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Evaluation | Analytics | Insights

February 2025

# Seasonal workforce analysis

## Final report

FOOD & FIBRE CoVE
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# IDI disclaimer

These results are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI) which is carefully managed by Stats NZ. For more information about the IDI please visit https://www.stats.govt.nz/integrated-data/.

The results are based in part on tax data supplied by Inland Revenue to Stats NZ under the Tax Administration Act 1994 for statistical purposes. Any discussion of data limitations or weaknesses is in the context of using the IDI for statistical purposes, and is not related to the data's ability to support Inland Revenue's core operational requirements.

Access to the data used in this study was provided by Stats NZ under conditions designed to give effect to the security and confidentiality provisions of the Data and Statistics Act 2022. The results presented in this study are the work of the author, not Stats NZ or individual data suppliers.

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# Summary

The food and fibre sector has struggled for a long time with workforce shortages – both for its seasonal and non-seasonal workers. A potential approach to address non-seasonal workforce shortages is to retain seasonal workers longer, by either:

1. Combining seasonal work across sectors, but within regions, to create year-round employment – in effect making seasonal roles into non-seasonal ones.

2. Creating education pathways that transition seasonal workers into non-seasonal roles.

This work explores how feasible these approaches are. We used the Integrated Data Infrastructure to understand the patterns of employment for different sectors and regions within the food and fibre workforce, as well as for the tourism and accommodation workforce (which also has significant seasonal work). We also collated data about the attributes of the seasonal workforce to build an understanding of the people working in seasonal work and the opportunities for them to move into non-seasonal roles.

We find, unfortunately, that there is little complementarity in patterns of seasonal work. Most food and fibre sectors have similar workforce patterns – busy in summer, quiet in winter – meaning there is little opportunity to combine work across sectors. This result holds in almost every region despite each region having different mixes of sectors present. The finding also holds when we consider the addition of seasonal demand from tourism and accommodation. Even in regions with prominent winter tourism sectors – such as Otago – seasonal demand was greater in summer.

Each year the number of seasonal workers eligible to shift into non-seasonal employment is high relative to the workforce shortage. At a first look this suggests that if an intervention could be designed that was effective at encouraging people to transition from seasonal to non-seasonal work, this would have a worthwhile impact. However, when we look at how many people already make this shift, we find that the proportion is relatively high – 15-20% each year – and yet workforce shortages remain. This suggests that the problem/opportunity comes back to the one identified in the project that led to this work – retaining non-seasonal workers for longer, particularly those in their first year of employment.

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# Introduction

Food and Fibre Centre of Vocational Excellence's 2024 Request for Proposals, "Retaining Our People – Food and Fibre Retention Pilots," focussed primarily on retaining the non-seasonal workforce within the food and fibre sectors. However, several past workforce-related projects have suggested that there may be potential to address non-seasonal workforce shortages by focussing on the seasonal workforce, along with specific hypotheses on how this could be achieved including:

1. Combining seasonal work across sectors, but within regions, to create year-round employment – in effect making seasonal roles into non-seasonal ones.

2. Creating education pathways that transition seasonal workers into non-seasonal roles.

This work synthesises insights from several analyses with the following goals:

- **Construct a profile of the seasonal workforce**, including the identification of key demographics, industry sectors, sub-sectors, and regional distributions that exhibit seasonal employment patterns. These results are made available in an accompanying dashboard. Some example screens have been included as an appendix to this report.

- **Explore the opportunity of combining seasonal jobs across sectors,** but within regions, to create year-round employment opportunities; while identifying possible challenges, such as the proximity of seasonal workers to employers.

- **Compare the size of the seasonal workforce against that of the non-seasonal workforce shortage** to determine whether the difference is enough to warrant exploration of the opportunity to migrate seasonal workers to fill such shortages.

# Methodology

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# Research questions (1/2)

A set of research questions was developed to frame the queries undertaken to inform this work including:

1. What is the approximate permanent workforce shortage?
2. Which are our seasonal sectors, industries, sub-industries and regions?
   a. Which sectors, industries, sub-industries and regions are seasonal?
   b. What periods of the year are seasonal for each relevant industry and sub-industry (e.g., apples, kiwifruit) and region?
   c. How many of the workers are seasonal within each relevant sector, industry and sub-industry and region?
3. Who are our current and potential seasonal workers?
   a. Who are our current seasonal workers? Segmented by:
      - Visa category
      - Age, gender, ethnicity, study status
      - Region of employment (and whether it differs from region of residence)?
      - Pay, which could also be used to distinguish between work status (i.e., full time/part time).
   b. What are the characteristics of returning seasonal workers? – who are they, how many do it, for how many years, and when are they returning? How does returning to seasonal work differ by sector, industries, sub-industries and regions?

# Research questions (2/2)

c. Which worker segments have the potential to help address workforce shortages?

d. How many of our current seasonal workers are part of each target cohort each year?

e. How do these numbers compare to the size of the approximate permanent workforce shortage each year?

4. Where are the biggest challenges with seasonality?

a. How far away are different seasonal jobs from population centres and other employers of seasonal workers (whether those be in other industries or sub-industries)?

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# Data source for this work

The primary data source used in this work is the Integrated Data Infrastructure (IDI). Data held in the IDI, derived from tax records, enables us to identify what months people work in different workforces with both sector and regional breakdowns. The patterns of work observed using tax records allow us to identify seasonal workers. Other data tables within the IDI allow us to describe attributes of these seasonal workers including, for example, age and visa status.

Importantly for this work, using the IDI gives us the ability to generate results that are consistent across sectors and across regions. And it is possible to drill down on results by region and / or sector to explore the demographic attributes of the people working in those sectors. This compares to an alternative approach of using estimates of seasonal demand generated by individual sectors and regions, for which the ability to drill down is variable, and the overall numbers not always reliable (see later slide).

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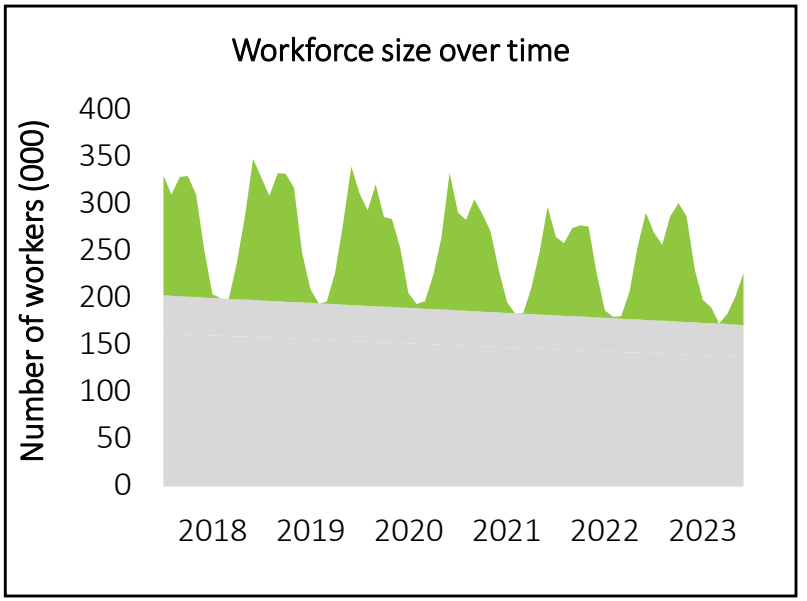
# Defining the seasonal workforce (1/2)

IDI data allows us to identify seasonal patterns of employment over the course of the year including the peaks and troughs seen in the chart.

It is tempting to define the seasonal workforce as the numbers in the (green shaded) fluctuating part of the pattern between the peak and troughs. While this works at an aggregate level, individual workers' spans of employment do not always align with this seasonal variation. For example, a seasonal worker may join the workforce shortly after a seasonal peak in demand but stay on beyond the trough.

For this work, we want to be able to identify individual workers so that we can analyse attributes at the individual level. Consequently, we need an alternative definition to classify individual workers as being in either a seasonal or a non-seasonal role.

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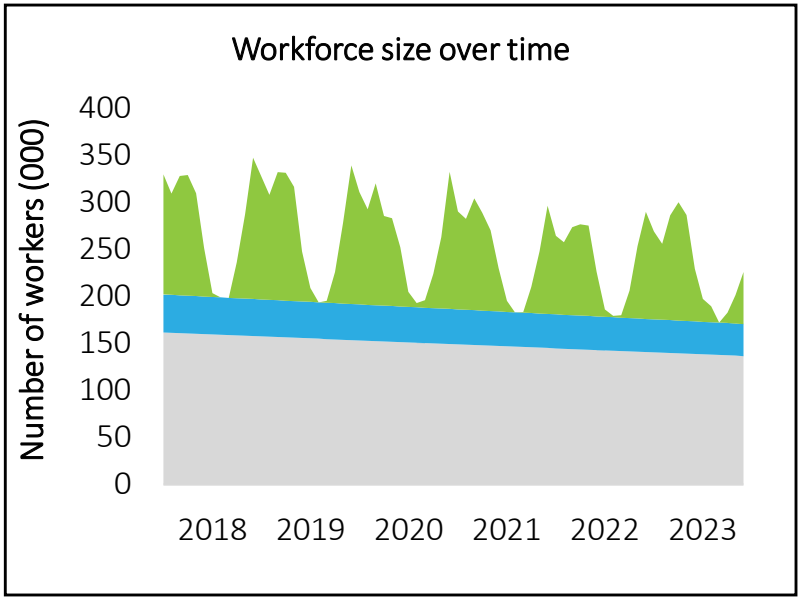
# Defining the seasonal workforce (2/2)

In this work a worker is classified as seasonal if they meet any of the following criteria[1]:

- **Employment pattern –** They worked in the industry for 9 months or less, with repeating employment in the year before or after
- **Visa status** – They held a visa associated with temporary seasonal work (such as RSE or working holiday) for the duration of their employment
- **Short-term employment with income threshold** – They worked for 6 months or less at a time and earned more than the equivalent of 4 hours at the minimum wage over the employment period.

Using this definition means that the seasonal workforce looks more like the area shaded in blue as well as green. This definition is the primary one used in this report. However, we also use an alternative view, in which we consider only the fluctuating (green) part when we explore inter-sector synergies within regions.




