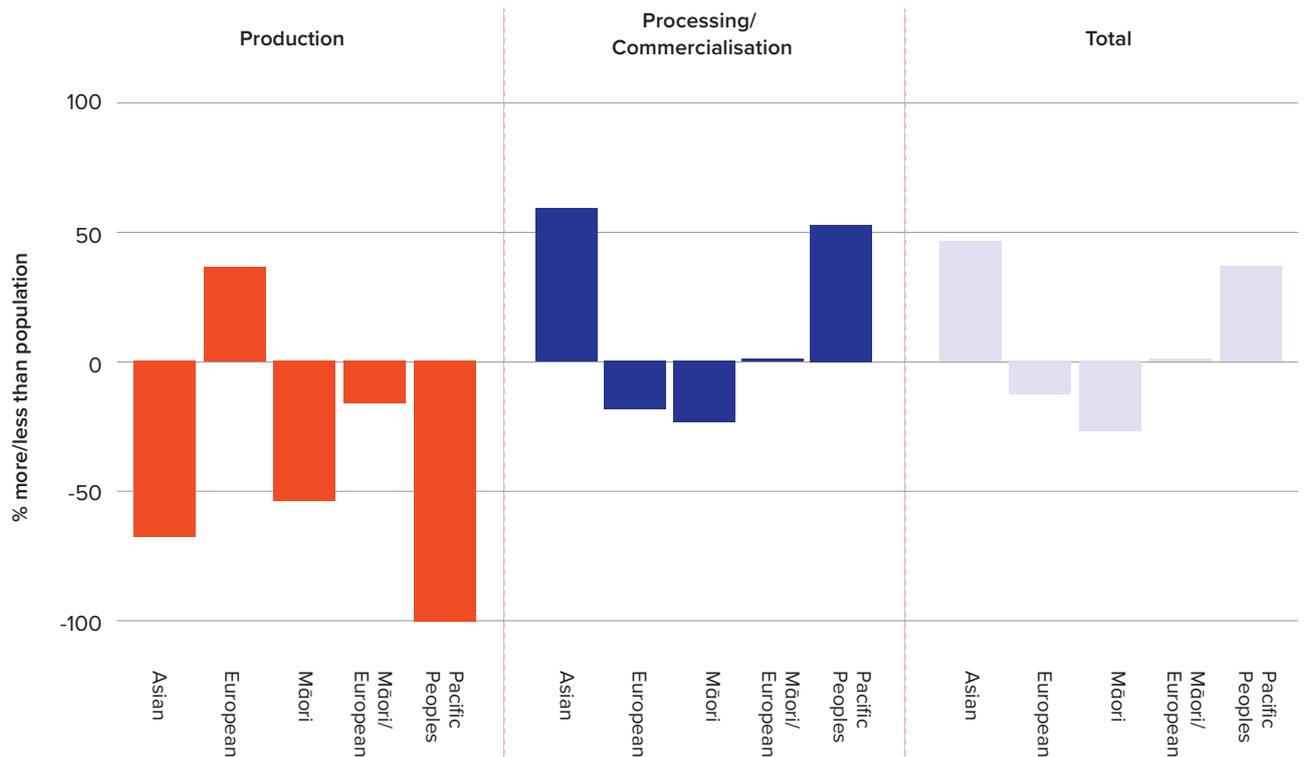


Figure 20: Ethnicity profile of the food and fibre workforce for the arable sector in comparison to the New Zealand population (2019)



### Regional distribution

The Canterbury and Waikato regions have the largest production workforces and the Auckland region the largest processing/commercialisation workforce.

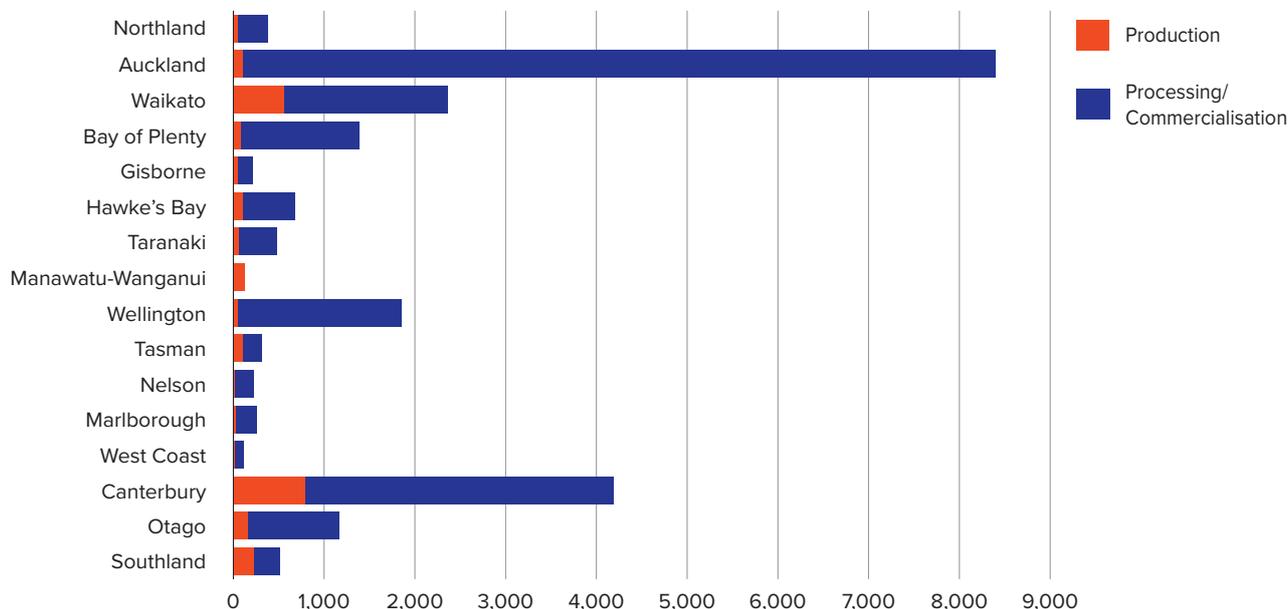


Figure 21: Regional distribution of the food and fibre workforce for the arable sector (year ending March 2019)

### Workforce numbers through a year

The arable workforce is reasonably stable through the year, with the processing/commercialisation workforce showing more variation than the production workforce.

December is the peak month for the production and processing/commercialisation workforces. About 90 percent of the peak workforce are New Zealand citizens and residents. Working Holiday visa holders are a smaller part of the workforce than migrant workers on other visa holders, including Essential Skills Work visa holders.

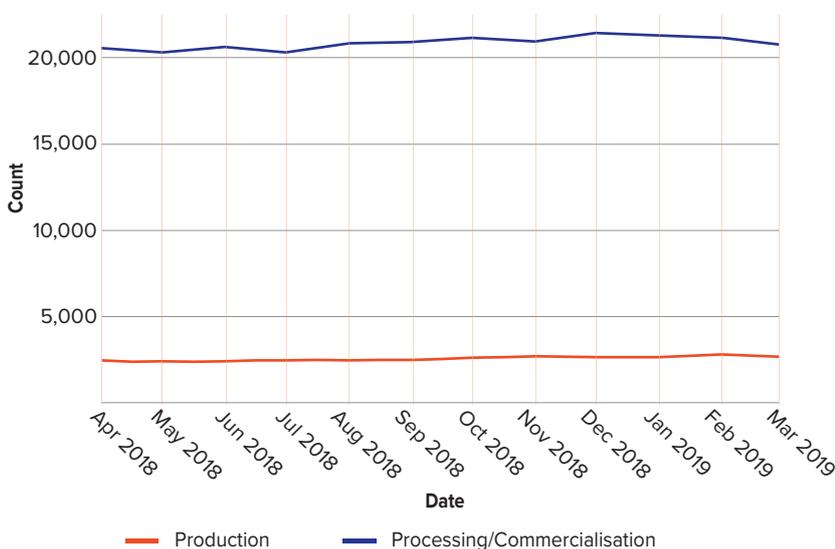
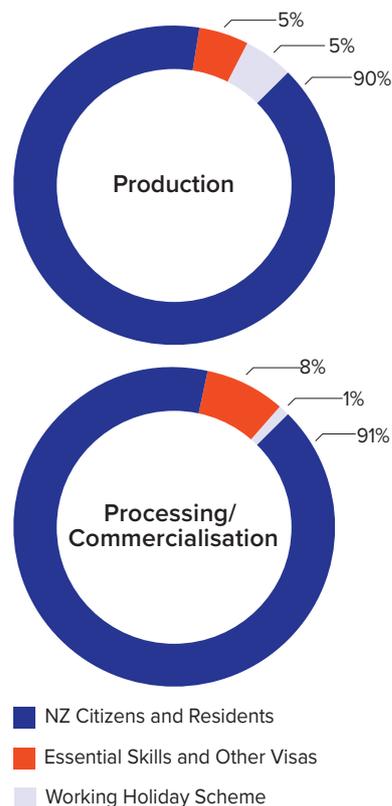


Figure 22: Monthly worker count for 2018 and 2019 for the arable sector

### Source of workers (in an average month)



## New entrants

### Where did they come from

In 2016 there were 7,000 new entrants into the arable sector. In Figure 23 we identify where these new entrants came from.

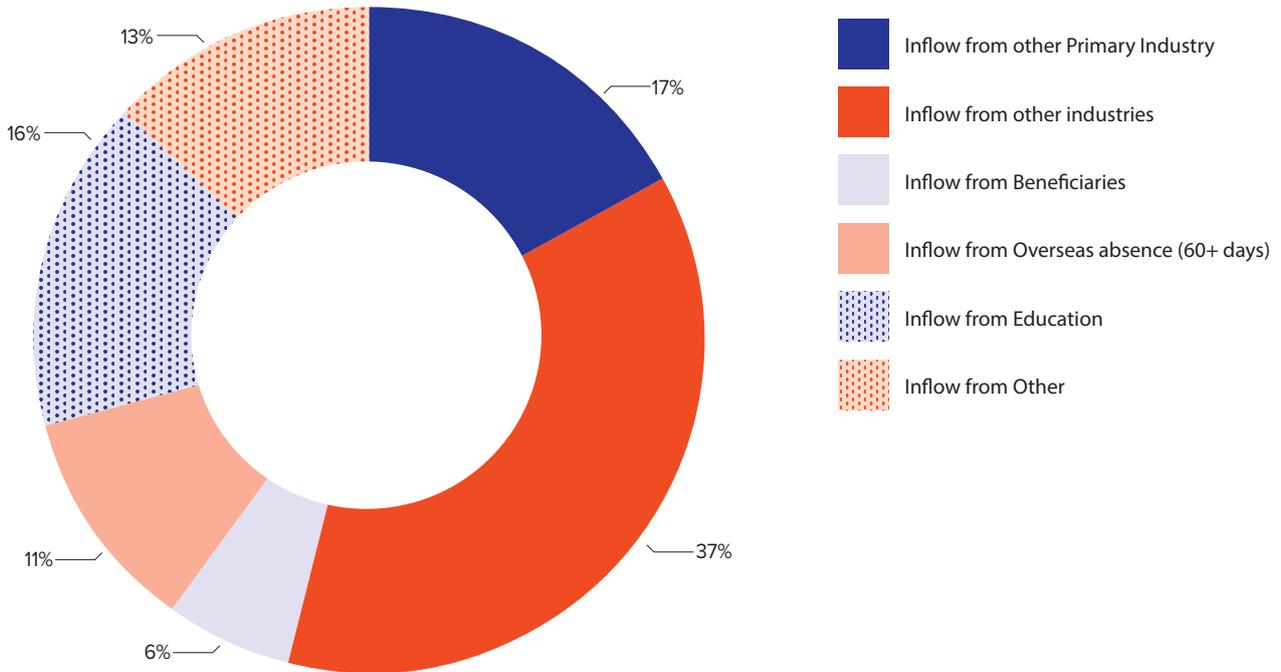
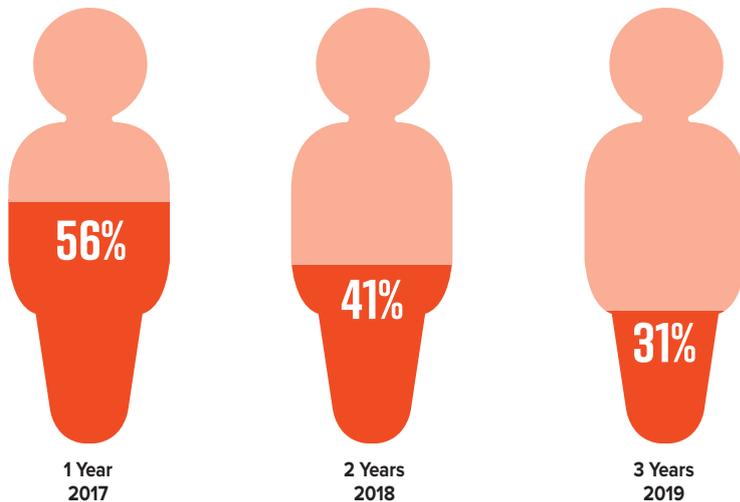


Figure 23: Where new entrants into the food and fibre workforce come from for the arable sector

Note: In this figure, “Other” refers to a group of people who have no evidence of earning any income (no tax record), no evidence of going overseas, and no evidence of having been in the education system. They could be people on parental leave, caregivers, doing voluntary work or unpaid family work, in hospital or prison, etc.

Of the 2,600 new entrants from other industries, the three largest external industry sources were accommodation and food services; retail trade; and administrative and support services.

### New entrant retention rate



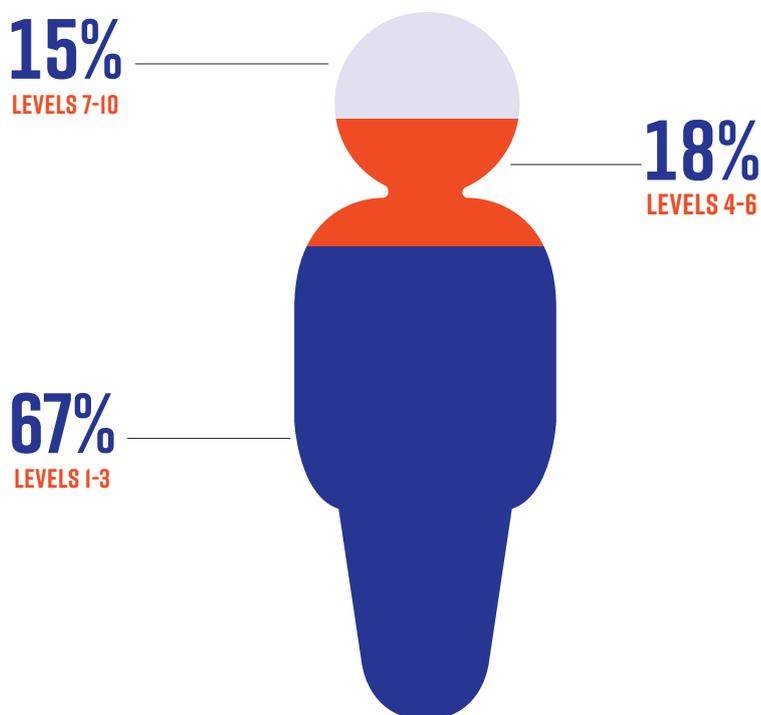
### Retention rate

The retention rate of the 2016 new entrant cohort was above the food and fibre sectors retention rate and similar to the New Zealand workforce new entrant retention rate.

Figure 24: New entrant retention rate for the food and fibre workforce in the arable sector (after 1, 2 and 3 years)



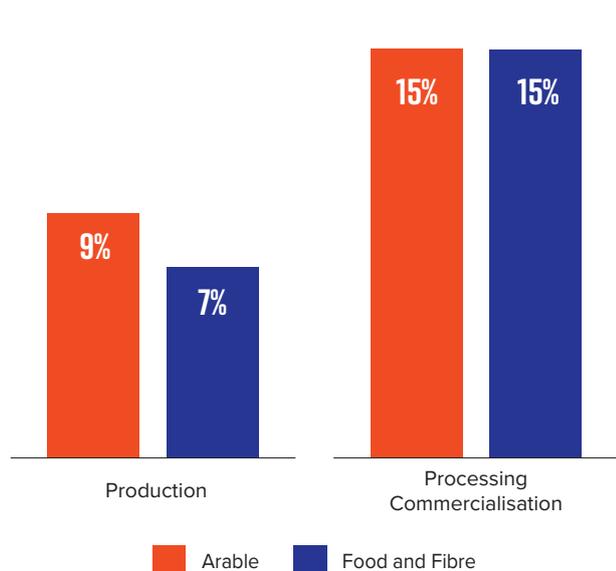
## Education profile for workers aged 15 to 29 years



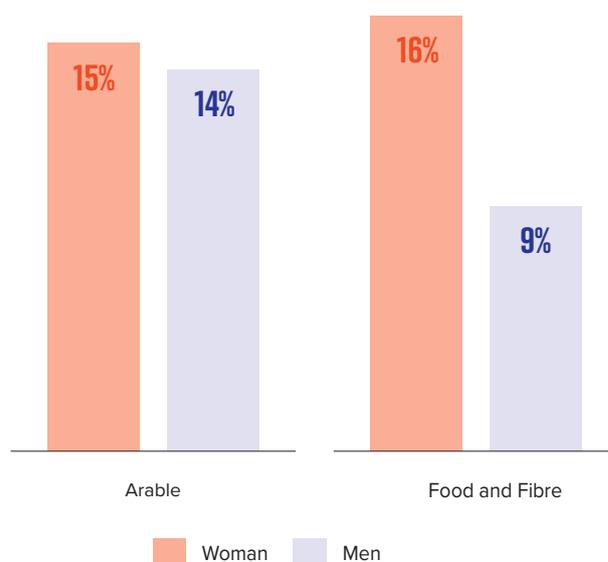
In 2019, 15 percent of workers aged 15 to 29 years in the arable sector had qualifications at levels 7 to 10, 18 percent had qualifications at levels 4 to 6, and 67 percent had qualifications at levels 1 to 3. In comparison with the aggregate food and fibre workforce, in the arable sector there were more workers with qualifications at levels 7 to 10 qualifications, the same proportion of workers with qualifications at levels 4 to 6, and fewer with qualifications at levels 1 to 3.

Between 2012 and 2019, the proportion of workers with qualifications at levels 4 to 6 and levels 7 to 10 increased slightly and the proportion of workers with qualifications at levels 1 to 3 decreased slightly. The total number of people at all qualification levels increased over this period.

### Level 7-10 qualifications



The arable sector has a higher proportion of workers with qualifications at levels 7 to 10 in processing/commercialisation (15 percent) compared to production (9 percent), which is consistent with the overall food and fibre workforce profile for processing/commercialisation (15 percent) and production (7 percent).



The proportion of women in the sector with qualifications at levels 7 to 10 (15 percent) is similar to the proportion of men (14 percent). This differs from the overall food and fibre workforce profile where the proportion of women (16 percent) is higher than the proportion of men (9 percent) who have qualifications at levels 7 to 10.



# DAIRY

## AHU MIRAKA

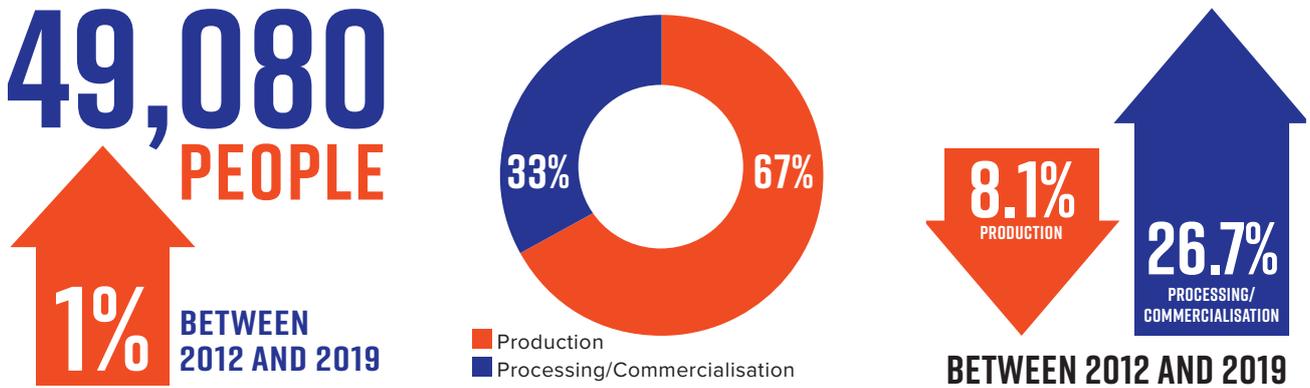
The dairy sector includes dairy farming, dairy processing, along with cheese, ice cream and other dairy product manufacturing and wholesaling.



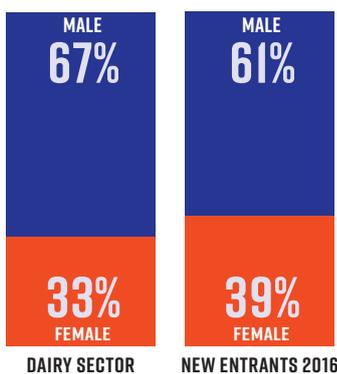


## Workforce count

The dairy workforce makes up 13.4 percent of the food and fibre workforce. The total number employed in the dairy sector increased by 1.0 percent between 2012 and 2019. During this period, there was a reduction in the production workforce and an increase in the processing/commercialisation workforce.



## Demographics



## Age profile

The food and fibre workforce in the dairy sector has a younger profile compared to other sectors. Within the dairy sector, the production workforce is younger than the processing/commercialisation workforce. Workers aged 55 years and over comprise 17 percent of the workforce.

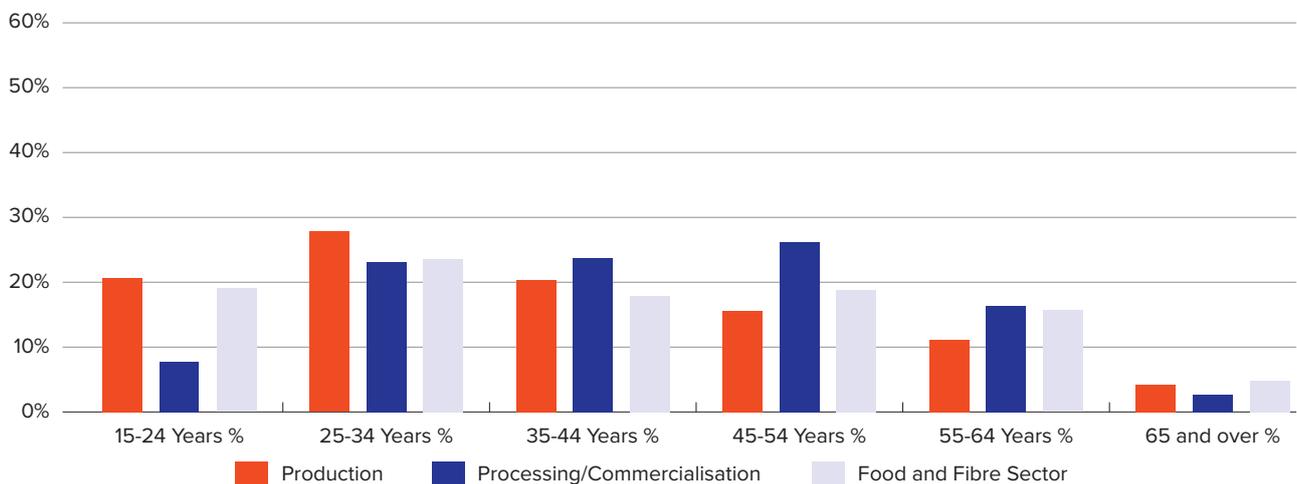


Figure 25: Age profile for the food and fibre workforce in the dairy sector

### Ethnicity profile

The ethnicity profile for the dairy sector varies between the production and processing/commercialisation workforces.

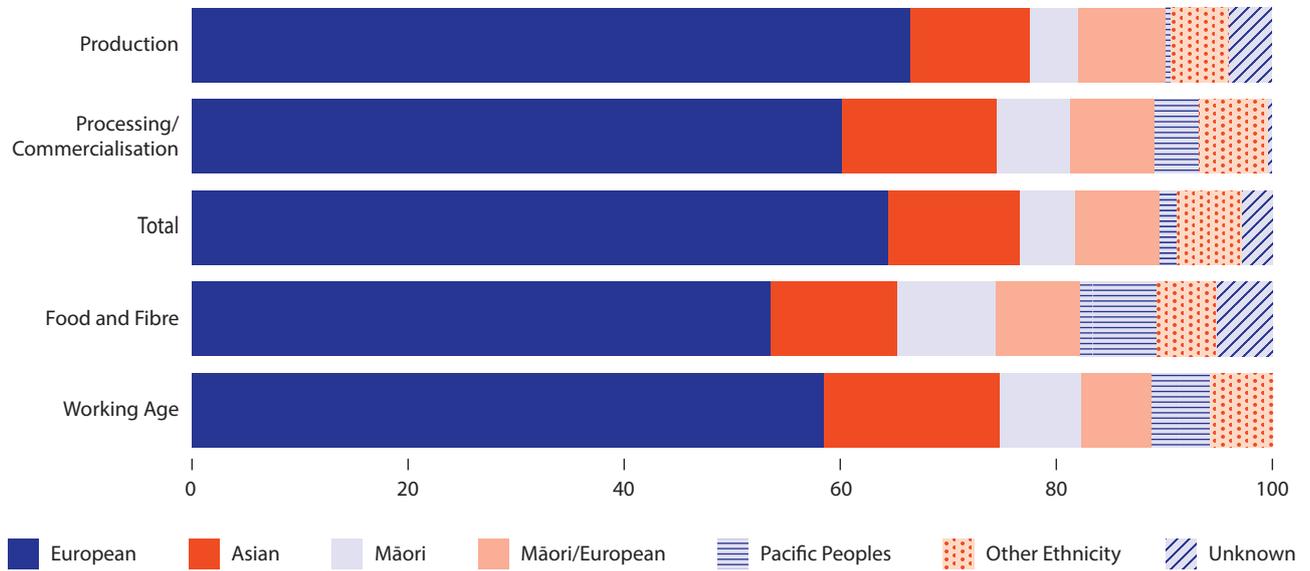


Figure 26: Ethnicity profile for the food and fibre workforce in the dairy sector (2019)

The production workforce has more people who identify as European and Māori European than the New Zealand population with underrepresentation of Asian, Māori and

Pacific peoples. The processing/commercialisation workforce has a similar profile while being more representative.

