



# Australian Industry Food Waste Training Needs Analysis 2020



**FIGHT FOOD WASTE**  
Cooperative Research Centre  
REDUCE - TRANSFORM - ENGAGE



Australian Government  
Department of Industry,  
Innovation and Science

**Business**  
Cooperative Research  
Centres Program



INDUSTRY  
CONNECTION HUB

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# Australian Industry Food Waste

## Training Needs Analysis 2020

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The CRC Program  
supports industry-led  
collaborations between  
industry, researchers and  
the community.

## Table of contents

Section 01			
<b>Introduction</b>	<b>4</b>		
Section 02			
<b>Context</b>	<b>11</b>		
Environmental Scan	12		
The Scale of Australia's Food Waste Problem	13		
Australia's Training and Education System	16		
Training and Education Trends	20		
Australia's Training and Education System	16		
Australia's Food and Agribusiness Sector	24		
Section 03			
<b>Desktop Audit</b>	<b>33</b>		
Aim	34		
Audit Scope	35		
Audit Findings	36		
Section 04			
<b>Industry Survey</b>	<b>49</b>		
Industry Survey	50		
Survey Results	53		
Training Needs Priorities by Business Size	56		
Existing Food Waste Training Programs	56		
Section 05			
<b>Keyword Research</b>	<b>75</b>		
What Are People Searching For?	76		
Methods and Results	77		
Section 06			
<b>Focus Groups Analysis</b>	<b>87</b>		
Focus Group Research	88		
Analysis	90		
Additional comments	103		
Section 07			
<b>Key Findings and Recommendations</b>	<b>105</b>		
Environmental Scan	106		
Desktop Audit	108		
Industry Survey	112		
Keyword Research	114		
Focus Groups	115		
Section 08			
<b>References</b>	<b>120</b>		



01

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Introduction

## Purpose

**The purpose of the Australian industry food waste training needs analysis is to firstly understand what business related food waste training options are currently available both in Australia and overseas.**

This then informs the identification of the gaps in food waste training for industry and consequently, the identification of new areas for investment and development in food waste training. Lastly, the training needs analysis research will assist the Fight Food Waste CRC's Industry Connection Hub members to support and grow their training offerings as well as increase their memberships.

## Australian Industry Food Waste Training Needs Analysis



**The Training Needs Analysis Report summarises the findings from the five research components and makes recommendations for developing training and education programs as well as supporting resources that will assist Australia's food industry to gain skills to reduce, transform and engage with food waste in their businesses.**

### Context - Environmental Scan

The Environmental Scan Report highlights and summarises the major training and education trends within a food waste context. It details target audience characteristics (i.e. food businesses) and considers how this may impact on food waste training and education programs.

### Desktop Audit

The Desktop Audit Report details what food waste training was currently available targeting food businesses, either as a stand-alone program or as part of another program. There is a companion training and education program "finder" available on the website [www.fightfoodwaste.com.au](http://www.fightfoodwaste.com.au)

### Industry Survey

The Business Survey Report summarises how food businesses perceive the need for food waste training, what the priority areas are for training and how that training should be delivered. The report details the results by FFW CRC Program (REDUCE, TRANSFORM and ENGAGE) and by business size.

### Keyword Research

The Keyword Research Report details the online search behaviour in relation to food waste training. It tests some of the findings from the survey. The results suggest directions for future communications about food waste training offerings.

### Focus Groups

The Focus Group Report provides deeper insights to training needs, priority areas and training delivery preferences. The results are particularly relevant to learning designers and program developers targeting food businesses.



02

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Context

## Environmental Scan

The aim of the Environmental Scan is to summarise and clarify previous research to inform the development of the Food Waste Training Needs Analysis Industry Survey Protocol.

A review of existing literature was conducted to provide a solid understanding of the Australian training environment, available food waste industry training, participant learning patterns, training formats, digital competencies and infrastructure implications.

The Environmental Scan included but was not limited to, industry and government reports, scholarly articles, online publications, and other sources relevant to this research.

The costs of harvesting, cooling and packing are often higher than the cost of growing the product in the first place.

(Ekman, Goldwater & Winley 2017).

## The Scale of Australia's Food Waste Problem

According to the National Food Waste Baseline Study (2019), Australia generated an estimated 7.3 million tonnes (MT) of food waste in 2016/17 from across the entire supply and consumption chain. Of this, 1.2MT was recycled, 2.9MT was recovered and 3.2MT was disposed. This equates to a total food waste generation of 298 kilograms per capita.

Households account for 34% of the waste while primary production accounts for 31% and a further 24% occurs in food manufacturing. In fact, it was reported that up to 50% of vegetables for example are wasted before they reach the consumer.

The importance of reducing waste increases as fresh vegetables move through the supply chain. This is because the costs of harvesting, cooling and packing are often higher than the cost of growing the product in the first place (Ekman, Goldwater & Winley 2017).

This high percentage of loss may reflect farmers responses in a recent study by the Tasmanian Food Cluster (2020) where farmers did not consider product left unharvested as food loss representing a significant waste of inputs to the agricultural process and loss of market opportunity to the producers.

34%

Households

24%

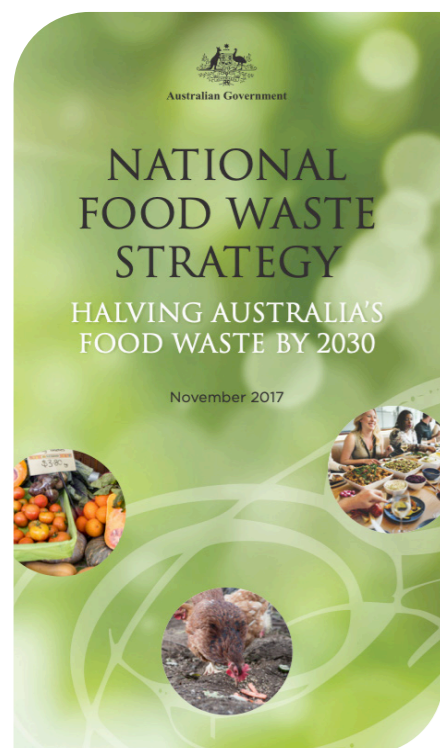
Food Manufacturing

31%

Primary Production

Source: National Food Waste Baseline Study (2019)





**National Food Waste Policy Action Plan, November 2017**



**Fight Food Waste CRC Strategic Plan 2018-2028**

## National Food Waste Strategy

The National Food Waste Strategy provides a framework to support collective action towards halving Australia's food waste by 2030. The strategy contributes toward global action on reducing food waste by aligning with Sustainable Development Goal 12— Ensure sustainable consumption and production patterns.

This strategy lists the significant amount of work already underway in Australia to target food waste that is making a difference locally, regionally and nationally.

The strategy also lists four focus areas for business improvements (priority area 2) where significant opportunities exist for businesses to reduce food waste in the current food system. These are:

- > Identifying areas for improvement
- > Supporting technology adoption
- > Encouraging collaboration to identify solutions
- > Normalising food waste considerations into business practices

## FFWCRC Strategic Plan

This strategy sets out the Fight Food Waste CRC's 10-year plan to not only deliver the Full Business Case – now the basis of the Grant Agreement with the Australian Government Department of Industry, Science, Energy and Resources – but also significantly contribute to the National Food Waste Strategy and achieving Sustainable Development Goal 12.3 by 2030.

The CRC plans to do this by delivering on their grant agreement as well as delivering future initiatives via the identification and target of additional food loss and waste opportunities in the National Food Waste Baseline (and other key reports) that will deliver significant food waste reduction and industry benefits.

The CRC strategy links to the the business improvements areas listed in the National Food Waste Strategy as:

- > Identifying areas for improvement - This is currently occurring through Fight Food Waste CRC projects such as DIRECT, the Industry Connection Hub and external projects such as training courses provided by the Australian Institute of Packaging, the Australian Food & Grocery Council Sustainability Seminars and the New South Wales and Victoria, Your Business is Food, program.
- > Supporting technology adoption - This is a focus of the Fight Food Waste CRC TRANSFORM program, universities and CSIRO.
- > Encouraging collaboration to identify solutions – Collaboration across sectors and through industry partnerships is a focus of FIAL and the CRC.
- > Normalising food waste considerations into business practices – This is the aim of the National Food Waste Strategy Voluntary Commitment and the Industry Connection Hub.



**National Waste Policy Action Plan**

## National Waste Policy Action Plan

The National Waste Policy Action Plan (2019) aims to address impediments to a circular economy for waste in Australia and to support businesses (and households) to realise the full value of their waste and work towards more sustainable resource use. The overarching focus of the plan is to change the way industry (and households) view waste – that is changing the mindset that waste is a valuable resource. The Plan demonstrates that to achieve this will require significant investment in education and communication direct to industry to meet the targets outlined in the plan.

The initiatives outlined in the Plan that specifically tackle industry food waste issues include:

1. Establish a voluntary commitment program for businesses across the supply and consumption chain to engage in food waste reduction activities, to encourage industry-led action (Food Innovation Australia Ltd with industry) – Action 2.1
2. Develop and publish a National Food Waste Implementation Plan, to halve food waste by 2030 (Food Innovation Australia Ltd with all governments) –Action 2.2
3. Support the Fight Food Waste campaign, to divert foodstuffs from landfill (All governments with NGOs) – Action 2.3
4. Report on lessons learned and options to support waste reduction in the commercial, industrial, construction and demolition waste streams (all governments with industry) – Action 2.4
5. Deliver targeted programs to build businesses' capabilities to identify and act on opportunities to avoid waste and increase materials efficiency and recovery (all governments with industry) – Action 2.5
6. Support the Fight Food Waste CRC to undertake a range of research and activities to reduce food waste in the supply chain, transform unavoidable waste into co-products and influence behavioural change in businesses and households – Action 6.5

# Australia's Training and Education System

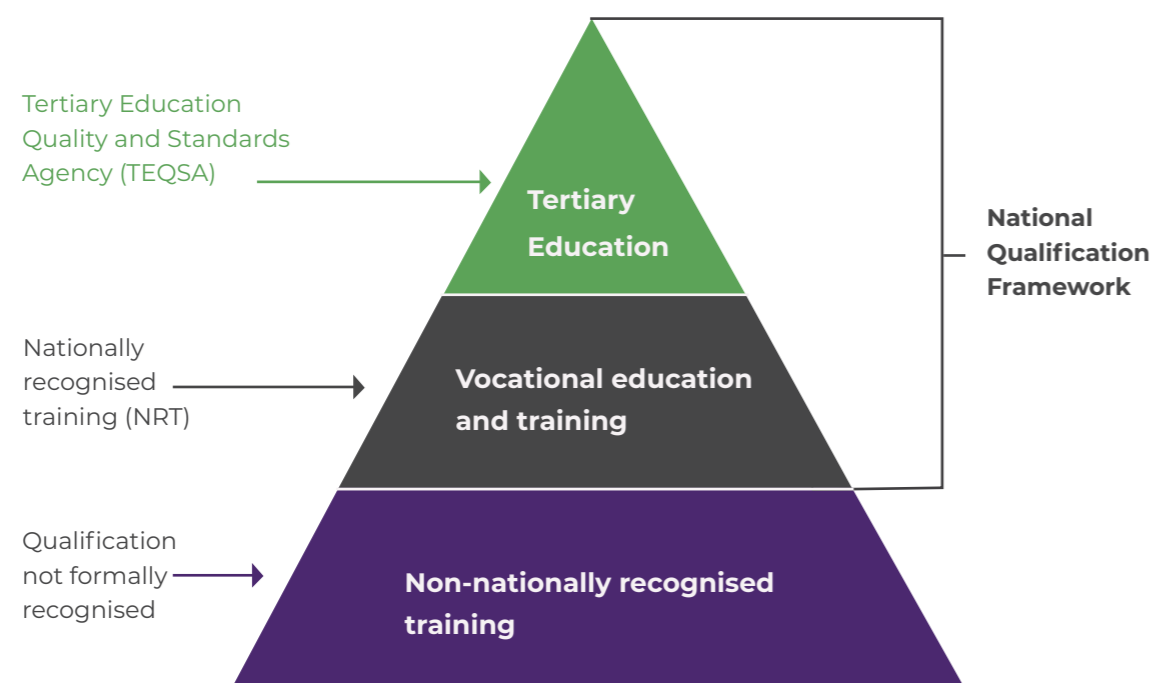
Australia has an integrated education system supported by the Australian Qualifications Framework (AQF) - a national policy for regulated qualifications across schools, vocational education and training and higher education.

For industry training, education can be divided into three distinct categories **Figure 1**:

1. Higher Education (Tertiary)
2. Vocational Education and Training
3. Non-nationally Recognised Training

**FIGURE 1**

## National Qualification Framework



## Australia's tertiary education system

The Australian higher education system comprises public and private universities and other higher education providers (e.g. TAFEs). These providers offer a range of undergraduate qualifications including diplomas, associate degrees, bachelor degrees as well as post graduate qualifications such as graduate certificates and diplomas, masters and doctoral degrees. These qualifications cover levels 5 to 10 of the Australian Qualifications Framework.

The Tertiary Education Quality and Standards Agency (TEQSA) was established by the Australian Government to protect student interests and the reputation of Australia's higher education sector. All organisations that offer higher education qualifications in or from Australia must be registered by TEQSA. Providers that have not been granted self-accreditation authority (ie. most of the non-university providers) must also have their courses of study accredited by them.

## Non-nationally recognised training

Non-nationally recognised training does not lead to nationally recognised certification. Non-nationally recognised training is not listed on the National Training Register (training.gov.au) and can be delivered by all training providers (not just Registered Training Organisations).

Locally developed programs and skill sets include local developed programs and skill sets developed by training providers, industry, enterprise, community education or professional bodies to meet an identified training need.

Training packages are approved for implementation by the Australian Industry Skills Committee

## Vocational education and training

Nationally recognised training (NRT) leads to vocational qualifications and credentials that are recognised across Australia. It consists of the following components:

- > training package qualifications
- > accredited qualifications
- > accredited courses
- > training package skill sets
- > units of competency and accredited modules
- > All NRT is listed on the National Training Register (training.gov.au). Only registered training organisations (RTOs) can deliver NRT





Training packages specify the knowledge and skills (known as competencies) people need to work with safely and effectively in their workplace. These units of competency can be packaged into nationally recognised qualifications that align to the Australian Qualifications Framework (AQF). Training packages are approved for implementation by The Australian Industry Skills Committee (AISC) and consist of the following nationally endorsed components:

- > units of competency, which specify the standard of performance required in the workplace
- > assessment requirements (associated with each unit of competency)
- > packaging rules for qualifications that are consistent with the AQF (certificate I to advanced diploma, and graduate certificate and graduate diploma)
- > credit arrangements, specifying existing arrangements between training package qualifications and higher education qualifications in accordance with the AQF

The training packages in **Table 1** are relevant to the Fight Food Waste CRC as they include food waste in the performance criteria of the many units (and qualifications) offered.

**TABLE 1**

**Programs and enrolments: 2015-2018**

Training Package	2015	2016	2017	2018	Total
 Australian Meat Processing (includes MTM)	13,649	11,721	12,361	8,484	<b>46,215</b>
 Tourism, Travel and Hospitality (includes THH, THT)	214,937	223,925	213,744	188,326	<b>840,932</b>
 Food, Beverage and Pharmaceutical (includes FDF)	20,116	19,409	14,865	14,488	<b>68,878</b>
 Seafood Industry	1,420	1,379	1,379	1,073	<b>5,251</b>
<b>Totals</b>	<b>250,122</b>	<b>256,434</b>	<b>242,349</b>	<b>212,371</b>	<b>961,276</b>

According to the latest VET statistics provided by The National Centre for Vocational Research (2020), 51% of Australian businesses receive training through the nationally recognised training pathway (VET) and 49% use the non-nationally recognised training pathway. There are however more students enrolled in non-recognised training programs indicating there is no clear preference for preferred training options for industry (Figure 3).

**FIGURE 3**

**VET Demand Trends 2019**

### Employers

**50.9%**  
of employers used the VET system

**48.8%** used non-accredited training

**12.8%** provided no training

### Students

**2.5 million**  
students enrolled in subjects not delivered as part of a nationally recognised program

**2.0 million**  
students enrolled in nationally recognised programs

**4.1 million**  
VET students

**Source: The National Centre for Vocational Research (2020)**

# Training and Education Trends

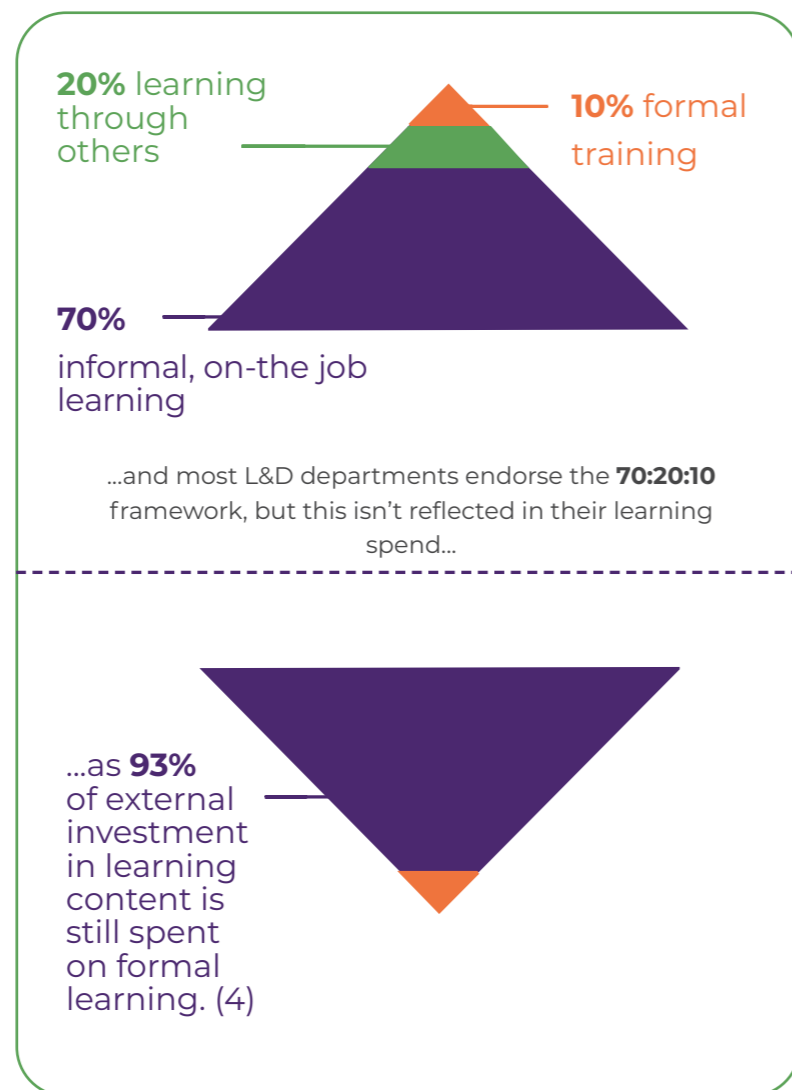
## Formal versus informal training

**The whole training and education landscape is changing.**

It is generally accepted that only about 10% (Figure 4) of learning and development happens through formal learning programs, yet this is still where significant resources are invested (PageUp 2019).