1. We have reconciled to a definition used by MPI in other work

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# Limitations of this approach

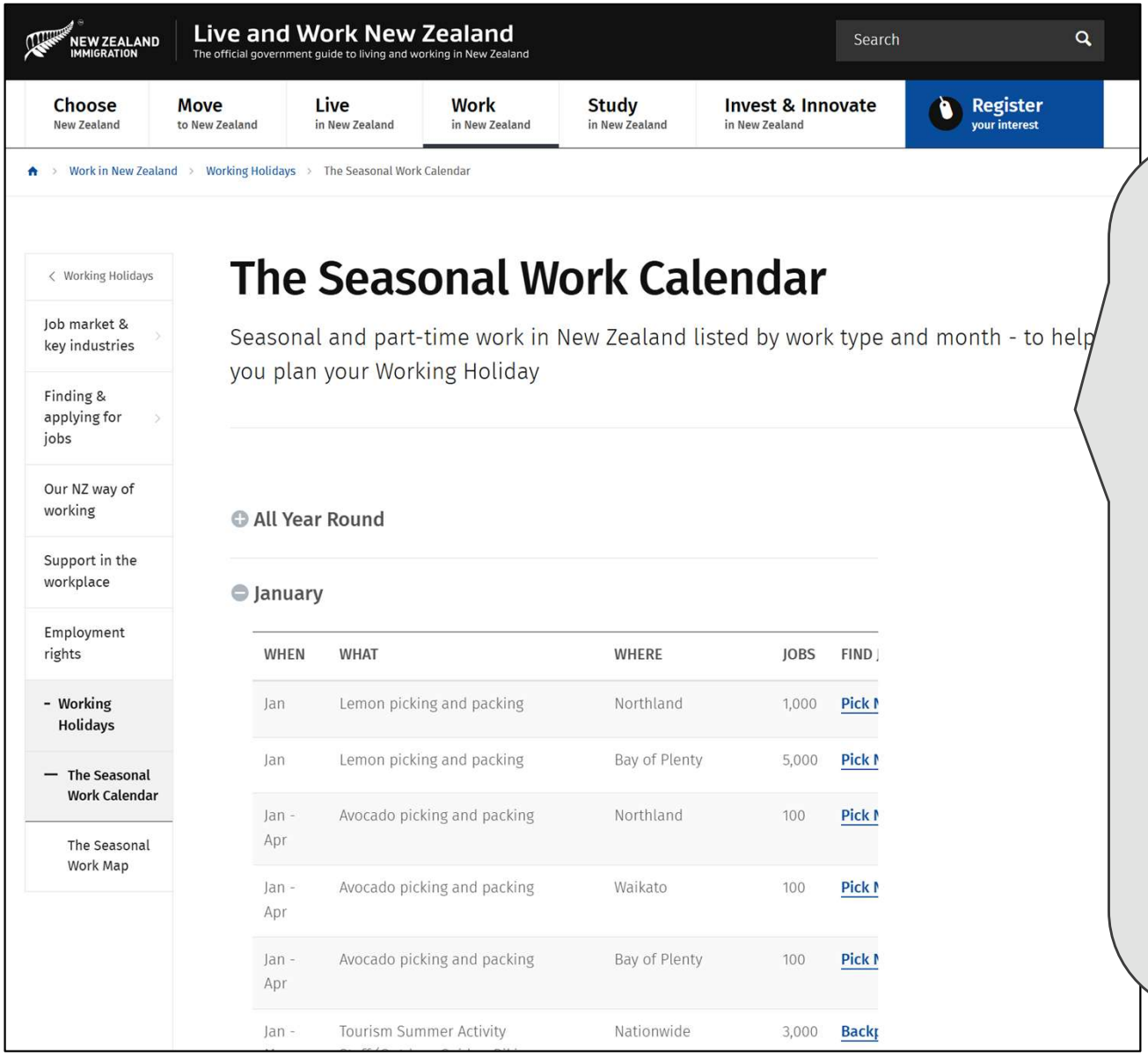
The approach that we have taken to defining the seasonal workforce has some limitations. These include:

- People that enter the sector with an intent to work in the *non-seasonal* workforce, but leave quickly for reasons unrelated to work seasonality, appear similar in the IDI data to people that intend to work only seasonally. This may mean our analysis *overstates* the number of seasonal workers.
- Many seasonal workers are employed by labour contracting firms, or similar intermediaries, that are not classified by the industry codes (ANZSIC codes) of the sectors that they supply workers to. This may mean our analysis *understates* the number of seasonal workers (albeit many do appear in a cross-sector ANZSIC code).

These limitations affect the goals of the work differently:

- Interpreting results in the dashboard – Care is needed when interpreting some of the profiles presented in the dashboard and the appendix of this report. For example, the proportion of New Zealand citizens and residents may be higher in the group of workers with an intent to enter the non-seasonal workforce than those that entered intending to work seasonally.
- Inter-sector synergies within regions – The limitations do not significantly impact the exploration of whether (or not) there are synergies between the workforce patterns of different sectors within region. For this analysis, the 'shape' of the results is more important than the absolute numbers.
- Opportunity to attract seasonal workers into the non-seasonal workforce. Arguably, the distinction between seasonal workers and workers that just appear seasonal, is not overly important when thinking about the opportunities to fill non-seasonal roles as long as they are eligible to work in New Zealand permanently. Similar approaches could be taken to intervene to retain both groups. However, there is a risk of double-counting the opportunity with the already known opportunity to retain non-seasonal workers that would otherwise leave in their first year.

# ‘Bottom-up’ estimates vs IDI analysis




We attempted to reconcile our IDI findings against estimates of seasonal work demand attributed to industry sources collated on the Immigration New Zealand website.

However we found too many reliability issues with the numbers presented at this site for it to be useful as a calibration source. For example the calendar suggests that:

- The Bay of Plenty needs only 4x more workers for kiwifruit than it does for lemons (the ratio of production value is closer to 1000x).
- Some industries had flat workforce requirements year round i.e. seasonal variation was not considered.
- 10,000 apple pickers and packers are only needed in Otago but nowhere else.

Source: https://www.live-work.immigration.govt.nz/work-in-new-zealand/working-holidays/the-seasonal-work-calendar

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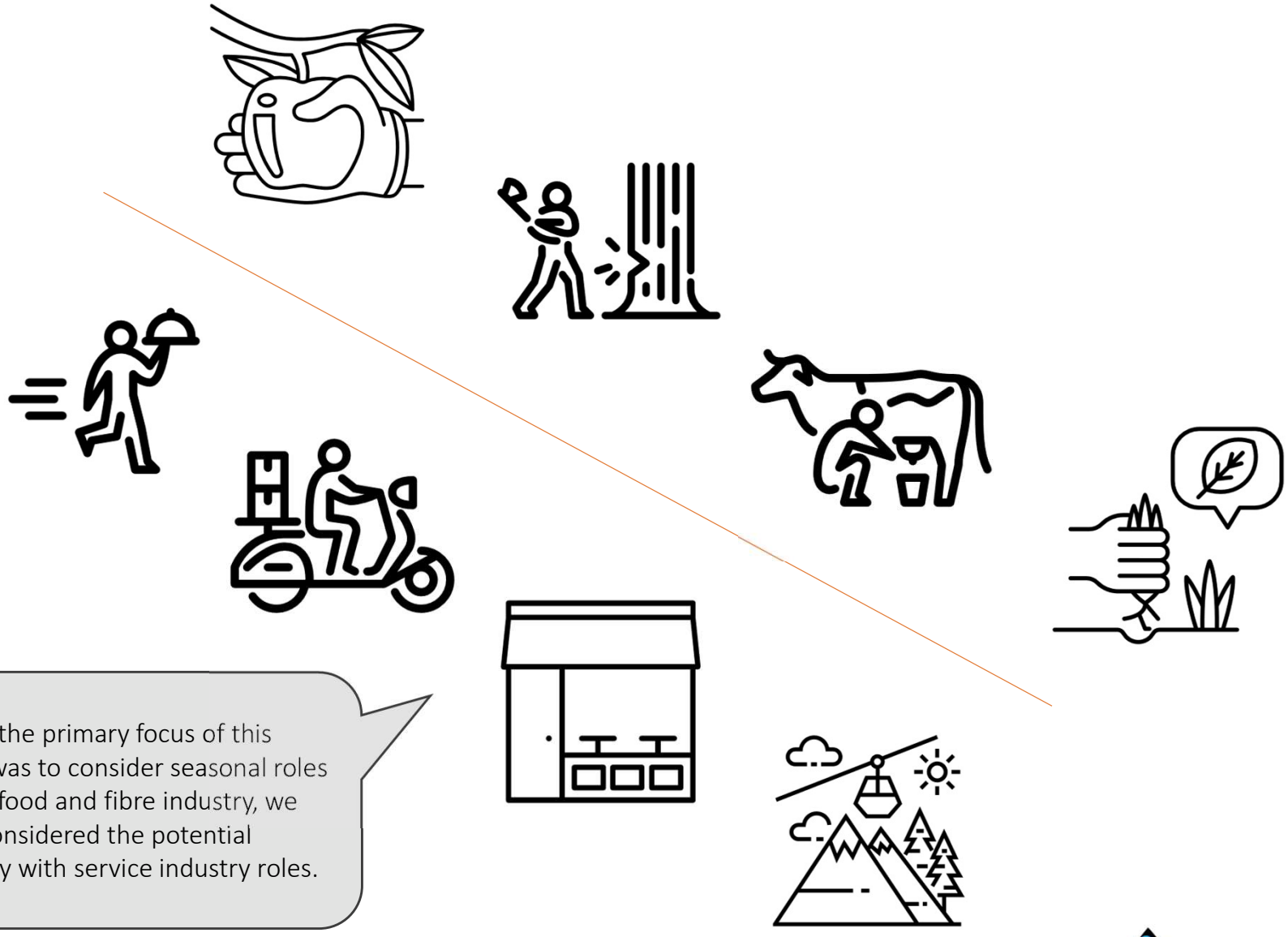
# Including non-food and fibre industries



While the primary focus of this work was to consider seasonal roles in the food and fibre industry, we also considered the potential synergy with service industry roles.

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# Comparing to non-seasonal workforce shortages

A useful reference when interpreting the results of this analysis is indication of the size of shortages in the non-seasonal workforce.

If the size of the seasonal workforce is large compared to shortages in the non-seasonal workforce, the potential to recruit from the seasonal workforce into the non-seasonal workforce may be worth exploring. If, however, the seasonal workforce is small compared to the shortage, there is probably little value in exploring this opportunity.

We make indicative estimates of non-seasonal workforce shortages using the result for the dairy farming workforce as a reference.