### Dairy 2019

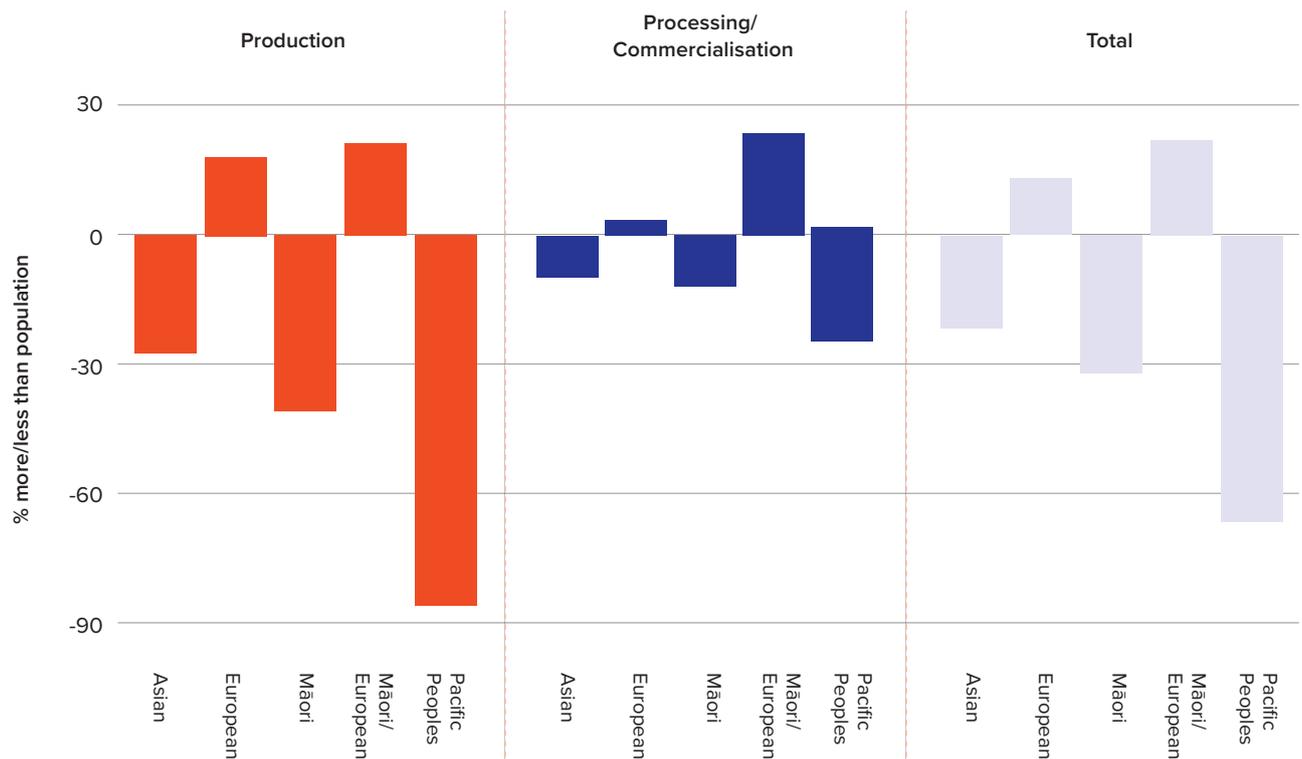


Figure 27: Ethnicity profile of the food and fibre workforce for the dairy sector in comparison to the New Zealand population (2019)



## Regional distribution

Dairy workers are concentrated in two regions: Waikato (27 percent of the national dairy workforce) and Canterbury (17 percent). Gisborne has the fewest dairy workers (0.2 percent).

Most dairy workers work in production, except in the Auckland region, where over three-quarters are in processing/commercialisation.

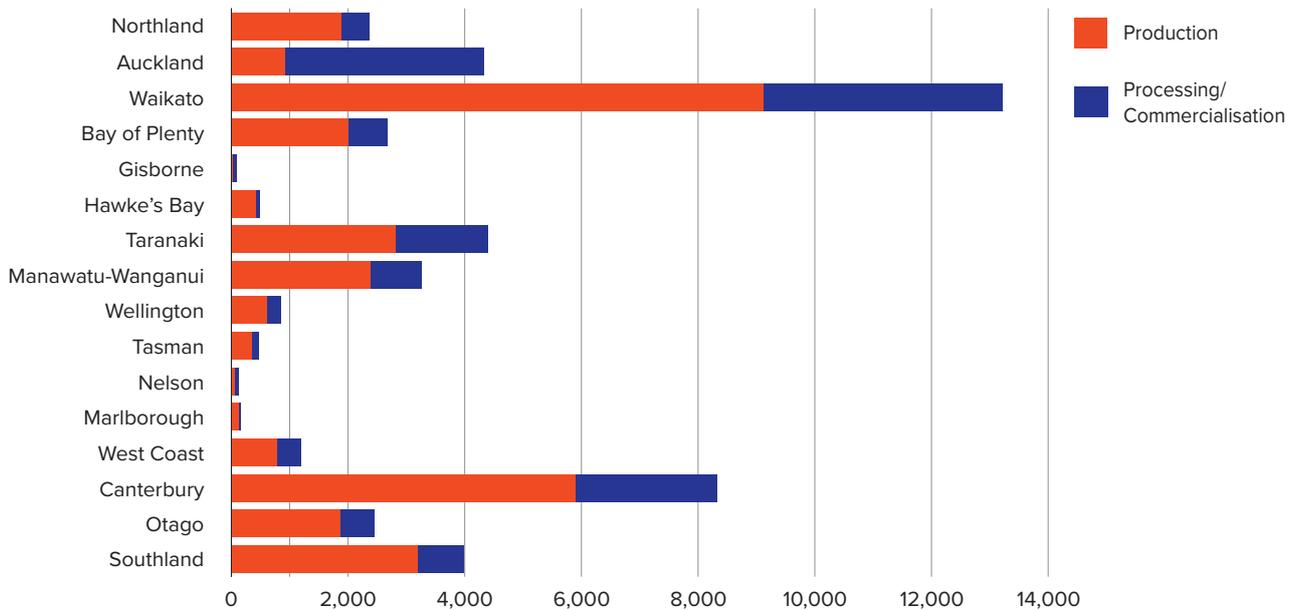


Figure 28: Regional distribution of the food and fibre workforce for the dairy sector (year ending March 2019)

## Workforce numbers through a year

The processing/commercialisation workforce is reasonably stable through the year and is predominately New Zealand citizens and residents (96 percent). The production workforce shows a seasonal pattern with September being the peak month for employment. New Zealand citizens and residents are 86 percent of the production workforce, with people on essential skills and other visas being 11 percent of the 2019 workforce.

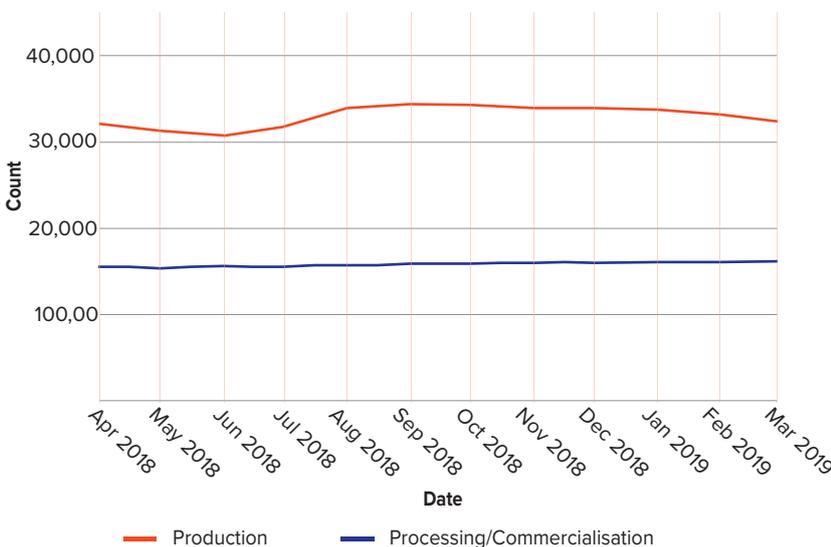
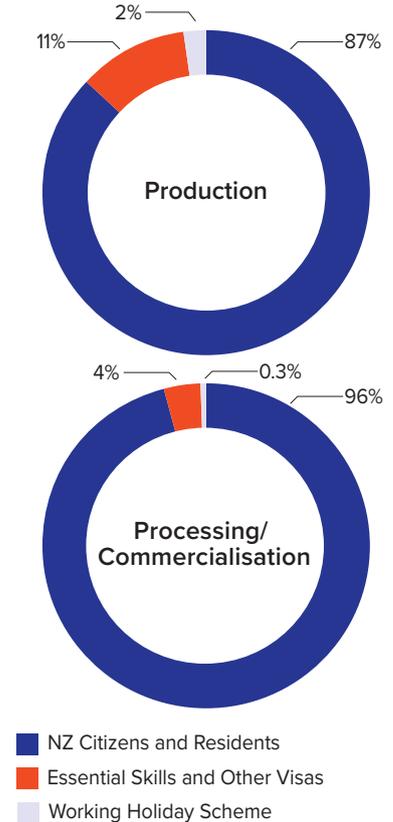


Figure 29: Monthly worker count for 2018 and 2019 for the dairy sector

## Source of workers (in an average month)



## New entrants

### Where did they come from

In 2016, there was a cohort size of 8,500 new entrants into the dairy sector.

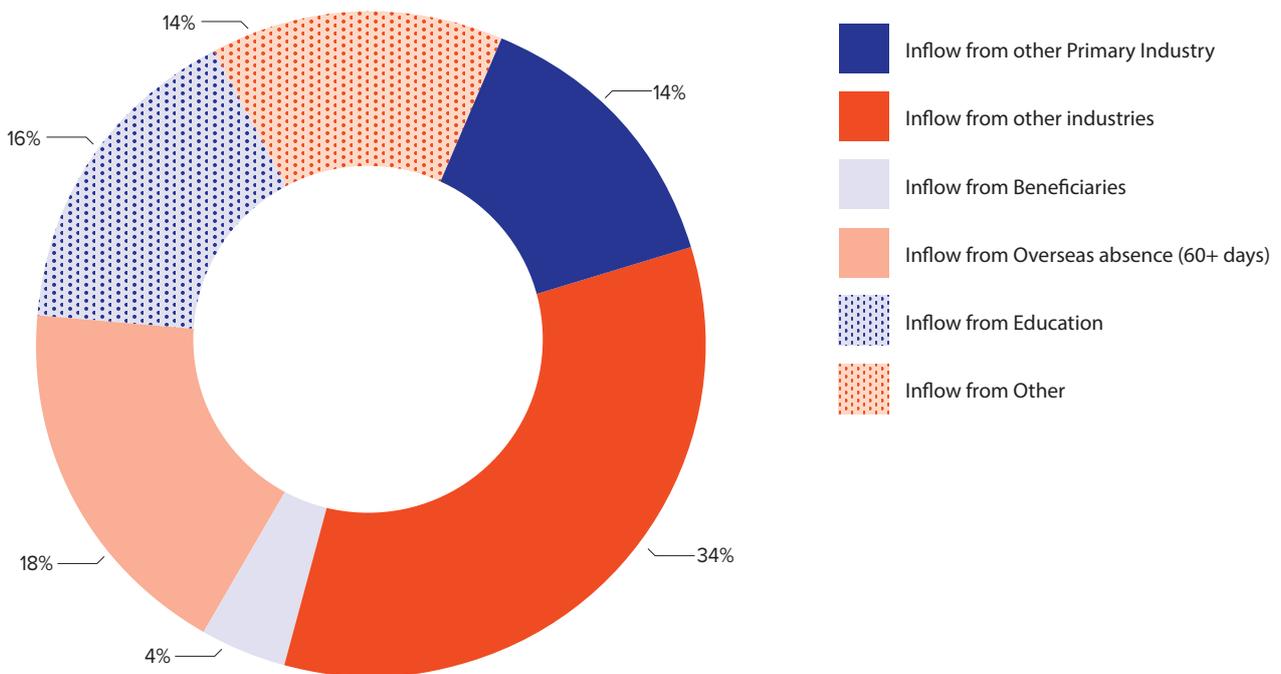
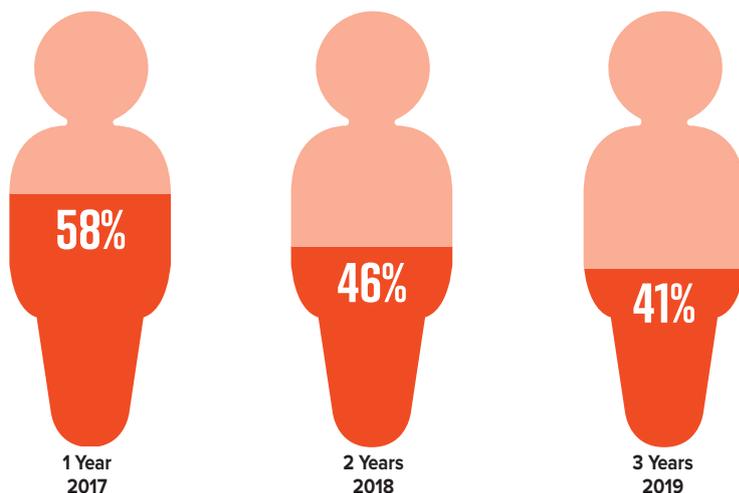


Figure 30: Where new entrants into the food and fibre workforce come from for the dairy sector

Note: In this figure, “Other” refers to a group of people who have no evidence of earning any income (no tax record), no evidence of going overseas, and no evidence of having been in the education system. They could be people on parental leave, caregivers, doing voluntary work or unpaid family work, in hospital or prison, etc.

Of the 2,900 new entrants from other industries, the three largest external industry sources were administrative and support services, retail trade, and accommodation and food services

### New entrant retention rate



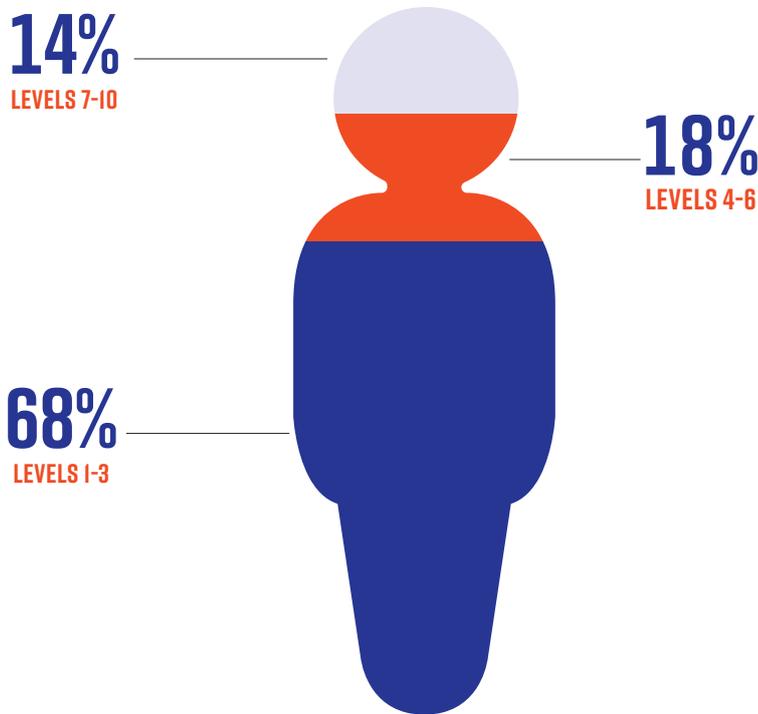
### Retention rate

The retention rate of the 2016 new entrant cohort was higher than the new entrant retention rate for the New Zealand population and the food and fibre sectors.

Figure 31: New entrant retention rate for the food and fibre workforce in the dairy sector (after 1, 2 and 3 years)



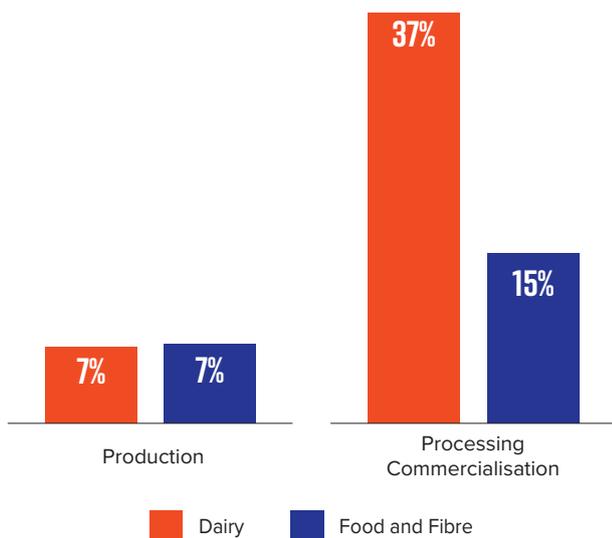
## Education profile for workers aged 15 to 29 years



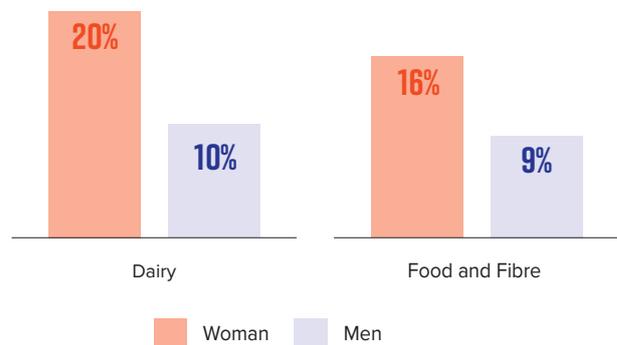
In 2019, 14 percent of workers in the dairy sector aged 15 to 29 years had qualifications at levels 7 to 10, 18 percent had qualifications at levels 4 to 6, and 68 percent had qualifications at levels 1 to 3. In comparison with the aggregate food and fibre sector, there were proportionately more workers with qualifications at levels 7 to 10, the same proportion of workers with qualifications at levels 4 to 6, and fewer with qualifications at levels 1 to 3.

Between 2012 and 2019, the proportion of workers with qualifications at levels 7 to 10 increased, the proportion of workers with qualifications at levels 4 to 6 stayed the same, and the proportion of workers with qualifications at levels 1 to 3 decreased. The total number of workers with qualifications at levels 4 to 6 and levels 7 to 10 increased while the number with qualifications at levels 1 to 3 decreased over this period.

### Level 7-10 qualifications



The dairy sector has a significantly higher proportion of workers with qualification at levels 7 to 10 in processing/commercialisation (37 percent), compared to the proportion in production (7 percent), and is the only part of the food and fibre sectors to have a higher proportion of workers with qualifications at levels 7 to 10 than the New Zealand 15- to 29-year-old population (24 percent).



The proportion of women in the sector with qualifications at levels 7 to 10 (20 percent) is twice the proportion of men (10 percent). This differs from the food and fibre sectors profile where the proportion of women with qualifications at levels 7 to 10 is 16 percent and the proportion of men is 9 percent.



# FORESTRY AND WOOD PROCESSING

## AHU NGAHERE ME TE MAHI RĀKAU

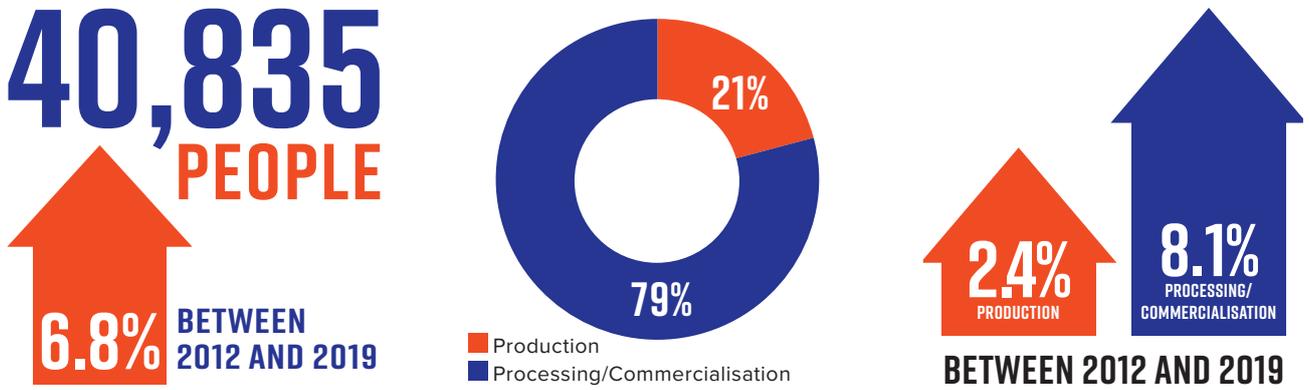
Forestry includes silviculture and harvesting, along with sawmilling, wood product manufacturing, pulp and paper production, furniture making, timber wholesaling and fire protection services.



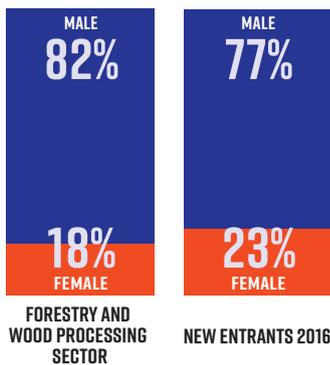


## Workforce count

The forestry and wood processing workforce makes up 11.1 percent of the food and fibre workforce. The sector is significantly more male dominated than other sectors, with men making up 82 percent of workers.



## Demographics



## Age profile

The processing/commercialisation workforce has an older profile than the production and food and fibre sectors workforce. Workers aged 55 years and over comprise 24 percent of the workforce.

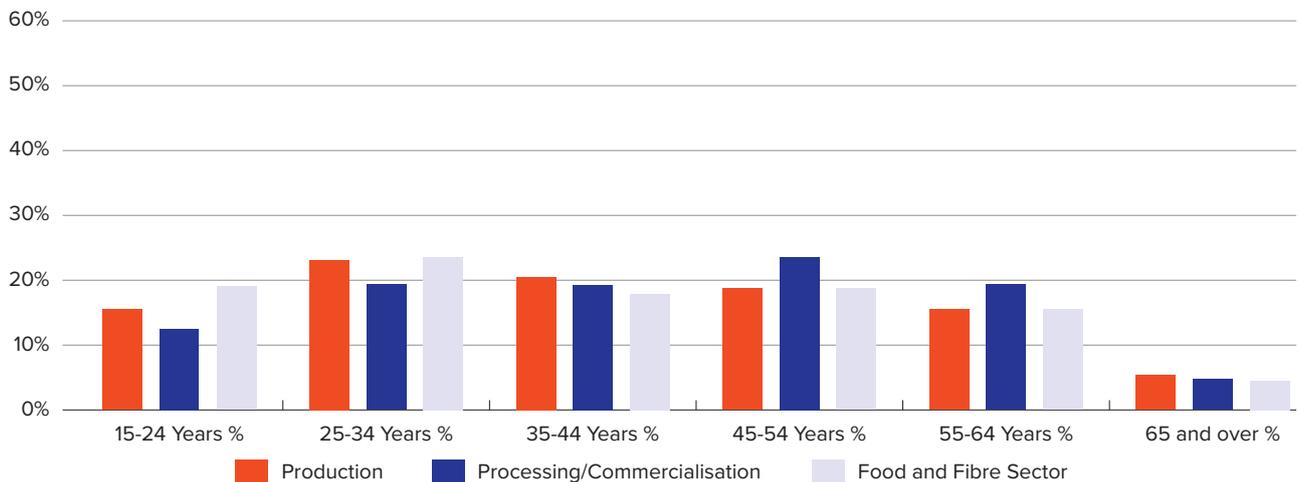


Figure 32: Age profile of the food and fibre workforce for the forestry and wood processing sector

### Ethnicity profile

The ethnicity profile varies between the production and processing/commercialisation workforces.

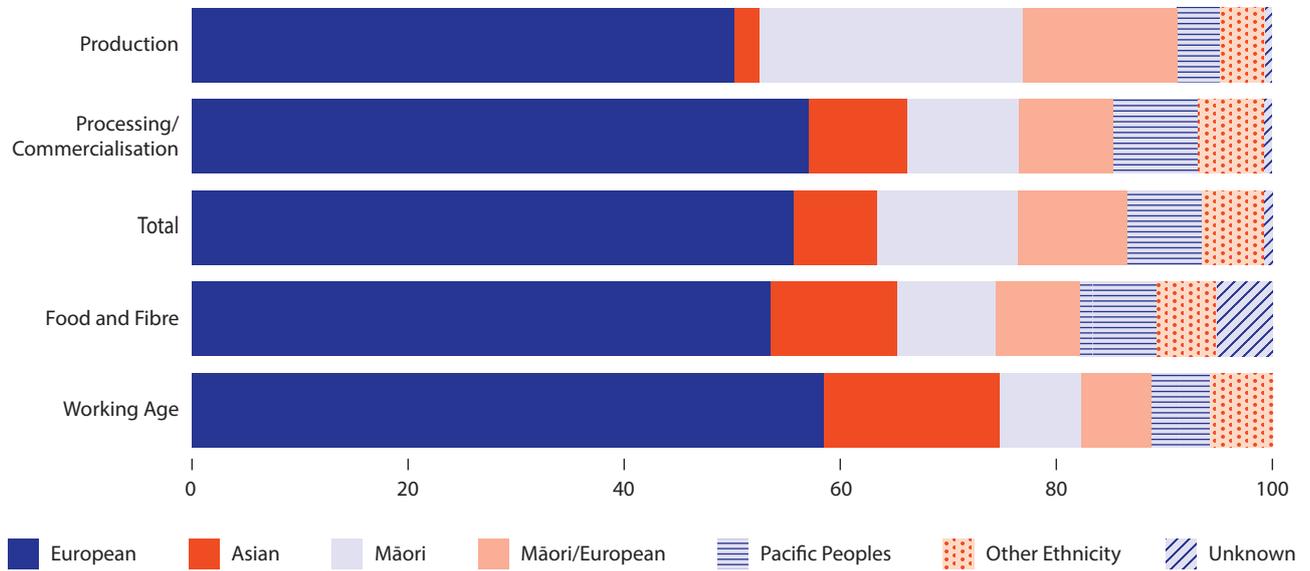


Figure 33: Ethnicity profile of the food and fibre workforce for the forestry and wood processing sector (2019)

The production workforce has more people who identify as Māori and Māori/European than the New Zealand population with underrepresentation of people who identify as Asian, European and Pacific peoples.