**FIGURE 4**

**Formal and informal learning program landscape 2019**



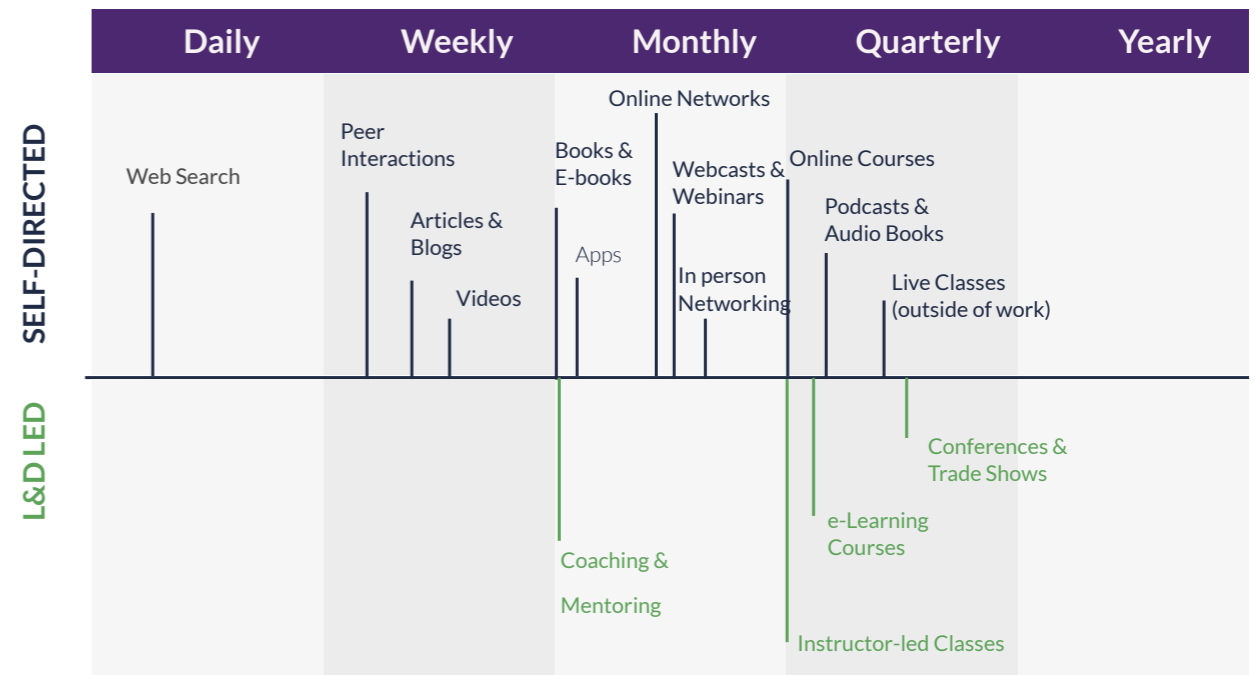
Source: PageUp 2019



A 2016 study conducted in the USA found that the self-directed learner accesses a wide variety of sources with various regularity (daily, weekly, monthly, quarterly) (Figure 5).

**FIGURE 5**

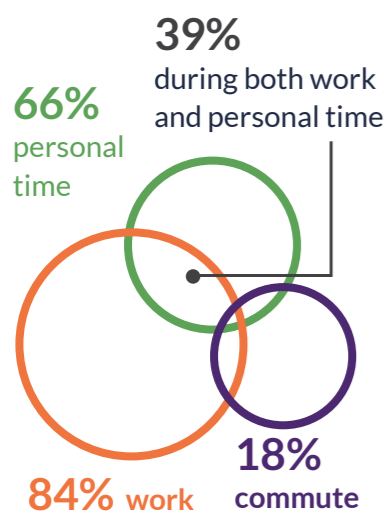
**How the workforce really learns in 2016**



Source: Decreed Debrief 2015

FIGURE 6

Learning happens everywhere



77% of workers say they do at least some of their learning on a smart phone or tablet.

Source: Decreed Debrief 2015

### Use of technology platforms

Furthermore, the study found that the majority of learning happens using mobile and social technology platforms and that it happens during both work and personal time (Figure 6). Mobile learning has an added advantage in that it makes learning accessible to people who are remotely located and/or who may not have a desk job with a dedicated computer.

New technologies such as AR and VR together with learning management systems that can help customise the learning experience will increasingly be used to maximise accessibility of learning and development experiences while minimising the time needed to undertake them.

### Microlearning and micro credentials

Responding to these changed patterns of learning, microlearning, where learning content is provided in bite sized chunks, is gaining significant traction. Some of the most popular forms of microlearning are podcasts, blogs and short videos. The Training Journal 2019 Trend Watch Report suggests that interactive videos and user generated content will become more and more popular. This reflects that many learners want to actively participate in the learning journey – contributing to others journeys as well and benefiting from the knowledge of others. Social media platforms provide opportunities for this to happen using features such as private groups, online forums, webinars etc.

There is a growing interest in micro credentialing which could be in part explained by the need for workplaces to remain competitive by ensuring employees are continuing to develop new capabilities. Essentially, micro credentials are certification-style qualifications that individuals choose to study to improve a skill in a particular industry area. They are short, low-cost online courses that provide learners with a digital certification or a 'digital badge' when complete (Deakin University 2017).

The key difference between micro credentialing and other qualifications offered by higher education institutions – such as certificates or bachelors – is that micro credentials are delivered as 'bite-sized' chunks; demonstrating the proficiency in a particular skill. They are developed with its particular industry in mind, ensuring that the qualification meets industry-specific needs, is relevant and is recognised by future employers. This new approach to professional development is personalised and generally transferrable (Training.com.au 2020).

FIGURE 7

### Learning preferences of the Australian workforce

What kind of learning format do you most prefer to improve your ability to work with digital technologies?

38% of Australian workers prefer 'learning on the job'

24% prefer 'formal courses leading to a credential (e.g certificate, diploma or degree)'

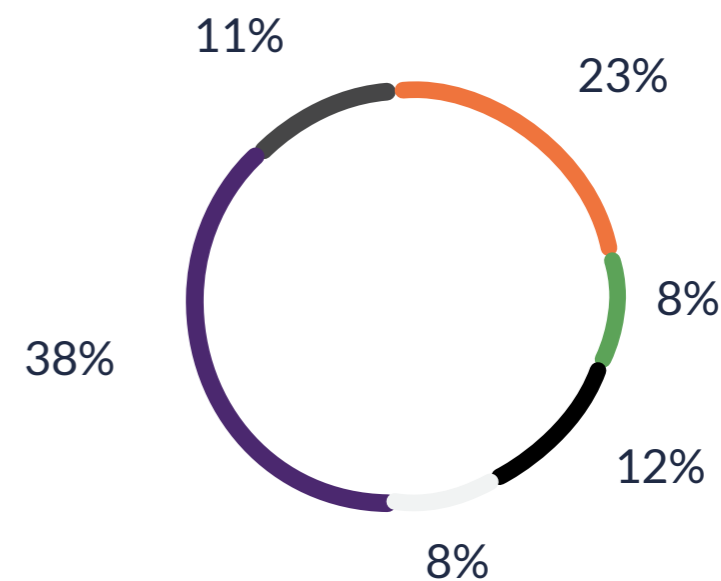
Source: Swinburne University of Technology

### Digital technology learning

In 2019 Swinburne University of Technology conducted a national survey to understand how to prepare Australia's workforce for the digital future. Only 23% of the workforce surveyed preferred formal training which included all levels within the education system (certificate, diploma, degree). Whereas 38% preferred learning digital technologies at work or "on the job training" (Figure 8).

FIGURE 8

### Preferred learning formats to work with digital technologies



- Formal courses
- Micro-credentials
- Professional education
- Online videos
- Learning on the job
- Self taught

# Australia's Food and Agribusiness Sector

## Target audience characteristics

Australia's food and agribusiness industry are diverse industries competing in a dynamic and complex global marketplace.

The Food Innovation Australia Ltd Competitive Plan for 2019-2020 provides a summary of the key characteristics of the sector (see Figure 9).

FIGURE 9

### Key characteristics of Australia's food and agribusiness sector

**164 billion**

in total sales and service income, equivalent to 5.9 per cent of all Australian industries in 2013-14.

**\$67.2 billion**

of industry gross value added in 2017-2018 equivalent to 3.6 per cent of total GDP.

**\$41.2 billion**

in exports, representing 12 per cent of all Australian exports in 2018.

**\$769 million**

total business expenditure on research and development, of which \$534 million was in food and beverage manufacturing, 4235 million was in agriculture.

**176,948**

of businesses in 2016, of which 120,000 were non-employing (representing 67.8% of total businesses).

**552,500**

persons were employed in 2018, approximately 70% of which were employed in regional Australia.

Source: FIAL 2019

Tell me and I'll forget;  
Show me and I may remember;  
Involve me and I learn

- Benjamin Franklin

## Training design considerations

### Program length

Almost 70% of food businesses in Australia are non-employing entities and almost half of these are beef and sheep farmers with the most being family run, with a management team comprised of two or more people (FIAL, 2019). This means that the majority of the target audience for training are business owner/managers who are often wearing many different hats and who have little time available for training and education.

### Program content

Of the approximately 60,000 food businesses in Australia that do have employees, most of them are SMEs with fewer than 200 people employed. Less than 0.1% of businesses in this sector have more than 200 employees (FIAL, 2019). This means that training will need to be designed so that they are relevant to diverse businesses with relatively small number of employees. These employees are likely to have a broad range of responsibilities within the business so designing training programs for specific roles may not meet their needs.



### Learning styles





The term “learning style” refers to the way a person perceives, gathers, organises and thinks about information (McLeod 2006). Adult learning groups typically include people with a wide range of different learning styles, and these differences affect the learning process. This is an important issue for both formal and non-formal training providers to understand and adapt to different learning styles or patterns of participants particularly according to Johnson et al (2008) in the primary production sector.

Learning-patterns of Australian primary producers have been classified according to the way they learn (Table 2) so could provide a useful framework for developing education and training options to cater to the different learning styles of farm businesses. It is interesting to note that common to all learning styles was a preference to learn through interaction with others, notably other farmers and experts (Kilpatrick and Johns 2003).

In summary, primary producers have different learning styles and while they may have the knowledge, attitude and skills to embrace change, sometimes they can lack confidence in making decisions. This lack of confidence can be due to many factors including: the integrity of the information, attitudes to risk and most importantly whether or not peers have undertaken the change (Reichstein 2017).

TABLE 2

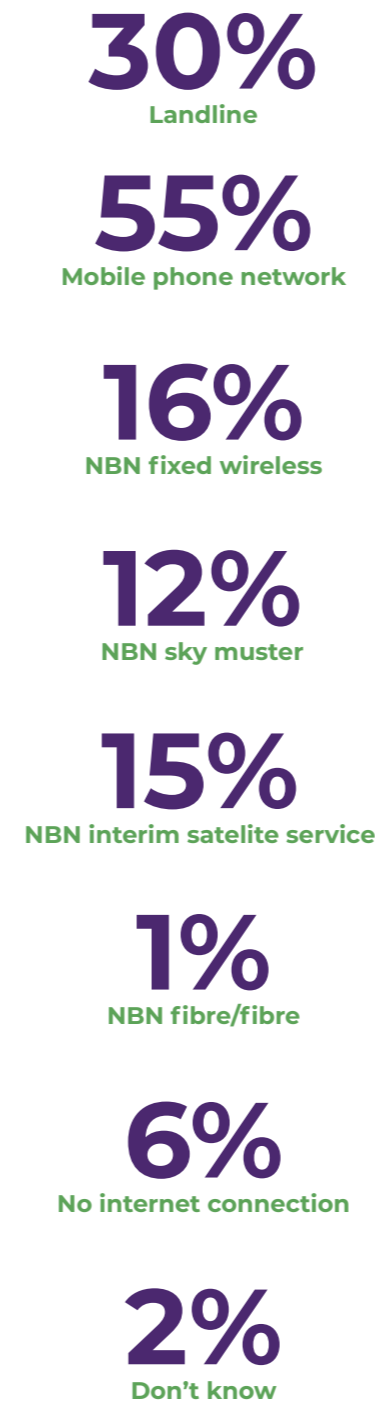
Learning Patterns of Australian Primary Producers

 <b>Local focussed</b>	The local focussed group seek information and advice only from local experts (accountants, government consultants and local suppliers such as rural merchants) and local farmers. They may also observe practices in operation locally and may access the local media. This category also includes those who seek advice from only a single expert (not necessarily local) and who use no other learning sources. The local focussed group does not participate in training, except for field days.
 <b>People focussed</b>	These farm businesses consult two or more people (not all local) and use no more than one other learning source when making changes. This group learns from people either in one-to-one situations or in farmer-directed groups. The other sources used by this group in making changes vary widely and may include one of training, media and observation.
 <b>Outward looking</b>	This group includes farm businesses which use a variety of sources, usually including at least one of: media, training, or active observation of the potential new practice in operation elsewhere. These sources are usually combined with one-on-one learning from other farmers or experts or agricultural associations.
 <b>Extensive networking</b>	These businesses consult a wide range of sources when learning for change including: training (other than field days), experts (i.e. private consultants, buyers, government consultants, financial advisers, or other experts), other farmers or farmer-directed groups, agricultural associations, media (industry magazines, books, technical notes, internet), overseas or interstate observation, trials or experiments for research purposes, usually in conjunction with experts.

Source: Kilpatrick and Johns 2003

FIGURE 10

How is your business connected to the internet? Overall N=1000



Source: Zhang et al 2017

### Delivery mode considerations

Of the approximately 500,000 people who are employed in the sector, about 70% are in rural and regional Australia (FIAL, 2019). This means that the training delivery will need to be very flexible with little reliance on in person facilitation.

#### Access to digital infrastructure and technology

Even though technology has transformed many industries, the agriculture sector continues to be the least digitised globally (AgriFutures Australia 2018). Data collected by CSIRO in 2017 to benchmark Australia’s producers’ needs and expectations associated with digital infrastructure reported that primary producers currently had various internet technologies on their farm (Figure 10).

A lack of access to mobile and telecommunications infrastructure is costing agribusinesses and the Australian economy billions of dollars each year with an estimated 43% of producers having patchy or no mobile reception. In fact, researchers in a recent publication in the Farm Policy Journal concluded that “without connectivity digital agriculture is not possible” (Trindall et al 2018, p.3).

The limited digital infrastructure could present a challenge for online training options as Zhang et al (2017) reported only a minority of farms have reliable mobile data coverage over their farm area and the NBN is still in the roll-out phase. An added consideration is that any remote and online training will need to be optimised to make it accessible at slower internet speeds that are often experienced still in rural and regional locations.

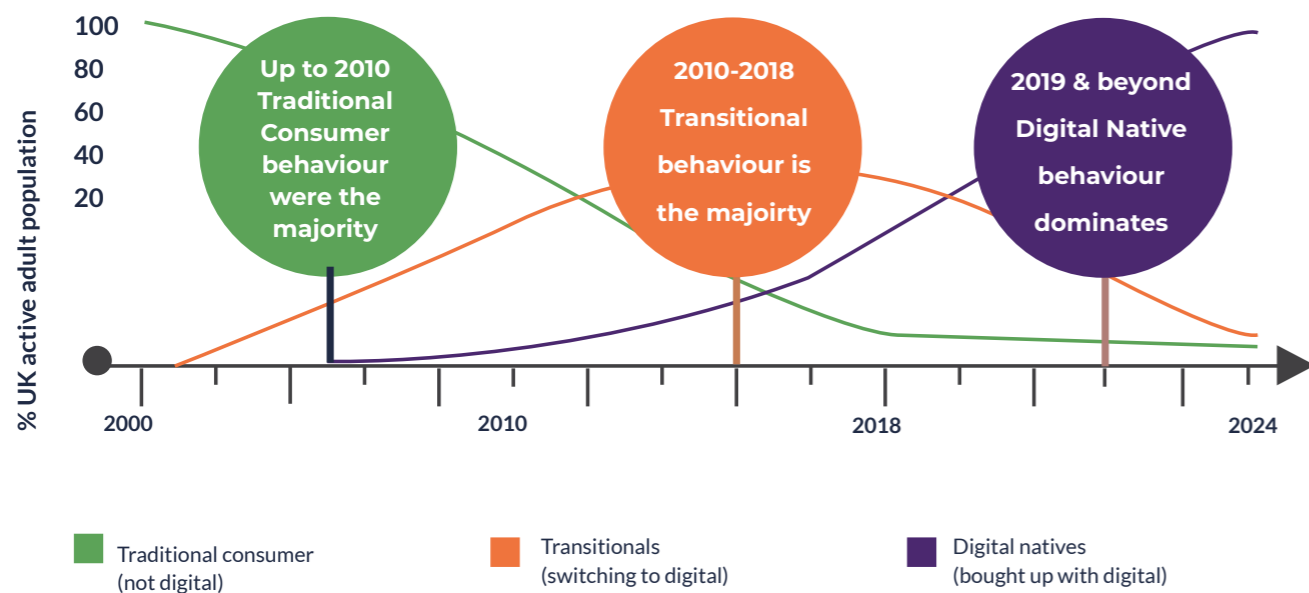


This is a significant issue for small business as recently Price Waterhouse Cooper (PWC) forecast that small businesses like many in the primary production and food processing sectors could achieve significant benefits by embracing mobile and internet technologies to transform their operations.

PWC predict that small business could unlock an additional \$49.2 billion over the next 10 years due to the rapid uptake of technology (Figure 11).

**FIGURE 11**

**Decade of change**



Source: PWC Digital Innovation

**Digital literacy**

Digital literacy for business means having the capability and skills to live, learn and work in a society where we need to effectively communicate, record data and analysis information in an online environment utilising various digital technologies, social media, process, systems and other online platforms (University of Western Sydney 2020).

Digital and technological skills are rated by Australian workers as the most important skills to succeed in the future workplace (Figure 12), more so than the traditional skills or expertise that define their job. Australian workers also indicated they want to take charge themselves, to prepare through learning, as they see the importance and necessity of digital technology skills to remain competitive in the changing workforce environment (Gallagher 2019).

**FIGURE 12**

**Skills required for future workforce**

DESCRIPTION IN SURVEY	TERM USED IN THE REPORT
Digital and technology skills	Digital skills
Traditional skills and expertise related to the job	Functional skills
Collaboration, empathy and social skills	Emotional skills
Entrepreneurial skills	Entrepreneurial skills



‘Digital and technological skills are rated by Australian workers as the most important skills to succeed in the future workplace’

Gallagher 2019

A key finding from AgFutures 2018 Emerging Technologies in Agriculture (p. 23) concluded:

“a related and relevant barrier to adoption for farmers is education, especially digital literacy skills. Training and educational programs around technology usage, both for simple as well as complex, emerging technologies, may therefore help producers to realise the potential benefits of these technologies”.