An employer survey by DairyNZ estimated the shortage of staff in the dairy farming sector to be approximately 4,000 people – equivalent to roughly **10%** of the permanent workforce – in November 2021 .

This probably represents a worst case scenario – it was the height of COVID-related shortages when offshore workers were not able to enter the country, in a hard-to-staff sector.

We can get an indication of the magnitude of non-seasonal workforce shortages by assuming that these are *of the order* of **5%** of the size of the non-seasonal workforce.

We acknowledge that shortages will vary by sector and by year. However, for the purpose of this work, we only need to know the order of magnitude to be useful.

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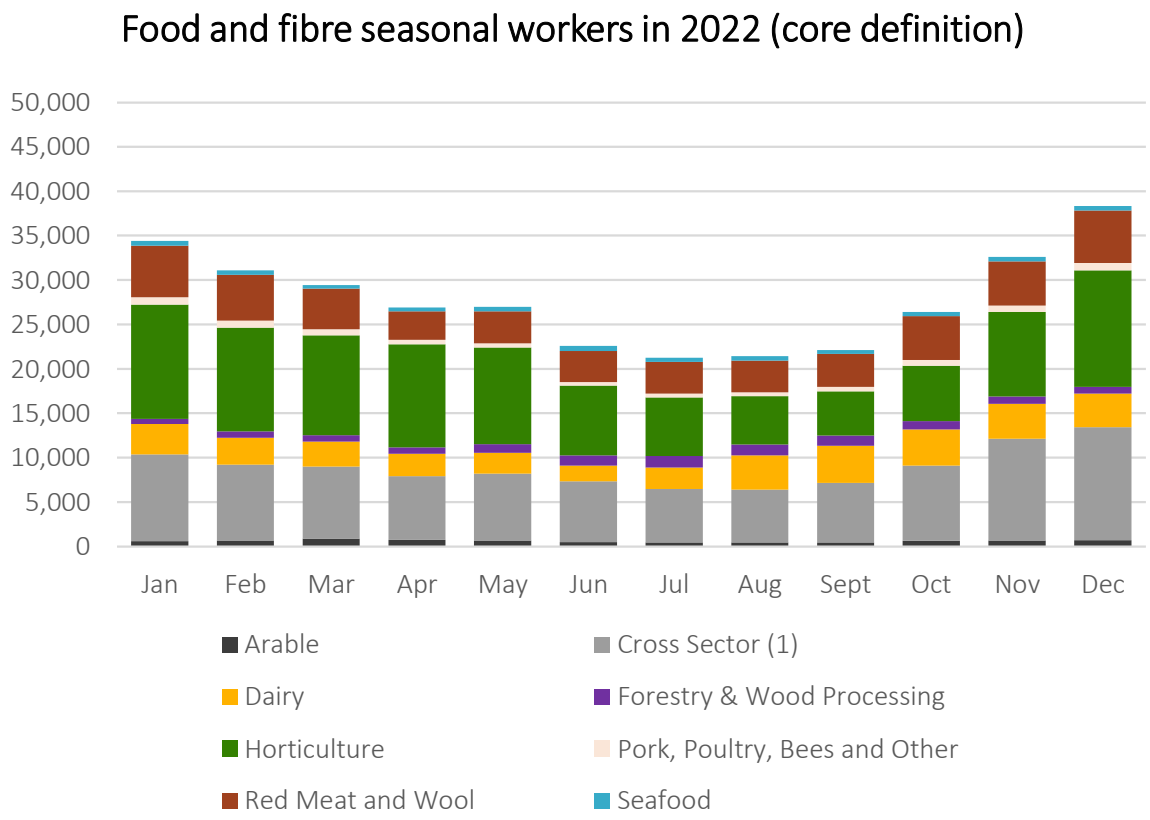
# Key findings

# Inter-sector synergies




At a national level, it appears that most sectors have similar, rather than complementary, employment patterns. For most food and fibre sectors, seasonal demand peaks in spring to autumn with less seasonal work in winter.

(1) *Cross Sector* covers a range of businesses that serve other food and fibre businesses. In this work the most important of these are labour hire businesses that provide seasonal labour.

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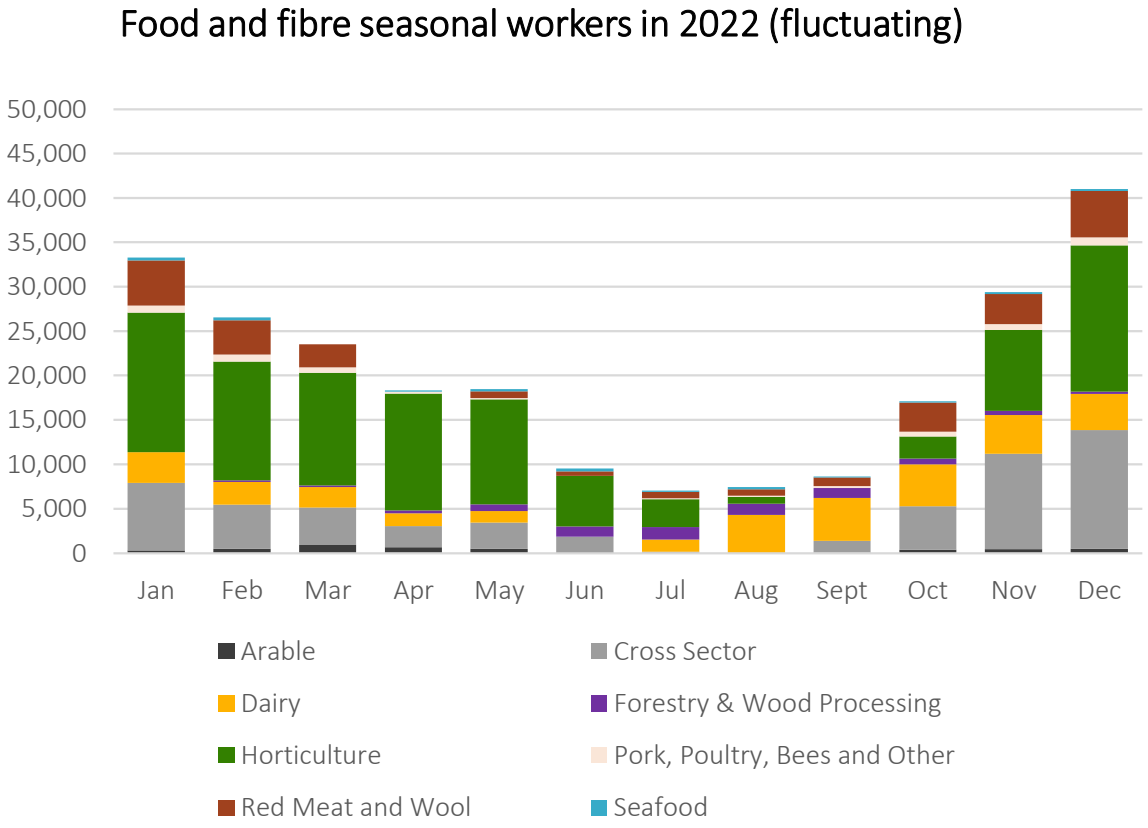
# Inter-sector synergies (continued)




In part, the finding on the previous slide reflects the way that we have defined seasonal workers – which sees 'seasonal work' continuing year round in most sectors.

However, even if we consider only the fluctuating component of the seasonal work, we observe that most industries have similar patterns – busy in summer, quiet in winter – offering little opportunity for inter-sector synergies.

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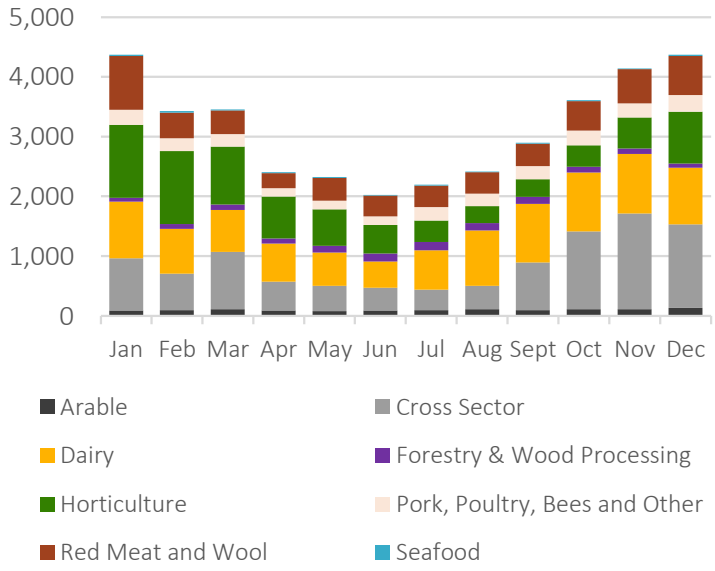
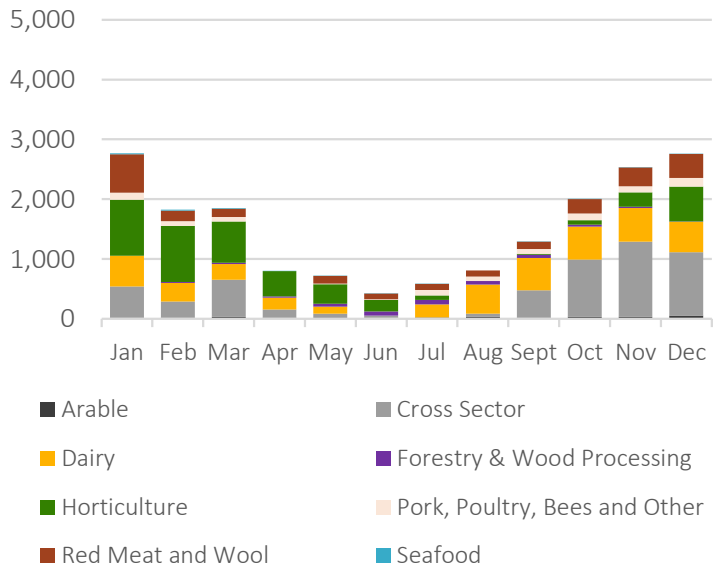
# Regional breakdown of seasonal workforce patterns (1/4)