The profile of the processing/commercialisation workforce is more similar to the New Zealand population proportions with over and underrepresentation being less pronounced.

### Forestry 2019

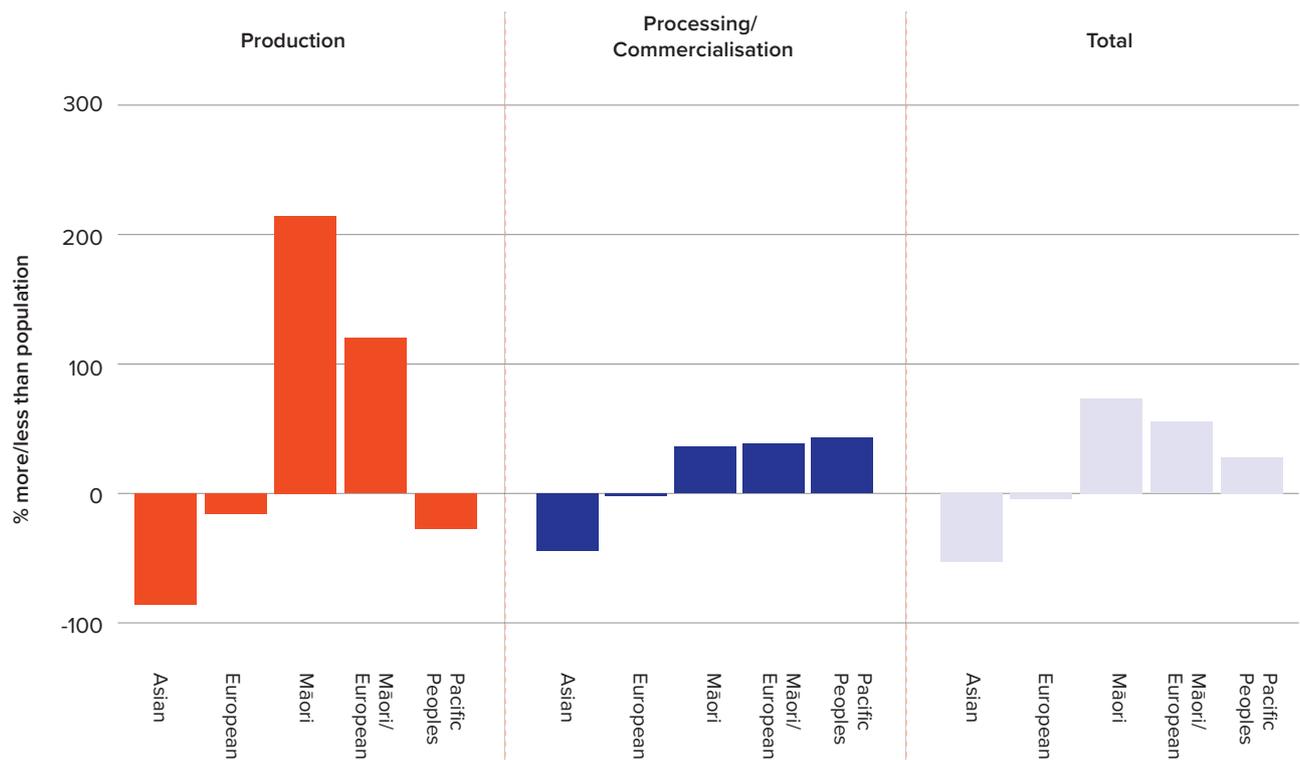


Figure 34: Ethnicity profile of the food and fibre workforce for the forestry and wood processing sector in comparison to the New Zealand population (2019)



### Regional distribution

The forestry workforce is primarily based in the North Island, with seven of the eight largest workforces being in the North Island. A large production workforce is based in the central North Island, particularly Bay of Plenty and Waikato.

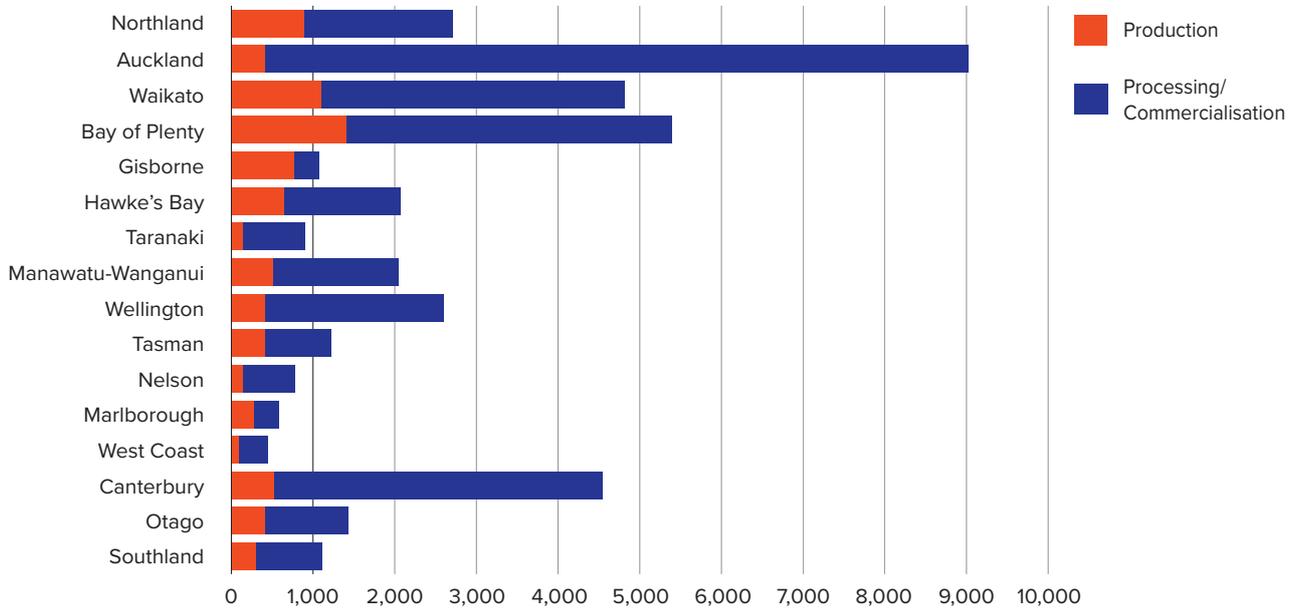


Figure 35: Regional distribution of the food and fibre workforce for the forestry and wood processing sector

### Workforce numbers through a year

The forestry processing/commercialisation and production workforces are reasonably stable through the year.

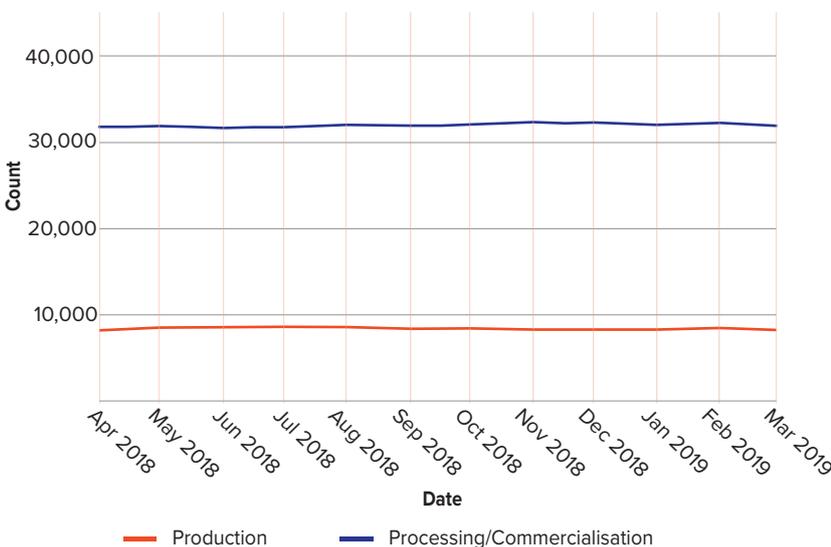
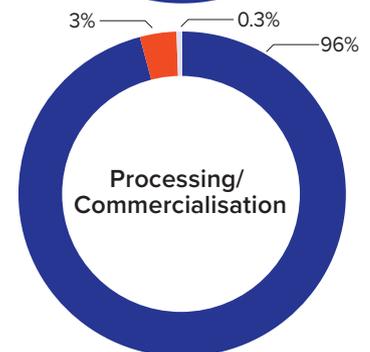
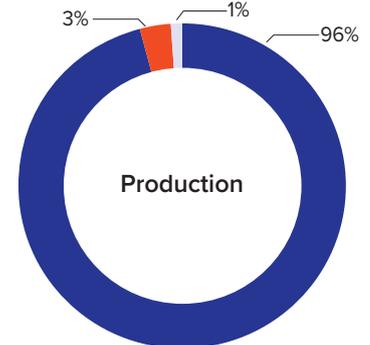


Figure 36: Monthly count for 2018 and 2019 for the forestry and wood processing sector

### Source of workers (in an average month)



- NZ Citizens and Residents
- Essential Skills and Other Visas
- Working Holiday Scheme

## New entrants

### Where did they come from

In 2016 there were 6,700 new entrants into the forestry and wood processing sector.

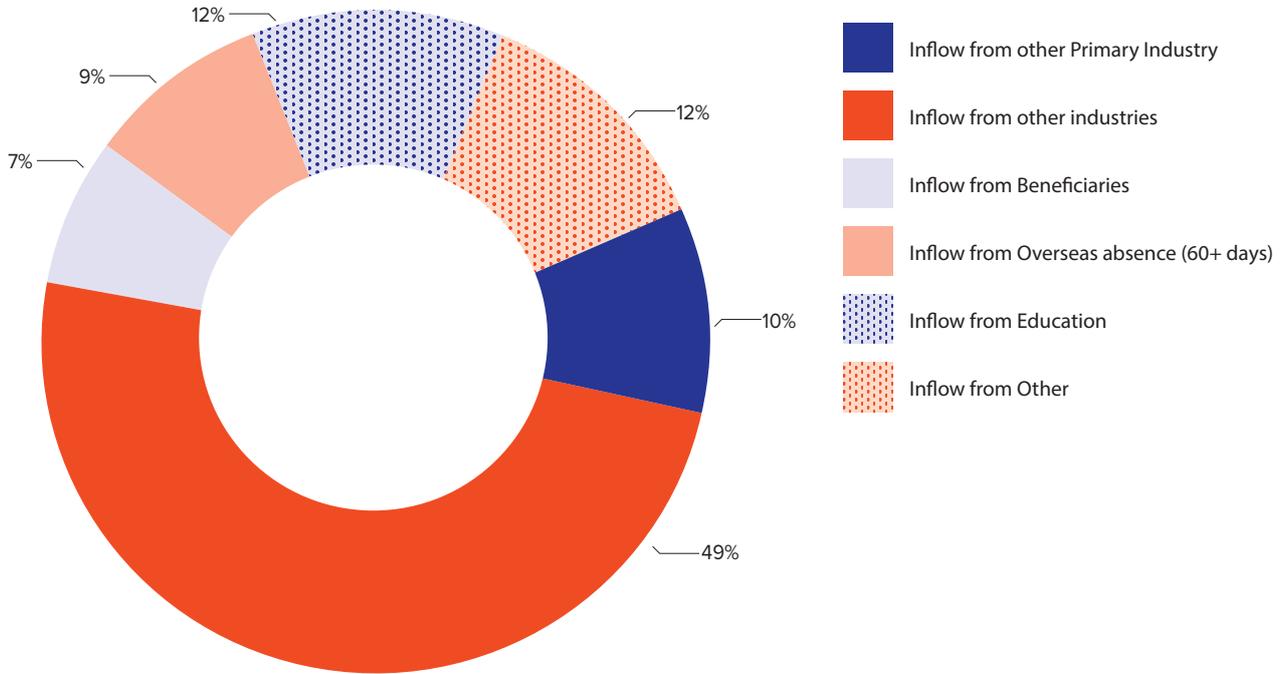


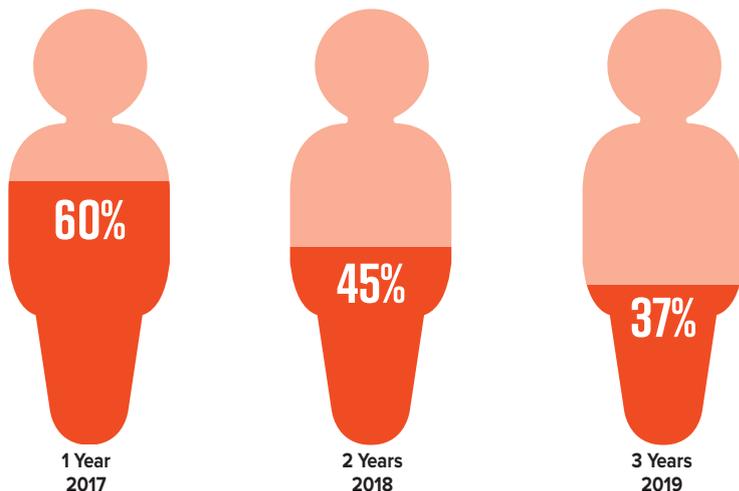
Figure 37: Where new entrants into the food and fibre workforce come from for the forestry and wood processing sector

Note: In this figure, “Other” refers to a group of people who have no evidence of earning any income (no tax record), no evidence of going overseas, and no evidence of having been in the education system. They could be people on parental leave, caregivers, doing voluntary work or unpaid family work, in hospital or prison, etc.

Of the 3,300 new entrants from other industries, the three largest external industry sources were retail trade, administrative and support services, and construction.

The retention rate of the 2016 new entrant cohort was higher than the new entrant retention rate for the New Zealand population and the food and fibre sectors.

### New entrant retention rate



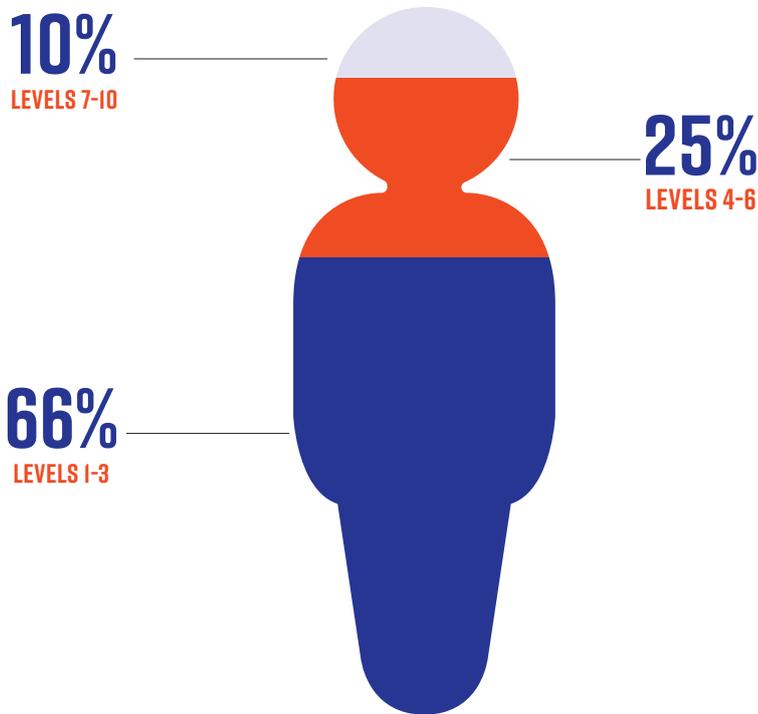
### Retention rate

The retention rate of the 2016 new entrant cohort was higher than the new entrant retention rate for the New Zealand population and the food and fibre sectors.

Figure 38: New entrant retention rate for the food and fibre workforce in the forestry and wood processing sector (after 1, 2 and 3 years)



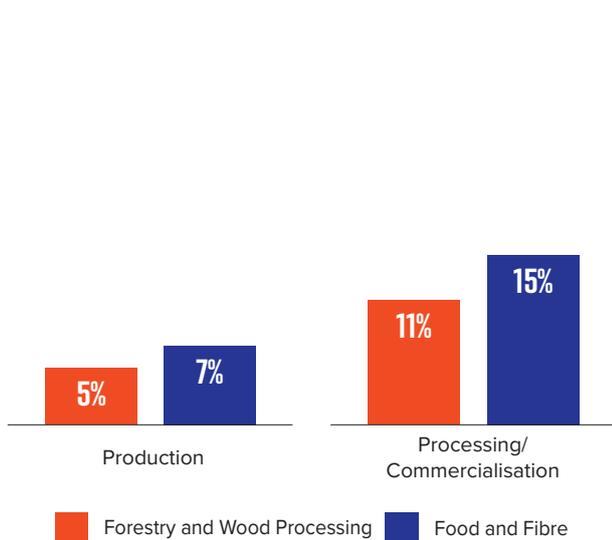
## Education profile for workers aged 15 to 29 years



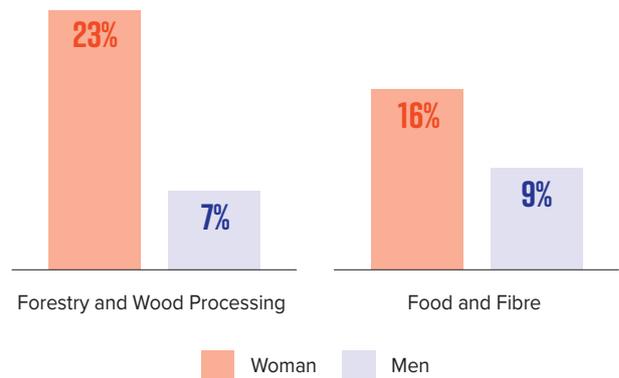
In 2019, 10 percent of people aged 15 to 29 years working in the forestry and wood processing sector had qualifications at levels 7 to 10, 25 percent had qualifications at levels 4 to 6, and 66 percent had qualifications at levels 1 to 3. In comparison with the aggregate food and fibre sector, there were proportionately fewer workers with qualifications at levels 7 to 10 and levels 1 to 3. Forestry has the highest proportion of level of 4-6 qualifications of the food and fibre sectors.

Between 2012 and 2019 the proportion of workers with qualifications at levels 7 to 10 increased, the proportion of workers with qualifications at levels 4 to 6 decreased, and the proportion of workers with qualifications at levels 1 to 3 stayed the same. The total number of people at all qualification levels increased over this period.

### Level 7-10 qualifications



The forestry sector has a higher proportion of workers with qualifications at levels 7 to 10 in processing/commercialisation (11 percent) compared to production (5 percent). While lower overall, the profile is consistent with the food and fibre sectors having a higher proportion of workers with levels 7 to 10 qualifications in processing/commercialisation (15 percent) than production (7 percent).



The proportion of women in the sector aged 15 to 29 years with qualifications at levels 7 to 10 (23 percent) is three times higher than the proportion of men (7 percent).



# HORTICULTURE

## AHU MĀRA

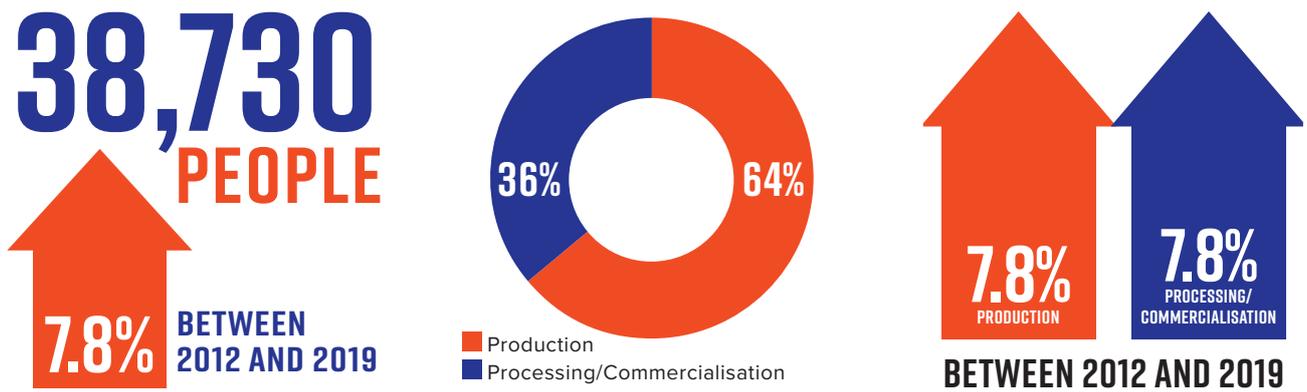
The horticulture industry is a diverse sector including, apples, wine, kiwifruit and vegetables.





## Workforce count

The horticulture workforce is 10.6 percent of the food and fibre workforce. Horticulture has a seasonal workforce and the seasonal demand for labour means migrant workers are important, especially those on RSE and Working Holiday scheme visas. In March 2019, the seasonal peak for the workforce, was approximately 43,000. This is higher than the workforce count (38,730) that has been calculated on a quarterly averages basis. The seasonal nature of this workforce and the use of temporary labour from labour supply services make it difficult to get an accurate count of the workforce using our standard statistical approach.



## Demographics



## Age profile

The horticulture production workforce has a very young profile with 57 percent of the workforce under 35 compared to 50 percent of the processing/commercialisation workforce and 43 percent of the food and fibre sectors workforce. A total of 16 percent of the workforce is aged 55 years and over.

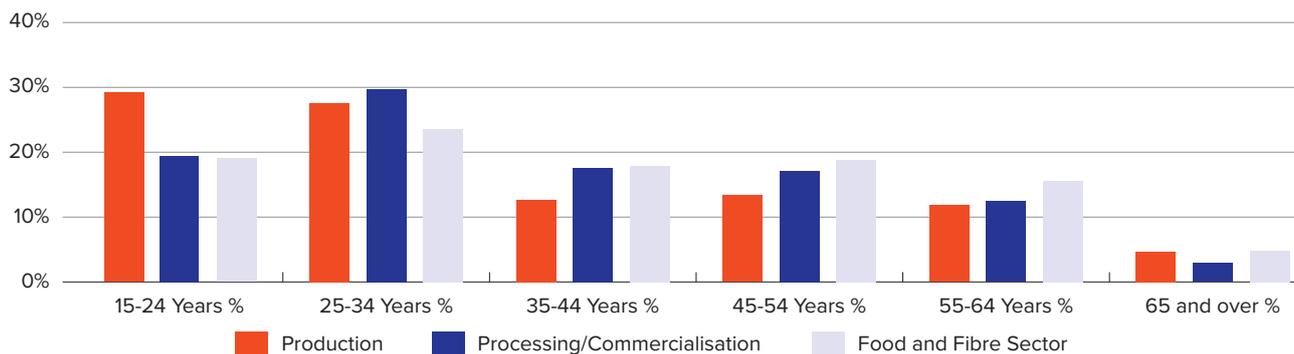


Figure 39: Age profile of the food and fibre workforce for the horticulture sector

### Ethnicity profile

The ethnicity profile varies between the production and processing/commercialisation workforces.

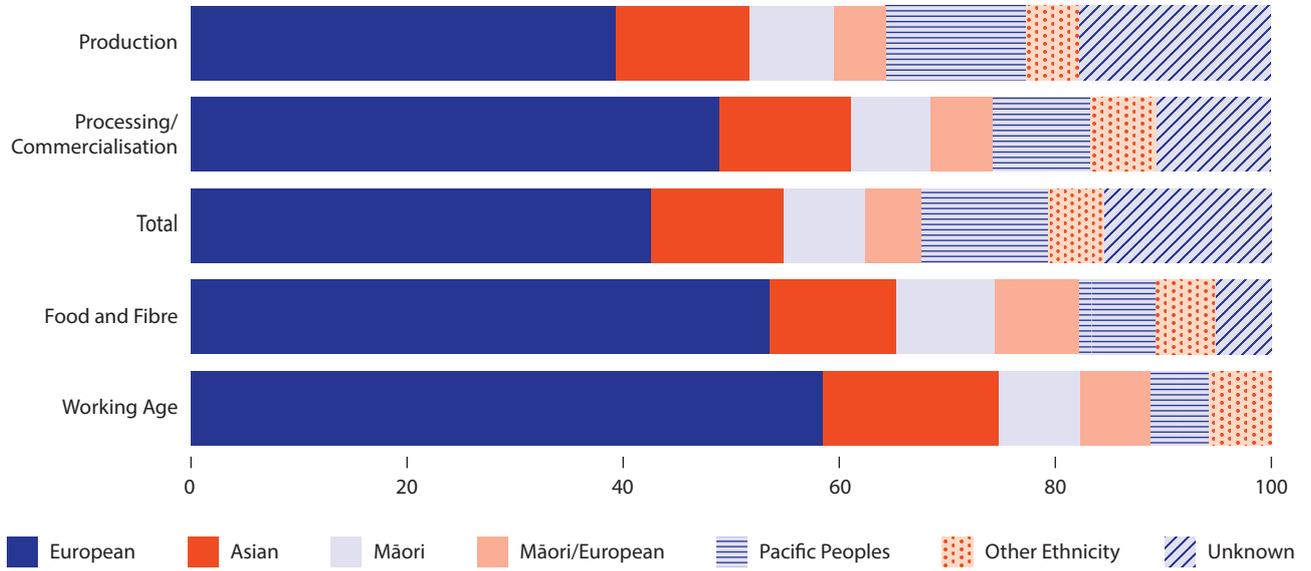


Figure 40: Ethnicity profile of the food and fibre workforce for the horticulture sector (2019)

There is very high representation of people who identify as Pacific peoples in the production sector, in part due to the RSE scheme. People who identify as Pacific peoples are also overrepresented in the processing sector.