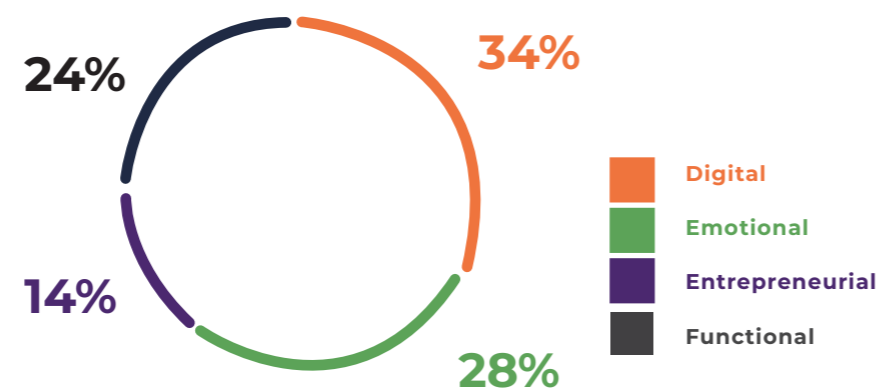
Further Trindall et al (2018, p. 5) found a significant digital skills and capability gap across the whole primary producer supply chain suggesting that education to bridge the gap was essential, making the following recommendation: “A review of the skills required by producers to maximise the benefits derived from digital agriculture is recommended to provide the foundation for the development of educational packages”.

It has been estimated that by 2030 Australian workers will spend at least 60% more time using digital skills than are currently used therefore training to upskill digital skills is critical in the Australian rapidly changing workforce environment (KPMG & Skills Impact 2019).

For the agriculture and food sector generally, this means having the capability and skills to live, learn and work in a society where we need to effectively communicate, record data and analyse information in an online environment utilising various digital technologies, social media, process, systems and other online platforms (University of Western Sydney 2020).

FIGURE 13

The most important skills for the future of work



Source Gallagher 2019, Swinburne University of Technology

CASE STUDY

Consumer trends and storytelling technologies report, AgriFutures Australia

Case study:  
FarmVR Virtual Reality Farming Experiences

Article source: Tasmanian Agricultural Education Network [53] and Farm VR [54]



Photo source: FarmVR Virtual Reality Farming Experiences [54]



Photo source: FarmVR Virtual Reality Farming Experiences [54]

Background

FarmVR is a Virtual Reality Agricultural Experience, designed to “immerse” people into various agricultural experiences to learn more about where their food comes from, consider Agriculture as a career pathway and assist teachers to engage their students in the classroom. [53]

The FarmVR team attend agricultural shows, events, conferences to connect children with farm life. There are a range of FarmVR applications available, the Farm VR World website, and FarmVR Mobile. [54]

Impact

Tim Gentle (Founder of Farm VR) believes in immersing students in farming experiences to better educate them about where their food comes from, and to encourage them to consider agriculture as a career path. [54]

Read more: <https://farmvr.com>



03

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Desktop Audit

## Aim

This report details the findings of a desktop audit process that aimed to identify food waste related training and education programs targeting the needs of Australia's food industry, particularly those in the primary production and food manufacturing sectors.

The audit was undertaken between December 2019 and June 2020. The process included:

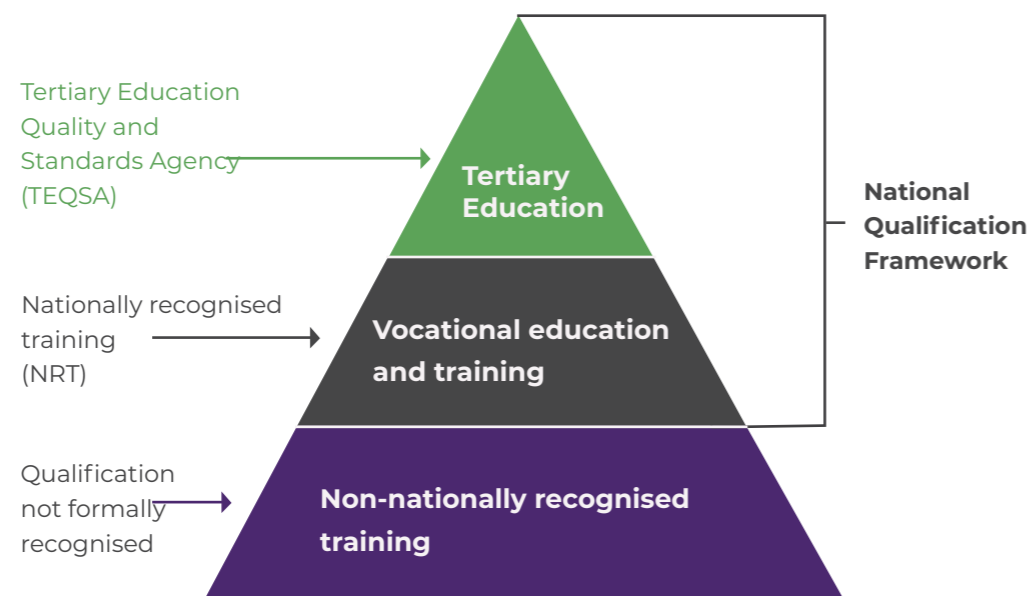
- > Internet searches,
- > Contacts made with training organisations and other industry education institutions,
- > Personal contacts to industry networks,
- > Review and input from Fight Food Waste Industry Connection Hub members,
- > Review and input from Fight Food Waste CRC Program Managers and staff.

Here's a reminder of Australia's training and education system. It comprises a number of different sectors.

These are summarised in the diagram below:

FIGURE 1

### National Qualification Framework



## Audit Scope

### In scope

Nationally recognised and non-nationally recognised training programs and units were included in this audit if they included some "food waste" content in the unit performance assessment criteria and/or they contained "food waste" content generally but not included in performance criteria.

#### Non-nationally recognised training

The aim of this part of the audit was to identify current and past non-nationally recognised industry training programs that focus on food waste or contained content specific to food waste. The focus was on training that was relevant to businesses and organisations involved in Australia's food industry.

#### Non-nationally recognised training programs

Non-nationally recognised training programs do not lead to nationally recognised certification and are not listed on the National Training Register (training.gov.au). Non-nationally accredited training can be delivered by all training providers not just Registered Training Organisations (RTOs).

Non-nationally recognised training accounts for almost 50% of overall industry training in Australia (NCVER, 2020). These locally developed programs and skill sets include those developed by training providers, industry, enterprises, community education or professional bodies to meet an identified training need.

The training programs were included in this audit if they had some focus (even small) on food waste.

#### Internationally recognised training

Training programs that are recognised internationally by industry organisations and specifically mentioned or referenced food waste were included in this audit.

#### Global training programs

Training programs that are offered internationally that focussed on food waste targeting the food industry were included in this audit. Note these programs were only included if they were offered in English.

### Not in scope

#### School based and consumer training

Training programs that were focused on consumers or school-based training were outside of the scope of this audit so have not been included.

#### Tertiary education

Food waste content contained within tertiary education qualifications were not included in this audit as it was difficult to ascertain via desktop research which courses and qualifications contained food waste. In addition, data about the participation rate of industry undertaking tertiary education studies is not readily collected and available from the 96 Food Science programs taught by universities throughout Australia.

# Audit Findings

## Vocational Education and Training

There are currently 16,835 VET units offered by Australian Registered Training Organisations, representing 57 training packages (Skills Impact 2020 pers comm).

A review of the 16,835 VET units found 311 units containing the search terms “food and waste”.

These 311 units are included in the 15 training packages, targeting various industry sectors and offered from certificate I level through to a graduate diploma (Table 1).

**TABLE 1**  
Training packages by sector

Training Packages	Cert I	Cert II	Cert III	Cert IV	Grad Cert	Dip	Adv Dip	Grad Dip
Agriculture, Horticulture and Conservation and Land Management	✓	✓	✓	✓		✓	✓	
Australian Meat Processing		✓	✓	✓		✓	✓	✓
Animal Care and Management	✓	✓	✓	✓		✓		
Aviation	✓	✓	✓	✓		✓	✓	
Community Services	✓	✓	✓	✓	✓	✓	✓	✓
Defence	✓	✓	✓	✓	✓	✓		✓
Food, Beverage and Pharmaceutical	✓	✓	✓	✓		✓		
Health		✓	✓	✓		✓	✓	
Property Services	✓	✓	✓	✓	✓	✓	✓	✓
Retail Services	✓	✓	✓	✓		✓		
Seafood Industry	✓	✓	✓	✓		✓		
Sport, Fitness and Recreational	✓	✓	✓	✓		✓		
Tourism, Travel and Hospitality	✓	✓	✓	✓		✓	✓	
Transport and Logistics	✓	✓	✓	✓		✓	✓	

✓ Industry VET training packages containing the search terms ‘food and waste’

■ Note green depicts packages focussing on food, food processing and agriculture sectors

# 104

units limited to 5 training packages contained food waste content in the performance criteria.

These 5 training packages are targeted at food, food processing and agriculture sectors.

# 102

units were identified where food waste content could be added

# 105

units were identified where adding food waste content in is not relevant

### Understanding the five key training packages

The Agriculture, Horticulture & Conservation and Land Management Training Package does not address food waste content in any detail and it is only available at the Certificate I level. Only three packages (Australian Meat Processing, Food, Beverage and Pharmaceutical Training Package, and the Tourism, Travel and Hospitality Training Package) include food waste at the higher qualification levels of Diploma and Advanced Diploma. The Seafood Industry Training Package is the only training package that includes food waste specifically at a Certificate I level. Further, it is the only training package that has its own dedicated core unit related to food waste (SFIPRO403 Develop and Implement a Seafood Waste Utilisation Strategy).

### Training Content

#### Food waste content could be added

A further 102 units of the 311 units identified in the audit relate to points in the supply chain where food waste can occur but did not include specific performance criteria regarding food waste. These units focus on cooking and preparing food, food handling, food safety, catering, washing produce, food manufacture and processing, animal slaughter and processing, packing and dispatching of stock and on-farm establishment and farming systems. These units are delivered across fourteen training packages:

- Agriculture, Horticulture & Conservation and Land Management
- Food, Beverage and Pharmaceutical
- Australian Meat Processing
- Property Services
- Animal Care and Management
- Retail Services
- Aviation
- Seafood Industry
- Community Services
- Sport, Fitness and Recreation
- Defence
- Tourism, Travel and Hospitality
- Health
- Transport and logistics

#### Food waste content not relevant

The remaining 105 units of the 311 units identified in the audit focus on on-farm maintenance, machinery operation, maintenance and safety, food processing and manufacturing machinery operation, maintenance and safety and packaging machinery operation, maintenance and safety. These units do not focus on points where food waste can occur.

### Training Demand

The NCVET VOCSTATS for 2015 to 2018 show that enrolments have been decreasing generally across the four training packages that contain food waste content in detail (TABLE 2).

TABLE 2

#### Training packages by sector

	2015	2016	2017	2018	Total
Australian Meat Processing (includes MTM)	13,649	11,721	12,361	8,484	46,215
Tourism, Travel and Hospitality (includes THH, THT)	214,937	223,925	213,744	188,326	840,932
Food, Beverage and Pharmaceutical (FDF)	20,116	19,409	14,865	14,488	68,878
Seafood Industry	1,420	1,379	1,379	1,073	5,251
<b>Totals</b>	<b>250,122</b>	<b>256,434</b>	<b>242,349</b>	<b>212,371</b>	<b>961,276</b>

Completions are also experiencing a downward trend noting that the Australian Meat Processing Package experienced a marginal increase in completion rates from 2017 to 2018 (TABLE 3).

TABLE 3

#### Training packages by sector

	2015	2016	2017	2018	Total
Australian Meat Processing (includes MTM)	3,133	2,873	2,445	2,508	10,959
Tourism, Travel and Hospitality (includes THH, THT)	65,361	69,335	73,545	60,056	268,297
Food, Beverage and Pharmaceutical (FDF)	6,256	6,108	4,841	4,447	21,652
Seafood Industry	460	525	599	358	1,942
<b>Totals</b>	<b>75,210</b>	<b>78,841</b>	<b>81,430</b>	<b>67,369</b>	<b>302,850</b>

*Enrolments have been decreasing generally across the four training packages that contain food waste content in detail.*

### Training Providers

In 2018 private training providers delivered most of the training in these four training packages:

- > Australian Meat Processing (includes MTM)
- > Tourism, Travel and Hospitality (includes THH, THT)
- > Food, Beverage and Pharmaceutical (includes FDF)
- > Seafood Industry

TABLE 4

#### 2018 Enrolments by provider type

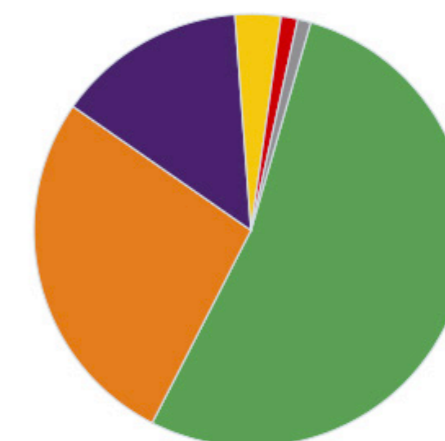
	Private training providers	TAFE institutes	Schools	Community education providers	Uni	Enterprise providers	Total
Australian Meat Processing (includes MTM)	4,784	2,932	0	333	96	340	8,495
Tourism, Travel and Hospitality (includes THH, THT)	98,991	48,838	29,884	6,877	2,004	1,736	188,330
Food, Beverage and Pharmaceutical (FDF)	8,422	5,492	80	40	459	0	14,493
Seafood Industry	537	460	18	0	60	0	1,075

FIGURE 2

Source: NCVET VOCSTATS

### Key Finding:

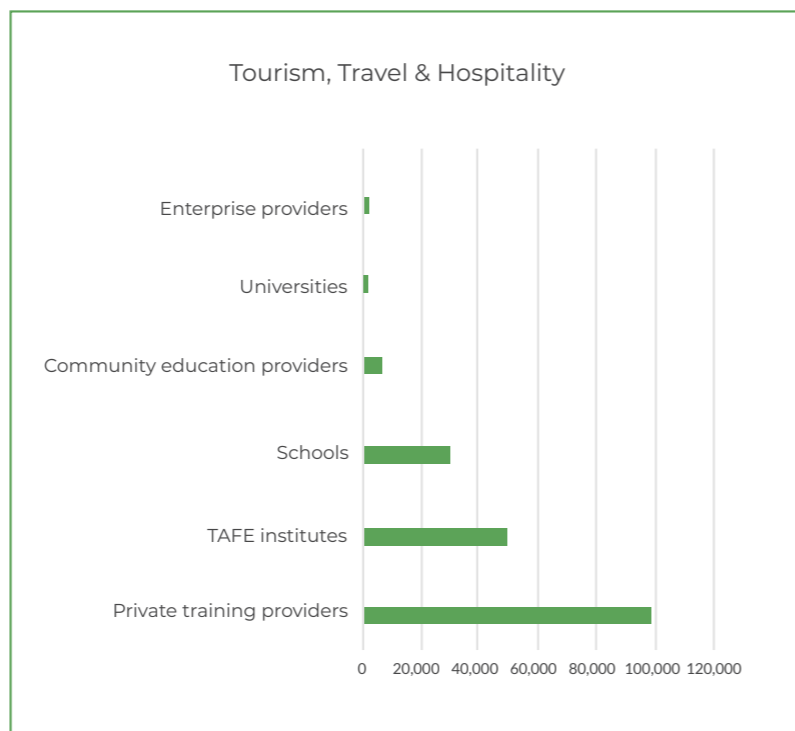
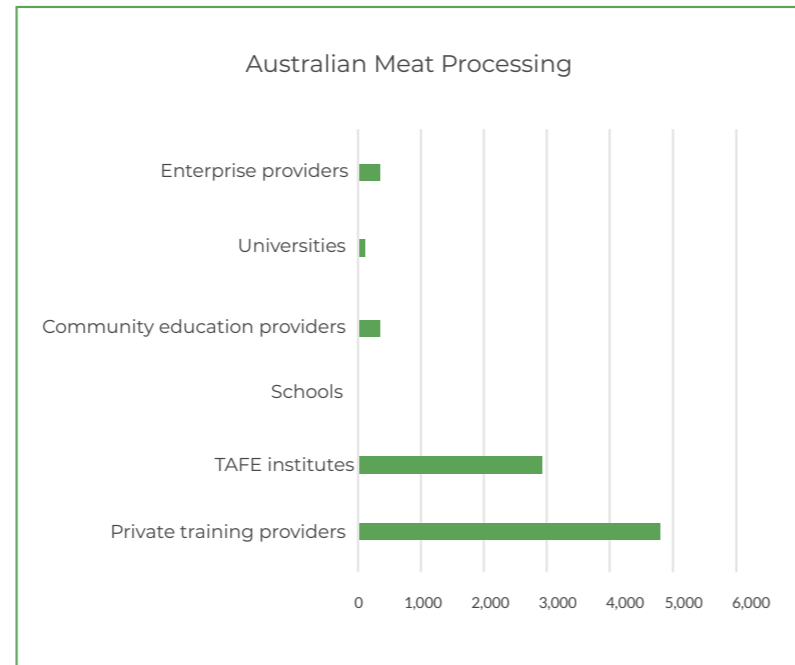
Participation and completions in VET training is decreasing.



