



Food, Beverage and Pharmaceutical Industry Skills Report



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Acknowledgement of the work of IRCs

We acknowledge the work of the members of Industry Reference Committee (IRC) in the preparation of this report and continuing phases of the project. Their voluntary participation and provision of intelligence and data makes the compilation of this information possible.

This report has been developed from six years of contributions from the Industry Reference Committee.

Acknowledgement of Country

Aboriginal and Torres Strait Islander peoples have a proud and continuous connection to Australia's land and waters. We acknowledge the traditional owners and custodians, and the continuing connection of Aboriginal and Torres Strait Islander peoples to the lands, waters and communities. We pay our respects to Elders and Leaders, past and present, and to all Aboriginal and Torres Strait Islander peoples who have supported our work.

We acknowledge the importance of learning from Aboriginal and Torres Strait Islander peoples' unique history of land and ecosystem management, art, culture and society. Their connections are particularly important given our involvement in work directly connected to utilisation, care and stewardship of Australia's land, waters and ecosystems, and the animals, trees and plants that thrive across Australia.

The Industry Reference Committees and Skills Impact have been working to develop improved participation of Aboriginal and Torres Strait Islander enterprises, businesses, communities and people in our work. We will continue to work to develop strong, mutually beneficial relationships with Aboriginal and Torres Strait Islander partners who can help us deliver better outcomes for Aboriginal and Torres Strait Islander peoples, recognising their expertise in improving quality of life, employment opportunities and skills outcomes in their communities and for the whole of Australia.

Purpose

Skills Impact has prepared this Industry Skills Report at the request of the Food, Beverage and Pharmaceutical Industry Reference Committee (IRC). It provides in-depth information about industry-specific skills and issues covered in the *Agribusiness, Food and Fibre Industries Skills Report*.

As one of nine industry-specific Skills Reports with matching structures, this document is designed to assist collaboration across industries and the streamlining and reform of the Australian skills and VET system. This may aid the implementation of the Skills Minister's Priorities by supporting:

- greater labour mobility through stronger recognition of cross-sector and transferable skills
- better use of industry and educator expertise to ensure better quality outcomes
- improved pathways advice to support lifelong learning and build peoples' labour market resilience
- Australia's capacity to grow, compete and thrive in the global economy, especially in context of the concurrent impacts of COVID-19, automation and digital transformation on the skills required for jobs now and into the future.

The IRC requested that this report be prepared to support improvements in the skills system, including work on:

- industry workforce planning and strategies to address workforce shortages
- documenting shared standards and regulations across industries to support end-to-end systems planning and avoid duplication
- the provision of evidence, data and intelligence to add value for industries beyond a narrow focus on training package development, and to inform future Industry Clusters or similar bodies approved to undertake work within the Australian skills and VET system
- creating foundations for potential qualification reforms with a greater emphasis on skills families and portable skills
- identifying shared 'skills domains' to aid in simplifying and streamlining national VET qualifications across industry groupings.

Key Findings and Priorities

The Food, Beverage and Pharmaceutical industries are going through significant transformation and facing challenges from multiple sources, including natural disasters, global market instability, changing consumer tastes, technological development and the COVID-19 pandemic.

There are major growth opportunities for industry, and the Federal Government has identified these industries as priority strategic industries for Australia, through priority manufacturing strategic plans. There is increasing diversity in the offerings within industry, while innovation to address environmental concerns is at the forefront of processing considerations.

Recent updates to the *FBP Food Beverage and Pharmaceutical Training Package* have provided improved skilling opportunities and have assisted in identifying and meeting skills demands throughout the tumultuous period of the last two years (and continuing).

The IRC has identified priorities for consideration by the new Industry Cluster body (assuming establishment proceeds), including:

- leading an agribusiness, food and fibre industries skills analysis, workforce planning and development project to identify and address occupational skills gaps related to traceability and provenance
- review of qualifications related to baking, and consideration of the need to develop nationally consistent assessment and training materials linked to the relevant occupations, and promotion of career attraction and opportunities for the baking industry
- review of wine operations training products to better meet industry needs
- consideration of industry developments relating to food waste
- identifying digital skills needs, including for advanced enabling foodtech and cobotics (collaborative robots), utilising the Digital Workforce Capability and VET framework currently in development (along with other digital capability frameworks).

A review of the *FBP Training Package* has identified relevant products relating to food waste, though developments in this area should be monitored for future consideration.