### Horticulture 2019

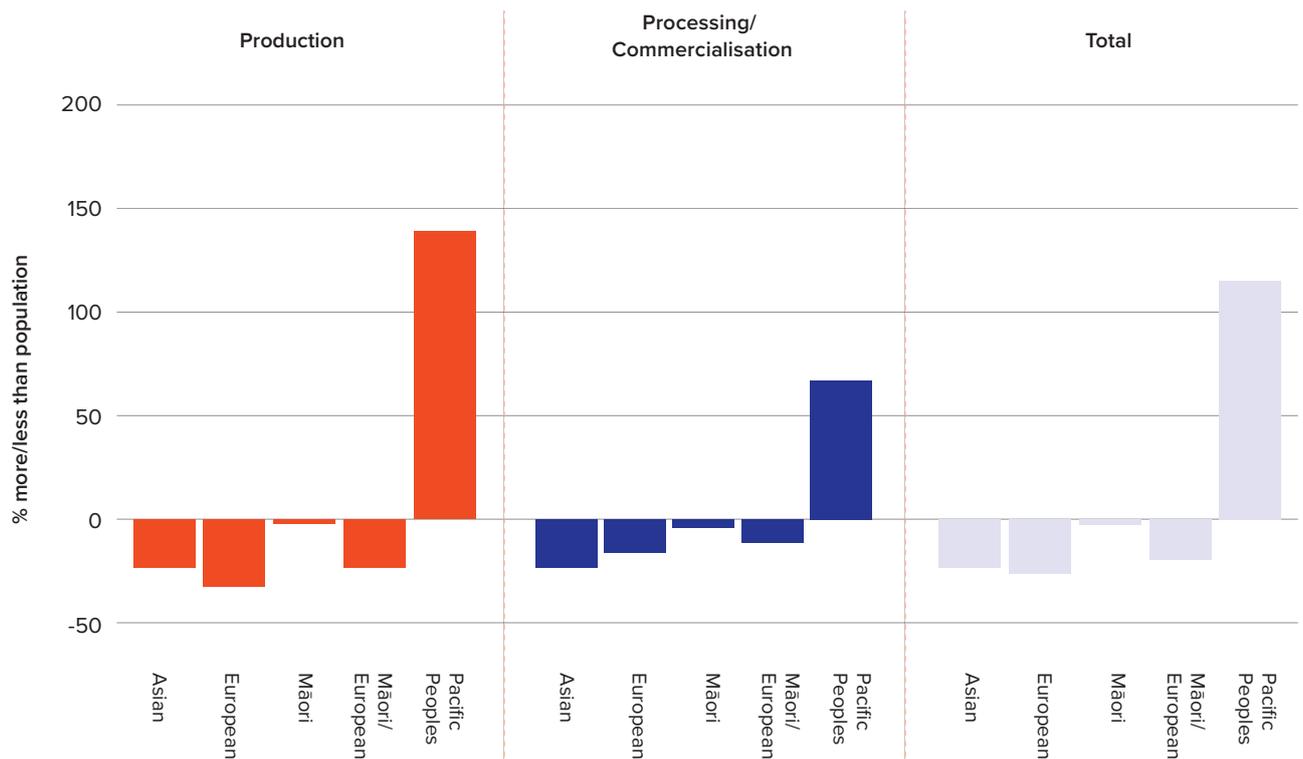


Figure 41: Ethnicity profile of the food and fibre workforce for the horticulture sector in comparison to the New Zealand population (2019)



## Regional distribution

The two largest workforces are in the Auckland and the Hawke's Bay regions. This sector has a high proportion of production workers relative to processing/commercialisation workers.

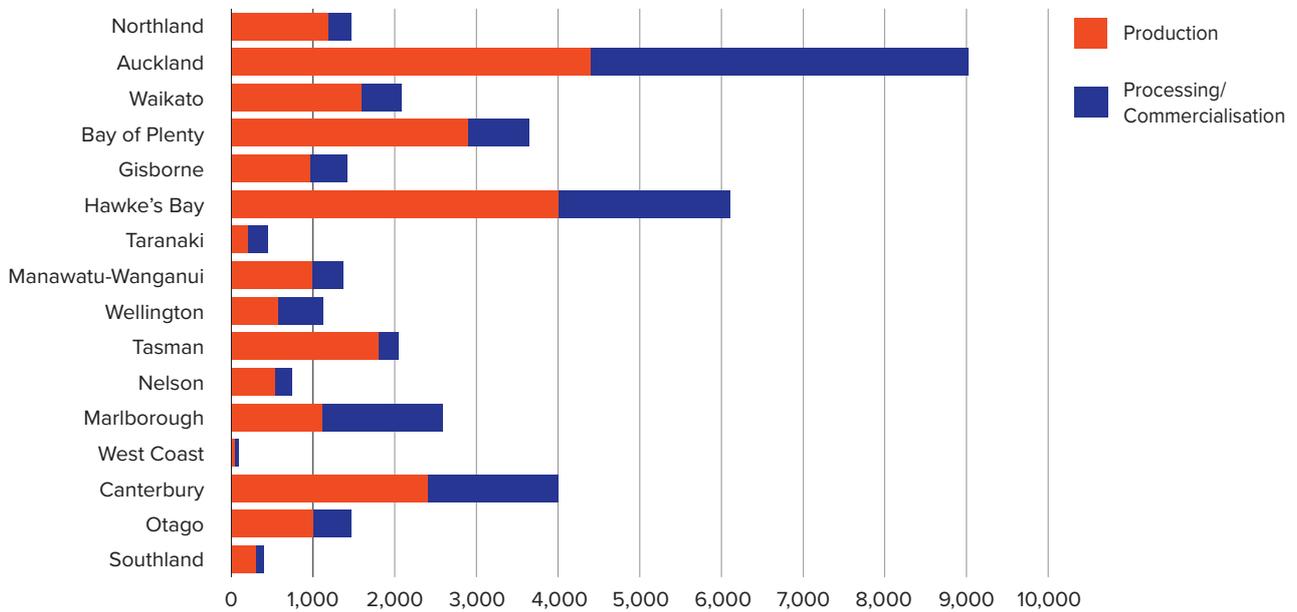


Figure 42: Regional distribution of the food and fibre workforce for the horticulture sector (year ending March 2019)

## Workforce numbers through a year

The production workforce shows significant variation over a year with a difference of almost 10,000 workers between the highest and lowest months. The processing/commercialisation workforce also varies over the year although not as strongly as the production workforce.

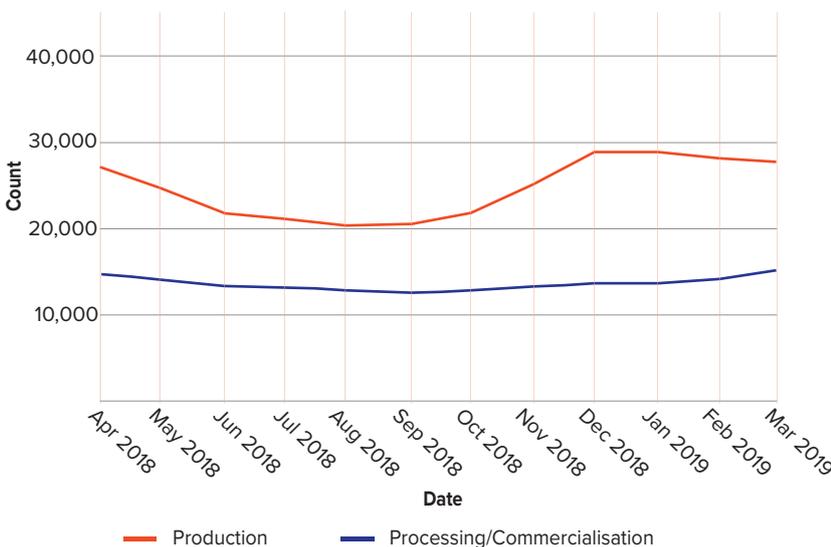
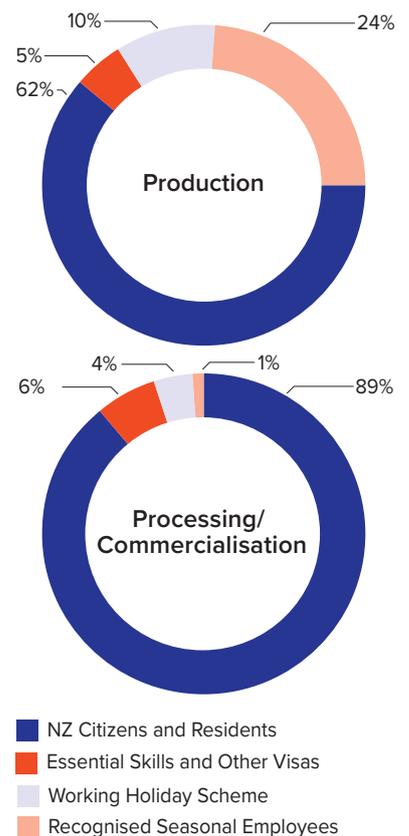


Figure 43: Monthly worker count for 2018 and 2019 for the horticulture sector

## Source of workers (in an average month)



## New entrants

### Where did they come from

In 2016 there were 19,200 new entrants into the horticulture sector.

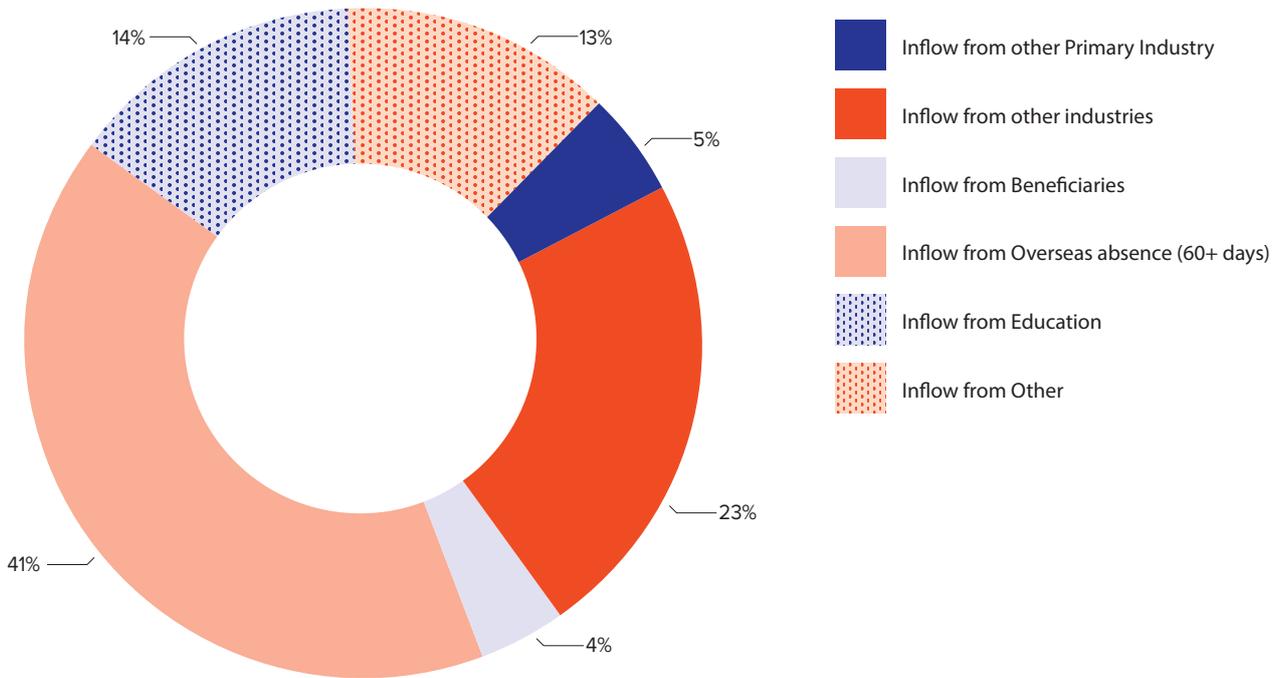
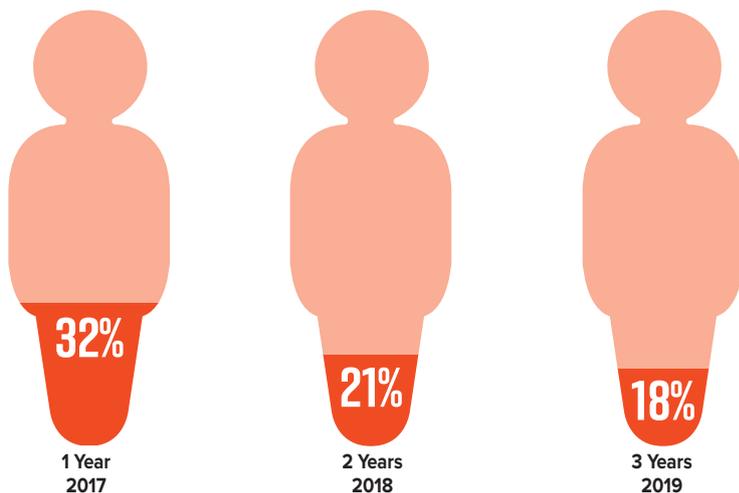


Figure 44: Where new entrants into the food and fibre workforce come from for the horticulture sector

Note: In this figure, “Other” refers to a group of people who have no evidence of earning any income (no tax record), no evidence of going overseas, and no evidence of having been in the education system. They could be people on parental leave, caregivers, doing voluntary work or unpaid family work, in hospital or prison, etc.

Of the 4,500 new entrants from other industries the three largest external industry sources were administrative and support services, accommodation and food services and retail trade.

### New entrant retention rate



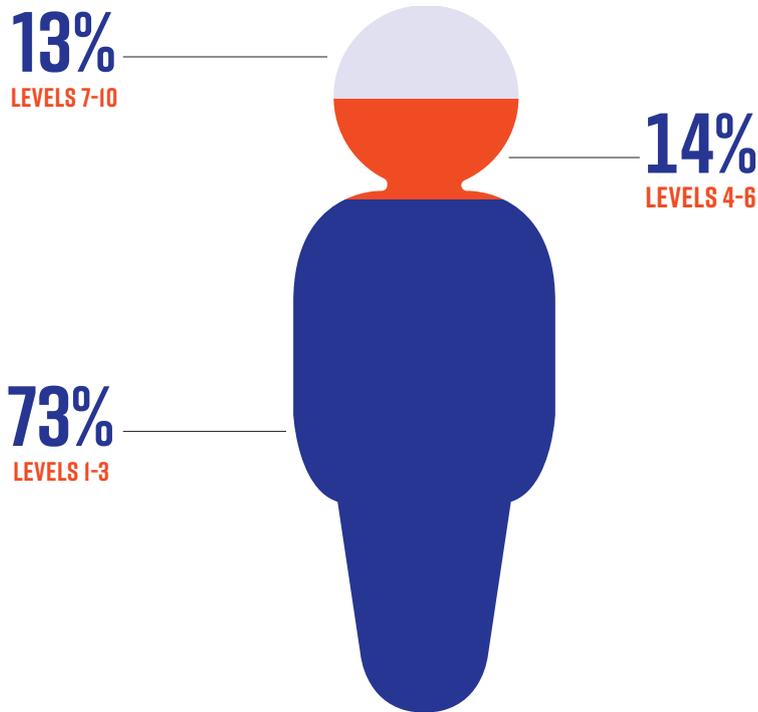
### Retention rate

The retention rate of the 2016 new entrant cohort was low. The large seasonal workforce is likely to be a significant factor.

Figure 45: New entrant retention rate for the food and fibre workforce in the horticulture sector (after 1, 2 and 3 years)



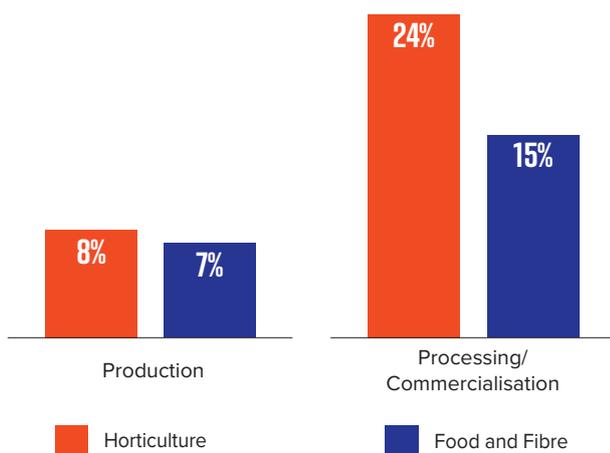
## Education profile for workers aged 15 to 29 years



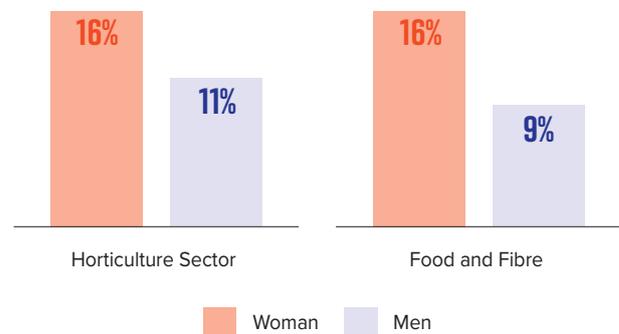
In 2019, 13 percent of people aged 15 to 29 years working in the horticulture sector had qualifications at levels 7 to 10, 14 percent had qualifications at levels 4 to 6, and 73 percent had qualifications at levels 1 to 3. In comparison with the aggregate food and fibre sector, there were proportionately fewer workers with qualifications at levels 4 to 6 and levels 7 to 10, and more with qualifications at levels 1 to 3.

Between 2012 and 2019 the proportion of workers with qualifications at levels 1 to 3 and levels 7 to 10 increased slightly and qualifications at levels 4 to 6 decreased slightly. The total number of people at all qualification levels increased over this period.

### Level 7-10 qualifications



The horticulture sector has a higher proportion of workers with qualifications at levels 7 to 10 in processing/commercialisation (24 percent) compared to production (8 percent), which is consistent with the food and fibre sectors profile for processing/commercialisation (15 percent) and production (7 percent).



The proportion of women in the sector with qualifications at levels 7 to 10 (16 percent) is higher than the proportion of men (11 percent). This is similar to the profile of the food and fibre sectors where the proportion of women (16 percent) with qualifications at levels 7 to 10 is higher than the proportion of men (9 percent).



# PORK, POULTRY, BEES AND OTHER

## POAKA, KIKOMANU, AHU PĪ ME ĒTAHI ATU

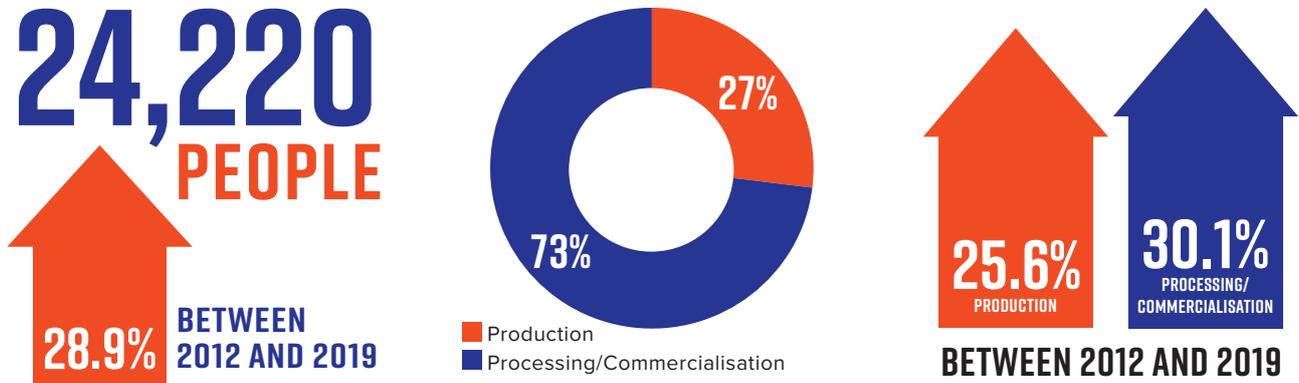
Pork, poultry, bees and other is made up of a diverse range of activities including pig farming; poultry farming and processing; beekeeping; horse farming; hunting and trapping; other livestock farming, such as alpacas, not classified elsewhere.



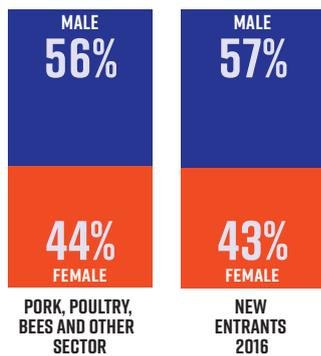


## Workforce count

The pork, poultry, bees and other workforce makes up 6.6% of the food and fibre workforce. The workforce has increased 28.9 percent between 2012 and 2019.



## Demographics



## Age profile

The pork, poultry, bees and other workforce has an evenly spread age profile of the workforce that closely resembles the food and fibre sectors workforce. Workers aged 55 years and over make up 19 percent of the workforce.

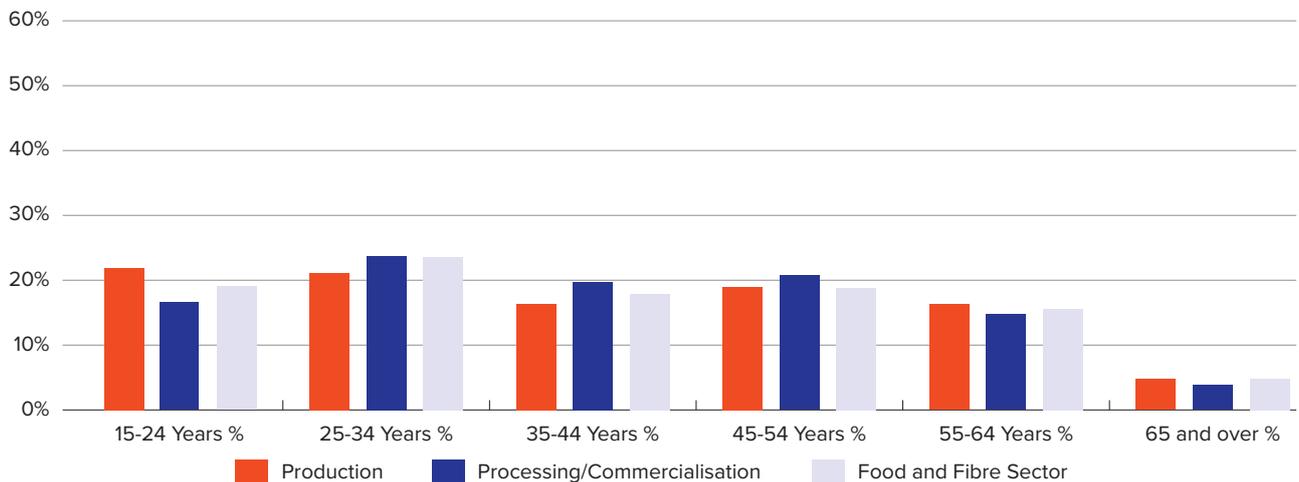


Figure 46: Age profile of the food and fibre workforce for the pork, poultry, bees and other sector

### Ethnicity profile

The ethnicity profile varies between the production and processing/commercialisation workforces.

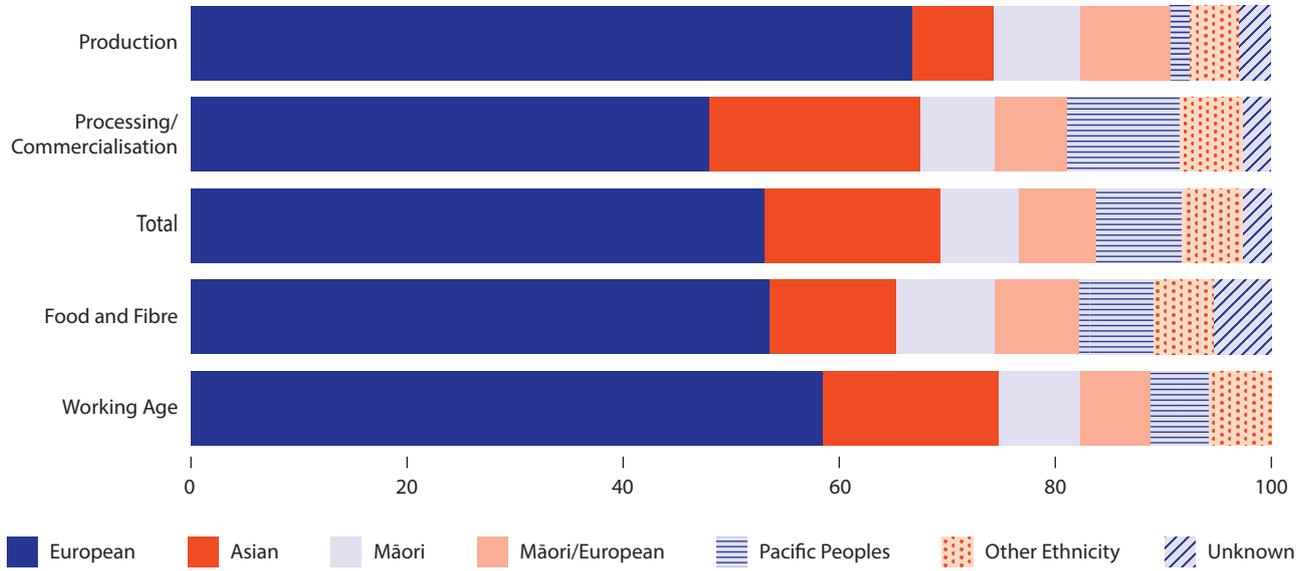


Figure 47: Ethnicity profile of the food and fibre workforce for the pork, poultry, bees and other sector (2019)

People who identify as Asian and Pacific peoples are underrepresented in the production workforce and overrepresented in the processing/commercialisation workforce.