Seasonal workers in production in Waikato

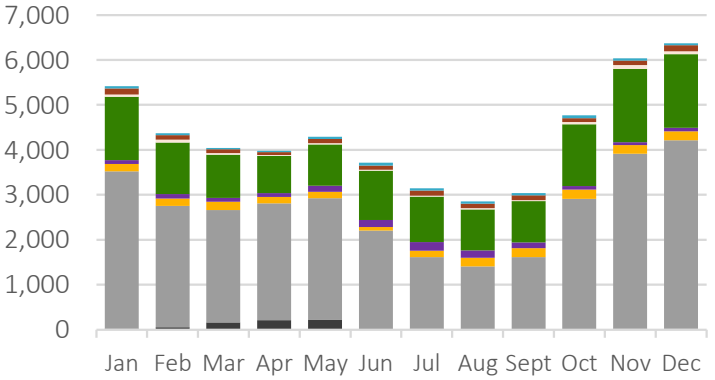



Seasonal workers in production in Waikato (fluctuating)

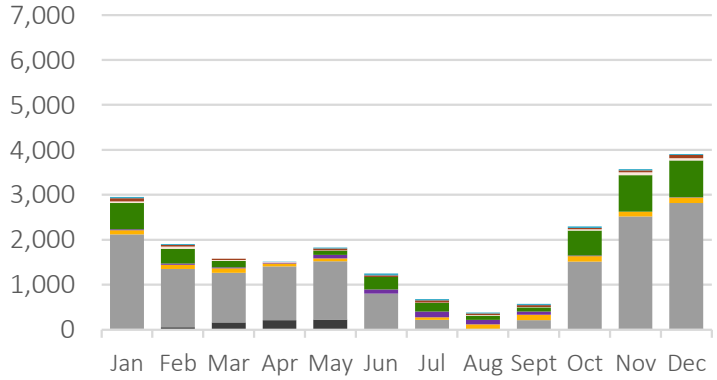



The specific patterns of employment vary by region. Yet the general conclusion – that there are no strong synergies between sectors – appears to apply almost everywhere.

Seasonal workers in production in Bay of Plenty




Seasonal workers in production in Bay of Plenty (fluctuating)

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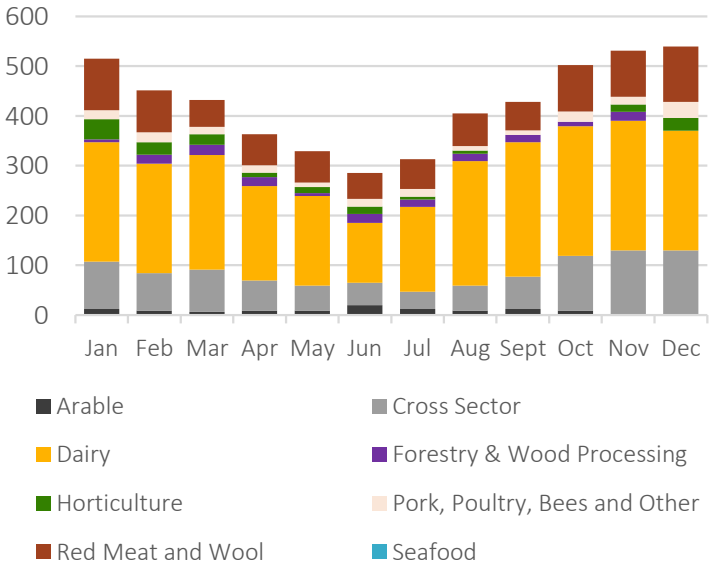
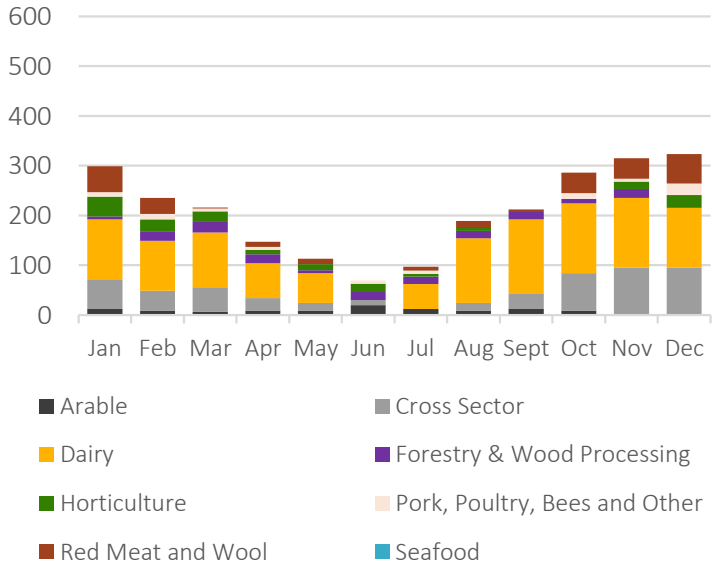
# Regional breakdown of seasonal workforce patterns (2/4)

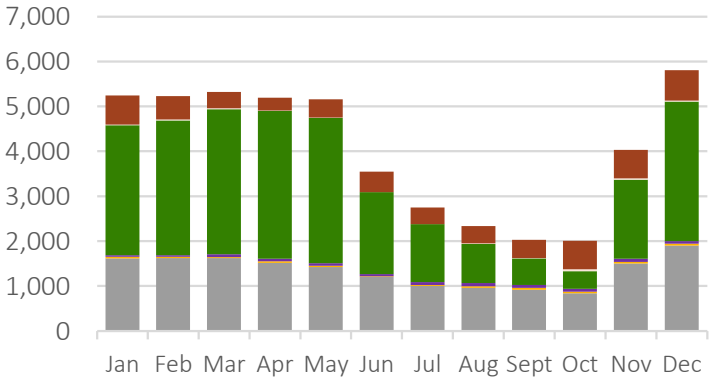
Seasonal workers in production in Taranaki



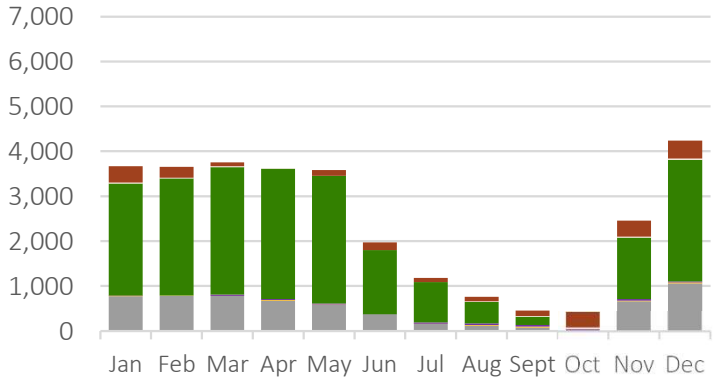

Seasonal workers in production in Taranaki (fluctuating)




Seasonal workers in production in Hawke's Bay




Seasonal workers in production in Hawke's Bay (fluctuating)

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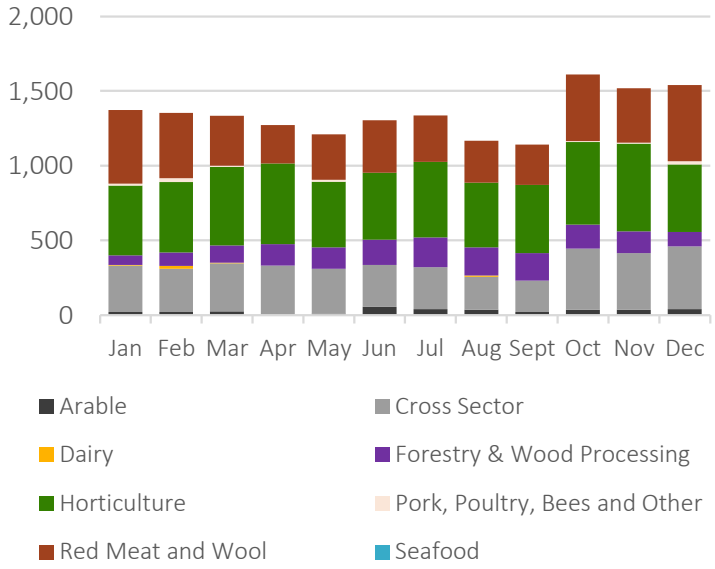
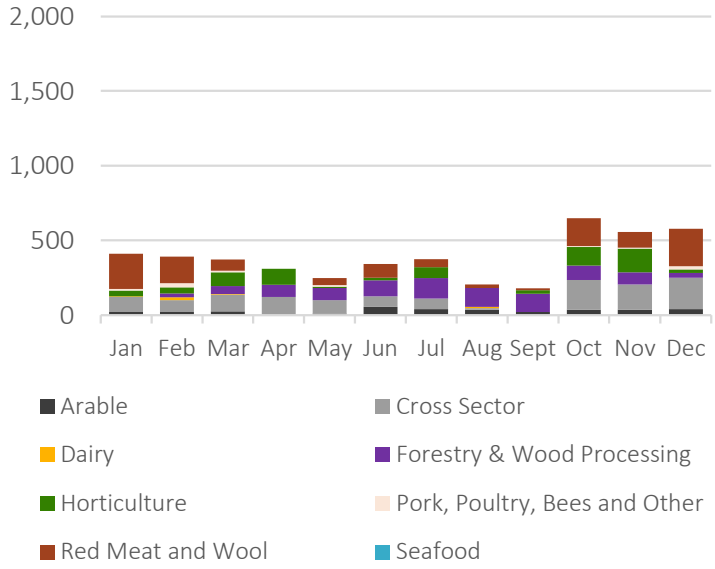
# Regional breakdown of seasonal workforce patterns (3/4)

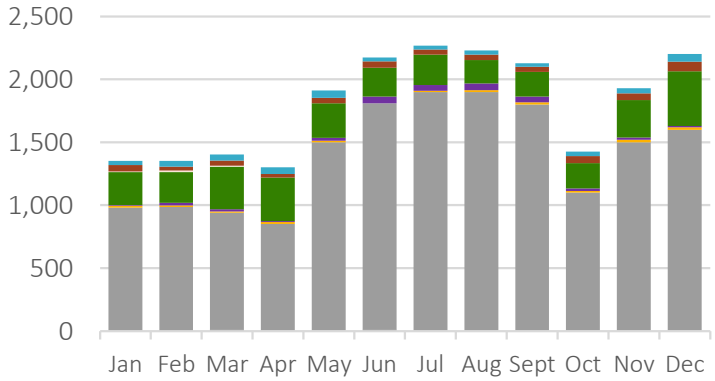
Seasonal workers in production in Gisborne



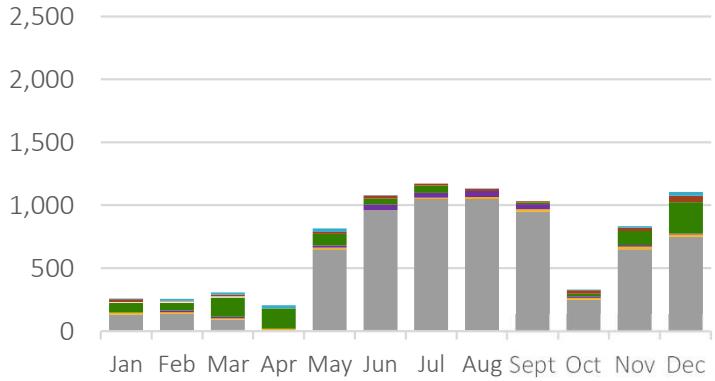

Seasonal workers in production in Gisborne (fluctuating)




Seasonal workers in production in Marlborough




Seasonal workers in production in Marlborough (fluctuating)




Marlborough is one of the rare exceptions to the pattern of seasonal demand, with a winter peak.