Private training providers	112,734	TAFE institutes	57,722
Schools	29,982	Community education providers	7,250
Uni	2,619	Enterprise providers	2,076

FIGURE 3

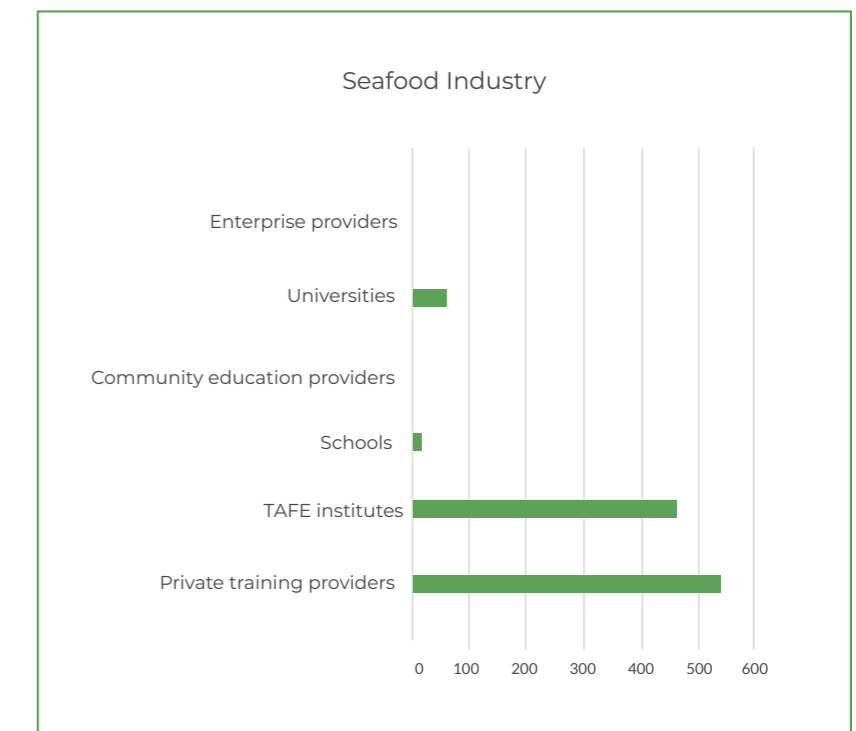
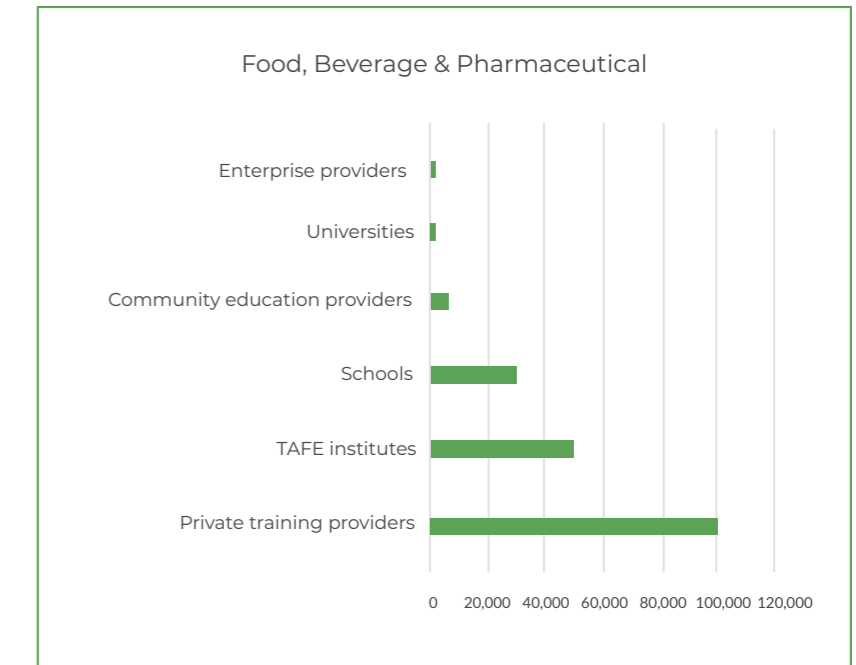
Enrolments by provider type. Source NCVER VOCSTATS 2020



In 2018 private training providers delivered most of the training in four key training packages: Australian Meat Processing, Travel, Tourism and Hospitality, Food, Beverage, Pharmaceutical and Seafood.

FIGURE 3 CONT.

Enrolments by provider type. Source NCVER VOCSTATS 2020





Most training was delivered in New South Wales, Victoria and Queensland

### Training Location


Overall, most of the training was delivered in New South Wales, Victoria and Queensland (Table 5).

New South Wales and Victoria provided most of the training in the Travel, Tourism and Hospitality Package and Victoria was the prominent state for delivering the Food, Beverage and Pharmaceutical Training Package.

Bearing in mind that 70% of the agriculture and food processing businesses are located in regional Australia (FIAL 2019) access to training may be an issue if the training programs are only offered in larger centres and not delivered in flexible modalities.

TABLE 5

Enrolments by state, Source: NCVER VOCSTATS


















	NSW	VIC	QLD	SA	WA	TAS	NT	ACT
 Australian Meat Processing (includes MTM)	2,173	2,219	2,809	523	511	148	84	16
 Travel Tourism and Hospitality (includes THH, THT)	53,893	50,386	43,261	7,585	21,131	3,425	1,270	3,847
 Food, Beverage and Pharmaceutical (includes FDF)	2,542	6,110	3,545	1,169	533	298	124	70
 Seafood Industry	110	10	123	73	364	290	103	0
<b>TOTALS</b>	<b>58,718</b>	<b>58,725</b>	<b>49,738</b>	<b>9,350</b>	<b>22,539</b>	<b>4,161</b>	<b>1,581</b>	<b>3,933</b>

## Non nationally recognised industry training

The audit found eight non-accredited industry training programs that either focus specifically on food waste or contain some food waste content available in Australia (Refer **Table 6**).

**TABLE 6**

### Non-accredited industry training programs discovered during the audit process

Program	Provider	Content	Delivery	Location
Business Resource Efficiency Program	Active Learning Institute	Course that brings businesses together through action learning to implement strategies for eliminating waste and developing the circular economy.		
Sustainable Packaging Program	Food SA (with the FFW CRC)	Two-part program designed to help industry understand what they need to do to reduce their food and packaging waste.	 	 Ended Nov 19
Fundamentals of Packaging Technology	Australian Institute of Packaging	Focuses on materials properties and selection to transport packaging issues—that can help businesses make better decisions regarding their company's packaging dollars.		
Green Table Certification	Restaurant and Catering Australia (RCA)	Certification program that supports and recognises Australian restaurants, cafes and catering businesses that are doing what they can to reduce their impact on the environment.		
Managing Food Waste	Unilever Food Solutions	Chef training and resources on food waste.		
Your Business is Food	NSW Government	Provides information, advice and resources to help reduce the amount of food thrown away in a business.		
Postharvest Handling of Fruit and Vegetables: Best Practice Fundamentals	Applied Horticulture Research	A one-day training workshop on postharvest best practice aimed at growers, packing shed and quality assurance staff, DC staff, retail fresh produce staff and supply chain managers.		
Reduce your Environmental Footprint	Pulpmaster Australia	How to use their Pulpmaster's equipment for pulping food waste.		



Online



Face to face



Australasia



Australia



Tasmania



South Australia

Out of the eight training programs identified, three are specific to the food service sector, two focus on packaging to reduce food waste (one of which expires in November 2020) and one program that focuses entirely on equipment only.

This leaves only two programs that could be considered as food waste training programs that cover the general concepts and potential business opportunities of food waste. Both are delivered face to face.

It is notable that the Business Resource Efficiency Program is only available in Tasmania and the Sustainable Packaging Program is no longer being offered from November 2020.

Three of these programs are delivered face to face:

- > Business Resource Efficiency Program
- > Sustainable Packaging Program (also has an online component) and
- > Postharvest Handling of Fruit and Vegetables.

There are two training programs (Managing Food Waste and Your Business is Food) that provide content on food waste auditing, but they are specific to the food service sector and only available online. The Business Resource Efficiency Program does have a waste audit component but does not necessarily focus on food waste and the audit is undertaken by the course facilitator therefore industry capacity building is not necessarily addressed.

Two training programs were identified specific to packaging. One, the Sustainable Packaging Program offered by the Fight Food Waste CRC and Food SA is only available to Food SA members and is not available after November 2020. The Australian Institute of Packaging does provide one non-accredited training program (Fundamentals of Packaging Technology) and is available online. The course content appears to be flexible, catering to different learning styles.

The Reduce Your Environmental Footprint program (online) focuses the training on the provider's equipment Pulpmaster which is promoted as being able to transform food waste to recyclable pulp.

## Internationally accredited training

Similar to Australia, relevant industry training specific to food waste is scarce internationally, particularly for the primary production and food manufacturing sectors. What training is available generally focusses on policy development and the food service sector. It is not clear how accessible these programs are to the Australian food industry however there may be scope for partnerships in delivery.

Industry training on the role of packaging to reduce and prevent food waste is well developed and is currently available by the Australian Institute of Packaging which are internationally accredited and approved via the Institute of Packaging Professionals (IoPP) Global Certified Packaging Professional (CPP) – Continuing Professional Development (CPD) program (Refer to Food Waste Training Finder).








Non nationally recognised industry training focusing on food waste is very scarce for the primary production and food processing sectors in Australia. Training delivery modes of those programs that do exist do not appear to cater for different learning styles, digital capability, location and particularly for remote agricultural businesses, Internet accessibly and reliability. A similar situation exists internationally so there are a few lessons for us to learn from in relation to food waste training relevant for Australia's primary production and food processing sectors. There may be some scope for developing partnerships with international organisations in training delivery.

## Global training programs

The audit identified a number of training programs available globally that are targeting food waste. These are summarized in Table 7 below. There are likely more than these available but either not available in English or not generally well known or easy to find via internet searches.

**TABLE 7**

**Global food waste training programs**

Program	Content	Delivery	Industry Focus
Leanpath	Technology that makes food waste data collection easy.		Food service
Circular Economy	Address how businesses can create value by reusing and recycling products.		General
Food Waste Recovery Group	The main aim is to help companies becoming more risk resilient by addressing key food waste recovery issues.		Food waste in supply chain
Food Shift	Focuses on rescuing surplus food that would otherwise go to landfills and utilise food in social enterprise kitchens.		Community food service
Sustainability Culinary Solutions	Food safety training and proper food preparation and waste reduction.		Food service
SDG Academy	This course discusses the challenges and opportunities of the agricultural sector in the Mediterranean basin.		Policy development
FAO	The SAVE FOOD initiative aims at encouraging dialogue between industry, research, politics, and civil society on food losses.		Policy development



Online



Face to face



04

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Industry Survey

# Industry Survey

## The aim of this survey was to:

- > Identify the gaps in food waste training targeting the food industry sector
- > Identify opportunities for the FFWCRC and Industry Connection Hub members to deliver new education solutions for Australian food businesses
- > Support Hub members to grow their education offerings through tailored industry training programs

## Survey design

The survey structure and content was designed and agreed in collaboration with Hub members.

The survey comprised five main sections.

1. General information about the respondent's business, what sector of the supply chain they represented and where they thought in their business the main areas of food waste was occurring
2. Where industry food waste training is occurring (or should occur) within a **REDUCE** theme and what ideas they had for training on this topic
3. Where industry food waste training is occurring (or should occur) within a **TRANSFORM** theme and what ideas they had for training on this topic
4. Where industry food waste training is occurring (or should occur) within an **ENGAGE** theme and what ideas they had for training on this topic
5. How industry want training structured and delivered and how best to promote the education initiatives to them

The survey was tested and revised prior to finalisation.

*'From an industry perspective food waste is a great loss.'*

- Small business (waste is valuable)

# Survey distribution

The survey was distributed via email to industry CRMs and publication databases by the Fight Food Waste CRC and Industry Connection Hub members. CRC Program Leaders, Board members and staff were all encouraged to send the survey out to their networks and contacts. The email contained the link to Survey Monkey.

In addition, regular social media posts were made on FaceBook and LinkedIn by Honey & Fox, the FFW CRC and some members of the Industry Connection Hub.

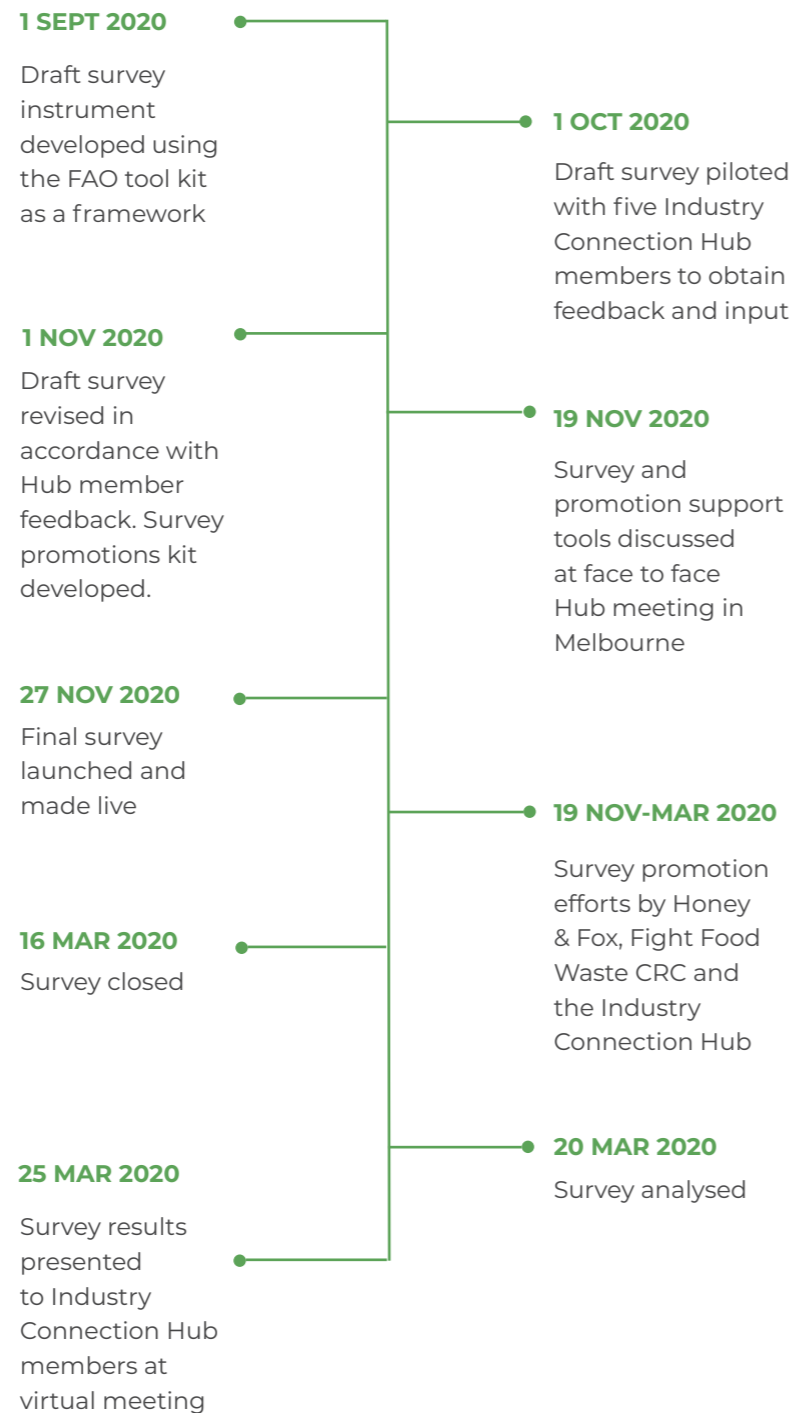
It was highlighted in the FFW CRC newsletter as well as the newsletters and other communications by Industry Connection Hub members. Honey & Fox personally contacted food industry contacts to encourage them to participate in the survey.

As an incentive to complete the survey, a lucky draw prize of a \$200 VISA gift voucher (or a \$200 donation to a food charity of choice) was offered to one survey respondent who completed the survey and provided their contact details. Contact details were delinked from all survey responses to ensure anonymity.

Promotion of the survey was supported by a suite of tools such as adverts, advertorial, editorial, artwork and email content.



## Survey timeline



## Survey Results

**114**  
responses were received in total

**61%**  
of participants completed the survey in full

## Responses

114 responses were received in total. 61% of participants completed the survey in full.

Survey respondents were:

- > Relatively evenly spread across supply chain sectors
- > Relatively evenly spread across business size of micro, small, medium and large

For the purpose of analysing the survey responses, those that identified as government, consultants and/or industry associations were not included. As a result 24 respondents were removed from the overall analysis.

## Business size

All respondents self-identified as either Micro businesses, Small Businesses, Medium or Large Businesses. For the purpose of this research business size is defined as:



### Micro businesses

Businesses employing between 1-9 people



### Small businesses

Businesses employing 10-40 people



### Medium businesses

Businesses employing 50 –249 people



### Large businesses

Businesses employing 250 or more people

**FIGURE 1**

**Percentage of respondents with multiple roles**



**Micro businesses**

**37%**  
Of 30 respondents



**Small businesses**

**40%**  
Of 20 respondents



**Medium businesses**

**25%**  
Of 16 respondents



**Large businesses**

**46%**  
Of 24 respondents

## Roles and responsibilities

In the survey, respondents were asked to select as many roles as they held within the business or in their position of employment from the following list:

- > Growing, producing, farming or within the fishing industry sectors
- > Harvesting
- > Processing
- > Value-Adding
- > Packing
- > Quality Assurance
- > Sales
- > Marketing
- > Logistics/transport
- > Compliance (e.g. food safety, regulations, OH&S etc.)
- > Wholesaling
- > Retailing
- > Food Service
- > Other (please specify)

The purpose of collecting this data was to ascertain if industry are holding down multiple roles as part of their business or in their position of employment. Understanding this is important when it comes to training content creation and delivery.

Micro, small and large businesses tend to have people holding down multiple roles, whereas medium-sized businesses tend to have more people that have a clear, distinct role.

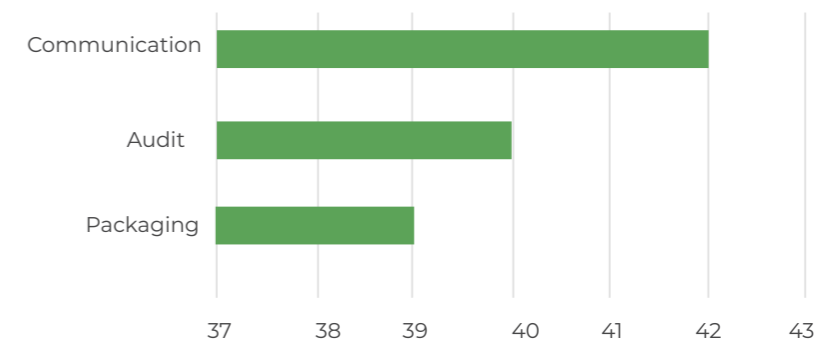
## Training need priority areas for FFW CRC programs

The top training need priorities were identified by the survey respondents for each FFW CRC program. These findings are shown below.

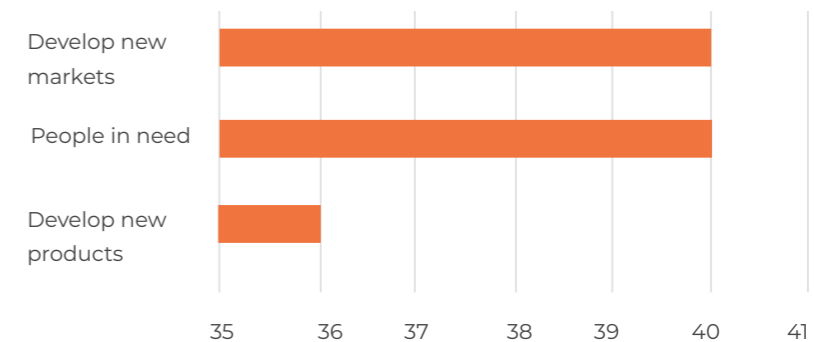
**FIGURE 2**

**Top training needs - results from FFW CRC programs**

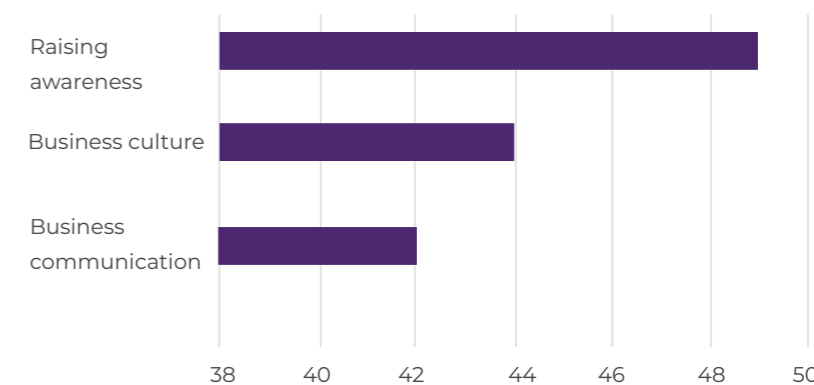
**REDUCE PROGRAM**



**TRANSFORM PROGRAM**



**ENGAGE PROGRAM**



## Training needs priorities by business size

The survey results were then further broken down to investigate whether business size influences priority food waste training needs.