### Pork, poultry, bees and other 2019

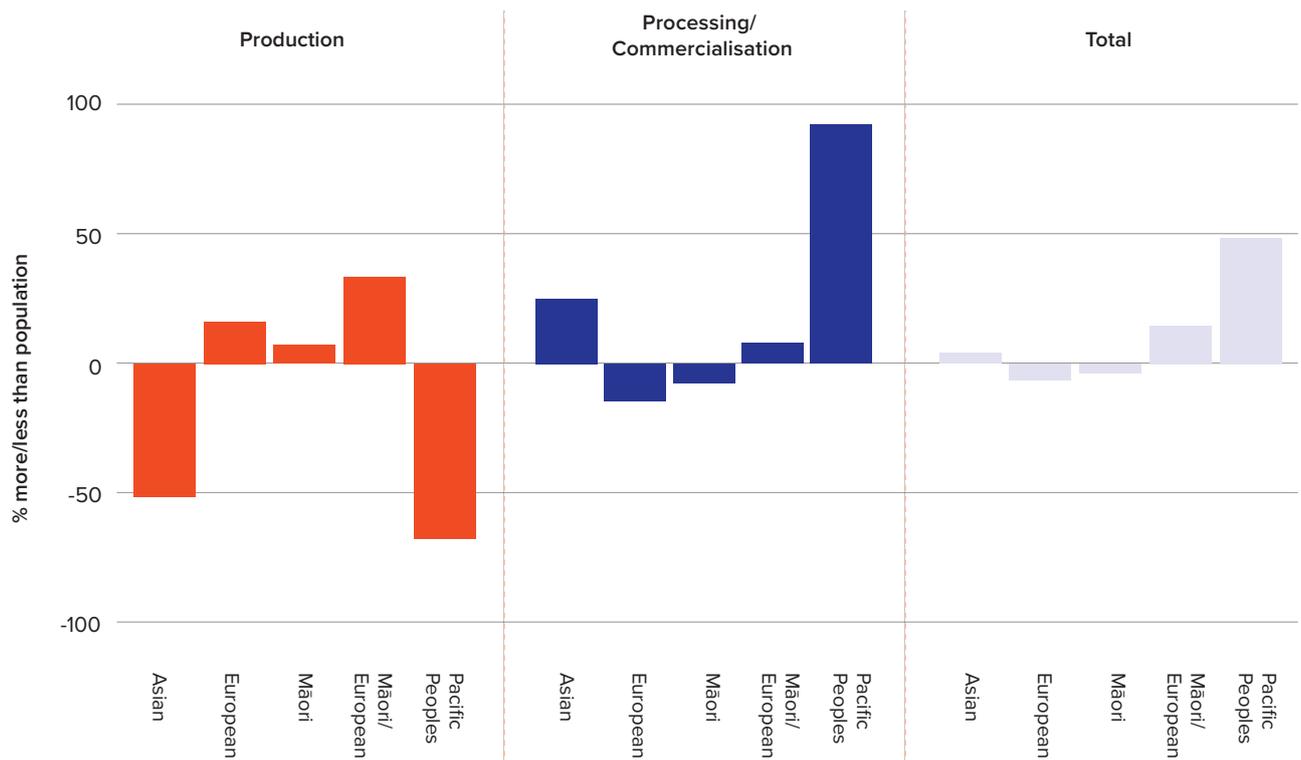


Figure 48: Ethnicity profile of the food and fibre workforce for the pork, poultry, bees and other sector in comparison to the New Zealand population (2019)



## Regional distribution

Auckland, Canterbury and Waikato are dominant regions.

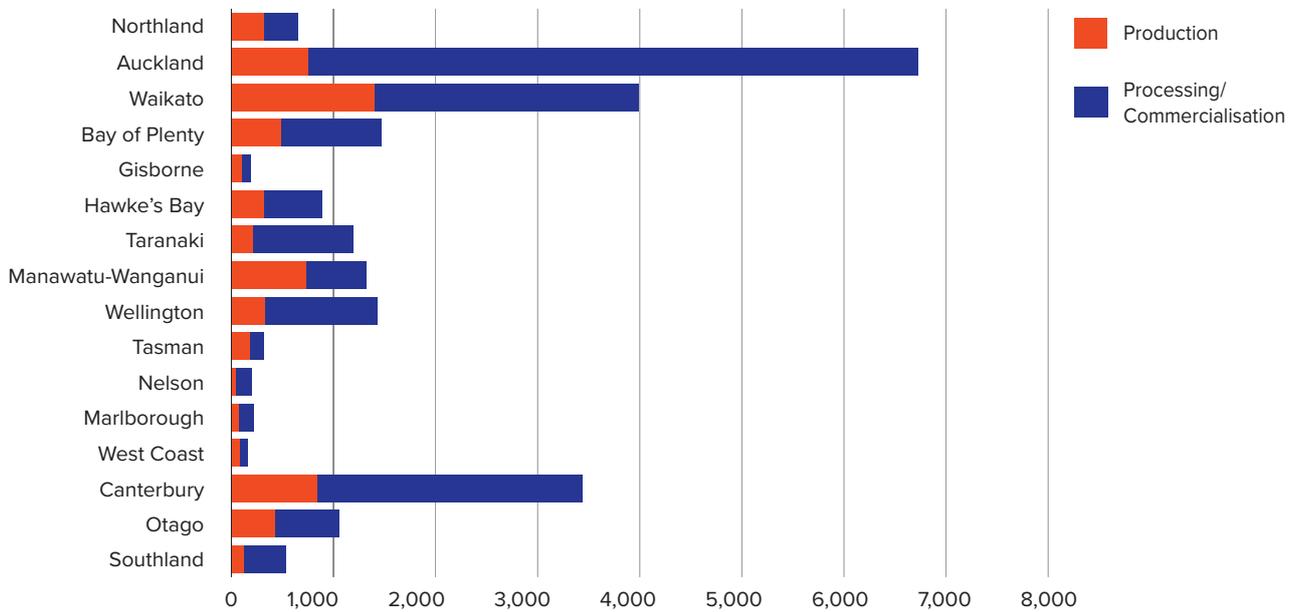


Figure 49: Regional distribution of the food and fibre workforce for the pork, poultry, bees and other sector (year ending March 2019)

## Workforce numbers through a year

The pork, poultry, bees and other production and processing/commercialisation workforces are relatively stable over the year.

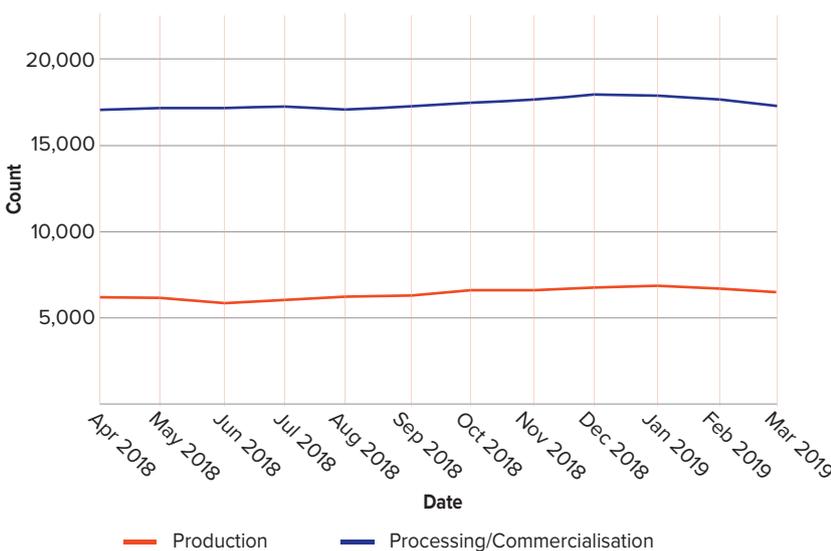
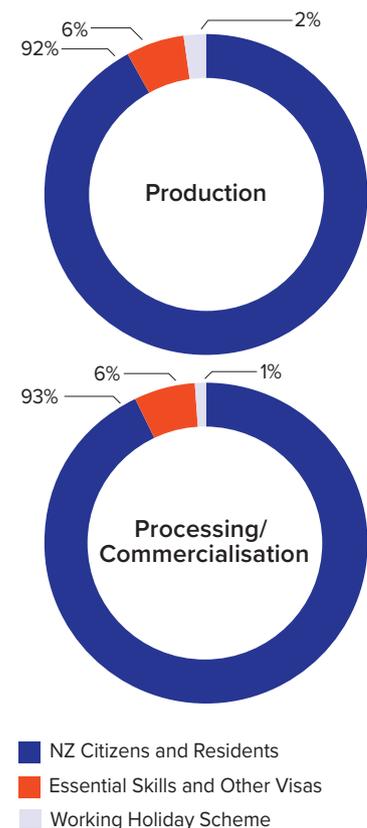


Figure 50: Monthly worker count for 2018 and 2019 for the pork, poultry, bees and other sector

## Source of workers (in an average month)



- NZ Citizens and Residents
- Essential Skills and Other Visas
- Working Holiday Scheme

## New entrants

### Where did they come from

In 2016 there were 7,300 new entrants into the pork, poultry bees and other sector.

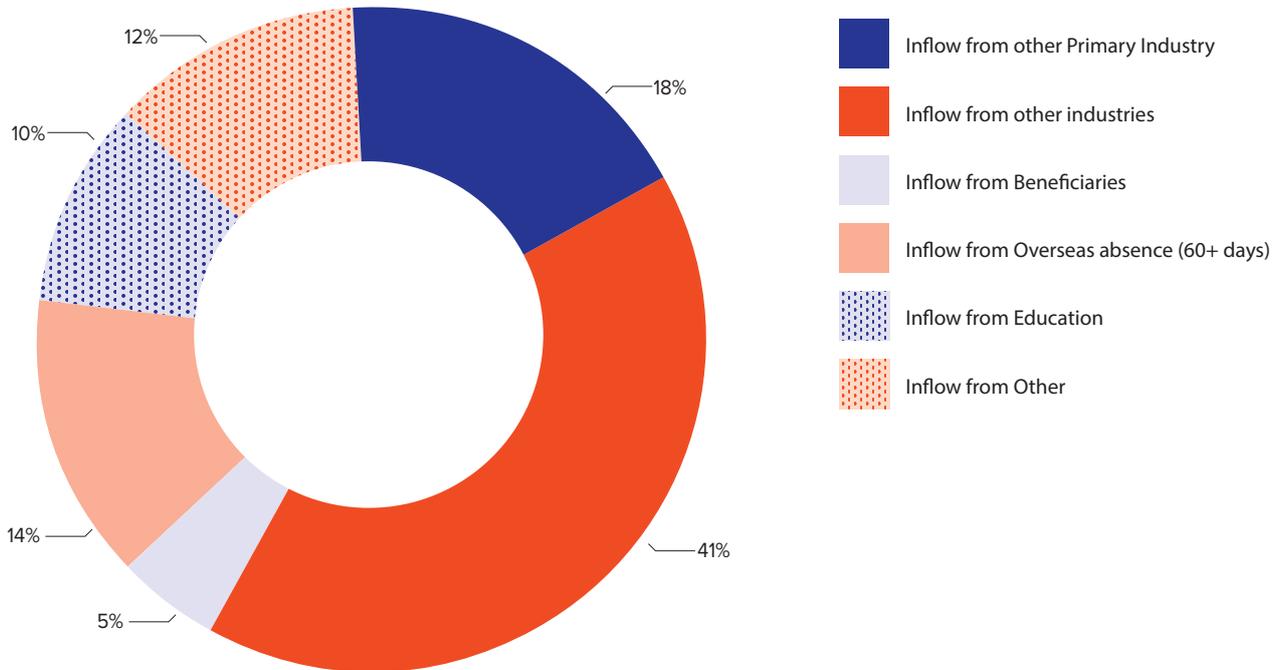
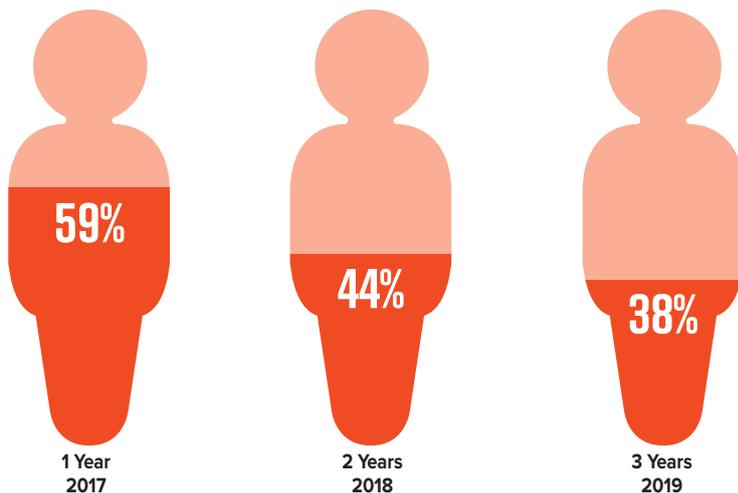


Figure 51: Where new entrants into the food and fibre workforce come from for the pork, poultry, bees and other sector

Note: In this figure, “Other” refers to a group of people who have no evidence of earning any income (no tax record), no evidence of going overseas, and no evidence of having been in the education system. They could be people on parental leave, caregivers, doing voluntary work or unpaid family work, in hospital or prison, etc.

Of the 3,000 new entrants from other industries, the three largest external industry sources were construction, administrative and support services, and accommodation and food services.

### New entrant retention rate



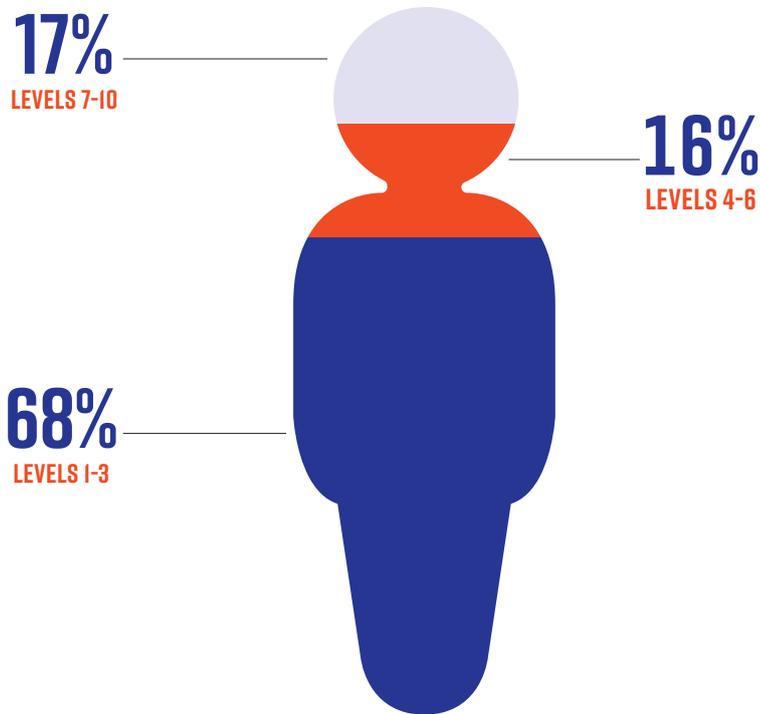
### Retention rate

The retention of the 2016 new entrants was above the food and fibre sectors new entrant retention rate.

Figure 52: New entrant retention rate for the food and fibre workforce in the pork, poultry, bees and other sector (after 1, 2 and 3 years)



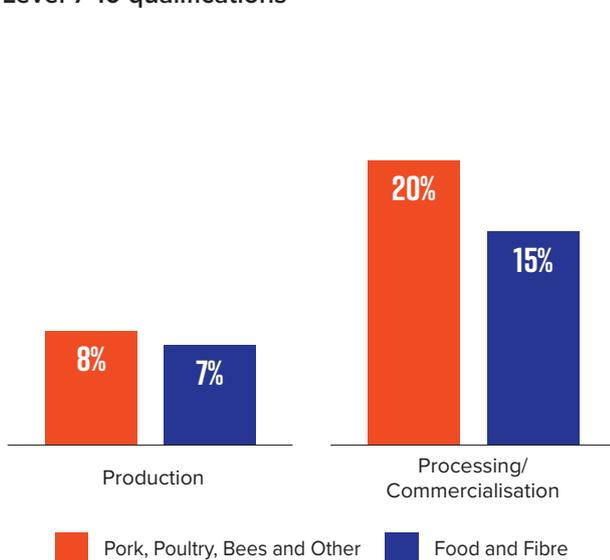
## Education profile for workers aged 15 to 29 years



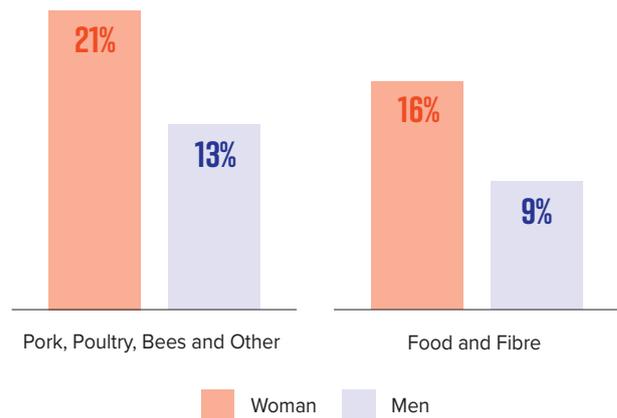
In 2019, 17 percent of people aged 15 to 29 years working in the pork, poultry, bees and other sector had qualifications at levels 7 to 10, 16 percent had qualifications at levels 4 to 6, and 68 percent had qualifications at levels 1 to 3. In comparison with the aggregate food and fibre sector, there was a higher proportion of workers with qualifications at levels 7 to 10 and a lower proportion of qualifications at levels 1 to 3 and levels 4 to 6.

Between 2012 and 2019 the proportions at the different qualification levels stayed the same. The total number of people at all qualification levels increased over this period.

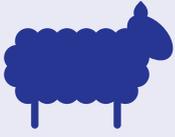
### Level 7-10 qualifications



The pork, poultry, bees and other sector has a higher proportion of workers with qualifications at levels 7 to 10 in processing/commercialisation (20 percent) compared to production (8 percent), which is broadly consistent with the food and fibre sectors proportions of processing/commercialisation (15 percent) and production (7 percent).



The proportion of women in the sector with qualifications at levels 7 to 10 (21 percent) is higher than the proportion of men (13 percent). While the overall proportion of workers with qualifications at levels 7 to 10 is higher in the pork, poultry, bees and other sector, women having a higher proportion than men is consistent with the aggregate food and fibre sectors where the proportion of women (16 percent) is higher than the proportion of men (9 percent).



# RED MEAT AND WOOL

## KIKO WHERO ME TE WŪRU

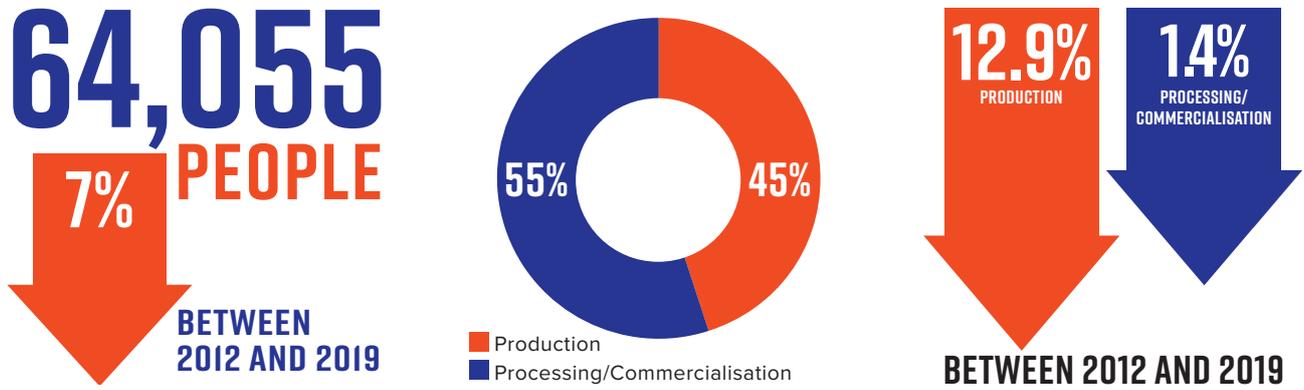
The red meat and wool sector includes sheep and beef and deer farming, meat (beef, sheep and venison) processing and wholesaling, shearing, scouring, wool and hide processing and textile manufacturing.



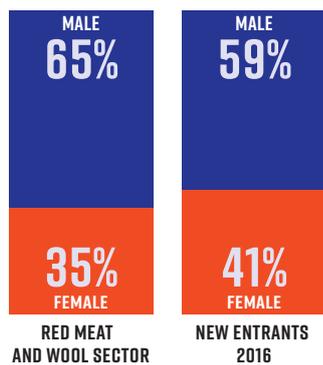


## Workforce count

The red meat and wool workforce makes up 17.5 percent of the food and fibre workforce. The workforce has decreased by 7.0 percent between 2012 and 2019.



## Demographics



## Age profile

The production workforce has an older profile than the processing/commercialisation workforce. A total of 31 percent of the production workforce and 24 percent of the processing/commercialisation workforce are over 55 years old.

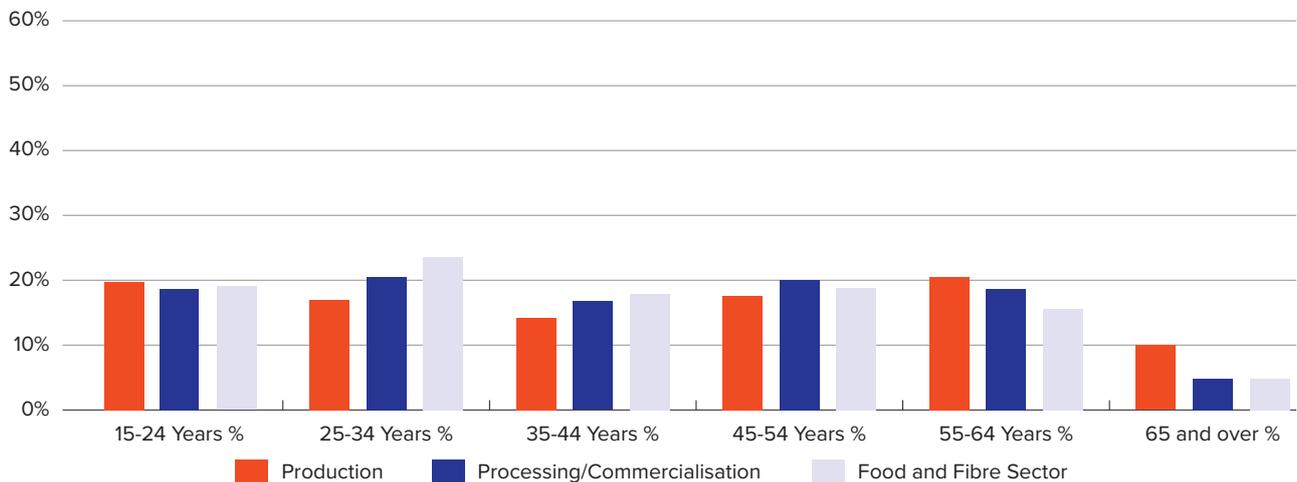


Figure 53: Age profile of the food and fibre workforce for the red meat and wool sector

### Ethnicity profile

The ethnicity profile varies between the production and processing/commercialisation workforces.

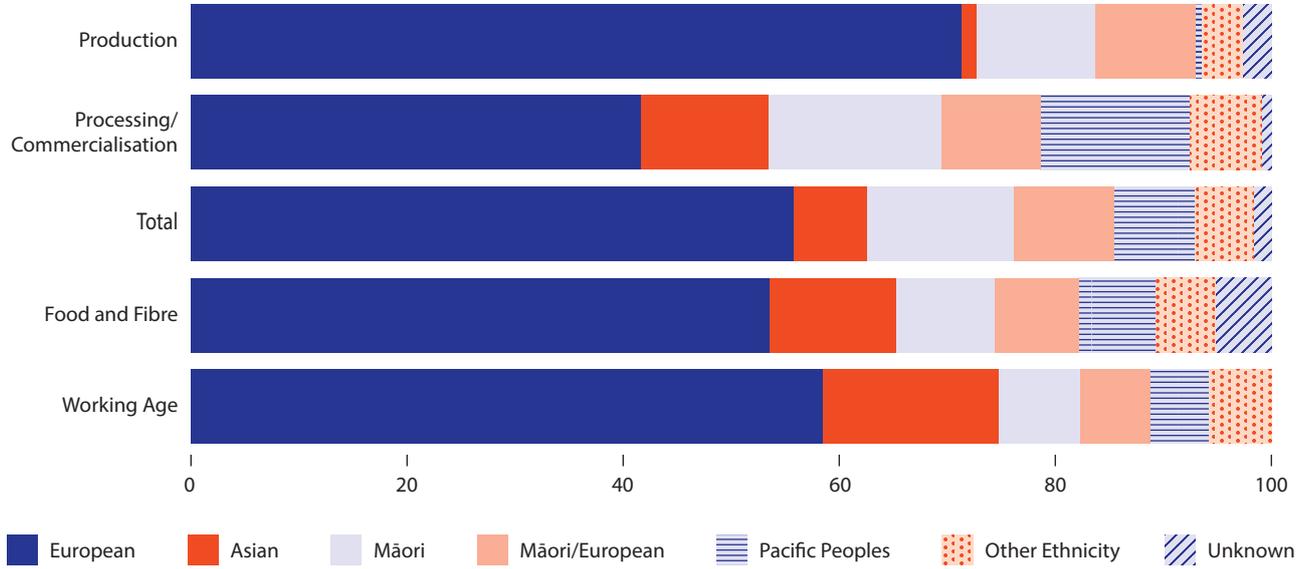


Figure 54: Ethnicity profile of the food and fibre workforce for the red meat and wool sector (2019)

People who identify as Asian and Pacific peoples are underrepresented in the red meat and wool production sector. People who identify as Asian

and European are underrepresented in the processing/commercialisation sector.