Signed on behalf of the Food, Beverage and Pharmaceutical Industry Reference Committee and Pharmaceutical Manufacturing Industry Reference Committee:

Food, Beverage and Pharmaceutical IRC

Pharmaceutical Manufacturing IRC



Chair: Fiona Fleming

Date: 21 September 2022



Chair: Dr. Paul MacLeman

Date: 21 September 2022

Industry Reference Committees

The Food, Beverage and Pharmaceutical IRC and Pharmaceutical Manufacturing IRC are responsible for national training package qualifications relevant to food and beverage processing and pharmaceutical manufacture. Qualifications overseen by these IRCs are in the *FBP Food, Beverage and Pharmaceutical Training Package*. The Food, Beverage and Pharmaceutical IRC and Pharmaceutical Manufacturing IRC are supported by the Skills Service Organisation, Skills Impact.

Food, Beverage and Pharmaceutical IRC

Name	Organisation or Area of Expertise
Ms Fiona Fleming (Chair)	Australian Institute of Food Science and Technology Ltd (AIFST)
Mr Ian Curry (Deputy Chair)	Australian Manufacturing Workers Union (AMWU)
Dr Geoffrey Annison	Australian Food and Grocery Council (AFGC)
Mr Brook Arnott	Bega Cheese Limited
Mr Daniel Shipard	Australian Sugar Milling Council
Mr Dean Swindells	Australian Technical Millers Association
Mr Duncan Rowland	Expertise in livestock and pet feed manufacturing
Mr Graham Ellis	Carlton and United Breweries
Mr Henrik Wallgren	South Australian Wine Industry Association
Mr Richard Adamson	Independent Brewers Association
Ms Cathy Cook	Australian Beverages Council
Ms Vasuki Paul	Australian Industry Group (AiGroup)
Position vacant	Expertise in food processing and manufacturing

Pharmaceutical Manufacturing IRC

Name	Organisation or Area of Expertise
Mr Paul Baxter	Australian Manufacturing Workers Union (AMWU)
Ms Vasuki Paul	Australian Industry Group (AiGroup)
Mr Charles Ross	Vaxxas
Dr Dan Grant	MTPConnect
Ms Louise White	SeerPharma
Dr Paul MacLeman (Chair)	Expertise in Pharmaceutical Manufacturing
Position vacant	CSL Behring
Position vacant	Expertise in Complementary Medicine Manufacturing

Method

Industry Reference Committees oversee the work of Skills Service organisations in the collection and analysis of industry intelligence, which is used to:

- Identify industry skills needs and challenges
- Identify issues and potential improvements to the Skills and VET system
- Provide the basis for work to update VET training package products
- Provide an information source for industry to assist with business, workforce, skills and training planning.

The information in this report has been collated from a variety of sources identified by Industry Reference Committee members and industry stakeholders who have participated in consultations with Skills impact. It also utilises data and information from official sources and major commercial providers through the assistance of the Australian Government Department of Education, Skills and Employment.

Environmental Analysis

Whole of Value Chain Approach

The food, beverage and pharmaceutical industries note that a whole of value chain approach is essential not only for understanding the ways in which industries work together but also to implement robust and adaptable systems now and into the future.

The food, beverage and pharmaceutical (FBP) value chains encompass all stakeholders (up- and down-stream suppliers, farmers and raw materials suppliers, traders, and retailers) who are often linked in cooperative and collaborative relationships to provide consumers with products and services.

The *Agribusiness, Food and Fibre Industries Skills Report* recounts overlaps between the FBP industries and other industries across the Australian economy. There are many shared and transferable skills across industries. The relevance and portability of *FBP Training Package* products is demonstrated by 560 instances of FBP units being imported into non-FBP Training Package qualifications. Notwithstanding this, it is important to recognise that synergies evident in the industry constructs that make up the supply and value chains do not always result in skills alignment at the occupational level.

In 2022, FBP industries are being affected by a range of complex trends including the COVID-19 pandemic, major weather events (e.g. floods), regulatory changes, local and global political changes, global conflicts, trade deals, changing consumer demands, and rising global economic uncertainty. These influence product and equipment supplies, export and import arrangements, skills and workforce availability, and consumer demand.

During the early stages of the COVID-19 pandemic, supply chains and global trade were disrupted and, in some cases, shut down. Described as ‘the single largest shock to the economy in close to a century’¹, food and beverage processors responded to consumer demand (and panic buying) both by producing a greater or lesser volume of products, processing new products and distributing them in new ways across the value chain. For example, rising demand for confectionary products meant confectionary processors needed more sugar from sugar mills, which entailed greater demand from sugarcane cultivators; distillers started producing alcohol-based hand sanitiser; brewers pivoted from widescale beer keg distribution for pubs to instead delivering for the home market through bottles and cans; and food processors began preparing ingredients and products for home consumption instead of restaurants. Each of these adaptations required new skills, practices, machinery, packaging and value chain partnerships.