Note that for this analysis responses from consultants, educators, government organisations, packaging suppliers, equipment and service providers were not included.



Who answered?

**31%**

Growers/  
harvesting/packing

**50%**

Sales/marketing/  
wholesaling/retailing/  
food service

**14%**

Value adding/  
processing

**5%**

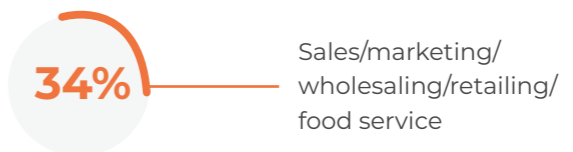
Quality assurance/  
food safety/  
compliance

## Micro food business key findings



Where is training needed?

All respondents answered that food waste training was required in more than one area



\* 30 of the respondents self-identified as micro-businesses (ie. those with 9 or fewer employees). 37% indicated they had multiple roles within their business.



### Delivery mode preferences



**33%**  
Face to face

I.e. workshops/masterclasses of between 1 and 3 days



**55%**  
Online

In particular short micro-credential learning, webinars and self-paced online courses



**75%**  
mixed group

Prefer training outside of company and/or industry sector. In particular, sharing of experiences, ideas and solutions are important



### Qualifications

**25%**  
of those who responded wanted to gain formal qualifications

**75%**  
were happy with an acknowledgement of participation



### How to communicate training opportunities



Direct/post or email



Through industry association communication and promotion channels



Fight Food Waste CRC newsletter



LinkedIn and Facebook were the most popular social media platforms.

*'We have to define what food waste is as it is hard to audit something if you are not quite sure what it is'*

- Micro business (what is food waste?)



## Reduce program



### The following training topics were the most popular:

- > General, everyday tips to reducing food waste common to many food businesses
- > How to improve food storage processes
- > How to improve processing techniques
- > How to implement better packaging to reduce or eliminate food waste

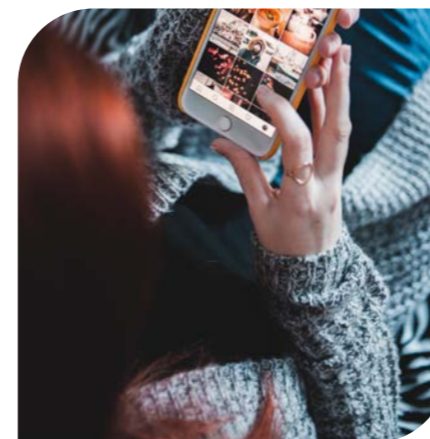


## Transform program



### The following training topics were the most popular:

- > How to develop markets for products rejected by retailers but are still good to be consumed
- > How to develop markets for products which wouldn't have stayed in the food chain otherwise
- > How better to redistribute food to people in need

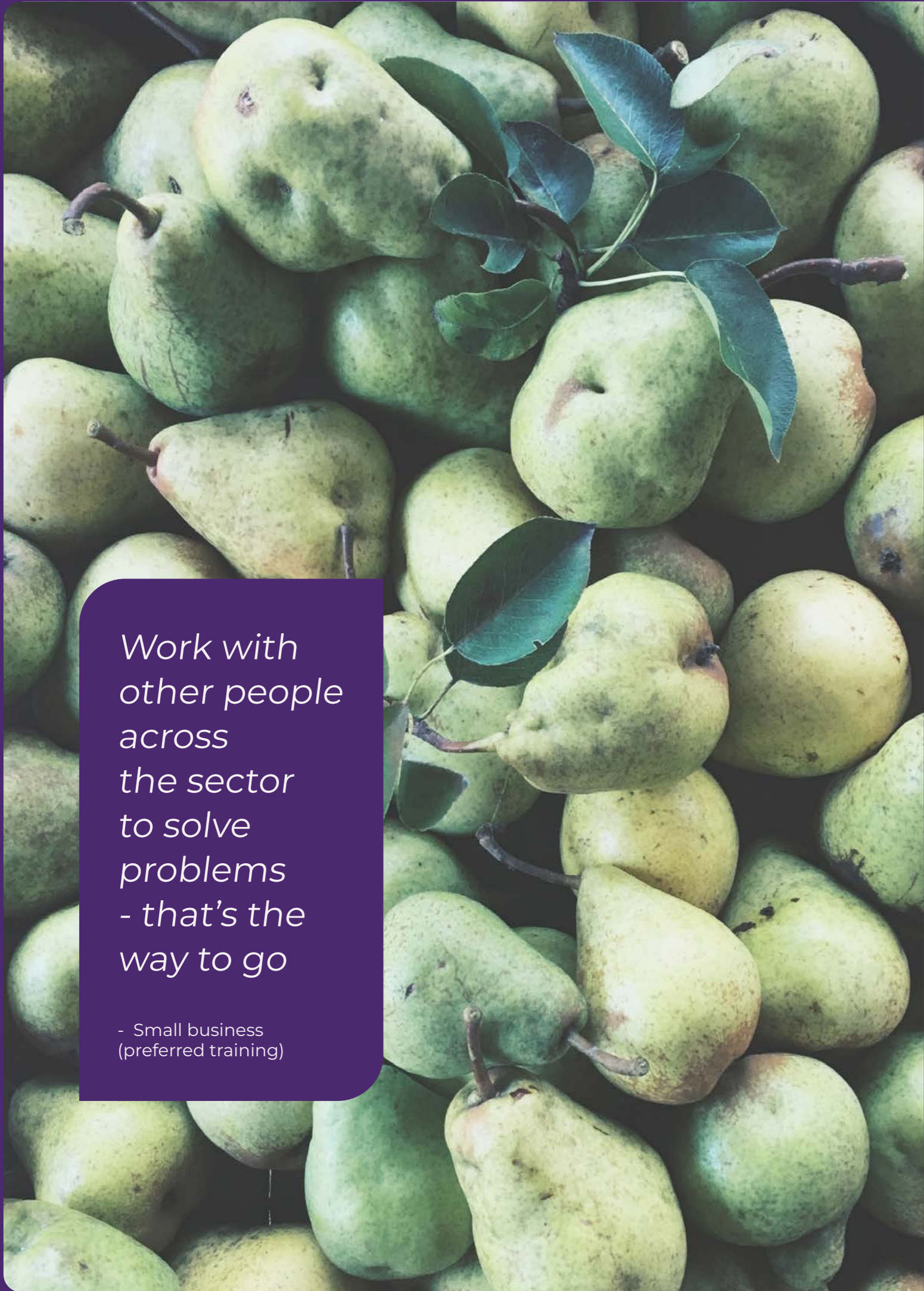


## Engage program



### The following training topics were the most popular:

- > Raising awareness about food waste in the food industry in general
- > Innovation and entrepreneurial thinking and practice
- > How to better understand the impact and costs of food waste on natural resources such as electricity, gas, water, diesel etc.



Work with other people across the sector to solve problems - that's the way to go

- Small business (preferred training)



Who answered?

**24%**

Growers/  
harvesting/packing

**27%**

Value adding/  
processing

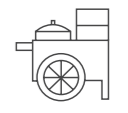
**41%**

Sales/marketing/  
wholesaling/retailing/  
food service

**8%**

Quality assurance/  
food safety/  
compliance

## Small food business key findings

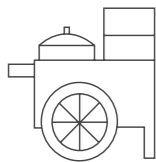


### Where is training needed?

All respondents answered that food waste training was required in more than one area.



\* 20 respondents self-identified as small businesses (ie. those with 10-49 employees). 35% indicated they had multiple roles within their business.



### Delivery mode preferences



# 45%

Face to face

I.e. workshops/masterclasses of between 1 and 3 days



# 41%

Online

In particular short micro-credential learning, webinars and self-paced online courses



# 71%

mixed group

Prefer training outside of company and/or industry sector. In particular, sharing of experiences, ideas and solutions are important



### Qualifications

# 43%

of those who responded wanted to gain formal qualifications

# 57%

were happy with an acknowledgement of participation



### How to communicate training opportunities



Direct email



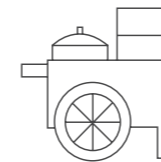
Through industry association communications and promotion channels



LinkedIn is the most popular social media platform

*The basic principles of segregating waste streams and having a means of measurement*

- Small food manufacturer (training – general everyday tips)



## Reduce program



### The following training topics were the most popular:

- > How to improve communication about food waste between different stakeholders in the supply chain
- > How to improve food storage processes
- > How to implement better packaging to reduce or eliminate food waste

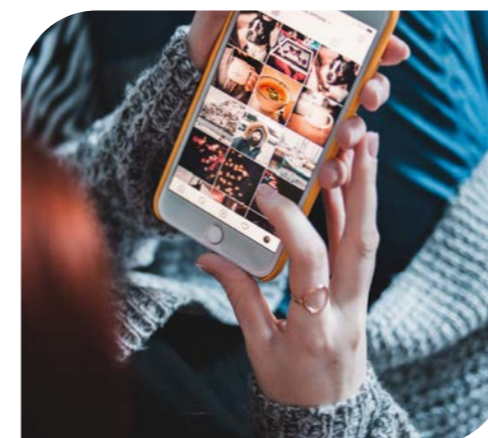


## Transform program



### The following training topics were the most popular:

- > How better to redistribute food to people in need
- > How to recreate food from by-products and food waste
- > How to develop and implement efficient composting technologies and processes (composting that takes place in an open environment)



## Engage program



### The following training topics were the most popular:

- > How to better communicate and work in teams to prevent food waste and implement solutions at an individual business level
- > How to develop in-house industry communication food waste campaigns at an individual business level

We have done some imperfect waste audits that have been broad in terms of measurement because one of our really big waste streams is the packaging our raw materials arrive in

- Medium food manufacturer (food charity)



Who answered?

**13%**

Growers/  
harvesting/packing

**22%**

Value adding/  
processing

**47%**

Sales/marketing/  
wholesaling/retailing/  
food service

**19%**

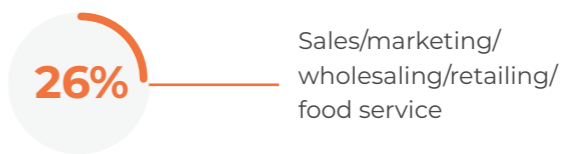
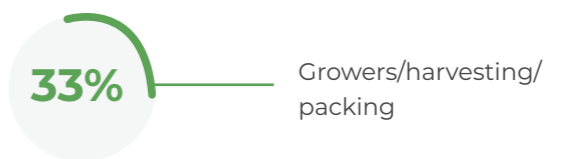
Quality assurance/  
food safety/  
compliance

## Medium food business key findings

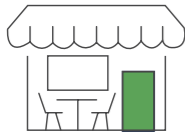


### Where is training needed?

All respondents answered that food waste training was required in more than one area.



\* 15 respondents self-identified as medium businesses (ie. those with 50-249 employees) . 27% indicated they had multiple roles within their business.



### Delivery mode preferences

**43%**  
Face to face

I.e. workshops/masterclasses of between 1 and 3 days

**50%**  
Online

In particular short micro-credential learning, webinars and self-paced online courses

**77%**  
mixed group

Prefer training outside of company and/or industry sector. In particular, sharing of experiences, ideas and solutions are important



### Qualifications

**36%**  
of those who responded wanted to gain formal qualifications

**64%**  
were happy with an acknowledgement of participation



### How to communicate training opportunities



Direct email



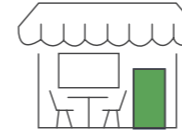
Through FFWCRC newsletter



LinkedIn is the most popular social media platform.

*Bringing different industries together is good*

- Medium business (preferred training)



## Reduce program



### The following training topics were the most popular:

- > How to conduct a food waste audit
- > How to improve communication about food waste between different stakeholders in the supply chain
- > How to implement better packaging to reduce or eliminate food waste
- > How to understand and implement legislation to lower and/or prevent food waste

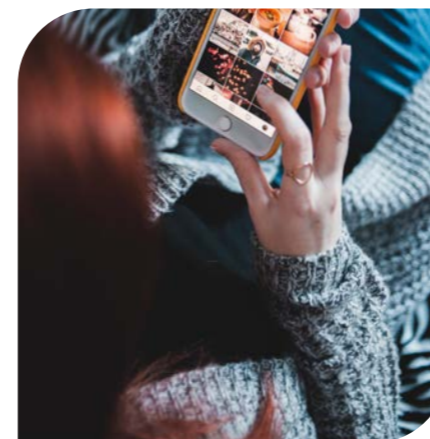


## Transform program



### The following training topics were the most popular:

- > How to develop markets for products which wouldn't have stayed in the food chain otherwise
- > How better to redistribute food to people in need
- > How to implement new regulations and market-based instruments that can drive positive change in regard to food waste



## Engage program



### The following training topics were the most popular:

- > Raising awareness about food waste in the food industry in general
- > How to create better culture of preventing food waste at an individual business level
- > How to better understand the impact and costs of food waste on natural resources such as electricity, gas, water, diesel etc.
- > How to adopt new technologies and innovations



Education across the whole sector is needed.

- Large food manufacturer/retailer (work with supply chain)



Who answered?

**13%**

Growers/  
harvesting/packing

**16%**

Value adding/  
processing

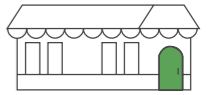
**54%**

Sales/marketing/  
wholesaling/retailing/  
food service

**17%**

Quality assurance/  
food safety/  
compliance

## Large food business key findings



### Where is training needed?

All respondents answered that food waste training was required in more than one area.



27%

Growers/harvesting/  
packing



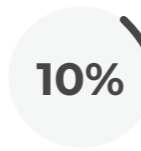
23%

Sales/marketing/  
wholesaling/retailing/  
food service



40%

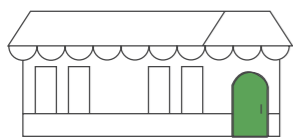
Value adding/  
processing



10%

Quality assurance/food  
safety/compliance

\*235 respondents self-identified as a large sized businesses (ie. those with 250 employees of more) . 46% indicated they had multiple roles within their business.



### Delivery mode preferences



**42%**  
Face to face

I.e. workshops/masterclasses of between 1 and 3 days



**55%**  
Online

In particular short micro-credential learning, webinars and self-paced online courses



**50%**  
mixed group

Prefer training outside of company and/or industry sector. In particular, sharing of experiences, ideas and solutions are important



### Qualifications

**36%**  
of those who responded wanted to gain formal qualifications

**64%**  
were happy with an acknowledgement of participation



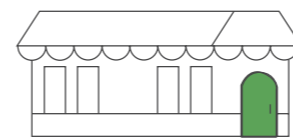
### How to communicate training opportunities



92% prefer direct email

*Our waste is someone else's treasure.*

- Large food manufacturer (new product development)



## Reduce program



### The following training topics were the most popular:

- > General, everyday tips to reducing food waste common to many food businesses
- > How to improve communication about food waste between different stakeholders in the supply chain
- > How to improve quantity planning

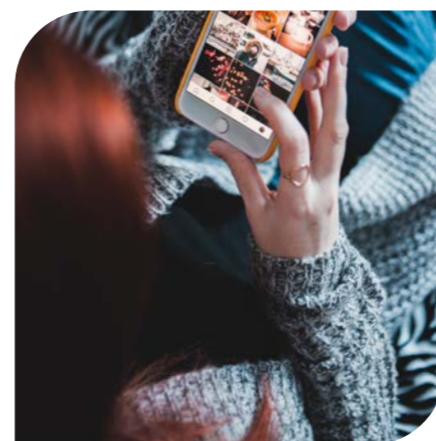


## Transform program



### The following training topics were the most popular:

- > How to develop markets for products which wouldn't have stayed in the food chain otherwise
- > How to develop markets for products rejected by retailers but are still good to be consumed
- > How to recreate food from by-products and food waste



## Engage program



### The following training topics were the most popular:

- > How to create a better culture of preventing food waste at an individual business level
- > Raising awareness about food waste in the food industry in general
- > How to develop in-house industry communication food waste campaigns at an individual business level






## Existing food waste training programs

Survey participants were asked to identify whether they knew of training programs that deliver food waste content and, if so, to provide information about them. The table below (Table 1) summarises, for each FFW CRC program, the level of awareness of existing training.

TABLE 1

### Summary of key findings on knowledge about existing training programs

Program	No	Yes	Training programs (not obviously identified in the desktop audit)
<b>Reduce</b> 	79%	21%	<ul style="list-style-type: none"> <li>&gt; Vege-cation (fostering a love for value-added vegetables)</li> <li>&gt; Horticulture Innovation Australian Supply Chain Handbook - Postharvest management of vegetables</li> <li>&gt; Oz Harvest - Feast program</li> <li>&gt; Local government programs on how to avoid food waste being sent to landfill</li> <li>&gt; Love Food Hate Waste funded projects</li> <li>&gt; A code of practice for food transportation to assist with reducing food waste in the cold chain (in development by ACCC)</li> </ul>
<b>Transform</b> 	94%	6%	<ul style="list-style-type: none"> <li>&gt; Banyule Rethink Centre Program</li> <li>&gt; NSW government's online Compost Facility Management Training</li> </ul>
<b>Engage</b> 	97%	3%	<ul style="list-style-type: none"> <li>&gt; Love Food Hate Waste Your Business Food Program</li> </ul>

A collection of wooden blocks with numbers and letters, some painted in blue and pink. The blocks are scattered on a light-colored surface. A dark purple overlay is on the right side of the image.

05

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Keyword  
Research

## What are people searching for?

This report details the findings of an online keyword research to find out what people are looking for online in relation to food waste training. The keyword research was undertaken from April to June 2020.

The internet is the single most important channel for reaching people today, with more than 4.5 billion people using the internet at the start of 2020 (Smart Insights, 2020). Understanding what your target audience is searching for online enables businesses to create targeted content and for that content to be found through search engines.

Keyword research informs what topics people care about and how popular these topics are among the online audience. By researching keywords for their popularity, search volume, and general intent, a business can understand what interests their audience or what they are looking for. The difference between a website that gets a lot of organic searches and one that gets none is in the keywords that are used (Dreams to Lifestyle blog, 2020)

‘There are 3 billion Google searches every day, and 20% of those have never been seen before. Knowing what these searches are form a direct line to your audience’s thoughts...’

(Interact Blog, 2020)

### In scope

Online search volumes and key words related to content for delivery on online training courses and education promotional material were investigated.

### Out of scope

Keywords and search volume related to food waste training for consumers.

## Method and Results

Honey and Fox Pty Ltd analysed key words/phrases related to food waste training on three different online key word search platforms: SEMRush, Google Trends and Answer the Public.