### Red meat and wool 2019

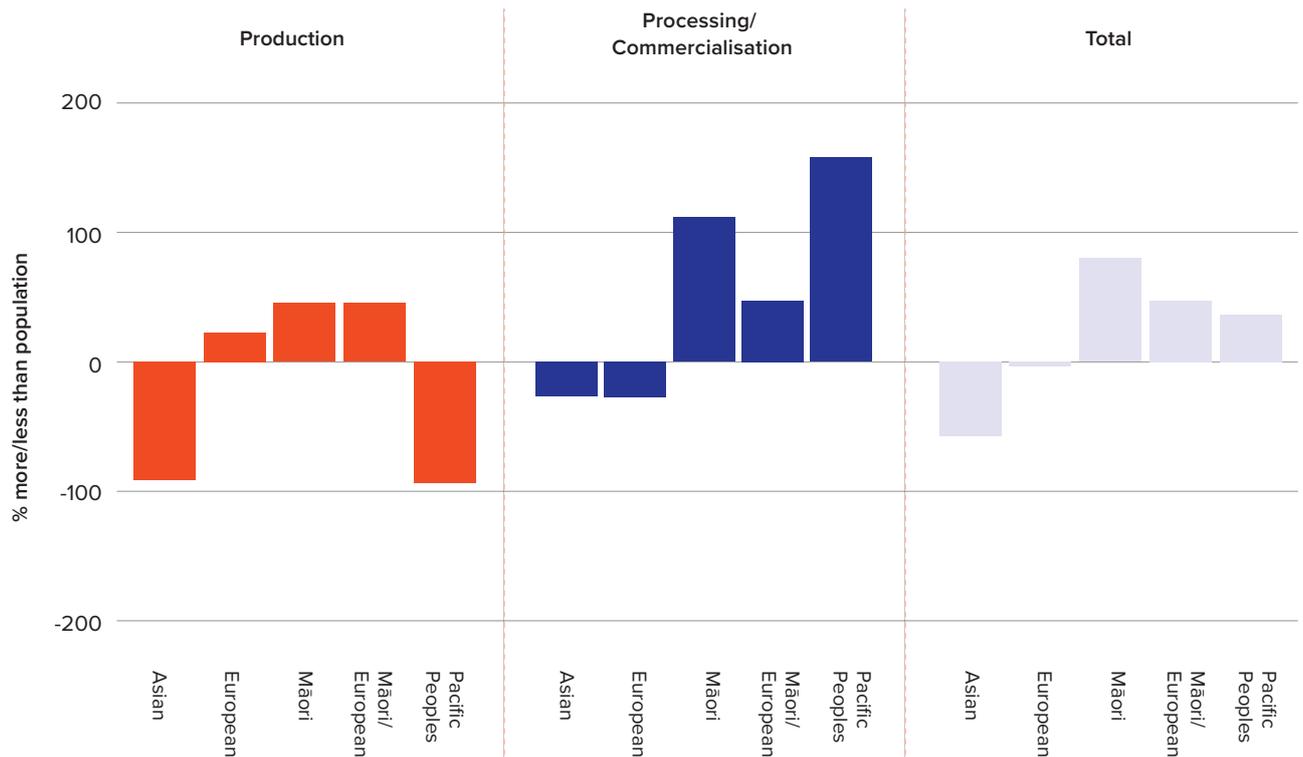


Figure 55: Ethnicity profile of the food and fibre workforce for the red meat and wool sector in comparison to the New Zealand population (2019)



### Regional distribution

Large processing/commercialisation workforces in same regions as large production workforces with the exception of the Auckland region which has a relatively small production workforce relative to its processing/commercialisation workforce.

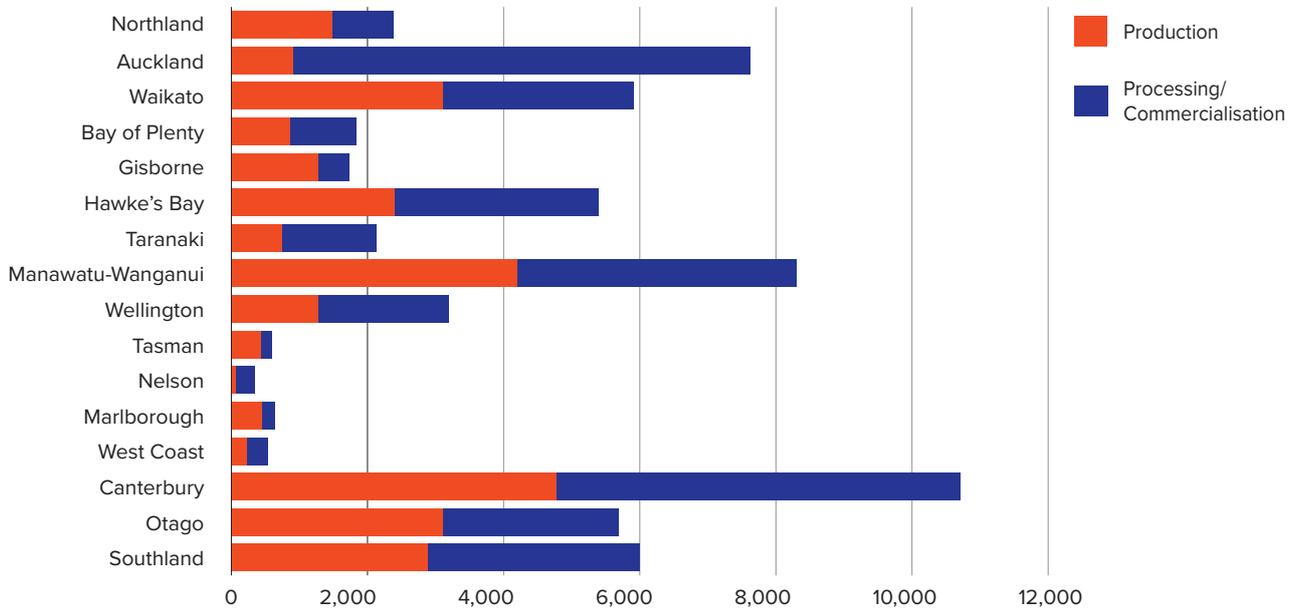


Figure 56: Regional distribution of the food and fibre workforce for the red meat and wool sector

### Workforce numbers through a year

The production workforce is reasonably stable through the year while the processing/commercialisation workforce has a pronounced seasonal profile.

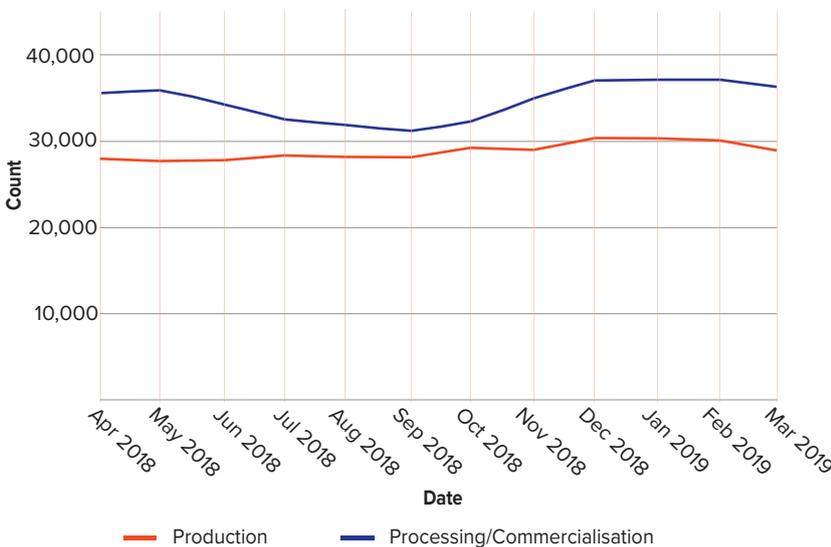
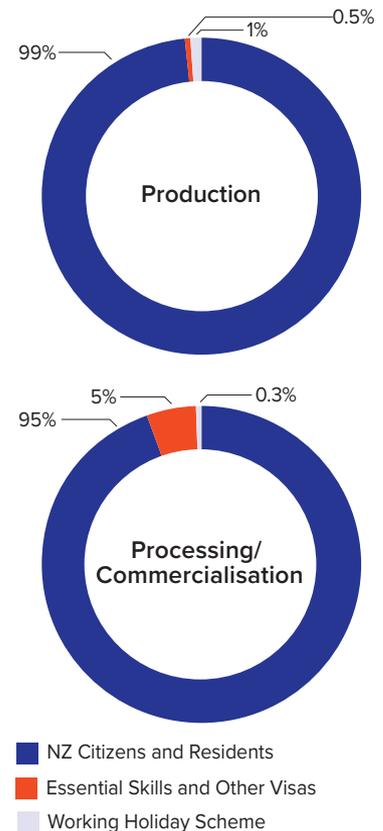


Figure 57: Monthly worker count for 2018 and 2019 for the red meat and wool sector

### Source of workers (in an average month)



## New entrants

### Where did they come from

In 2016 there were 11,700 new entrants into the red meat and wool sector.

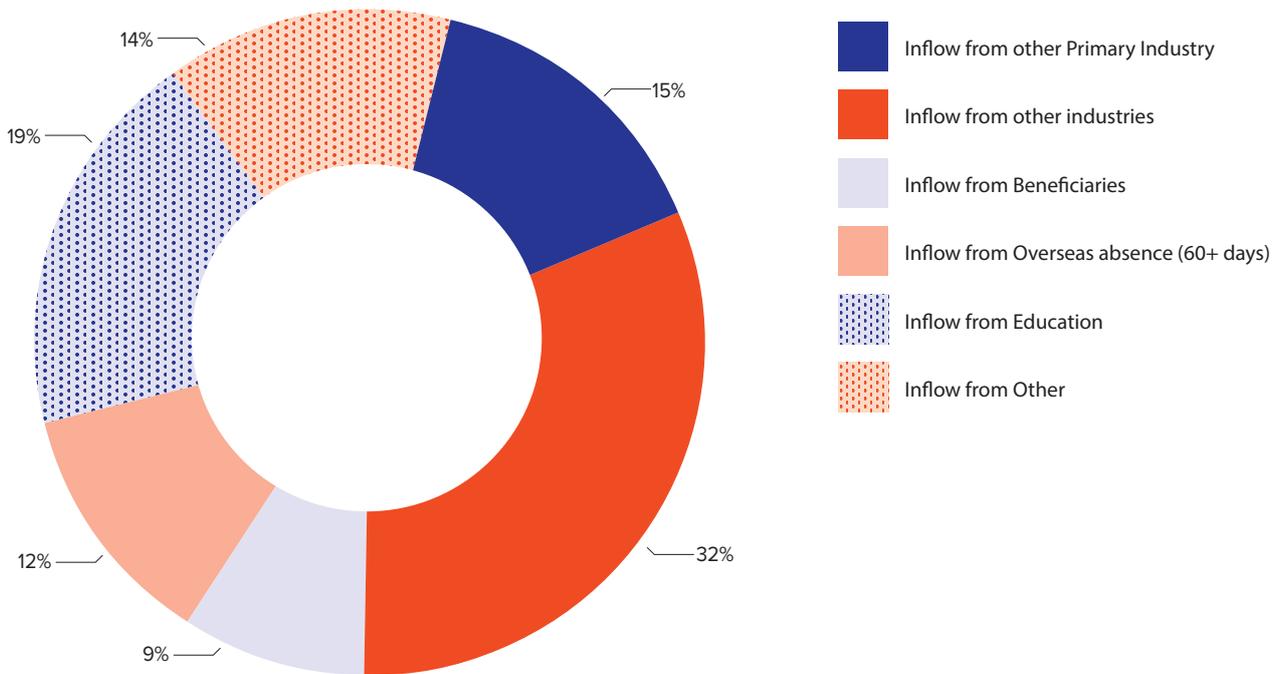
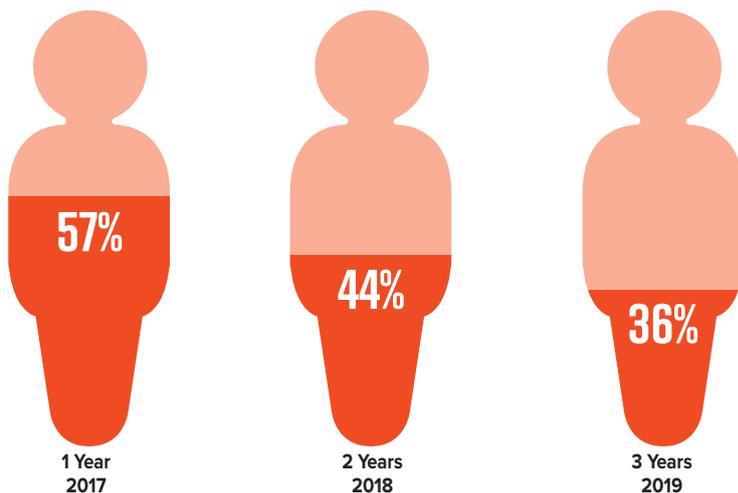


Figure 58: Where new entrants into the food and fibre workforce come from for the red meat and wool sector

Note: In this figure, “Other” refers to a group of people who have no evidence of earning any income (no tax record), no evidence of going overseas, and no evidence of having been in the education system. They could be people on parental leave, caregivers, doing voluntary work or unpaid family work, in hospital or prison, etc.

Of the 3,800 new entrants from other industries, the three largest external industry sources were retail trade, accommodation and food services, and administrative and support services.

### New entrant retention rate



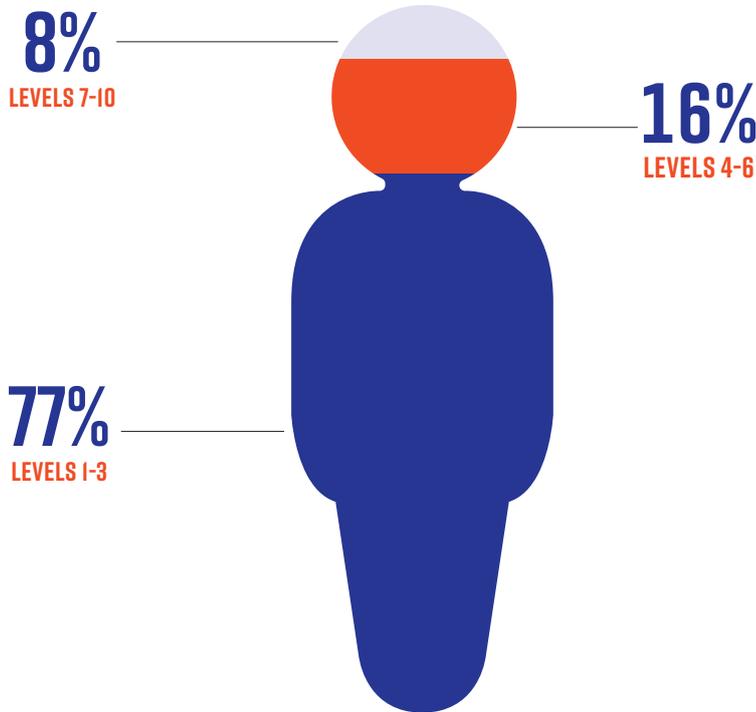
### Retention rate

The retention rate of the 2016 new entrant cohort was above the food and fibre sectors new entrant retention rate.

Figure 59: New entrant retention rate for the food and fibre workforce in the red meat and wool sector (after 1, 2 and 3 years)



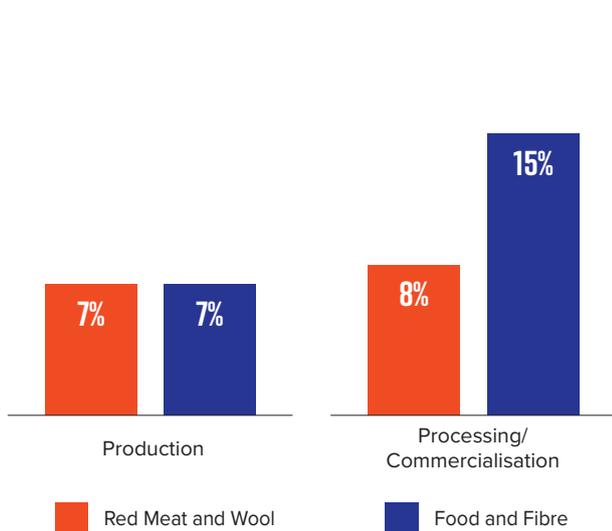
## Education profile for workers aged 15 to 29 years



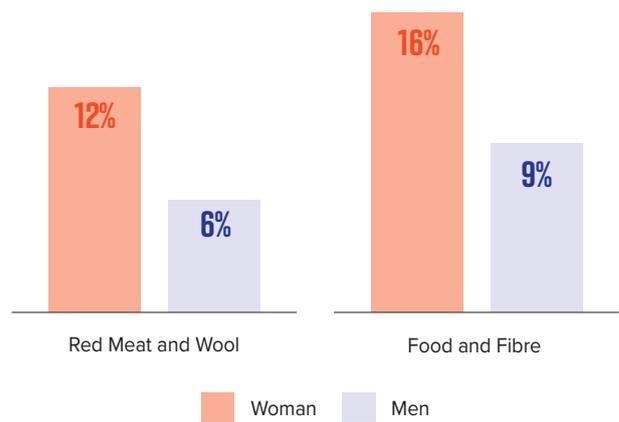
In 2019, 8 percent of people aged 15 to 29 years working in the red meat and wool sector had qualifications at levels 7 to 10, 16 percent had qualifications at levels 4 to 6, and 77 percent had qualifications at levels 1 to 3. In comparison with the aggregate food and fibre sector, there were a lower proportion of workers with qualifications at levels 4 to 6 and levels 7 to 10 qualifications, and a higher proportion of workers with qualifications at levels 1 to 3.

Between 2012 and 2019 the proportion of workers with qualifications at levels 7 to 10 increased slightly and levels 1 to 3 and levels 4 to 6 stayed the same. The total number of people at all qualification levels increased over this period.

### Level 7-10 qualifications



The red meat and wool sector has a slightly higher proportion of workers with qualifications at levels 7 to 10 in processing/commercialisation (8 percent) compared to production (7 percent). The proportion of workers with qualifications at levels 7 to 10 is lower than the food and fibre sectors proportion for processing/commercialisation (15 percent) and the same as the production proportion (7 percent).



The proportion of women in the sector with qualifications at levels 7 to 10 (12 percent) is twice the proportion of men (6 percent).



# SEAFOOD

## KAIMOANA

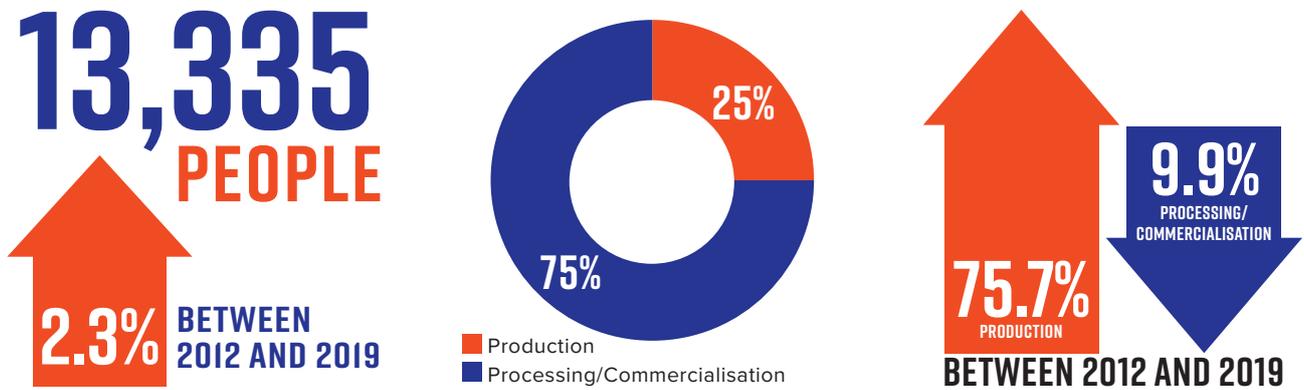
The seafood sector includes the deep sea and inshore fisheries, aquaculture and seafood processing and wholesaling, along with ship and boat building and repair services.





## Workforce count

The seafood workforce makes up 3.6 percent of the food and fibre workforce.



## Demographics



## Age profile

The seafood production workforce has a low level of uptake in the younger age profile with 11 percent of workers aged 15 to 24 years compared to 19 percent for the food and fibre sectors. One-fifth (20 percent) of the workforce is aged 55 years and over.

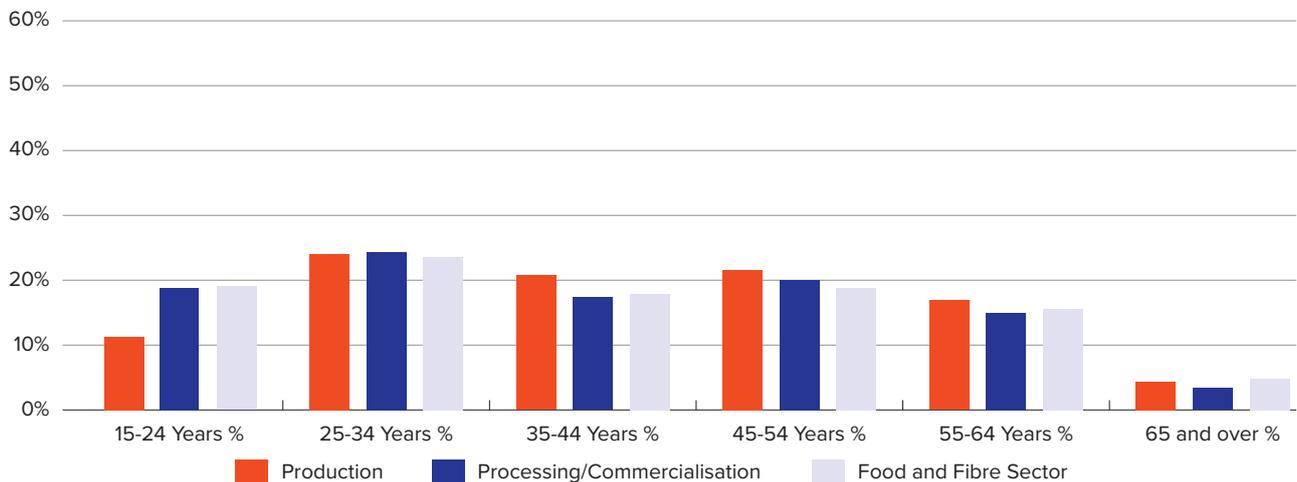


Figure 60: Age profile of the food and fibre workforce for the seafood sector

### Ethnicity profile

The ethnicity profile of the production and processing/commercialisation workforces are similar although there are a large proportion of unknown.

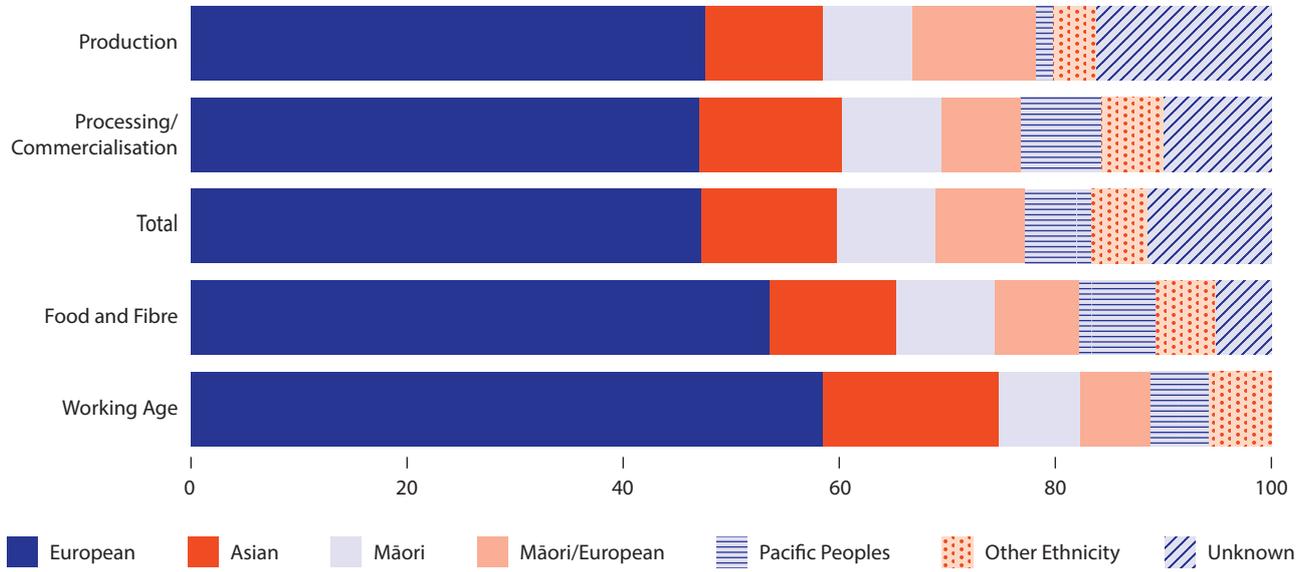


Figure 61: Ethnicity profile of the food and fibre workforce for the seafood sector (2019)

People who identify as Māori and Māori/European are overrepresented in the production and processing/commercialisation workforces.

### Seafood 2019

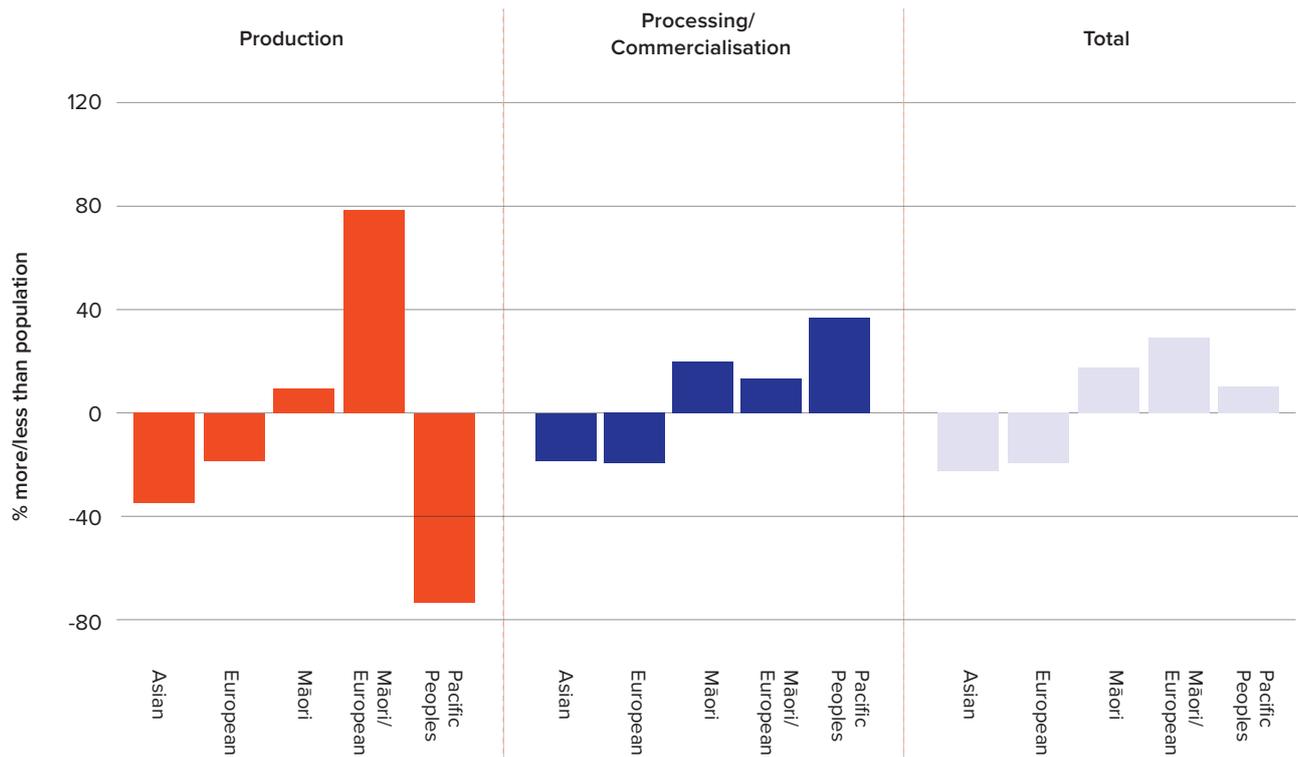


Figure 62: Ethnicity profile of the food and fibre workforce for the seafood sector in comparison to the New Zealand population (2019)



### Regional distribution

The production workforce is concentrated in the South Island, particularly the top of the South Island. The Auckland and Canterbury regions have the largest processing/commercialisation workforces.