Pharmaceutical manufacturing value chains have been presented with various challenges and opportunities in line with the demand for COVID-19 and other vaccines. One of the largest pharmaceutical manufacturing plants in Australia, CSL Behring, responded to high vaccine demand by partnering with the European manufacturer, AstraZeneca and producing approximately 50 million doses of the Vaxzevria vaccine. Future vaccine production is progressing as the Federal Government has funded the Doherty Institute and Monash Institute of Pharmaceutical Sciences to develop and manufacture the mRNA COVID-19 vaccine. Although the number of new jobs will be limited, the skills development of the workforce is expected to be met through higher education qualifications and some local Good Manufacturing Practices training programs already in place.

A pharmaceutical industry representative in NCVER-commissioned research² stated that, despite medicines being highly regulated and slow to change historically, the pandemic had prompted fast-tracked proof-of-concept processes and relaxed regulations. These changes will drive industry to innovate and

¹ KPMG (2020); *Post-COVID-19 Sector Outlook: Food & Agribusiness*; <https://home.kpmg/au/en/home/insights/2020/06/post-covid-19-australia-food-agribusiness-sector-outlook.html>; viewed 13/04/2022.

² L. O’Dwyer (2021); *The impact of COVID-19 on industry innovation, skills and the need for training*; NCVER, Adelaide; p.33.

adapt, and will require new and updated skills for the production of new pharmaceuticals.

On top of these COVID-19-related changes, FBP industries continue to be shaped by longer-term trends that have emerged over the past decade, which impact on work practices, product development and the skills needed by industry employers. These are detailed in greater detail in the *Agribusiness, Food and Fibre Industries Skills Report*. Specific concerns that are shaping the Australian food and beverage processing value chain include³:

- nutrition and health
- circular economy
- climate change
- geopolitics
- food security
- retail competition and concentration.

Shifting consumer demand is creating opportunities for value chain operators involved in sustainable production and processing healthy foods. According to Lux Research, consumption habits are trending towards fresh foods and plant-based proteins, as well as allergen friendly or allergen free products. The future success of this industry relies heavily on understanding these trends and adapting products, and associated value chain operations, to meet demand. The soft drink industry, for example, has experienced a 27% decline in the demand for sugar-sweetened beverages over the past few decades and bottled water and non-sweetened drinks have increased by 85%⁴. Non-alcoholic spirits and beer are in greater demand than ever before as are low-calorie, low sugar and low carbohydrate beers and other drinks.

The demand for food and beverage products to meet specific medical dietary requirements or health goals, with additives, enhanced nutritional value, and improved shelf life and quality are all opportunities for the industry to develop innovative products, upgrade operational systems and adopt technological solutions. The confectionery industry faces demands to reduce sugar but maintain sweetness, and is responding by seeking opportunities to enhance the nutritional value of products while not compromising on texture and taste. Okara flour, the by-product of processing soybeans into tofu, is a tasteless substance used in confectionery to add value without affecting taste. The addition of okara flour to confectionery and baked goods adds fibre, protein, calcium and other nutrients. There are many similar examples of food manufacturers adopting principles of sustainability and innovation to pivot production in response to the changing needs and demands of today's customer.

To manage and respond to changing consumer demands, the *National Agricultural Workforce Strategy*⁵ stresses the importance of looking holistically at the AgriFood industry, a web of interdependent sub-sectors that must work together to succeed. This relies on a multitude of inter-related jobs across the Australian economy. As Alcohol Beverages Australia puts it:

'Behind the person filling your glass stands a passionate workforce – farmers, orchardists and vigneron; winemakers, brewers and distillers; bottle makers, truck drivers, supply chain managers, sales reps and sommeliers; and countless other roles.'

Alcohol Beverages Australia (2021); 2030 Vision for the Alcohol Beverages Industry: Realising out potential; p.3

The *Food and Beverage National Manufacturing Priority road map*⁶ similarly highlights collaboration across

³ Australian Food and Grocery Council (2021); *Sustaining Australia: Food and Grocery Manufacturing 2030*

⁴ KPMG (2020); *A Refreshing Recovery: A Post-Coronavirus Recovery Blueprint for the Australian Drinks Industry*

⁵ J. Azarias, R. Nettle & J. Williams (2020); *National Agricultural Workforce Strategy: Learning to excel*; National Agricultural Labour Advisory Committee, Canberra, December.