### SEMRush Analysis

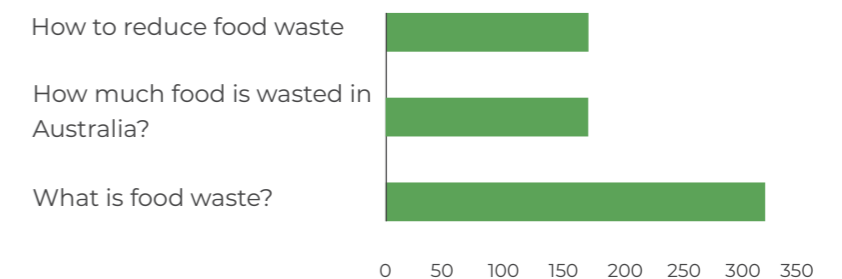
(<https://www.semrush.com/>)

Initially ‘food waste courses’ and ‘food waste training’ was put into the SEMRush platform producing minimal results. The results did highlight that the three most popular key search terms were as “what is food waste”, “how much food is wasted in Australia” and “how to reduce food waste” **FIGURE 1**. However it should be noted that this is based on the average number of Google searches per month in Australia which in this case had no real volume to report on.

Further keyword variations were then submitted resulting in similar results. The most searched question even though volume proved to be a limitation was, “food scraps”.

**FIGURE 1**

### SEMRush most frequent search terms



## Google Trends

(<https://trends.google.com/trends/>)

The question, 'What is food waste?' filtered by 'Australia' was used on the Google Trends analytics platform. Results show that in the last 12 months (whilst not big volumes), there were several upward spikes reported. The most interest occurred during the months of March and April 2020 **FIGURE 2**. Note that the most interest originated from South Australia **FIGURE 2.1**.

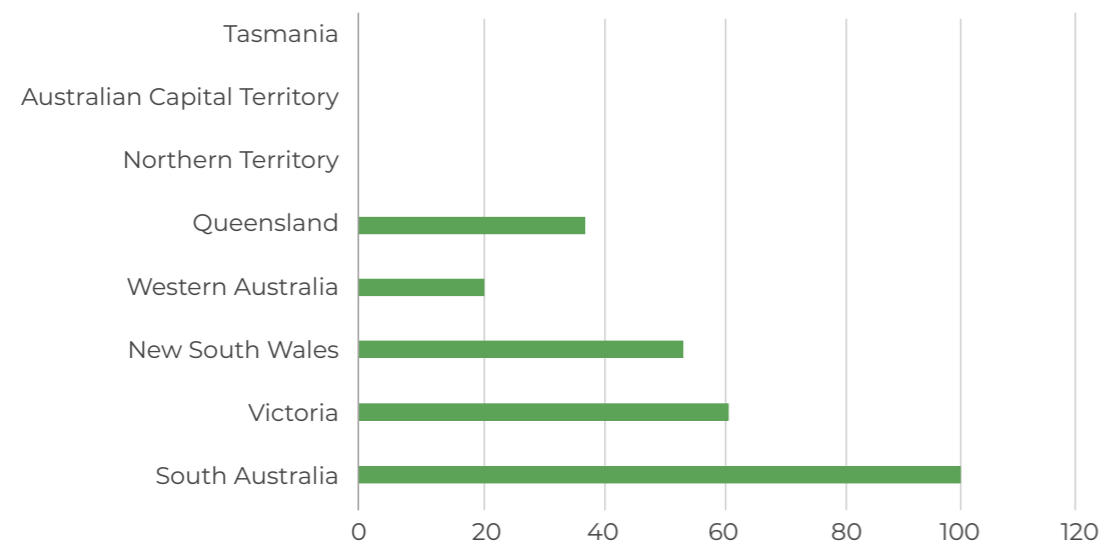
**FIGURE 2**

### Results for 'What is food waste?' and 'Australia'



**FIGURE 2.1**

### Results for 'What is food waste?' and 'Australia'

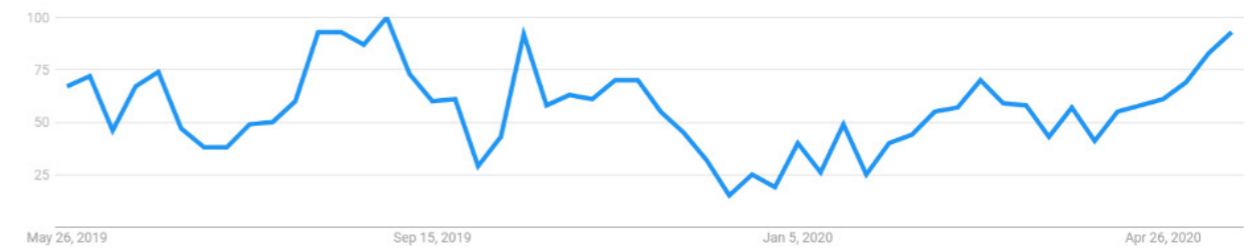


Note: Scoring is on a relative scale where a value of 100 is the most commonly searched topic and a value of 50 is a topic searched half as often as the most popular term, and so on. A value of 0 (Northern Territory, Australian Capital Territory, Tasmania) indicates a location where there was not enough data for this term.

Changing the search term to 'food waste' filtered by 'Australia' provided similar results. In the last 12 months an increase in these keywords was evident **FIGURE 3**, particularly in South Australia and Australian Capital Territory **FIGURE 4**.

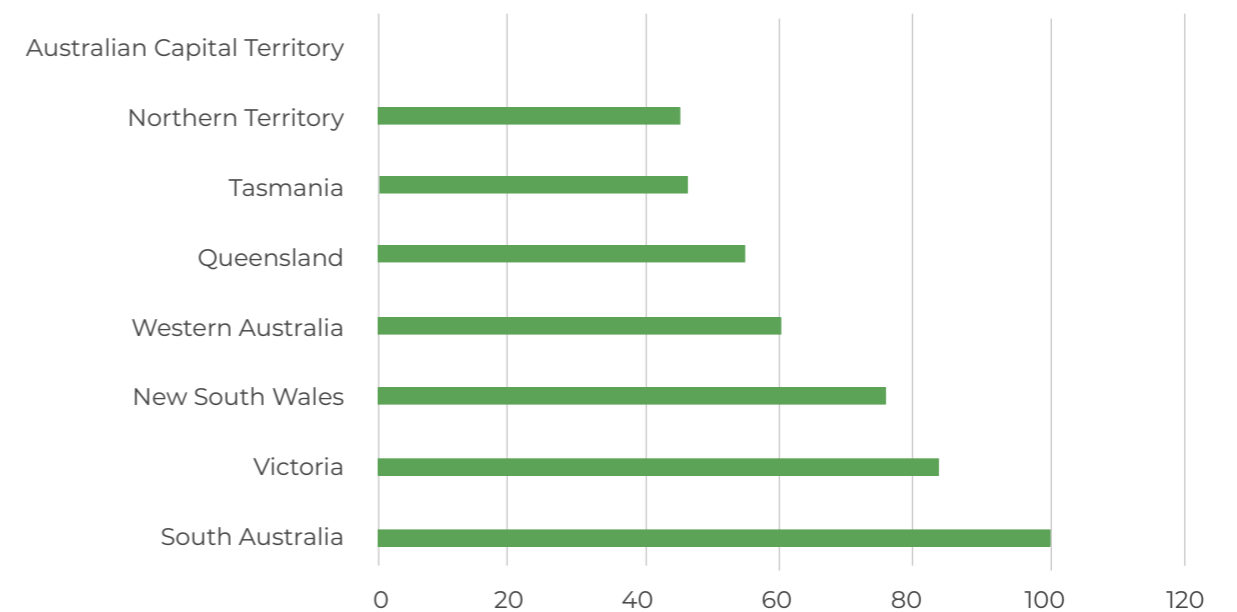
**FIGURE 3**

### Results for 'food waste Australia'



**FIGURE 4**

### Results for 'food waste' - interest by state



Note: Scoring is on a relative scale where a value of 100 is the most commonly searched topic and a value of 50 is a topic searched half as often as the most popular term, and so on. A value of 0 indicates a location where there was not enough data for this term.

## Answer the Public

(<https://answerthepublic.com/>)

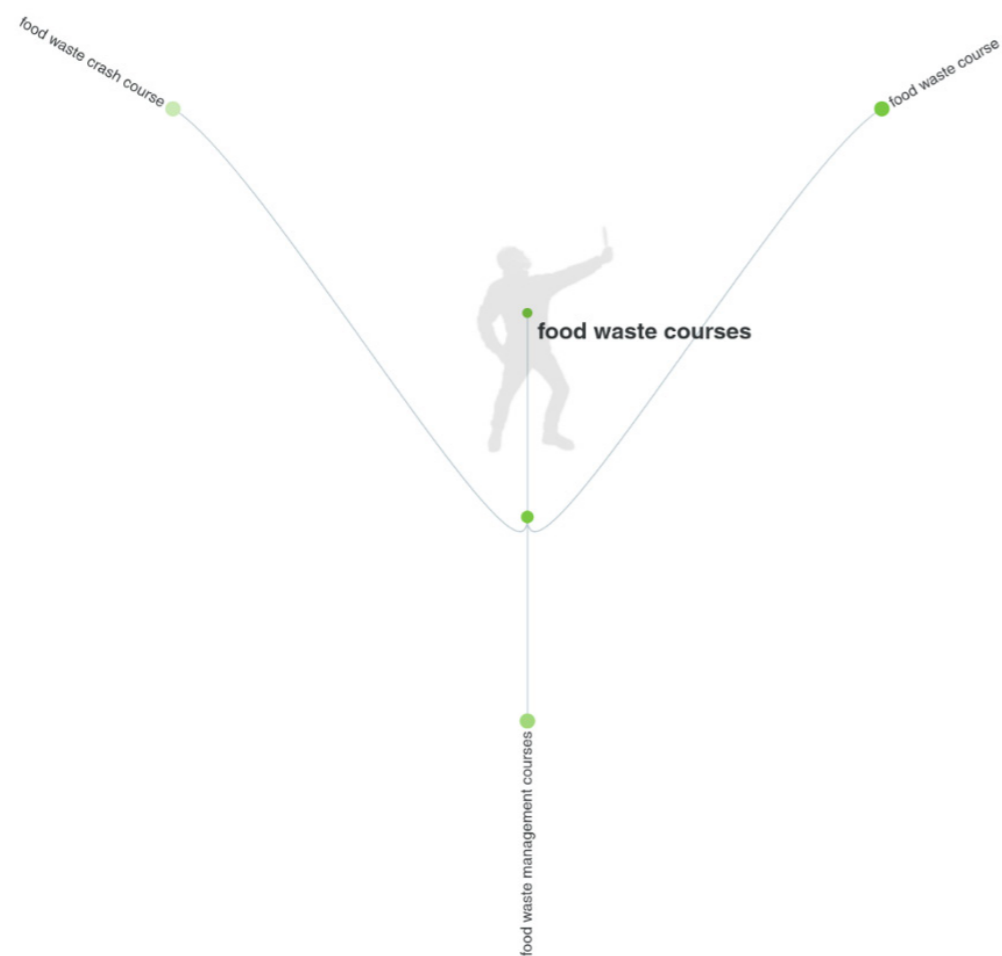
Answer the Public is a keyword search tool that visualises online search questions (or keywords). It suggests auto complete searches in an image called a search cloud. Categories consist of the 5 Ws (who, what, when, where and why), plus 'how', 'can', 'are', 'which' and 'will'. The more spokes a search cloud has, the more questions are being asked on a certain topic on internet search engines.

The Answer the Public keyword tool further confirmed that online searches for "food waste training" was limited. If they were not limited, the search clouds provided below would have many more spokes coming from them.

When it comes to searches on food waste courses, the following search terms are being used **FIGURE 5**:

**FIGURE 5**

### Search terms being used about food waste courses



When it comes to searches on food waste training, the following search terms are being used **FIGURE 6**:

**FIGURE 6**

### Search terms being used about food waste training



Answer the Public was used to find out if people are asking about the three main areas food waste was occurring as identified by the Training Needs Analysis industry survey ie processing, packaging and food service. This was to investigate whether people are searching for ways they can reduce or overcome food waste in these areas and what keywords they are using.

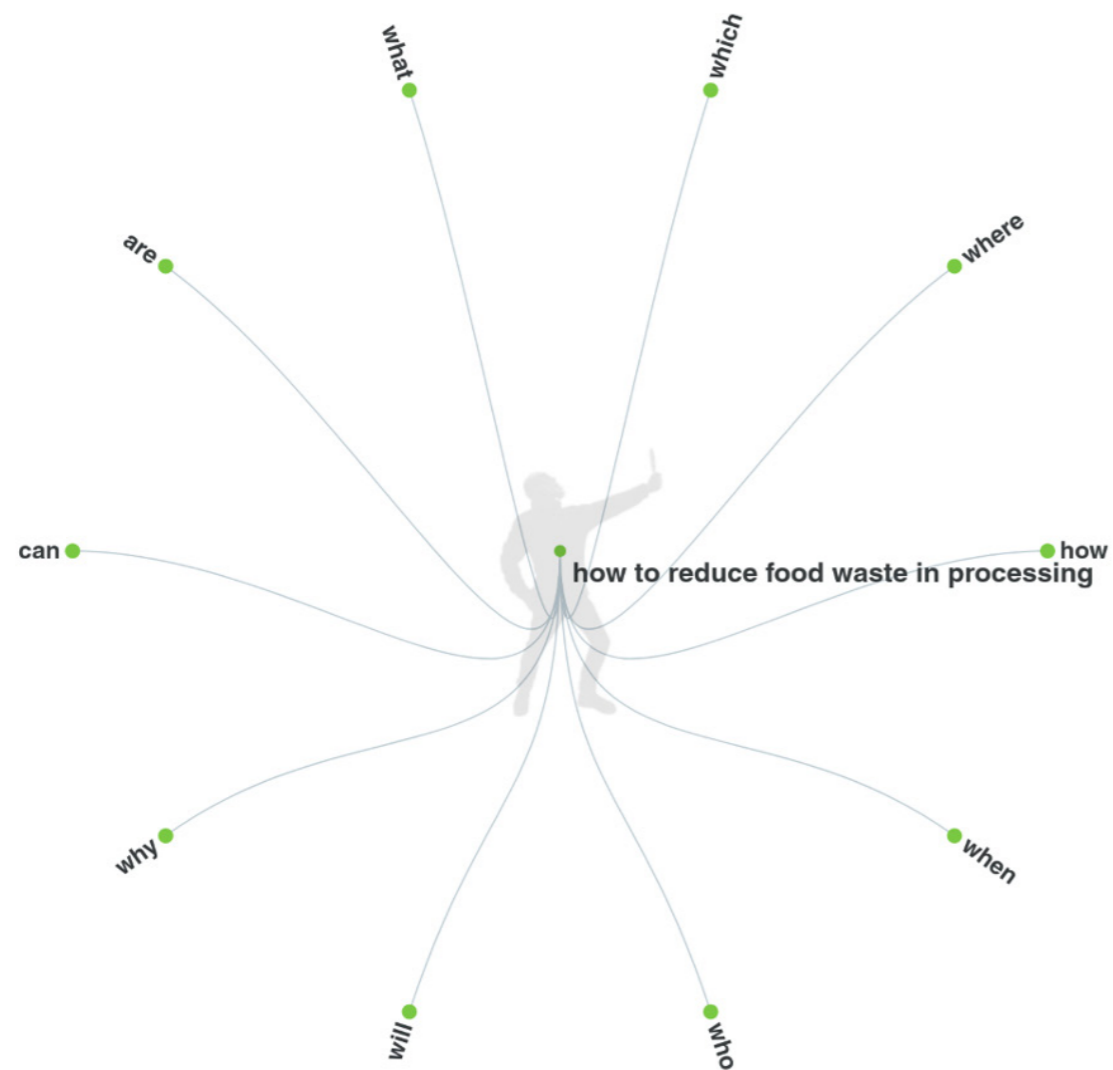
The results show that people are not searching for courses, training or information on how to reduce food waste in processing (0 search terms – **FIGURE 7**).

With regard to packaging the results indicate that there is one search term “how to reduce food packaging waste”. This search term implies that this is more about reducing packaging from a disposal point of view rather than reducing food waste using packaging.

One search term has been used “how to reduce food packaging waste” which demonstrates this searching is more about reducing packaging rather than food waste using packaging

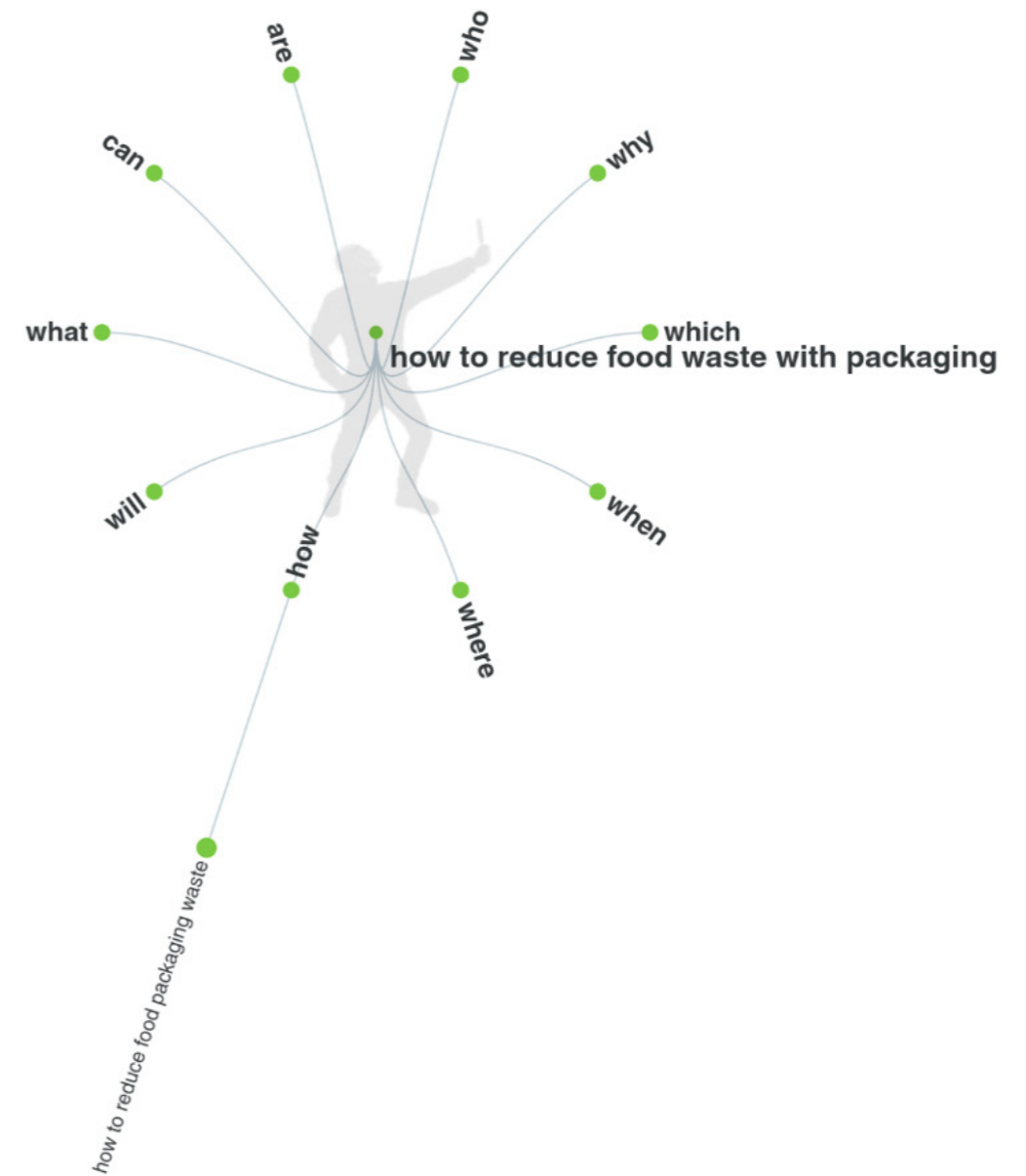
**FIGURE 7**

**No search terms are being used about reducing food waste through processing**



**FIGURE 8**

**Search terms being used about food waste training**







06

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**Focus Groups  
Analysis**

## Focus group research

The aim of the focus group research was to gain a deeper insight into food waste priority areas that were highlighted in the Training Needs Analysis Industry Survey.