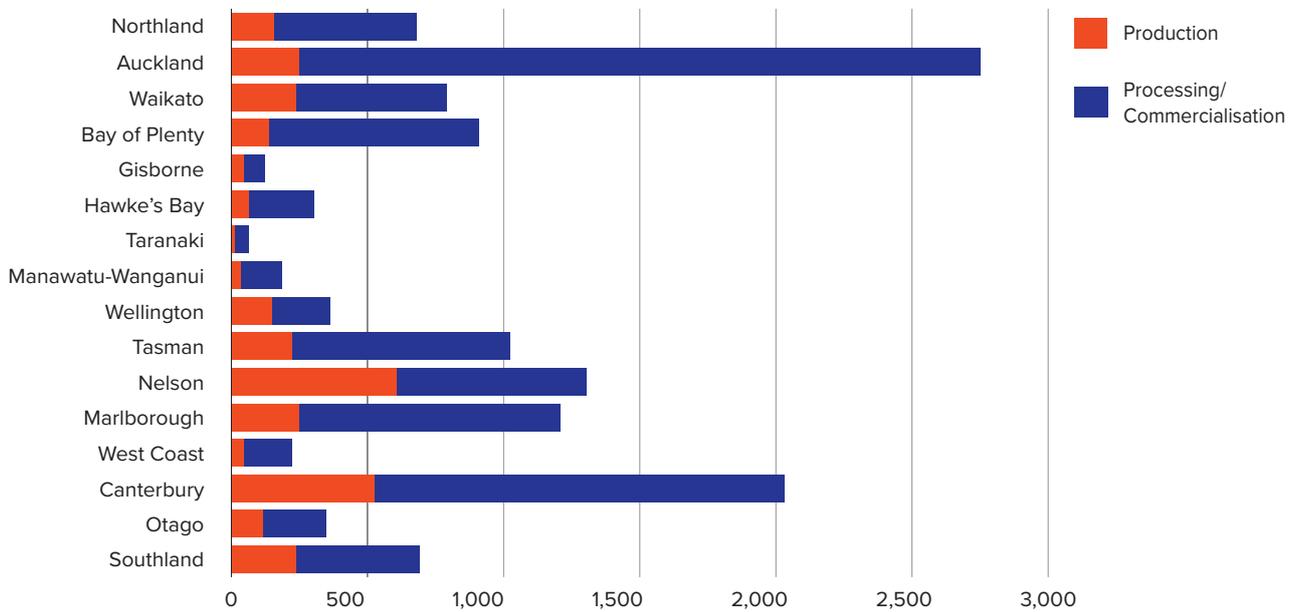


Figure 63: Regional distribution of the food and fibre workforce for the seafood sector (year ending March 2019)

### Workforce numbers through a year

The seafood workforce is reasonably stable through the year, with some seasonal variation.

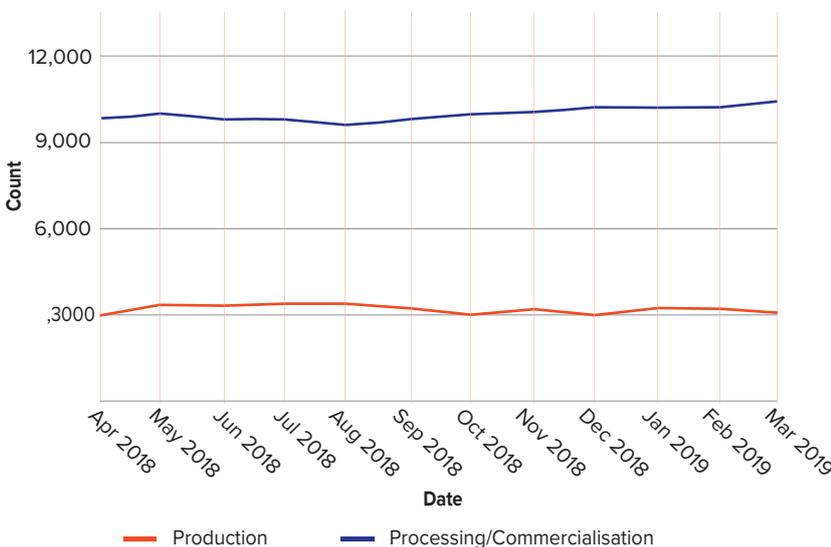
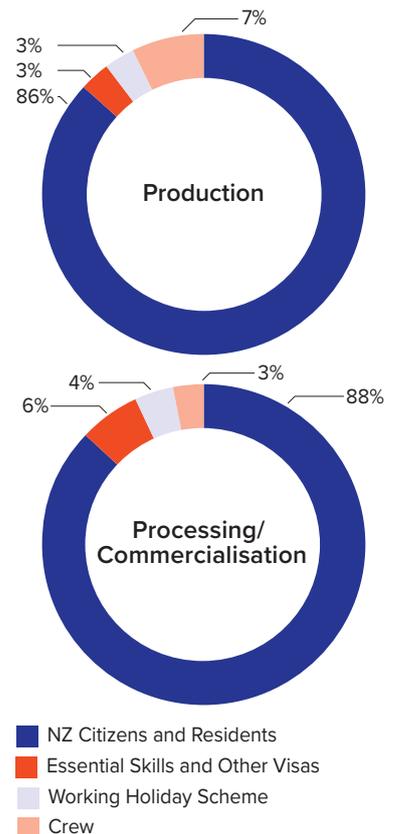


Figure 64: Monthly worker count for 2018 and 2019 for the seafood sector

### Source of workers (in an average month)



## New entrants

### Where did they come from

In 2016 there were 3,600 new entrants into the seafood sector.

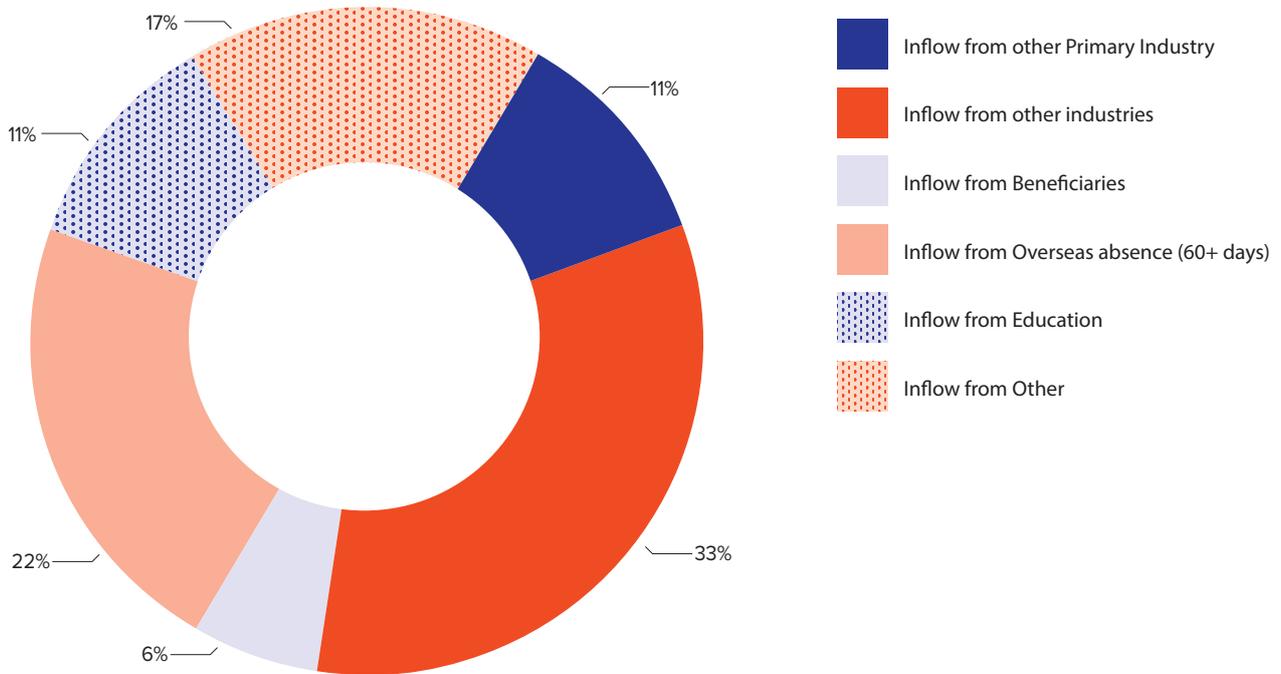
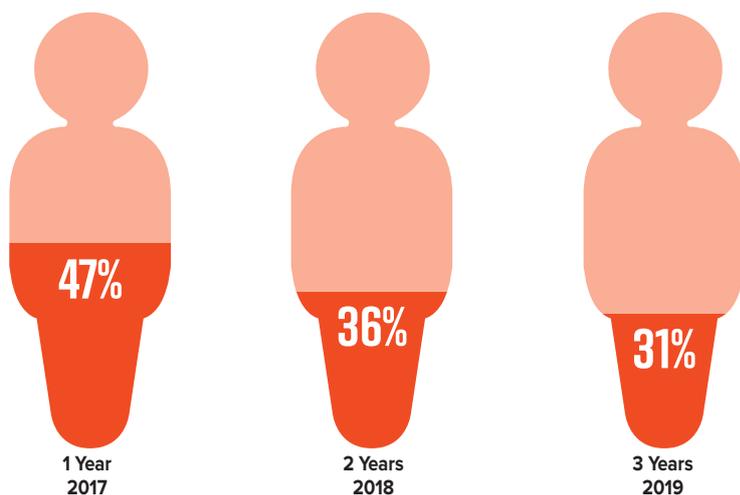


Figure 65: Where new entrants into the food and fibre workforce come from for the seafood sector

Note: In this figure, “Other” refers to a group of people who have no evidence of earning any income (no tax record), no evidence of going overseas, and no evidence of having been in the education system. They could be people on parental leave, caregivers, doing voluntary work or unpaid family work, in hospital or prison, etc.

Of the 1,200 new entrants from other industries, the three largest external industry sources were retail trade, accommodation and food services, and administrative and support services.

### New entrant retention rate



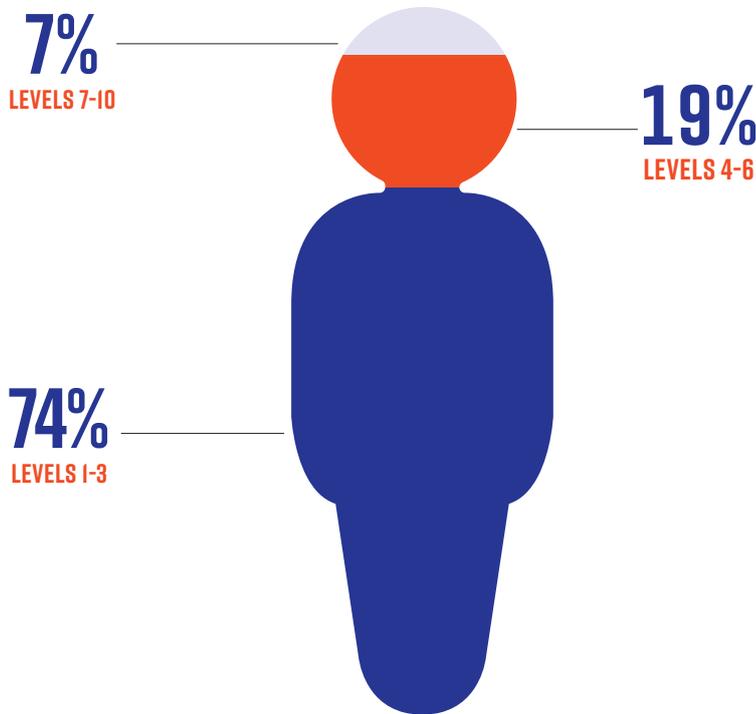
### Retention rate

The retention rate of the 2016 new entrant cohort was very similar to the food and fibre sectors new entrants retention rate and lower than the New Zealand new entrants retention rate.

Figure 66: New entrant retention rate for the food and fibre workforce in the seafood sector (after 1, 2 and 3 years)



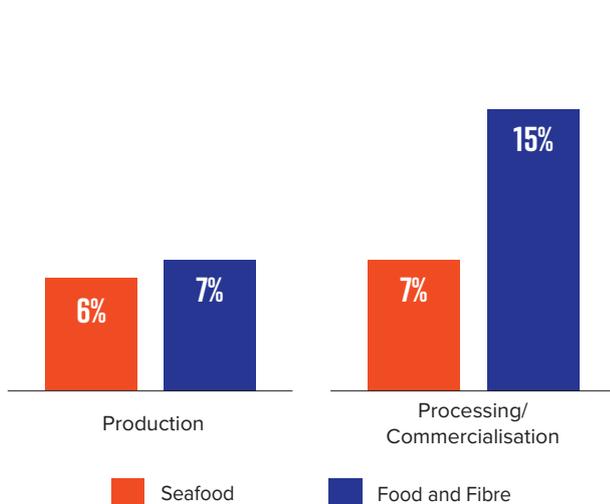
## Education profile for workers aged 15 to 29 years



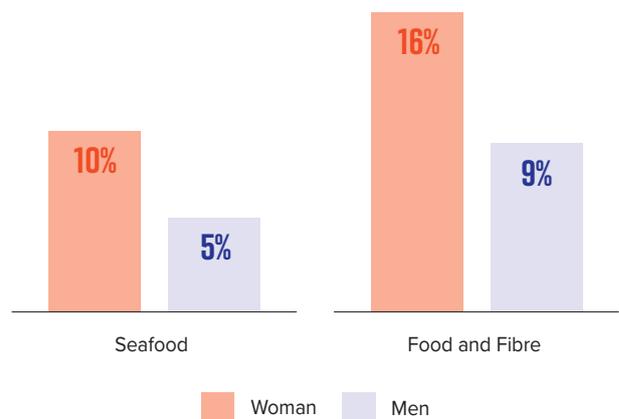
In 2019, 7 percent of people aged 15 to 29 years working in the seafood sector had qualifications at levels 7 to 10, 19 percent had qualifications at levels 4 to 6, and 74 percent had qualifications at levels 1 to 3. In comparison with the aggregate food and fibre sector, there was a lower proportion of workers with levels 7 to 10 qualifications and a higher proportion of workers with qualifications at levels 1 to 3 and levels 4 to 6.

Between 2012 and 2019 the proportion of workers with qualifications at levels 1 to 3 and levels 7 to 10 increased. The proportion of people with qualifications at levels 4 to 6 decreased. The total number of people at all qualification levels increased over this period.

### Level 7-10 qualifications



The seafood sector has about the same proportion of workers with qualifications at levels 7 to 10 in processing/commercialisation (7 percent) and production (6 percent). This differs from the aggregate food and fibre sectors where the proportion for processing/commercialisation is 15 percent and production is 7 percent.

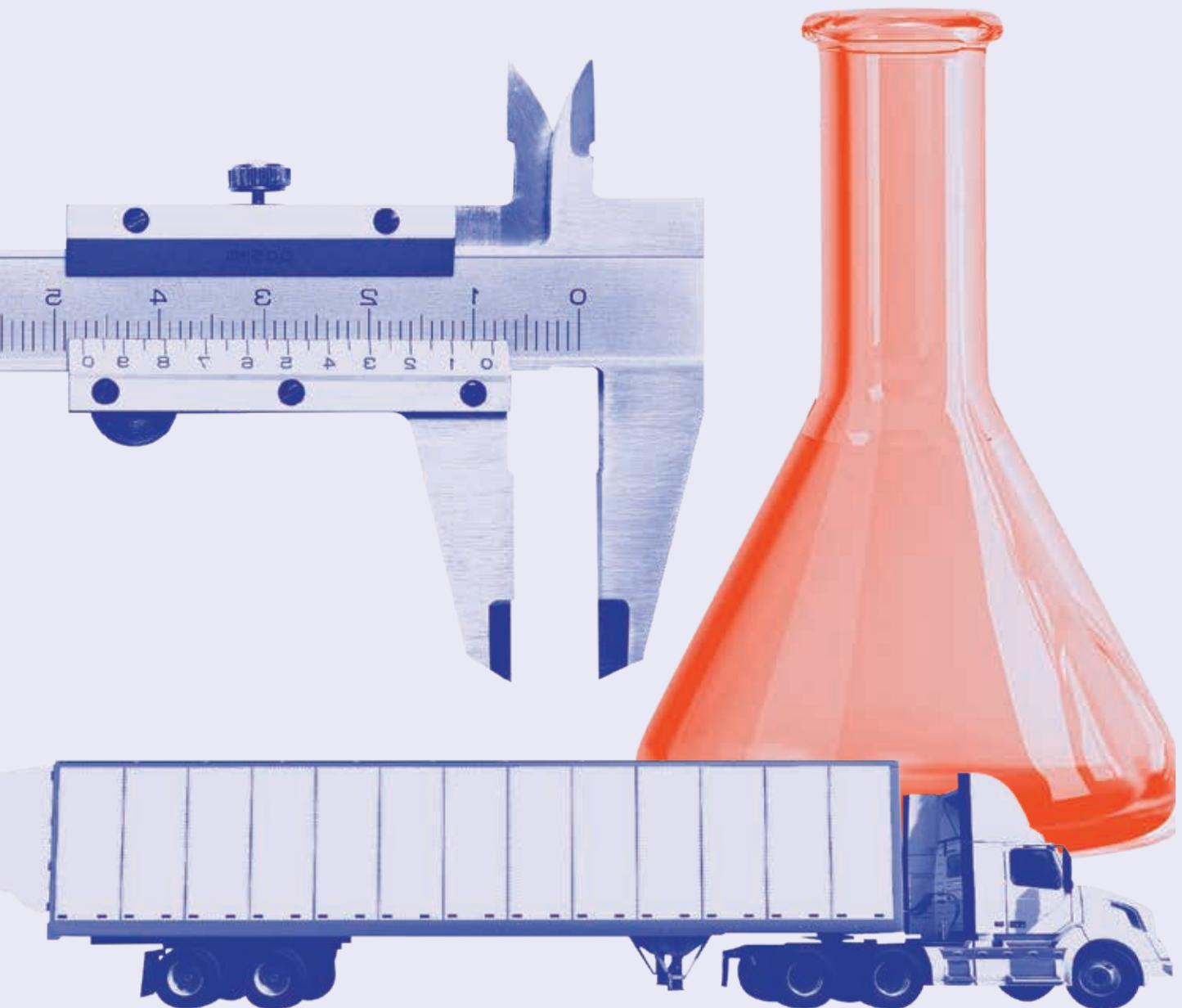


The proportion of women in the sector with qualifications at levels 7 to 10 (10 percent) is twice the proportion of men (5 percent). This is lower overall than the food and fibre sectors where the proportion of women (16 percent) with qualifications at levels 7 to 10 is higher than the proportion of men (9 percent).



# SUPPORT SERVICES

RATONGA TAUTOKO





There are many people employed in by businesses that operate in the food and fibre sectors, that cannot be attributed to a single sector and value chain. This could be because they are difficult to identify within the data, or because the businesses provide services across a range of different primary sectors and/or to other industries or consumers.

This is a wide and disparate group of businesses that can include functions as diverse as veterinary services, rural consulting, truck driving and freight services, and even outsourced functions such as accountancy or human resources. However, all of these services are necessary for the food and fibre sectors.

As a result, a wide range of roles will be found within these businesses. Some of these will be specific to the food and fibre sectors, such as rural contractors, fertiliser representatives, irrigation specialists and agronomists. Others may be part of a more generic group, such as truck drivers or marketing specialists.

For now, contributions from these businesses is included under the category of support services, to ensure a more accurate representation of the size of the food and fibre sector. Our employment counts follow the methodology outlined in the 2014 report on the future capability needs of the primary industries, which took a very encompassing approach on which industries to include in support services.

A key focus of the forecasting project is to review and update our understanding of support services. Many of the roles contained within these businesses, such as agritech specialists and environmental planners are likely to become more important over time, and it is important to improve our understanding of these roles.

### Workforce count

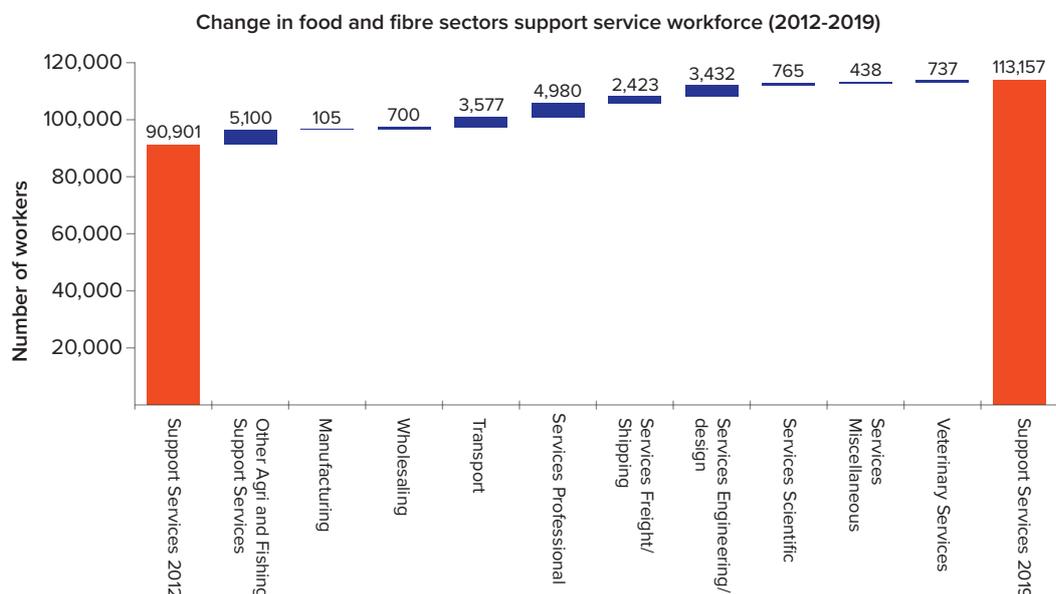
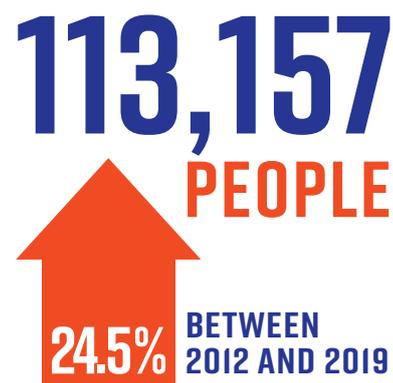
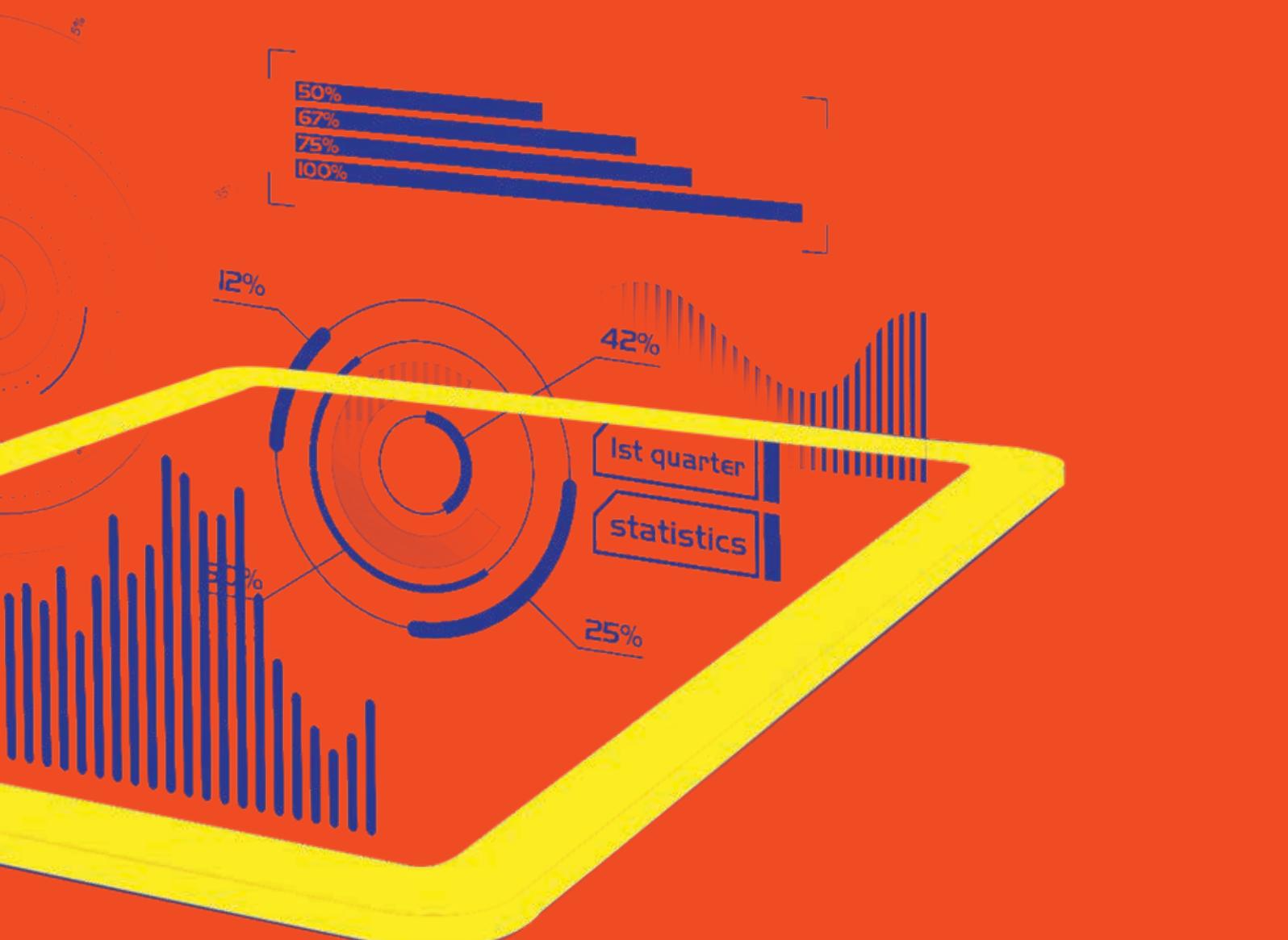


Figure 67: Change in the food and fibre sectors support services workforce between 2012 and 2019



# 3 WHERE TO FROM HERE?

E ANGA ANA KI HEA?