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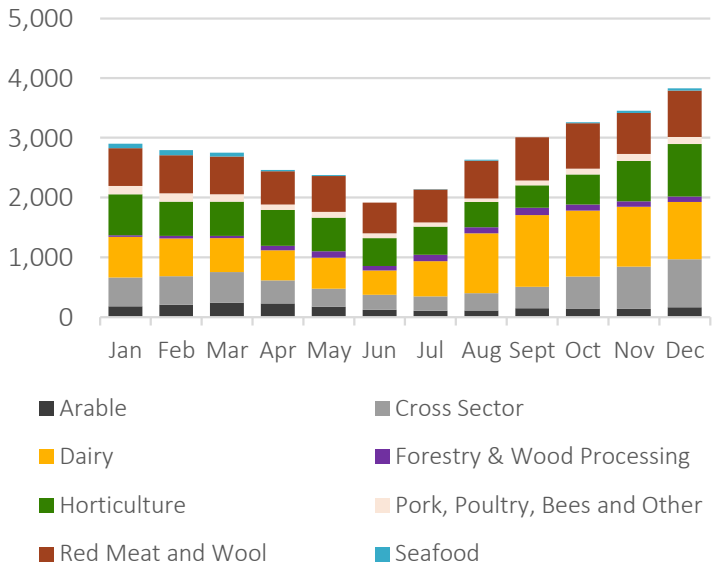
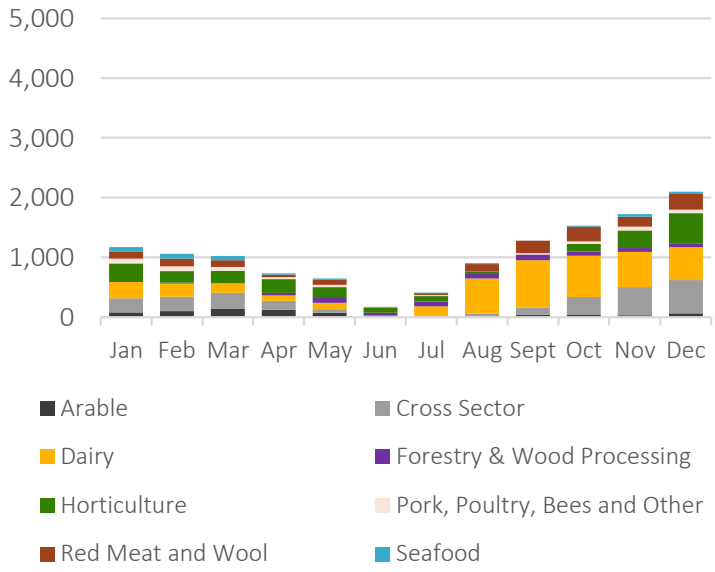
# Regional breakdown of seasonal workforce patterns (4/4)

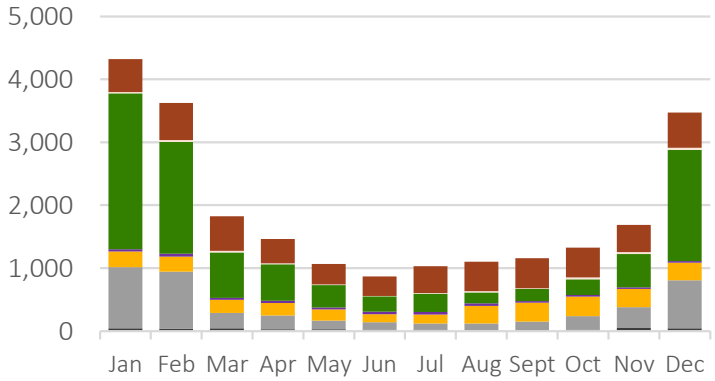
Seasonal workers in production in Canterbury



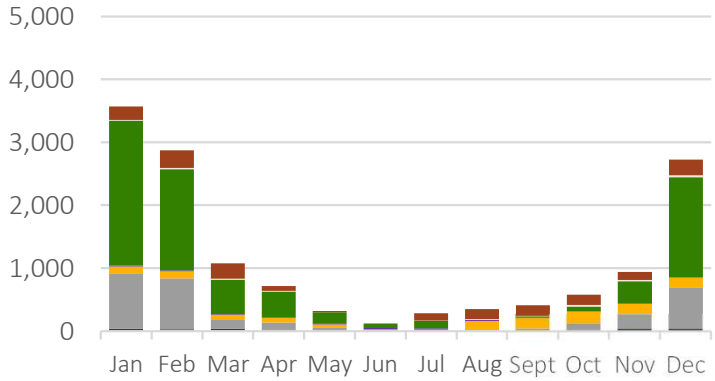

Seasonal workers in production in Canterbury (fluctuating)




Seasonal workers in production in Otago




Seasonal workers in production in Otago (fluctuating)

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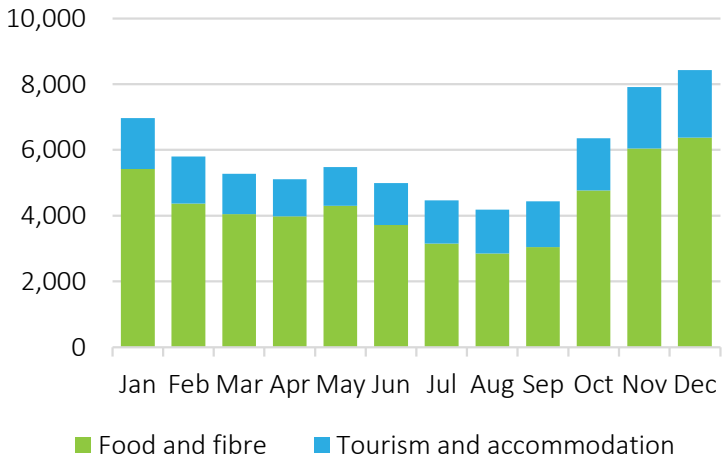
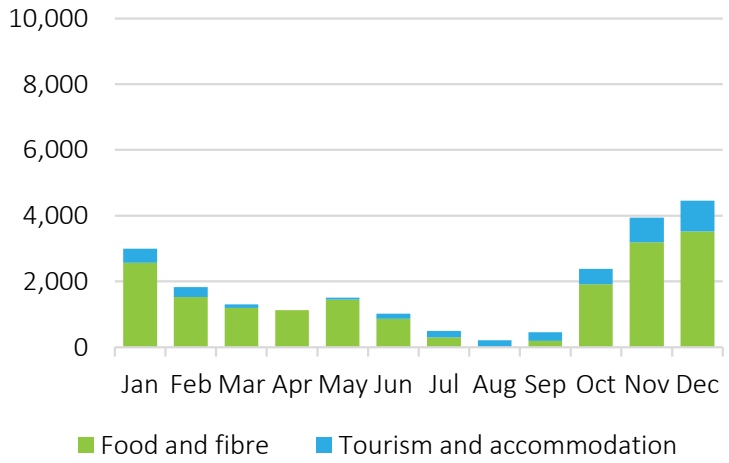
# Inclusion of tourism and accommodation

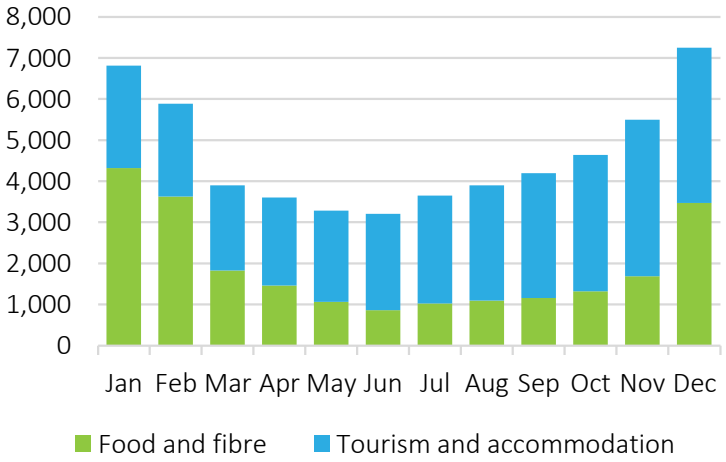
Seasonal workers in Bay of Plenty



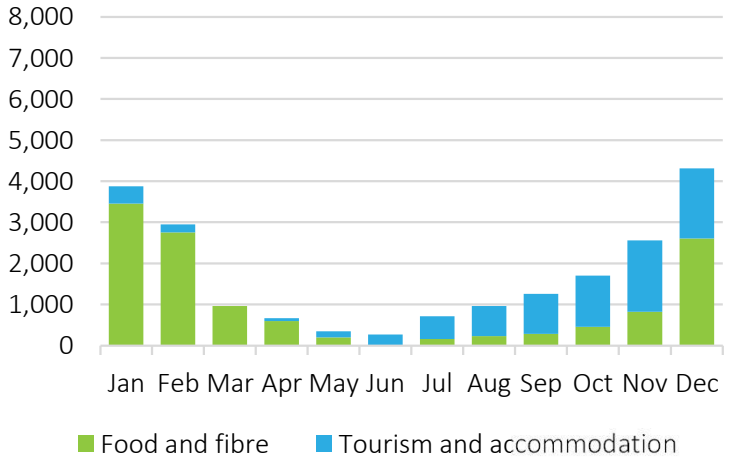

Seasonal workers in Bay of Plenty (fluctuating)




Seasonal workers in Otago




Seasonal workers in Otago (fluctuating)




Introducing seasonal demand from outside the food and fibre sector does not change the message – again we see that the seasonal demand is mostly in summer with little opportunities for inter-sector / industry synergies.