Two focus groups were formed to delve more deeply into the findings from the industry survey providing more insight about some of the underlying issues impacting the accessibility and relevance of food waste training.

## Focus group protocol

To ensure the focus groups participants were representative, responsive and engaged, the research team:






1. Developed a focus group survey from the industry survey findings.
2. Collected focus group member information via a profiling questionnaire.
3. Made it simple and easy for industry focus group members to participate by accommodating their lifestyle and availability. Industry were contacted personally to ascertain the best days and times to conduct the online focus groups so it would not interfere with their business operations.
4. Provided participants with an information sheet which clearly explained to them how the sessions would be run, the sorts of questions that would be asked and assured them that their confidentiality would be respected.
5. Provided participants with a copy of the top-level survey results.
6. Conducted the focus group sessions using the online platform ZOOM that most industry were familiar with having used it in the past or use regularly.

## Sample

Two industry focus groups were conducted with pre-qualified industry representatives with relevant backgrounds. In total 13 businesses participated providing a representation of both business size and industry sectors (Refer to **TABLE 1**):

TABLE 1

Focus Group industry participants by sector and business size

Sector	Micro	Small	Medium	Large	Total
 Agriculture	1	4			5
 Food Manufacturing			2	2	4
 Food Service	1	1			2
 Retail		1	1		2
 TOTAL	2	6	3	2	13

**Note: as some focus group participants identified across multiple industry sectors, further clarification was sought to classify participants according to their main industry sector.**

# Analysis

Leximancer, a data-mining tool, was used to analyse the verbatim transcripts of two industry focus groups.

The analysis is displayed as a conceptual map that provides a high level view of the main themes and how they relate to each other. For each theme generated, the predominant “quote” that best described the theme is also provided in a table.

When interpreting these tables and conceptual maps it is important to note that the most important theme is always pink with the second most important theme in gold. The size of the bubble is not related to the importance of the theme.

There are five key questions that have been analysed in this way. These are detailed in this section below.

## What does food waste mean to you?

It became evident from discussions that the concept of food waste was not clear and was perceived differently by all participants (very little connection between themes). Agreement was reached however that it would be beneficial to be able to put a dollar value on food waste and to be able to re-use food waste somehow (**most important theme**). Education about food waste was also found to be important and it was emphasised that education starting with the primary producers all the way through to retailers was necessary (**2nd most important theme**).

In general industry agreed that food waste was a lost opportunity especially in the agriculture sector. Having an understanding of what food waste is and how to measure it was strongly debated in both focus groups highlighting that addressing these two issues is fundamental in developing and delivering training that meets industry needs.

*‘Food waste is a lost opportunity’*

- Large food business

*‘It is reusing something in a different way’*

- Medium food business

*‘Measuring waste as a starting point’*

- Micro food business

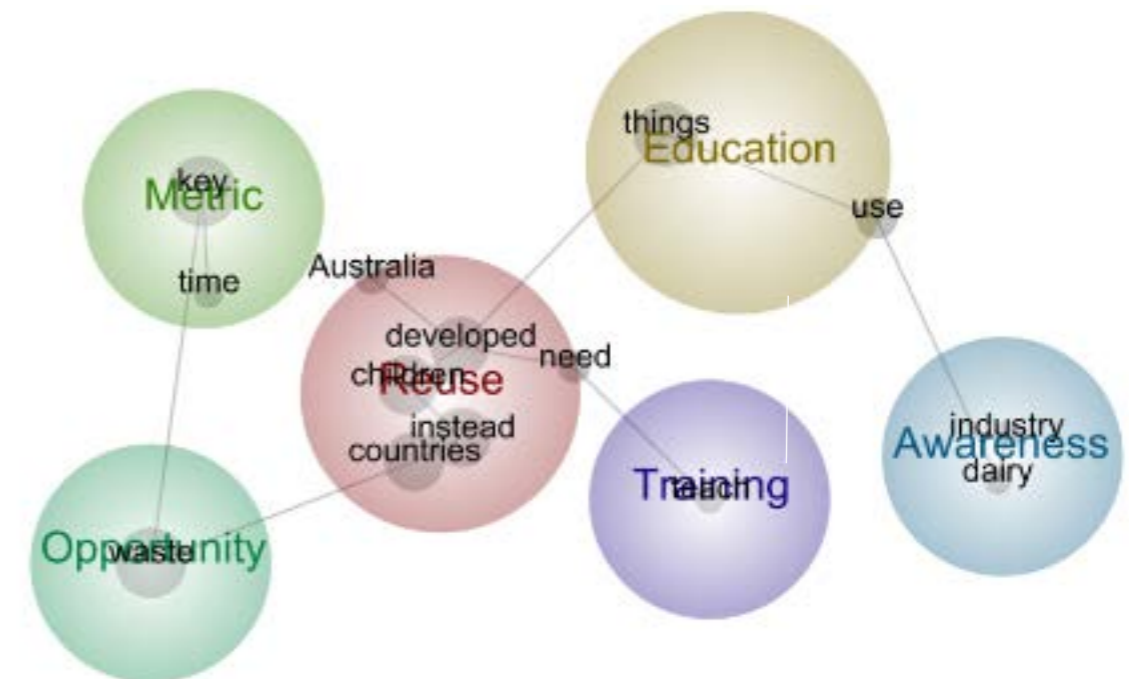
TABLE 2

### Theme label and strongest descriptor

Theme	Descriptor
Reuse	For me food waste is whether you can make a monetary value or money off it. Is it reusing something in another way? Or is it whether you make money or someone else makes money and you use this product in another way and someone (children, food bank) benefits from it?
Education	It comes down to educating the customers. You use the product to the end even if you have had enough of it. The whole society now days, everything is just thrown away.
Metric	The challenge is how infrastructure, authorities etc. embrace and help support ideas because a lot of the time there is compliance, regulations that are important but it is also how else then do we make it a key metric and how we are being conscious about the impact we are having away from the four walls and boundaries of our businesses.
Opportunity	Food waste is a lost opportunity and it is around food that doesn't have a home or a defined home.
Awareness	Measuring waste as a starting point and getting some awareness as to how it impacts you and the organization and then look at the challenges with being able to do something with the big waste streams is the way to go. From an industry perspective food waste is a great loss.
Training	I am trying to teach people you don't need to use the perfect potato to make chips. We do training and raise awareness about food waste when employees begin as they go through safety programs and this is where we teach them about food waste.

FIGURE 1

### Leximancer Output - What does food waste mean to you?



## What role do consumers play?

There was strong debate regarding the role of consumers and food waste. It was highlighted that consumers were not aware of the cost of food waste (**Awareness most important theme**). Participants commented that they thought that consumers might change their minds if they knew just how much food waste costs due to their unnecessary high expectations (not everything has to be perfect as long as the produce is safe) (**Produce being the 2nd most important theme**).

There was a strong relationship between Awareness and Education indicating education about food waste was seen as important in order to change the mindset and influence the behaviour of all involved in the supply chain from the primary producer to the end consumer.

*'Has anyone actually asked the consumer does it matter to you if it's not completely oval?'*

- Medium food business

*'Consumers are fickle with what they look for and their expectation is now high'*

- Small food business

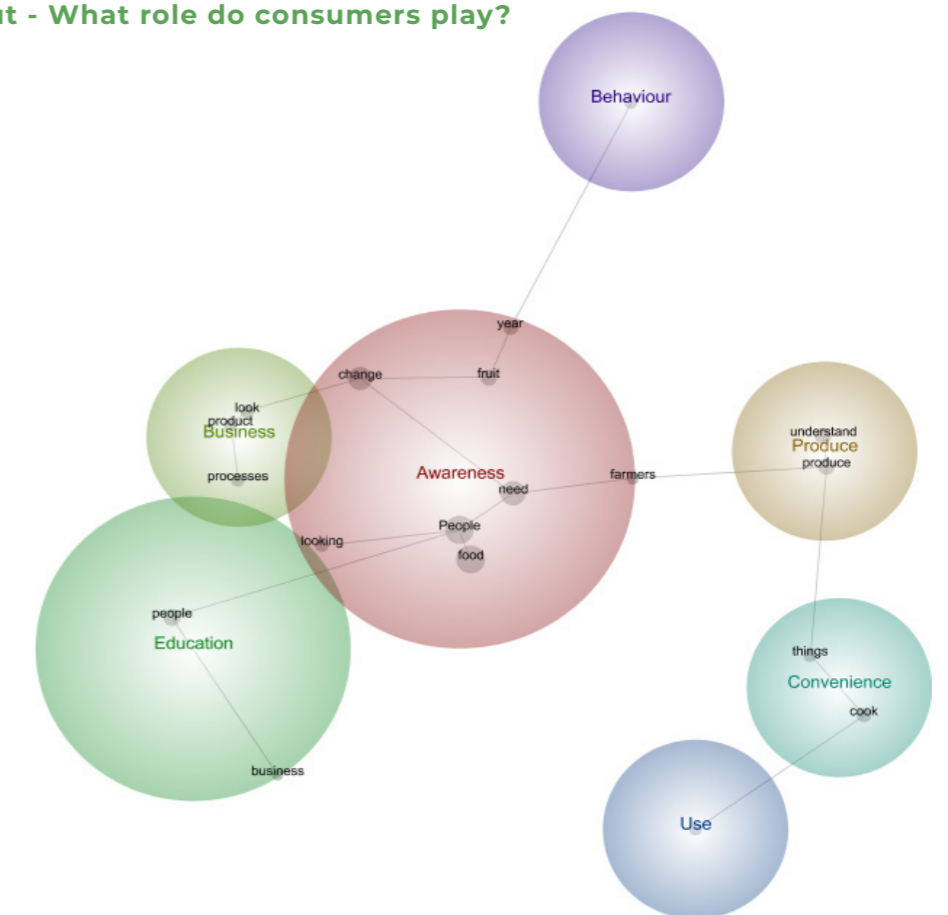
TABLE 3

### Theme label and strongest descriptor

Theme	Descriptor
Awareness	Would the consumer change their mind, if they knew that they said because it has to be perfectly round, that and that just caused \$X billion dollars per year of food waste? Then would they start thinking about it?
Produce	Consumers would say what is wrong with those potatoes? But they will pick up produce such as an apple and now they want smaller apples not bigger apples for their kids, or some may shop for colour.
Business	Has anyone actually asked the consumer, does it matter to you if it is not completely oval or shaped like a football?
Education	This happened with the imperfect fruit. As soon as people were aware of what their behaviour was demanding - it is about educating people to use what we have on hand.
Convenience	We have a strange culture where we have to have everything on hand and have food when we want it and must have it now.
Use	Consumers are fickle with what they look for and their expectation is now high.
Behaviour	There is a mindset change that needs to happen.

FIGURE 2

### Leximancer Output - What role do consumers play?



*'There is a huge amount of value in the materials we don't convert to saleable stock'*

- Farmer - Medium Business

## How is food waste occurring in your businesses, from your perspective?

Participants agreed that food waste occurs throughout the whole supply chain and is very dependent on the product **(Product most important theme)**.

Discussion focused on the need to understand the value of food waste and what actually contributes to food waste (ie lack of knowledge especially in the farming sector, product specifications, packaging, shelf life, manufacturing processes). There was not a predominant second theme so there is no gold bubble in the Leximancer output. The next two themes were almost equal in importance.

*'There are a lot of handling losses through the distribution chain'*

- Small Business - Farmer

*'How do we improve the growers understanding that food loss starts as soon as you pick it off a tree or harvest it out of the ground?'*

- Medium business - Food processor

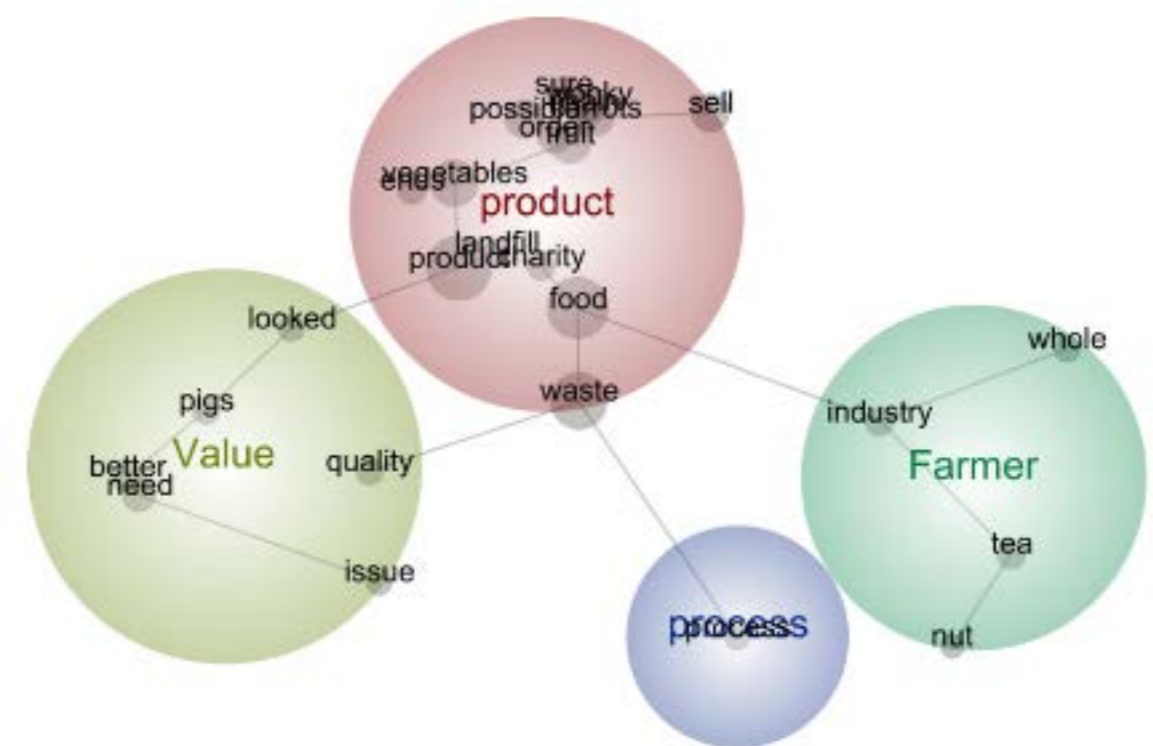
TABLE 4

### Theme label and strongest descriptor

Theme	Descriptor
Product	There is a lot of handling loss through the distribution chain because, for example, a pallet will be knocked or bumped by a forklift, it will tear some packaging and then everything on that pallet, which might be 12 or 15kg will be assigned to waste as that cardboard shipper has been breached somehow. I am interested in the concept that you can buy the wonky carrots or the imperfect, misshapen fruit in Woolworths.
Value	We are very conscious we need to do things different and better in the environmental space and the impact we have. There is a huge amount of value in the materials that we don't convert to saleable stock so there is a big financial issue here.
Farmer	This is one of the challenges we have in our industry, how we improve the growers understanding that food loss starts as soon as you head towards picking it off a tree or harvesting it out of the ground.
Process	At a manufacturing facility such as ours the waste stream is pretty obvious from process failure, which can be in a high volume or can be from failure to meet quality or regulatory standards.

FIGURE 3

### Leximancer Output - How is food waste occurring in your businesses, from your perspective?



*'Packaging brings in lots of different issues'*

- Medium Business

## Is packaging causing food waste issues in your business?

There was consensus among all participants that packaging was a major contributor to food waste and that attempts should be made to reduce packaging waste all through the supply chain. The lack of understanding from the farming sector regarding supermarket requirements generated robust discussion **(most important theme)**.

There was also strong sentiment that shelf life had unnecessary packaging waste implications **(2nd most important theme)** with a strong relationship between waste and supermarkets. It was highlighted that working with supermarkets regarding their packaging specifications was challenging. **(3rd most important theme)**.

*'As growers we also need to understand where retailers are coming from too. It isn't our problem...it becomes their problem and then their problem becomes our problem'*

- Farmer

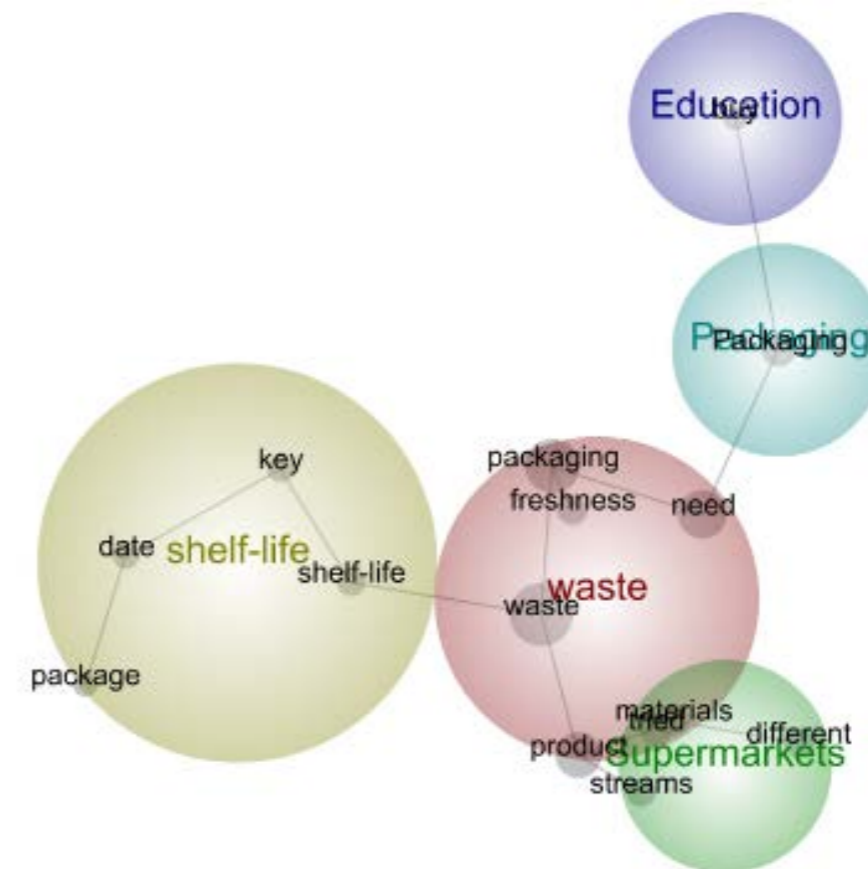
TABLE 5

### Theme label and strongest descriptor

Theme	Descriptor
Waste	As a grower we also need to understand where retailers are coming from to. It isn't just our problem as it becomes their problem and then their problem becomes our problem so we try and work together on issues such as packaging all the way right through the whole system.
Shelf Life	We are very conscious of how we manage the shelf-life juggle with the processing/freshness for our products and how we provide a greater or more sustainable packaging format.
Supermarkets	Packaging brings in lots of different issues. Trying to get supermarkets to use microwavable and ovenable trays that are biodegradable has been a challenge.
Packaging	Packaging is a real concern, mainly for beverages. We have to be very particular with the packaging we use for milk-based drinks, freshness is a must and if it is exposed to any amount of air it will be wasted.
Education	For me it's a communication thing and education of people.