⁶ Australian Government (2021); *Food and Beverage National Manufacturing Priority road map*; p.6

sectors as fundamental to pursuing opportunities and sharing the benefits generated. The Australian agriculture, fisheries and forestry sectors feed directly into food and beverage processing; for example, in Victoria, the agriculture sector produces more than \$15.9 billion worth of meat, milk and produce, supporting a \$41.5 billion food processing industry⁷. Extending such partnerships will play a key role in achieving the Australian Government's Ag2030 objective of reaching \$100 billion in farm gate output by 2030.

The prevalent theme of the *National Agricultural Workforce Strategy* is that targets cannot be achieved without a motivated, well-trained workforce. Such a workforce will not emerge without decisive whole of sector planning and action. This requires that industry leaders place workforce capability analysis and development strategies at the core of their businesses, as well as collaboratively across all parts of the sector, including value-adding, supply chain, manufacturing, government and private sectors, unions, and retail.

Identifying growth opportunities

CSIRO note that the food and beverage industries have shown great resilience over the last few years, with key national advantages likely to enable recovery and growth moving forward, including Australia's clean and green brand, unique geography and world-class research and adoption⁸.

This potential growth relies upon businesses' ability to process locally and export more high-value goods to overseas markets. The *Food and Beverage National Manufacturing Priority road map*⁹ states that there are opportunities for food and beverage processors, including small to medium enterprises, to collaborate in investing in research, translating innovations into commercial applications, and developing new products for existing and emerging markets. While these activities may be out of reach of a single business, collectively through collaboration they may achieve the critical mass to pursue opportunities and share the benefits. This includes collaboration with the agriculture sector.

With the articulation of shared objectives and greater collaboration, the Australian Government envisions that:

'By 2030 we will double the value of Australia's food and beverage manufacturing through a focus on smart food and beverage manufacturing; innovative foods and beverages; and food safety, origin and traceability systems.'

Australian Government (2021); Food and Beverage National Manufacturing Priority road map; p.ii

The major growth opportunities for achieving this objective are:

- Smart food and beverage processing for consumer-driven products (see **Digital & Automation Practices** below)
 - Responsive, fast and agile food and beverage processing and packaging to improve competitiveness and create distinctive value propositions for customers, such as:
 - automation of continuous and batch control systems, inspection and line control systems
 - robotics, including high speed palletising machinery and soft robotic technology
 - monitoring systems for temperature, humidity and pressure, sanitisation verification.
- Innovative foods and beverages

⁷ Premier of Victoria (2021); *Review To Strengthen Agriculture Training In Victoria*; <https://www.premier.vic.gov.au/review-strengthen-agriculture-training-victoria>; viewed 18/06/2021.

⁸ CSIRO Futures (2020); *COVID-19: Recovery and resilience*; CSIRO, Canberra; pps. 12-13


⁹ Australian Government (2021); *Food and Beverage National Manufacturing Priority road map*; p.6

- Develop innovative foods and beverages that incorporate diverse attributes to meet changing consumer needs and demands both domestically and overseas, such as:
 - food and beverages for improved health and wellbeing and greater nutritional value
 - products for convenience and premium offerings such as ready to eat, pre-portioned meals
 - high value-add food and beverage products, such as new and enhanced proteins, fortified breakfast cereals, antioxidant rich breads, soy and other alternatives.
- Food safety, origin and traceability systems to enhance quality and assurance required in domestic and international markets (see **Traceability, provenance and blockchain** below)
 - Increasing Australia’s output of safe, healthy and sustainably produced foods by adopting new solutions to increase value differentiation of our food and beverage products in domestic and export markets, such as:
 - standardised digital labelling to provide customers (retailers and consumers) with instant information about origin of foods and production methods such as the use of QR codes on packed meat which can be read with smart technology to confirm traits such as certified organic and free-range
 - distributed ledger technologies (e.g. blockchain) to securely capture and store information on origin and food safety (handling, preparation and storage) for high value add foods.

Longstanding and collaborative industry-led approaches are supported through Australian Government initiatives, including Cooperative Research Centres, Rural Research and Development Corporations (RDCs) and Industry Growth Centres (IGCs). Food and Agribusiness Growth Centre (FIAL), an IGC, identifies 19 growth opportunities that will be critical in shaping the food and agribusiness sector up to 2030. Ten of FIAL’s stated opportunities relate directly to the *Food and Beverage National Manufacturing Priority road map*, showing areas in which growth opportunities may be harnessed.