This appears to be the case even in regions like Otago that have a large winter tourism sector.

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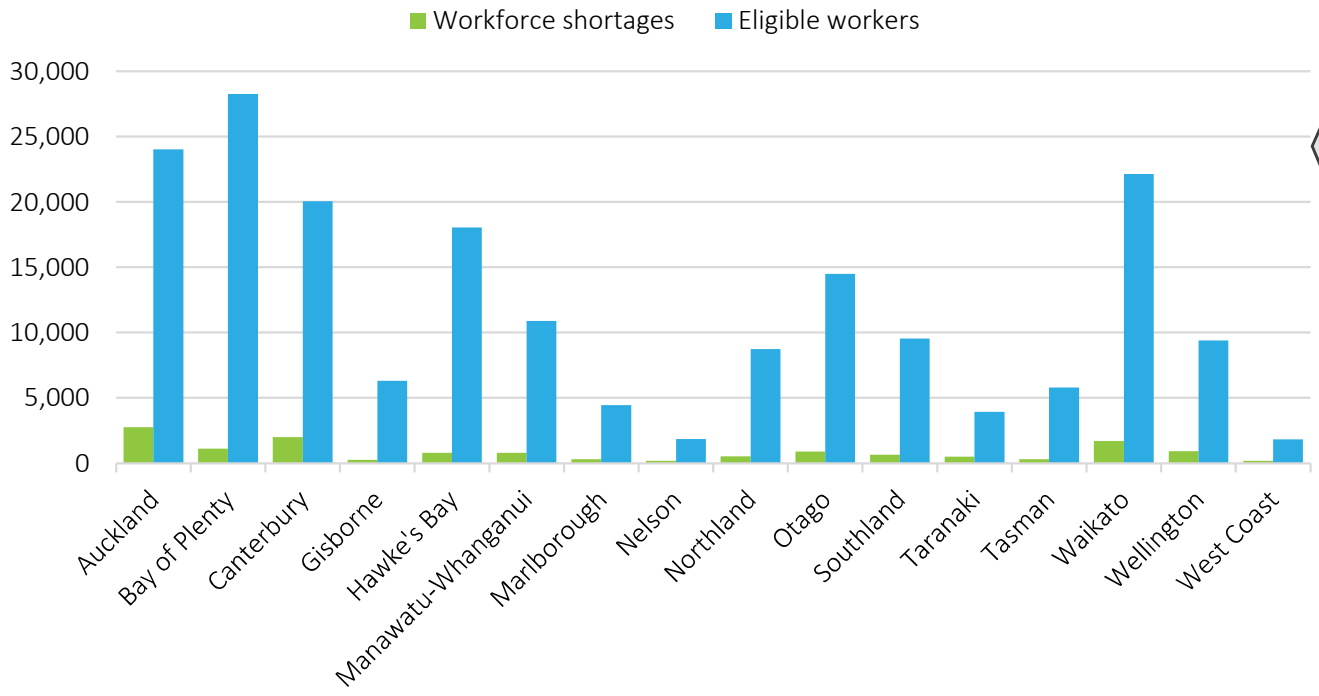
# Eligibility to transfer from seasonal to non-seasonal

Eligible workers vs. non-seasonal workforce shortages in 2021




In all regions, and for all sectors, the number of seasonal workers eligible to enter the non-seasonal workforce (that is, their visa or residency status permits this) is much greater than the indicative size of the workforce shortage. This suggests that there is a large pool of potential talent, with an existing exposure to the industry, to draw on to address workforce shortages.

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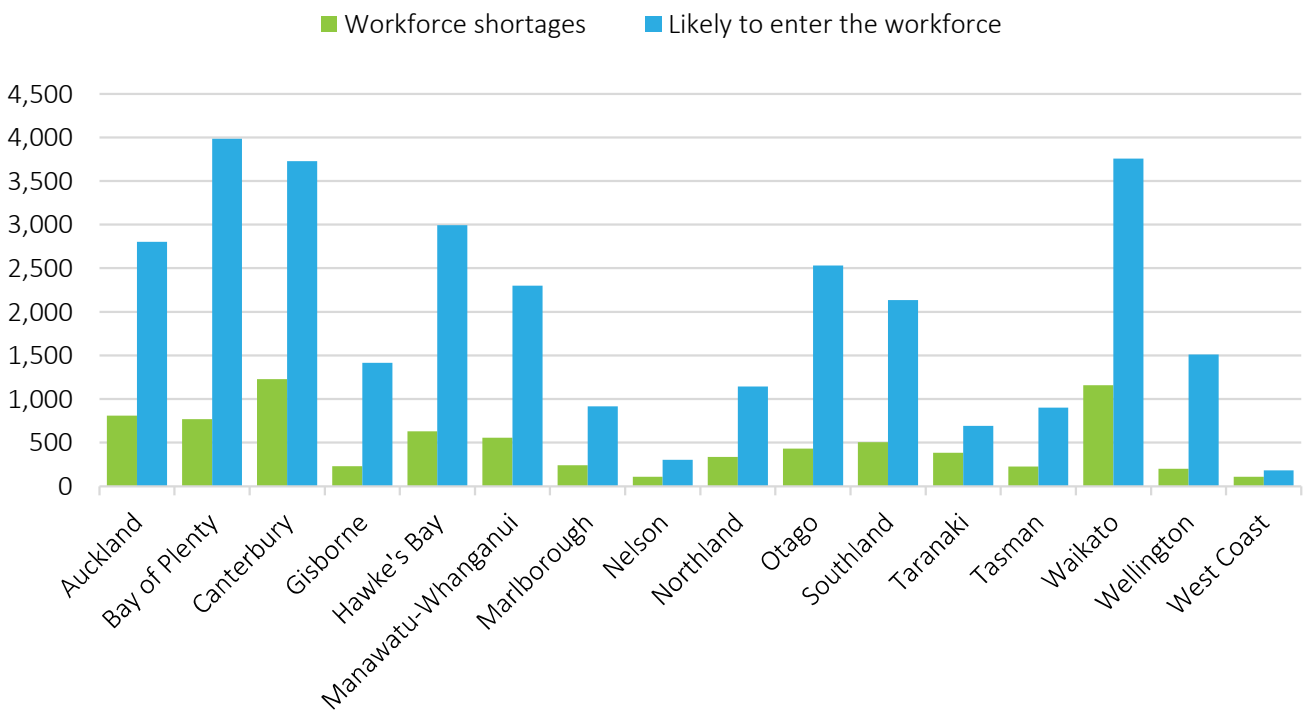
# Existing propensity to transfer

Number of workers who are likely to enter non-seasonal workforce in food & fibre sectors




15-20% of eligible seasonal workers do make the transition to the non-seasonal workforce each year.

This suggests that this pathway is valuable way to recruit non-seasonal workers. However, it also suggests that there is not a *new* opportunity here. Rather, the opportunity is similar to the one identified in earlier phases of this work – to find ways to retain workers on their first year of employment.

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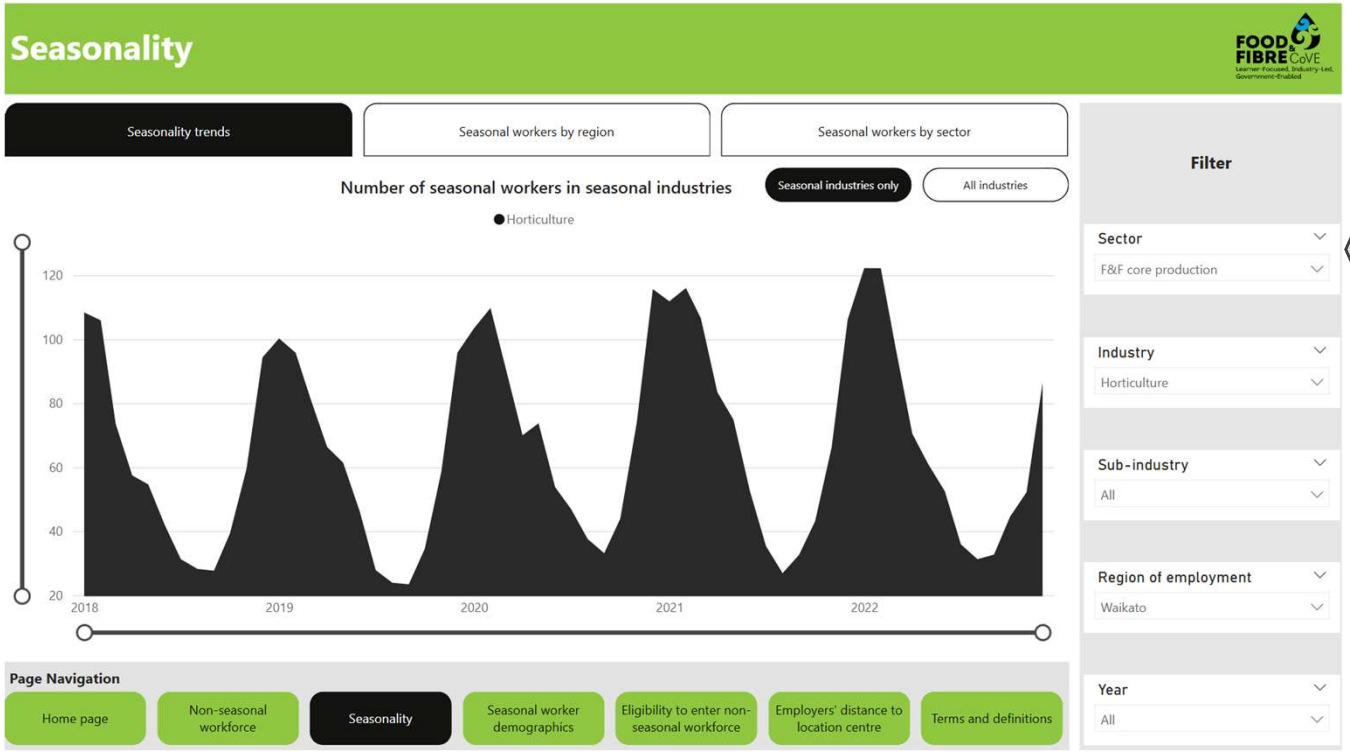
# Appendix – Dashboard examples

# Dashboard examples

This appendix presents some screenshots from the online dashboard that accompanies this report. It is intended that the dashboard is the primary way that users can explore the data generated in this project. The purpose of this appendix is to illustrate some of the types of data and visualisations on the dashboard.