FIGURE 4

### Leximancer Output - Is packaging causing food waste issues in your business?





*'We have done some imperfect waste audits that have been broad in terms of measurement'*

- Small Business

## Have you done food waste audits in your business?

Some businesses had performed ad hoc or "imperfect" food waste audits while others, particularly small businesses, felt it too costly for an unknown outcome. There was resounding agreement that a measurement of food waste was necessary before you could even consider investing in a food waste audit, including the time required to set up an audit process in your business (**Measurement most important theme**).

Measurement and a standard process for auditing were closely related. There was also a lot of discussion specific to the way in which food waste audit training could be structured. Standardising the process would be useful even though it was acknowledged that each industry would have specific requirements (**Standardise 2nd most important theme**).

*'We have come from a small company that has grown to a large company in a very short period of time and we have learnt the lesson that you can't reduce what you are not measuring'*

- Medium retailer (changing culture, communication)

*'Some products we make are very expensive and letting staff know the dollar value of them not making it properly it really astounds them as well'*

- Medium retailer (changing culture, communication)

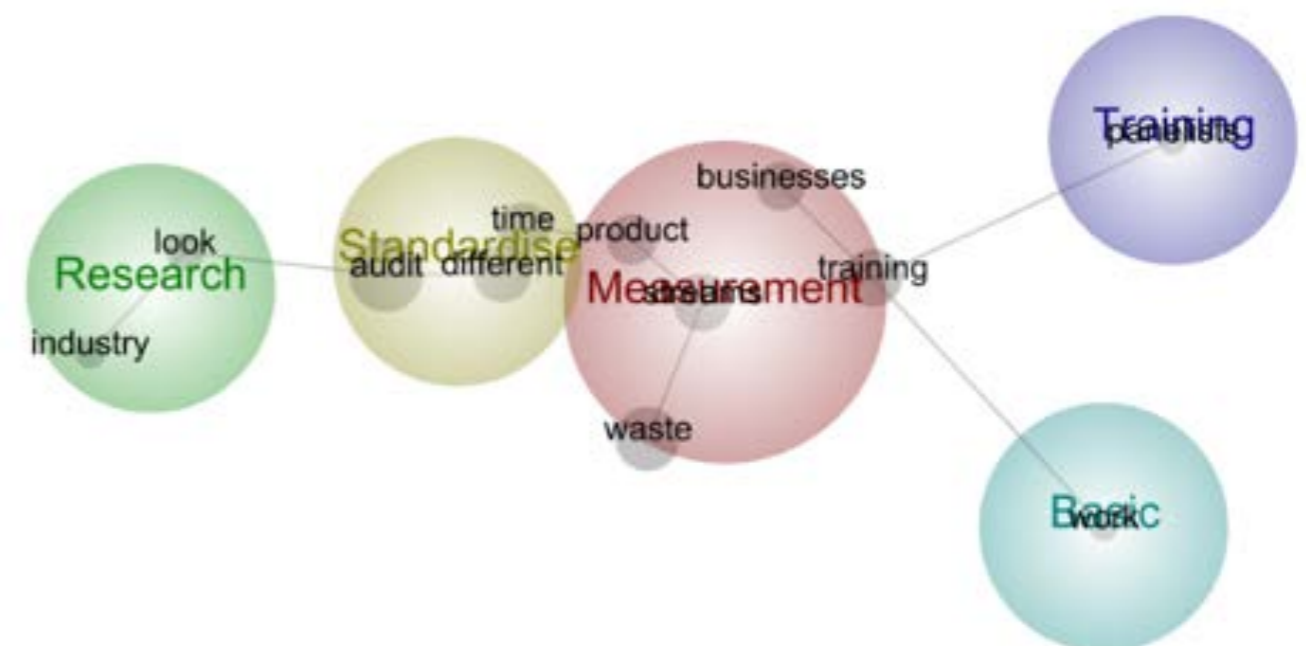
TABLE 7

### Theme label and strongest descriptor

Theme	Descriptor
Measurement	We have done some imperfect waste audits that have been broad in terms of measurement. We don't have time or the money for that sort of investment of an unknown outcome, where there may be no outcome at all.
Standardise	Our company has done a food waste audit but there is an opportunity to look at how to standardise the food waste audit because there is a lot of different approaches so there is an opportunity there. We have come from a small company that has grown to a large company in a very short period of time and we have learnt the lesson that you can't reduce what you are not measuring.
Research	Lots of government bodies are attracting funding looking at this exact topic so there are lots of grants available to test trial, innovate and research in this space.
Basic	The basic principles of segregating waste streams and having a means of measurement.
Training	Everyone fumbles around and does the best they can or use consultants.

FIGURE 6

### Leximancer Output - Have you done a food waste audit in your business?





## Additional comments

**Additional comments from the focus groups transcripts also provided some interesting and relevant insight with regard to preferred industry training requirements.**

### In-house training

There was a mixed response with respect to in-house food waste training. The larger food manufacturing business participants considered that in-house food waste training was important to maintain commercial confidentiality. Some smaller businesses agreed that while it was important to conduct in house training, it was also challenging to do this due to costs and lack of interest by employees.

### Time and money for training

There was interest amongst some participants for specific food waste training, however resources, including time and money, were a concern. There was consensus that there is no one size fits all training as all industries had specific requirements.

### Practical interactive delivery

It was generally agreed that industry training should take into account different learning styles, and needs to be practical and interactive, with opportunities to work with other industries.

### New product development

There was strong interest from participants regarding opportunities to learn more about value adding or developing new products from their food waste. Some businesses were well advanced in new product development while others, mainly the very small businesses, were interested in identifying value adding options. This has proved challenging so some training in this area would be welcomed.

### Donating food

The commentary in the focus groups suggested that there are many barriers to donating food ie to “give” food away. This is particularly so if there are packaging implications. Further comment suggested that giving food away didn’t help anyone especially the farmer who has had to wear the cost.



07

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**Key Findings and  
Recommendations**

# Environmental Scan

## Key findings

The key findings from the environmental scan are:

1. 51% of industry use the VET system but this is declining.
2. 49% of industry use non-nationally recognised training.
3. There is a growing trend in mobile learning and interest in micro-credentialing.
4. Almost 70% of food businesses in Australia are non-employing entities and almost half of these are beef and sheep farmers with the most being family run, with a management team comprised of two or more people. Therefore, the majority of the target audience for training are business owner/managers who are often wearing many different hats and who have little time available for training and education.
5. It is important for both formal and non-formal training providers to understand and adapt to different learning styles or patterns of participants in the primary production sector. It is important to recognise industry like to learn from others.
6. Of the approximately 500,000 people who are employed in the sector, about 70% are in rural and regional Australia. This means training delivery needs to be very flexible, with little reliance on in person facilitation.
7. A lack of access to mobile and telecommunications infrastructure is an important factor to consider when promoting training and delivering offline training.
8. There is a significant digital skills and capability gap across the whole primary producer supply chain suggesting that education to bridge the gap is essential for the rollout of online training.

# Recommendations

The recommendations from the Environmental Scan are as follows, over three horizons::

## Environmental Scan recommendations

	Next 12 months	Next 2 years	Next 3 years
Ensure the majority of training developed by the FFW CRC and Industry Connection Hub members is delivered cross-sectorally where appropriate and incorporates all styles of learning (visual, auditory, reading/writing and kinaesthetic).			
Test digital literacy rates amongst the primary production and food industry sectors and provide support, resources and training where needed.			
Set up or utilise an existing online training platform via a Hub member (e.g. KE-DI developed by Food and Fibre Gippsland). Test mobile and micro-credential learning options and online training delivery.			
Deliver mobile and micro-credential training options on food waste for businesses on topics as identified by the training needs analysis.			



# Desktop

## Audit

### Key findings

#### Nationally recognised training

1. Accredited industry training on the role of packaging to reduce and prevent food waste is well developed and is currently available by the Australian Institute of Packaging.
2. Of the 311 VET units identified as containing the search terms “food” and “waste”, 104 units contained specific food waste content in the performance criteria in five training packages.
3. A further 102 units of the 311 VET units identified relate to points in the supply chain where food waste can occur but did not include specific performance criteria regarding food waste. These units focus on cooking and preparing food, food handling, food safety, catering, washing produce, food manufacture and processing, animal slaughter and processing, packing and dispatching of stock and on-farm establishment and farming systems. These units are delivered across 13 training packages.
4. The Seafood Training Package is the only package with a specific unit dedicated to food waste.
5. With the exception of seafood, there is little nationally recognised training specifically focusing on food waste, particularly for the primary production and food processing sectors. This is particularly acute at the entry level (certificate I).

#### Non nationally recognised training

1. Nationally recognised industry training focusing on food waste is very scarce for the primary production and food processing sectors in Australia.
2. Only two programs that could be considered as food waste training programs were identified that cover the general concepts and potential business opportunities of food waste. Both these programs are delivered face to face, which lacks flexibility and are not nationally available.

## Recommendations

The recommendations from the Desktop Audit are as follows, over three horizons:

### Desktop Audit recommendations - Nationally recognised training

	Next 12 months	Next 2 years	Next 3 years
Review the 104 VET units that were identified to have good food waste content in their performance criteria and ensure the most up to date and comprehensive content is being taught.			
Develop and funnel CRC research outputs into training resources for delivery through these units.			
Make recommendations to the Australian Skills Quality Authority and the Australian Industry Skills Committee to include food waste content in the identified 102 units, across a number of training packages, by specifically including it in the performance criteria.			
<p>Work with the Australian Skills Quality Authority and the Australian Industry Skills Committee to:</p> <ol style="list-style-type: none"> <li>1. develop a specific food waste unit in the Australian Meat Processing Training Package, the Tourism, Travel &amp; Hospitality Training Package and the Food, Beverage &amp; Pharmaceutical Training Package. This could be developed using the Seafood Training Package Unit (SFIPRO403 Develop and Implement a Seafood Waste Utilisation Strategy) as a model.</li> <li>2. develop a core unit on lean manufacturing and root cause analysis into certificates II and III in Food Processing in the Food, Beverage &amp; Pharmaceutical Training Package. This training would help industry to not only correct a food waste problem, but to understand what is happening, why it is happening and to provide a long-term solution.</li> </ol>			



**Desktop Audit recommendations - Non nationally recognised training**

	Next 12 months	Next 2 years	Next 3 years
Develop strategic partnerships with domestic and international training providers in training delivery to develop food waste training and education modules and content. Develop and funnel CRC research outputs into training resources for delivery through these providers.			
Industry Connection Hub members could use or adapt the training programs discovered in the audit to deliver targeted training to their members in areas that have been identified as priority training needs.			
Consider investing in an independent review of the Industry Connection Hub member courses to identify ways to improve them and ensure they meet industry needs.			
The CRC and the Industry Connection Hub should actively support all Hub members to promote their existing and newly developed courses to reach and engage as many industry participants as possible.			

**Desktop Audit recommendations - Food waste training finder**

	Next 12 months	Next 2 years	Next 3 years
Upload the online searchable finder of food waste training programs to the CRC website as a resource and make available for CRC participants and industry to search for training courses and resources on food waste. There is an opportunity for the CRC to promote this searchable and self-populating finder tool as a service to participants and the food industry generally and to encourage them to add information about new training initiatives as they become available. This will ensure the finder is up to date and provides "real time" accuracy.			
Invest in improving the functionality of the finder to include a resource generator and a training decision support tool to help individual businesses identify their training needs and possible solutions.			
Invest in improving the functionality of the finder to include a resource generator and a training decision support tool to help individual businesses identify their training needs and possible solutions.			

# Industry Survey

## Key findings

### Training delivery

1. All four business groups, particularly micro businesses preferred informal training and were satisfied with an acknowledgement of participation rather than formal qualifications.
2. Online training with short micro-credential learning, webinars and self-paced online courses was the preferred training model except for small business who preferred a face to face model of training. Micro, small and medium businesses all preferred training in a mixed group (outside of company and/or industry sector -sharing of experiences, ideas and solutions).
3. To ensure confidentiality, it is understandable that large businesses prefer closed in-house training.

### Training needs

1. Micro businesses sampled need training in general, everyday tips to reduce food waste common to many food businesses such as packaging issues and food storage processes, how to develop new markets for their products, innovation and entrepreneurial thinking and training to generally raise awareness about food waste.
2. Small businesses sampled need training that improves communication about food waste between different stakeholders in the supply chain, how to improve food storage processes, how to reduce packaging, how to find ways to redistribute food to people in need (or new markets for their food waste) and to have training that focusses on new business streams by recreating food from by-products and food waste. This group also highlighted the need to better communicate to their workforce and work together to implement solutions to reduce food waste.

3. Medium size business group sampled need training on how to conduct a food waste audit which would include packaging waste, how to improve communication about food waste in the supply chain, developing new markets for products which would otherwise have been thrown out or at least looking at options to redistribute food to people in need. It is also important for this group to raise awareness about food waste in the food industry in general but also there needs to be a cultural shift from the individual business level.
4. Large business group sampled need training on general, everyday tips to reduce food waste common to many food businesses, training to improve communication about food waste between different stakeholders in the supply chain and finding ways to develop new markets from products that are still good for consumption. Finally, there was acknowledgment that a cultural shift at the business level was important and raising awareness generally about food waste was needed.

## Recommendations

The recommendations from the Industry Survey are as follows, over three horizons:

### Industry Survey recommendations

	Next 12 months	Next 2 years	Next 3 years
Ensure the FFW CRC and Industry Connection Hub CRMs are up to date and comprehensive as this is critical to the success of training uptake through initiatives offered.			
Provide a workshop for Industry Connection Hub members on how to improve direct email marketing.			
Evaluate delivered training courses and update based on participant feedback and new CRC research outcomes.			

# Keyword Research

## Key findings

1. The findings of the online keyword search support the findings of the survey and the focus groups.
2. There is very little apparent demand for food waste training judging by the very limited volume of online searches specific to food waste courses and the limited number of keywords being used to search for food waste training generally.
3. The results of the online keyword search is consistent with that of the key findings of the focus groups which shows there is a level of confusion about what is food waste and where it occurs and there is an interest in undertaking food waste audits (a relatively higher number of search terms for this).
4. There are limited searches for training in the highest priority areas as identified by the survey respondents and the focus group participants.
5. South Australia is the state that has searched online more about food waste, followed by the ACT.



# Recommendations

The recommendations from the Keyword Research are as follows, over three horizons:

## Keyword Research recommendations

	Next 12 months	Next 2 years	Next 3 years
Conduct further investigation into the limited searches for training in the highest priority areas as identified by the industry survey respondents and the focus group participants.			
As training initiatives are developed by the CRC and the Industry Connection Hub, key word research should be implemented on a regular basis to ensure online training and promotional content use the key search terms being used to maximise reach, engagement and participation.			
The CRC should use key word research to benchmark their impact and demonstrate increased engagement on the topic of food waste and searches for training on food waste over time as the CRC matures and R&D results are implemented into businesses via education and training initiatives.			

## Focus Groups

### Key findings

1. Training needs to focus first on generating a common understanding and awareness of what food waste is.
2. Training needs to be a collaborative approach through the entire supply chain from farmer to retailer.
3. Training should be practical and focus on implementation such as (i) what a business can do to minimise and profit from minimising food waste or (ii) how to measure and benchmark food waste.
4. Training is not a single event. It is important that there be ongoing support for businesses as they implement what they learn.
5. Businesses need support to implement a food waste reduction, transformation and engagement culture through all levels of staff.
6. Training for micro and small businesses should not be cost prohibitive.
7. Training must take into account different learning styles, and be practical and interactive.
8. Training for micro, small and medium businesses should work across many food and supply chain sectors so businesses from different industries can learn from one another.

## Recommendations

The recommendations from the Focus Groups are as follows, over three horizons:

### Focus Groups recommendations

	Next 12 months	Next 2 years	Next 3 years
Develop, promote and deliver both online and offline training courses in the key identified areas for micro, small, medium and large businesses. Where there is a cross-over in identified training needs by different sized businesses, deliver training in accordance with identified preferences.			
Establish a business food waste exchange platform/program where industry can share their food waste available for others to use and/or innovate.			
Establish a platform on the CRC website as a trusted source and one stop shop for all food waste industry training and resources that acts as a repository and a central place to source information (e.g. similar to the Allergen Bureau).			
Provide ongoing support for businesses as they implement what they learn in CRC training courses through coaching, resources and follow up training events.			
Evaluate delivered training courses and update based on participant feedback and new CRC research outcomes.			



08

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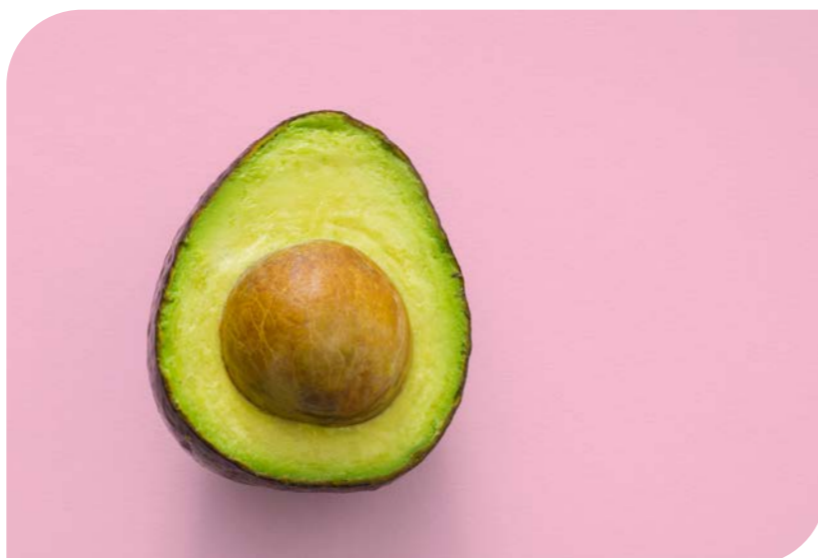
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