Figure 1: FIAL’s ten growth opportunities for food to 2030

The future consumer	Food security and sustainability	Enhanced production and value addition	A global marketplace
Health and wellness	Food fraud and safety	Food loss and waste	Direct to consumer model
Targeted eating		Sustainable packaging	Supply chain transformation
Plant-based and alternative proteins		Energy smart food	
Traditional proteins			



Source: a) FIAL (2020); *Capturing the Prize: The A\$200 billion opportunity in 2030 for the Australian food and agribusiness sector*;
 b) Australian Government (2021); *Food and Beverage National Manufacturing Priority road map*; p.29.

Realising potential growth opportunities

The *Food and Beverage National Manufacturing Priority road map* details how the growth opportunities described above can be realised, including concurrent advances in technology, regulatory transparency, sustainability and skills development.

Figure 2: Road map for realising growth opportunities



Source: Australian Government (2021); *Food and Beverage National Manufacturing Priority road map*; p.12.

For such opportunities to be enacted, the many existing government and industry strategies and initiatives need to be aligned so as to make the pathway to success clearer for industry operators, while providing support mechanisms for businesses to continue to progress.

The national road map is supported by the Australian Government's *Modern Manufacturing Strategy* (MMS), which was established to help manufacturers scale-up, become more competitive and build more resilient supply chains. Over the next ten years, the *Food and Beverage National Manufacturing Priority road map* will help inform investment decisions by Government and industry to support projects that:

- harness and grow the sector's strengths and advantages
- provide innovative solutions to overcome constraints that limit value creation and that may prevent the sector achieving its full potential
- transform the sector by growing a high-value, reputable and dynamic food and beverage processing industry.

The *Food and Beverage National Manufacturing Priority road map* recognises how crucial it is to work both with industry partners as well as across all value chain industries. The road map is therefore designed to be complementary to existing strategies impacting on the food and beverage industries, including:

- Ag2030
 - setting foundations for agricultural growth
- National Food Waste Strategy

- halving Australia's food waste by 2030
- FIAL Sector Competitiveness Plan 2020
 - 10-year vision and strategy for the industry
- National Waste Policy Action Plan
 - targets and actions to guide investment and national efforts to 2030 and beyond
- CSIRO Food and Agribusiness Roadmap
 - growth opportunities and what the sector needs to do to achieve them
- FIAL Capturing the Prize
 - A \$200 billion opportunity in 2030 for the Australian food and agribusiness sector.

Stakeholders have welcomed the national road map. Alcohol Beverages Australia praised the benefits that the proposed funding opportunities and strategies will bring to brewers, distillers and winemakers, especially in regional Australia¹⁰. Andrew Wilsmore, CEO of Alcohol Beverages Australia, praised the road map for its potential to complement the ten-year growth plan laid out in the *2030 Vision for the Alcohol Beverages Industry*¹¹, saying:

'Our heart is in the country with many of our breweries, distilleries and wineries obtaining icon status in their region and recognised around the world. Being largely regionally based, a plan to grow beverage manufacturing is a plan to grow regional jobs and create value-added careers making a critical and meaningful impact in regional communities across Australia.'

<https://www.foodmag.com.au/alcoholic-beverage-industry-benefits-from-roadmap/>

Crucially, realising the Australian government's vision will require enhanced capabilities. Influential stakeholders and industry leaders will need to be part of the collaboration to:

- advance skills across the food and beverage processing sector
- invest in technology to build the foundations of smart food and beverage processing
- invest in manufacturers digitising product information
- foster closer collaboration between industry, government and research
- develop better understanding of emerging market opportunities
- ensure the path from idea conception to commercialisation is accessible and achievable for industry¹².

Traceability, provenance and blockchain

The *Agribusiness, Food and Fibre Industries Skills Report* outlines the increasing importance of traceability and provenance across all relevant industries. Food, Beverage and Pharmaceutical (FBP) sectors are at the forefront of implementation, regulation and innovation.

The traceability of food, beverages and pharmaceuticals requires systems and arrangements that track how a product is handled, processed, packaged and transported. This includes recording production processes, complying with regulatory requirements, managing food and worker safety, following prescribed packaging and handling practices, and publicly sharing information about the management of waste and

¹⁰ Food & Beverage Industry News (2021); *Alcoholic beverage industry benefits from roadmap*; <https://www.foodmag.com.au/alcoholic-beverage-industry-benefits-from-roadmap/>; viewed 08/09/2021

¹¹ Alcohol Beverages Australia (2021); *2030 Vision for the Alcohol Beverages Industry: Realising out potential*

¹² Australian Government (2021); *Food and Beverage National Manufacturing Priority road map*

unwanted products.