# Seasonal trends in horticulture




The horticulture industry in Waikato consistently experiences a peak demand for seasonal workers around December to February each year, indicating a clear and repetitive pattern in its labour needs.

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# Proportion of seasonal workers in ‘cross sector’ firms


In 2022 in the Marlborough region, the ‘cross sector’ industry – presumably mainly labour contracting firms – employed the highest proportion of seasonal workers, accounting for 68.6% of the total workforce.

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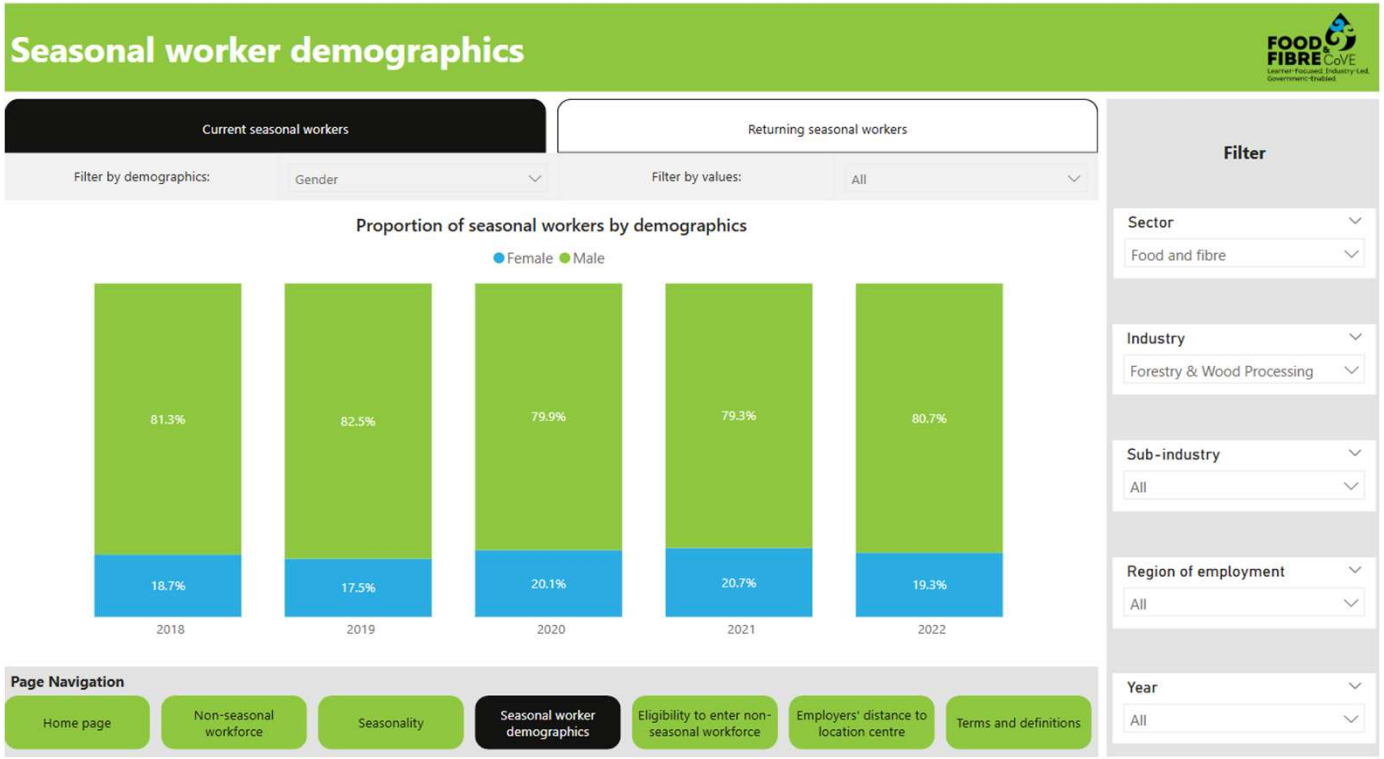
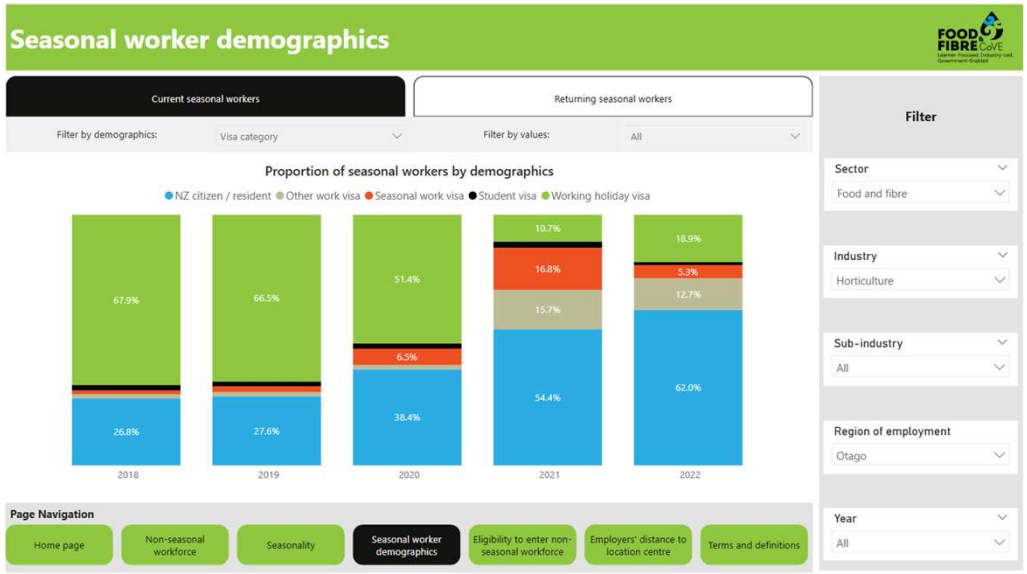
# Proportion of seasonal workers in ‘forestry & wood processing’ firms




The forestry & wood processing industry sees largest gender gap across the year compared to other industries, with proportion of female workers around 20%.

# Proportion of seasonal workers by visa category


In the horticulture industry, the seasonal workforce in the Waikato region tends to be dominated by NZ citizens and residents (over 70%).




The Otago region attracted more international workers than NZ citizens and residents, the proportion of workers holding Working Holiday Visas was over 50% before COVID impacts were felt in 2020/21.

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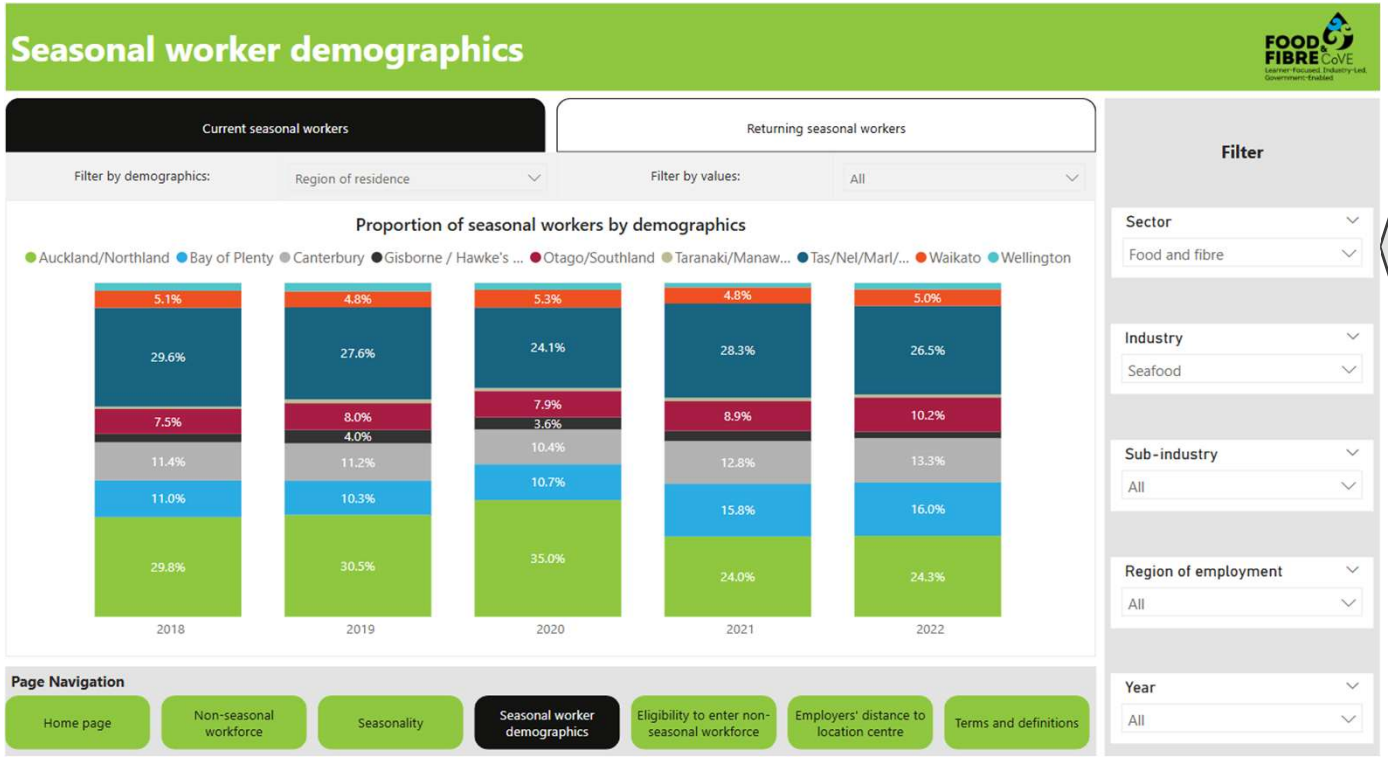
# Proportion of seasonal workers by region of residence




Over 60% of seasonal workers in the Seafood industry are residents from Auckland, Wellington, Northland, Tasman, Nelson, Marlborough, and West Coast regions. (Aucklanders are open to employment opportunities beyond their region such as in Waikato and the West Coast.)