This section of the report is about the data. It focuses on the development, sources, and strengths and weaknesses of the datasets we have available.

## DATA CHALLENGES

Ideally, data will be timely, detailed, and reflect the complexities and the uniqueness of the labour market and the sector concerned. But there is usually a trade-off between quality and timeliness, and a challenge to match data sources with each sector's unique characteristics.

### **The trade-off between quality and timeliness**

Data from Statistics NZ, such as the Linked Employee Employer dataset (LEED), has a robust methodology and timeseries, and can be broken down by industries and regions. However, because it takes time to collect and verify data there is a time lag.

Data for disruptions like COVID-19 and other dynamic situations is often incomplete or less robust. This data can still be useful as long as we use it cautiously. In some cases, directly relevant quantitative data may not be available at all. Other related data, and qualitative information such as stakeholder interviews, can help us build up a basic picture of the situation.

### **Capturing seasonality and employment status**

The food and fibre sectors are particularly challenging. Each sector is biologically based and the demand for labour is seasonal particularly for annual crops. Like all industries, people have a range of employment statuses. Some people are owners of businesses and employers, some are full-time employees, and others are part-time or seasonal. Some people who work in the food and fibre sectors may also be independent contractors or employed through a third party. Some may work for multiple industries in a 12-month period. This reflects the dynamic nature of the food and fibre sectors and the overall workforce in New Zealand.

These factors make collecting and analysing data difficult, and care is needed in reporting and interpreting data. For example, employment numbers may be at a point in time or an average over the year. Breaking down aggregated data for a sector into individual crops may not be possible, hiding major differences. And income data are challenging to report without being able to analyse their relationship to employment status, role, and number of hours worked.

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**THE FOOD AND FIBRE SECTORS ARE PARTICULARLY CHALLENGING. EACH SECTOR IS BIOLOGICALLY BASED AND THE DEMAND FOR LABOUR IS SEASONAL PARTICULARLY FOR ANNUAL CROPS.**

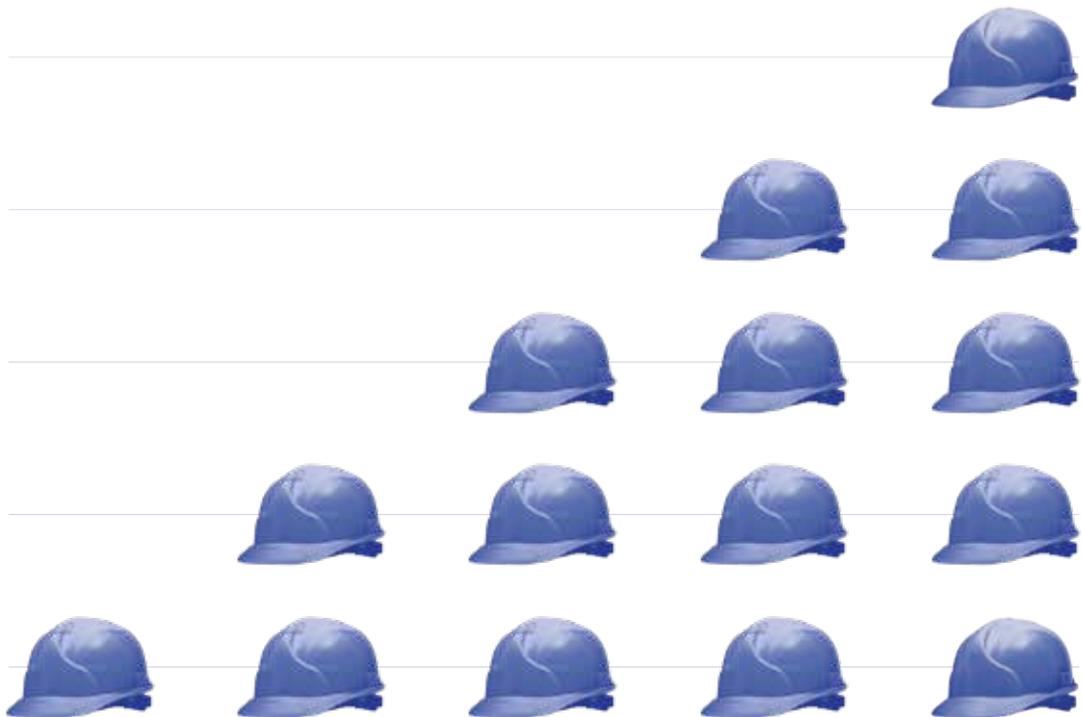
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# IMPROVING DATA FOR ATTRACTION ACTIVITIES

We know the food and fibre sectors carry out a wide range of attraction activities. Data help us understand where these activities focus and how effective they are. For example, we know many attraction activities target secondary students. Data can help us discover any gaps in targeting other audiences such as teachers, career changers, and those not in education or employment.

There is a significant opportunity to improve how we review and evaluate these activities to see what works best.

The Primary Industry Capability Alliance (PICA) suggests an easier way of trying to measure the success of your activities. They ask people how likely they are to consider a role in New Zealand's food and fibre sectors, measuring responses on a 5-point scale from 1 (not likely) to 5 (extremely likely).



NOT LIKELY

EXTREMELY LIKELY

# IMPROVING DATA FOR EDUCATION, TRAINING, AND UPSKILLING ACTIVITIES

Quality education and training programmes and ongoing upskilling activities are necessary to ensure people can work efficiently, productively, and safely. Appropriately skilled people will not only meet the challenges of today, but also grasp the opportunities of the future whether this be new products and processes or adopting to new technologies.

## We want to:

- encourage a strong culture of upskilling our people;
- ensure our people have the skills, knowledge and capabilities to be successful;
- strengthen the pipeline of appropriately skilled people entering the food and fibre sectors.

To do this, we need to understand the skills and expertise those entering the food and fibre sectors bring with them – both those entering the workforce for the first time and career changers. We also need to know what skills are being developed by those already in the food and fibre sectors.

Education and upskilling includes formal education leading to qualifications (secondary and tertiary) and upskilling while working. Upskilling may be in the workplace or at organised off-site activities.

We have relatively good information for formal education, but less for upskilling outside formal education. We are aware of a range of upskilling activity, but we suspect there is more than we are aware of. Employers and employees often don't record upskilling activity, instead seeing it as business as usual that's necessary for doing your job well.

Evaluation opportunities are different for semi-structured and structured activities.

- **Semi-structured: fluid, attendee-focused activities such as focus groups, business networking events, and webinars where the content could not easily be delivered consistently or offered in multiple locations.**
- **Structured: well-organised, outcomes-focused activities, which are delivered consistently and in multiple locations.**

Semi-structured activities can be hard to evaluate. Structured activities often have more focus on defined outcomes such as the specific skills acquired.

# IMPROVING DATA ON EMPLOYMENT CONDITIONS

We measure data related to employment conditions because we want to get a broad understanding of what working conditions within the food and fibre sectors look like, and how people feel about their roles.

Work–life balance provides insight into how people feel about their hours, while job satisfaction provides a high-level view of how people feel about their overall conditions.

People working in the food and fibre sectors<sup>7</sup> report high job satisfaction – 90 percent are satisfied or very satisfied with their job. This is higher than the New Zealand workforce results where 88 percent are satisfied or very satisfied with their job. Only 3 percent in the food and fibre sector are dissatisfied or very dissatisfied.

The *Survey of Working Life: 2018* tells us more about some of the factors that contribute to overall job satisfaction of people working in the food and fibre sectors: work-life balance, the physical nature of work and time pressure, working relationships, upskilling, autonomy, and how well people’s skills match their job roles.

- **People are happy with their work life balance – over 75 percent are satisfied or very satisfied with their work–life balance.**
- **The food and fibre sectors appear to have higher physical requirements than many other sectors. Time pressures are not significantly different to other sectors.**

- **People working in food and fibre report good working relationships with colleagues and managers at a similar level to the overall workforce, with 87 percent reporting a good or very good relationship with their colleagues and manager.**
- **Compared to the overall workforce, people working in food and fibre report a similar amount of upskilling opportunities and autonomy in the way they work. This challenges perceptions that the food and fibre sectors are low skill and repetitive.**
- **People generally consider their skills are a good match for their role.**

Other metrics we would have liked to show include hours and incomes at a role level. We have not managed to obtain robust comprehensive data at this level. Higher-level metrics (such as by industry grouping) are already available, for example, LEED data published by Statistics NZ includes median quarterly incomes by industry. However, these groupings do not reflect our definition of the food and fibre sectors, as processing, commercialisation, and supporting activities are included in other groupings and these activities represent the majority of the primary sector workforce. The seasonal and international nature of the workforce may also distort the results if a person’s income is for only part of the year.

<sup>7</sup> We have also included Manufacturing due to the amount of primary sector processing/commercialisation industries (for example, dairy, meat and seafood processing/commercialisation) included within this category. However, there are other manufacturing industries so care must be taken when interpreting this figure.

### Improving income data

Income is an important job condition and a key indicator for our workforce dataset. A range of organisations and products already include income information that relates to the food and fibre sectors. For example:

- high-level income analysis on a quarterly or annual basis published by Statistics NZ as part of their Linked Employee-Employer Data (LEED);
- hourly metrics published by Statistics NZ from their Household Labour Force Survey;
- income measures for a number of on-farm occupations published annually by Federated Farmers and Rabobank in the Farm Remuneration Report;
- overviews of a range of different jobs including indicative remuneration provided by [careers.govt.nz](https://careers.govt.nz).

Our ambition has been to develop a robust dataset that enables meaningful comparisons between subsectors and with other industries, but this has proven to be challenging. Some of the food and fibre sectors use a large temporary workforce for seasonal activities, as well as a permanent workforce. Some have more self-employed people than the national average, and others have fewer. Some of our workforce is international, particularly within seasonal roles, apart from disruption from COVID-19. Examples of this include New Zealand shearers working overseas for part of the year, foreign fishing crew, and New Zealand and foreign winery staff.

Developing indicators that help us segregate and understand these dynamics is challenging. We also face the kinds of questions that apply across all industries, such as whether incomes reflect the same number of hours worked. As a result, please use caution when interpreting currently available income data.

Our challenge for 2022 will be to build a dataset that provides insight into these aspects of the workforce. One option we will explore is whether official data, held within the Integrated Data Infrastructure maintained by Statistics NZ, can be used to produce insights into these dynamics.

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**OUR AMBITION HAS BEEN TO DEVELOP A ROBUST DATASET THAT ENABLES MEANINGFUL COMPARISONS BETWEEN SUBSECTORS AND WITH OTHER INDUSTRIES, BUT THIS HAS PROVEN TO BE CHALLENGING.**

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# IMPROVING FORECASTING

## WE WILL CONTINUE TO WORK COLLECTIVELY TO ENHANCE OUR UNDERSTANDING OF THE FOOD AND FIBRE WORKFORCE.

The *Food and Fibre Skills Action Plan 2019–2022* and the *Forestry and Wood Processing Workforce Action Plan 2020–2024* recognise the need for better data.

Workforce forecasts, including scenarios, will be published in 2022. These will include projected demand for different primary industry roles and skills levels. The aim is to examine what labour and skills the food and fibre sectors will need by 2032 to deliver on four alternative futures:

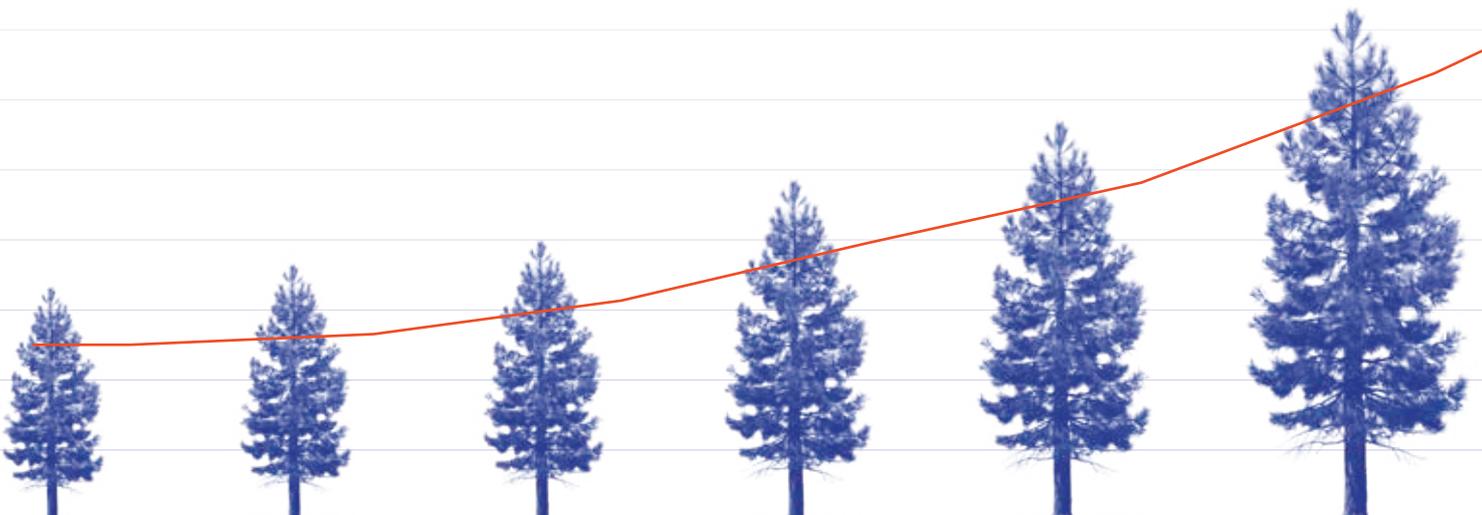
- a status quo scenario which assumes a future level of production and processing/commercialisation based on the current situation;
- increased automation and mechanisation;
- a transformation scenario;
- a Māori aspiration scenario.

These forecasts will help us focus activities in the right areas, to ensure we have the skills to continue to succeed in the future. The data will be updated periodically, annually where possible.

We will continue to work collectively to enhance our understanding of the food and fibre workforce.

### Using the forthcoming digital platform to develop insights

The digital platform will give you access to relevant datasets and make it easy to access and analyse detailed information on your own terms. Providing the datasets in this way will help you choose what data to focus on. It'll be easier to combine data with your own information to gain your own business insights and make strategic decisions.

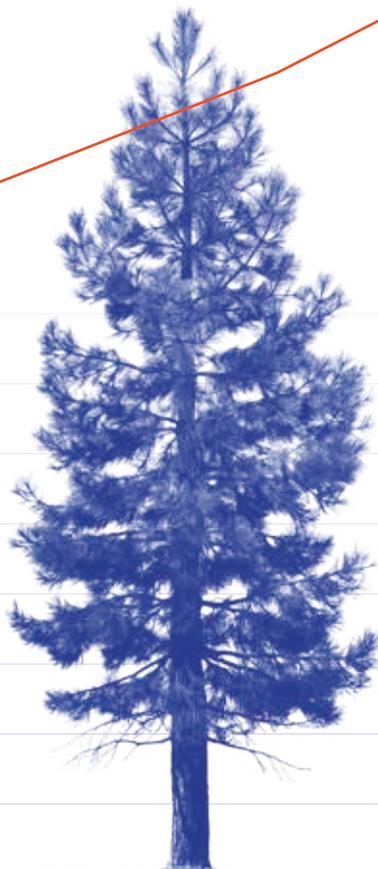
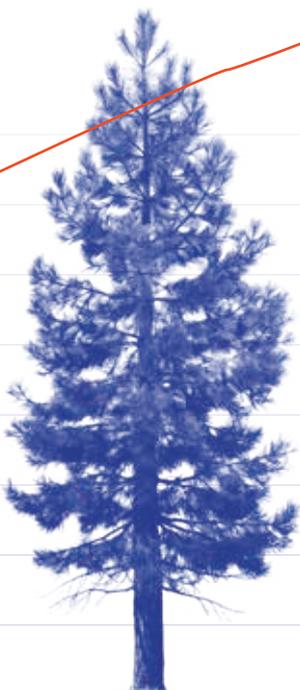


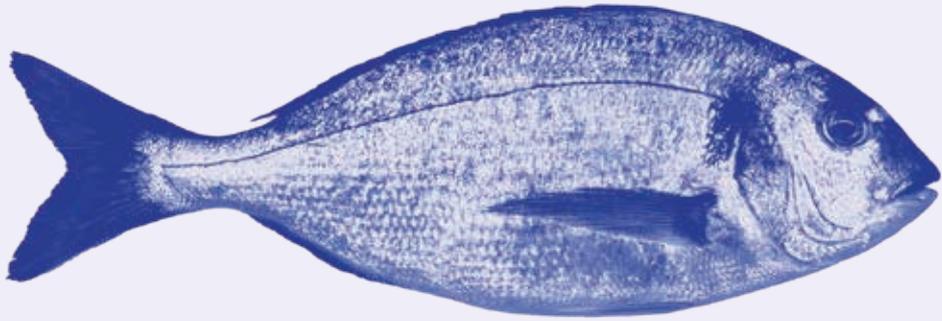
# POLICY WORK TO HELP MATCH WORKFORCE SUPPLY WITH DEMAND

In the food and fibre sectors, much work is going on to build on industry action plans. For example, the Reform of Vocational Education (RoVE) will contribute to aligning the supply of future skilled workers with the demand.

**...WILL ALSO COMPLEMENT OTHER GOVERNMENT POLICY GOALS, FOR EXAMPLE, SUBSTANTIAL TRANSITION TO CARBON NEUTRALITY, EXCELLENCE IN WATER MANAGEMENT, AND PAN-SECTOR ECONOMIC GROWTH.**

The forecasting work will help inform the evaluation and update of the *Food and Fibre Skills Action Plan 2019–2022* and the *Forestry and Wood Processing Workforce Action Plan 2020–2024*. Efforts to improve the matching of workforce supply with demand will also complement other Government policy goals, for example, substantial transition to carbon neutrality, excellence in water management, and pan-sector economic growth.





# APPENDICES



# APPENDIX I

Sector Composition by ANZSIC codes based on the 2014 foundational Infometrics report (Future capability needs for the primary industries in New Zealand)



## ARABLE

### Production

A014900 Other Grain Growing

A015900 Other Crop Growing n.e.c.

### Processing/Commercialisation

C115000 Oil and Fat Manufacturing

C116100 Grain Mill Product Manufacturing

C116200 Cereal, Pasta and Baking Mix Manufacturing

C117100 Bread Manufacturing (Factory-based)

C117200 Cake and Pastry Manufacturing (Factory-based)

C117300 Biscuit Manufacturing (Factory-based)

C117400 Bakery Product Manufacturing (Non-factory-based)

C118100 Sugar Manufacturing

C118200 Confectionery Manufacturing

C119200 Prepared Animal and Bird Feed Manufacturing

C121200 Beer Manufacturing

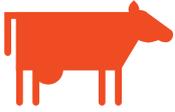
C121300 Spirit Manufacturing

C122000 Cigarette and Tobacco Product Manufacturing

C133200 Rope, Cordage and Twine Manufacturing

F331200 Cereal Grain Wholesaling

I530100 Grain Storage Services



## DAIRY

### Production

A016000 Dairy Cattle Farming

### Processing/Commercialisation

C113100 Milk and Cream Processing

C113200 Ice Cream Manufacturing

C113300 Cheese and Other Dairy Product Manufacturing

F360300 Dairy Produce Wholesaling



## FORESTRY

### Production

A030100 Forestry

A030200 Logging

A051000 Forestry Support Services

### Processing/Commercialisation

C141100 Log Sawmilling

C141200 Wood Chipping

C141300 Timber Resawing and Dressing

C149100 Prefabricated Wooden Building Manufacturing

C149200 Wooden Structural Fittings and Components Manufacturing

C149300 Veneer and Plywood Manufacturing

C149400 Reconstituted Wood Product Manufacturing

C149900 Other Wood Product Manufacturing n.e.c.

C151000 Pulp, Paper and Paperboard Manufacturing

C152100 Corrugated Paperboard and Paperboard Container Manufacturing

C152200 Paper Bag and Sack Manufacturing

C152300 Paper Stationery Manufacturing

C152400 Sanitary Paper Product Manufacturing

C152900 Other Converted Paper Product Manufacturing

C251100 Wooden Furniture and Upholstered Seat Manufacturing

C251900 Other Furniture Manufacturing

F333100 Timber Wholesaling

O771300 Fire Protection and Other Emergency Services (except Ambulance Services)



## HORTICULTURE

### Production

A011100 Nursery Production (Under Cover)

A011200 Nursery Production (Outdoors)

A011300 Turf Growing

A011400 Floriculture Production (Under Cover)

A011500 Floriculture Production (Outdoors)

A012100 Mushroom Growing

A012200 Vegetable Growing (Under Cover)

A012300 Vegetable Growing (Outdoors)

A013100 Grape Growing

A013200 Kiwifruit Growing

A013300 Berry Fruit Growing

A013400 Apple and Pear Growing

A013500 Stone Fruit Growing

A013600 Citrus Fruit Growing

A013700 Olive Growing

A013900 Other Fruit and Tree Nut Growing

### Processing/Commercialisation

C114000 Fruit and Vegetable Processing

C119100 Potato Crisps and Corn Chips Manufacturing

C121100 Soft Drink, Cordial and Syrup Manufacturing

C121400 Wine and Other Alcoholic Beverage Manufacturing

F360500 Fruit and Vegetable Wholesaling



## PORK, POULTRY, BEES & OTHER

### Production

A017100	Poultry Farming (Meat)
A017200	Poultry Farming (Eggs)
A019100	Horse Farming
A019200	Pig Farming
A019300	Beekeeping
A019900	Other Livestock Farming n.e.c.
A042000	Hunting and Trapping

### Processing/Commercialisation

C111200	Poultry Processing
C119900	Other Food Products Manufacturing n.e.c.
F331900	Other Agricultural Product Wholesaling



## RED MEAT AND WOOL

### Production

A014100	Sheep Farming (Specialised)
A014200	Beef Cattle Farming (Specialised)
A014300	Beef Cattle Feedlots (Specialised)
A014400	Sheep-Beef Cattle Farming
A014500	Grain-Sheep and Grain-Beef Cattle Farming
A018000	Deer Farming
A052200	Shearing Services

### Processing/Commercialisation

C11100	Meat Processing
C111300	Cured Meat and Smallgoods Manufacturing
C131100	Wool Scouring
C131200	Natural Fibre Textile Manufacturing
C131300	Synthetic Fibre Textile Manufacturing
C132000	Leather Tanning, Fur Dressing and Leather Product Manufacturing
C133100	Textile Floor Covering Manufacturing
C133300	Cut and Sewn Textile Product Manufacturing
C133400	Textile Finishing and Other Textile Product Manufacturing
C134000	Knitted Product Manufacturing
C135100	Clothing Manufacturing
C135200	Footwear Manufacturing
F331100	Wool Wholesaling
F360200	Meat, Poultry and Smallgoods Wholesaling
F371100	Textile Product Wholesaling



## SEAFOOD

### Production

A020100 Longline and Rack (Offshore) Aquaculture

A020200 Caged (Offshore) Aquaculture

A020300 Onshore Aquaculture

A041100 Rock Lobster and Crab Potting

A041200 Prawn Fishing

A041300 Line Fishing

A041400 Fish Trawling, Seining and Netting

A041900 Other Fishing

### Processing/Commercialisation

C112000 Seafood Processing

F360400 Fish and Seafood Wholesaling

C239100 Shipbuilding and Repair Services

C239200 Boatbuilding and Repair Services



## SUPPORT SERVICES

### Other

A052900	Other Agriculture and Fishing Support Services
C183100	Fertiliser Manufacturing
C183200	Pesticide Manufacturing
C184200	Veterinary Pharmaceutical and Medicinal Product Manufacturing
C203100	Cement and Lime Manufacturing
C239300	Railway Rolling Stock Manufacturing and Repair Services
C246100	Agricultural Machinery and Equipment Manufacturing
D291900	Other Waste Collection Services
E310900	Other Heavy and Civil Engineering Construction
F332300	Industrial and Agricultural Chemical Product Wholesaling
F341100	Agricultural and Construction Machinery Wholesaling
I461000	Road Freight Transport
I471000	Rail Freight Transport
I481000	Water Freight Transport
I521100	Stevedoring Services
I521200	Port and Water Transport Terminal Operations
I521900	Other Water Transport Support Services
I529100	Customs Agency Services
I529200	Freight Forwarding Services
I530900	Other Warehousing and Storage Services
M691000	Scientific Research Services
M692100	Architectural Services



## SUPPORT SERVICES

Other continued

M692200	Surveying and Mapping Services
M692300	Engineering Design and Engineering Consulting Services
M692400	Other Specialised Design Services
M692500	Scientific Testing and Analysis Services
M693100	Legal Services
M693200	Accounting Services
M694000	Advertising Services
M695000	Market Research and Statistical Services
M696100	Corporate Head Office Management Services
M696200	Management Advice and Other Consulting Services
M697000	Veterinary Services
M699900	Other Professional, Scientific and Technical Services n.e.c.
M700000	Computer Systems Design and Related Services
S942900	Other Machinery and Equipment Repair and Maintenance