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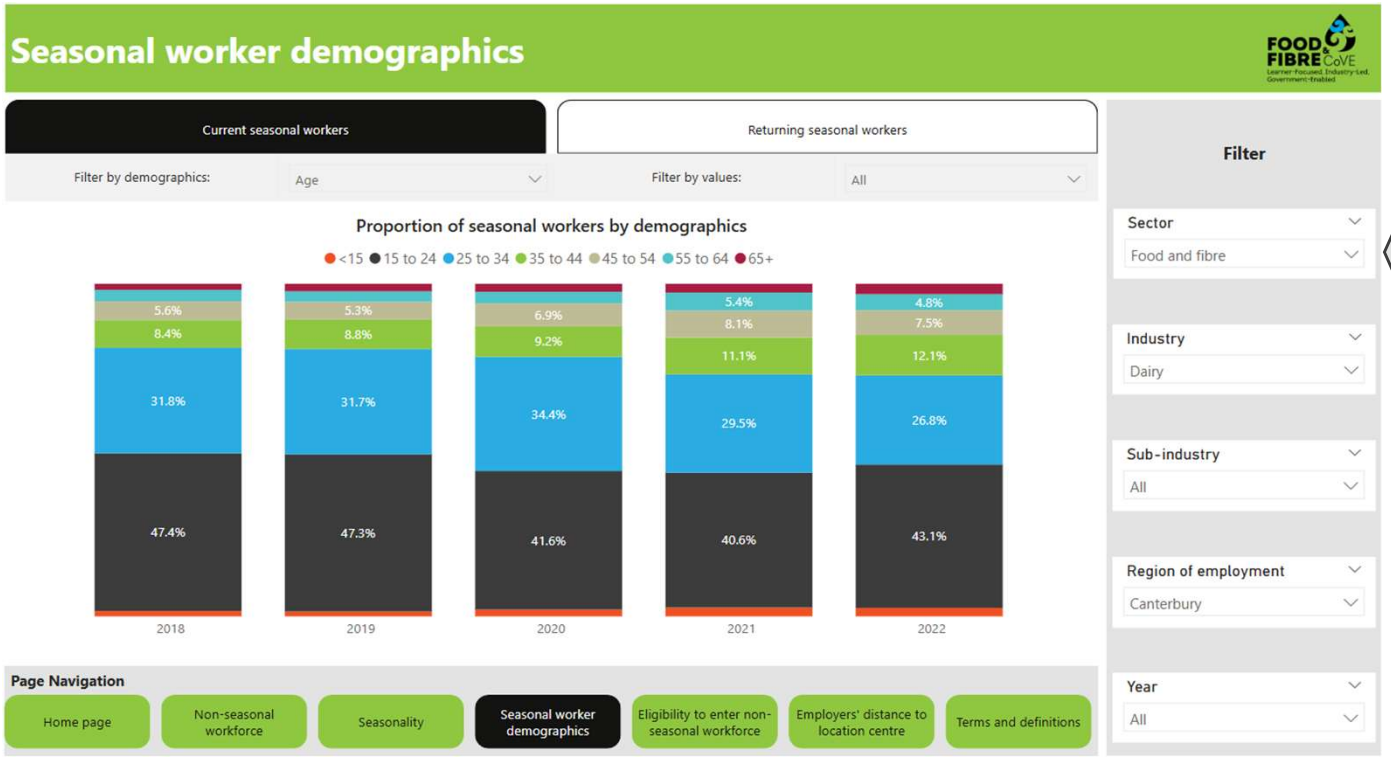
# Proportional of seasonal workers by age group




The dairy industry has a consistent age distribution over time. In Canterbury, around 70% of seasonal workers were between 15 and 34 years old.

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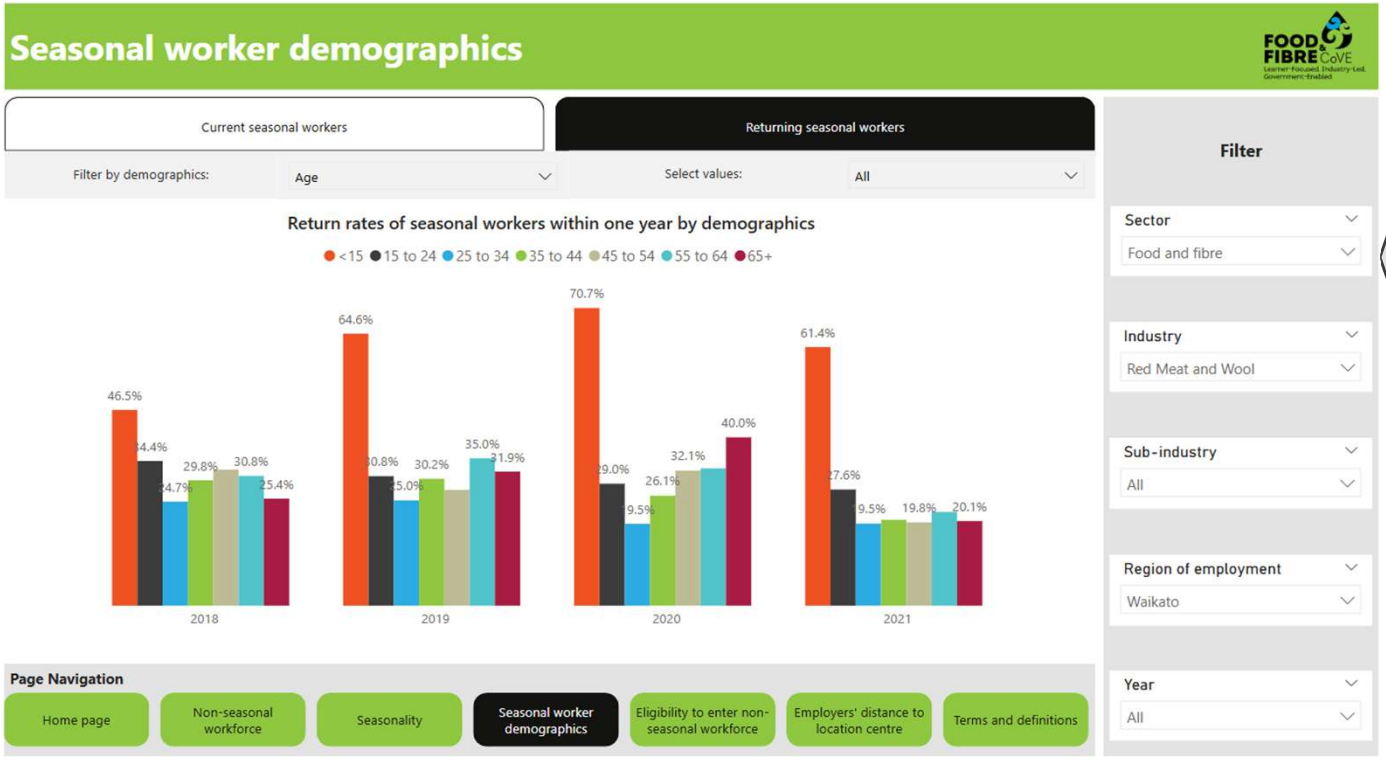
# Rate of returning to seasonal workforce within one year by age




In the Waikato region and in the red meat and wool industry, the seasonal workers under 15 years old are the most likely to return to work (presumably mainly on their family's farm) within one year. Otherwise age does not appear to have a strong effect.

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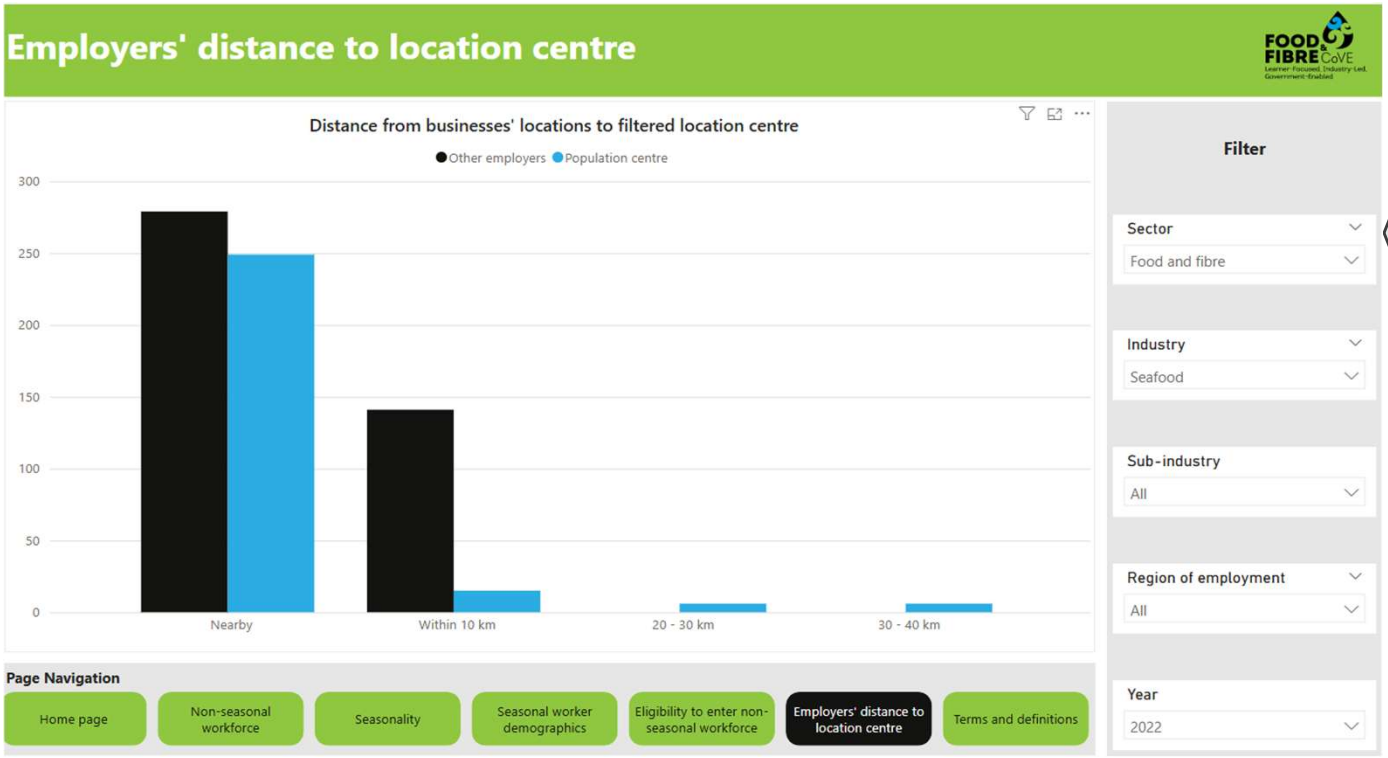
# Number of employers to location centres by distance group




The seafood industry has a large proportion of employers located nearby their closest population centres in 2022.

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