Product quality, trust and security are critical to the reputation of Australian products. Food and beverage processors and pharmaceutical and nutraceutical manufacturers have responded to changing consumer demand for transparency by providing information on ingredients' origin, processing practices, packaging materials, and food handling practices on product labelling. Technological solutions such as distributed ledger applications (e.g. blockchain), DNA-testing, and more sophisticated label coding systems (e.g. barcodes or QR codes) can validate sourcing claims, combat food fraud, and support smarter value chains. Labelling laws in the alcoholic beverages industry are now requiring nutritional data and warnings that were not previously required on individual bottles and cans.

Food fraud continues to be a major concern to the food and beverage processing and pharmaceutical manufacturing and processing industries and to the skills of their workforce. The intentional substitution, tampering, misrepresentation and false or misleading statements made about products remains a major concern to industry. Food fraud is seriously affecting Australia's global reputation as a safe and reliable producer, as well as endangering peoples' health and wellbeing. A report published earlier in 2022 identified food products relating to beef, veal, wine, fish and molluscs at high risk of fraudulent practices, with an estimated economic cost between \$700 million and \$1.3 billion a year¹³. There is a lucrative black market in stolen and counterfeited pharmaceuticals, and deliberate misrepresentation and unfair price fixing, while illegal under Australian laws, continue to concern the pharmaceutical manufacturing industry.

Current crossovers and divisions of the value chain in the VET system

Food, beverage and pharmaceutical processing has critical value chain connections to other industries, as outlined in detail in the Agribusiness, Food and Fibre Industries Skills Reports.

Current cross-overs requiring collaboration include:

- Agriculture, Meat, Seafood and Crops
 - Industries which provide the basic materials for food and beverage processing are covered through a number of Training Packages, including Agriculture, Horticulture and Conservation & Land Management (AHC), Australian Meat Processing (AMP), and Seafood Industries (SFI)
- Groceries and food wholesalers, retailers and exporters
 - Range of industries associated with consumer-facing food services from supermarkets and food service industries to the local baker or delicatessen, as well export to international markets. This includes skills covered in the Retail Services (SIR) Training Package
- Tourism and Hospitality
 - Tourism and hospitality (covered by the Tourism, Travel and Hospitality (SIT) Training Package) strongly connect with the food and beverage processing industry. Many businesses and operators are now creating partnerships to supply goods and services through tourism and hospitality functions, including tours of food processing sites and combining tourism and hospitality opportunities with beverage production, especially wine and craft breweries and distilleries.
- Manufacturing
 - Good manufacturing practice (GMP) continues to play a key role in food and beverage processing, with many training products imported from the Manufacturing (MSM) Training Package

¹³ M. Smith, M. Ashraf, C. Austin & R. Lester (2022); *Product Fraud: Impacts on Australian agriculture, fisheries and forestry industries*; AgriFutures.

- Regulation Services
 - Food, beverage and pharmaceutical processors work with a range of regulation and regulators, including food and beverage safety, ANZ Standards and Therapeutic Goods Administration
- Professional Support Services
 - Supportive occupations such as packaging and waste management, sales and marketing
- Transport & Logistics
 - The disruptions of the COVID-19 pandemic, especially during 2020 and 2021, highlighted the importance of access to food, beverage and pharmaceuticals and major distribution issues. This is partially covered by the Transport and Logistics (TLI) Training Package
- Research
 - Significant research efforts are being undertaken that inform industry, including in waste minimisation, packaging and consumer trends

Biosecurity, Invasive Species and Pest Control

Australia's reputation of producing 'clean and green' food and beverage products, made with sustainable practices, in relatively uncontaminated environments with fresh, wholesome and natural products, is an important point of difference for organisations exporting to the international market. The Tasmanian food and beverage industry has a solid reputation for making natural, healthy cheeses and clean crisp gins and whiskeys. The South Australian dairy and wine industries profit from promoting their state as natural, sparsely populated and growing high quality food and feed and world-class grapes and wine. A major part of this reputation involves adherence to biosecurity controls; a high standard of regulation, including food safety regulations; recalls and food standards codes; and processing and packaging systems.

Many of the changes reported by the food, beverage and pharmaceutical industries over the past two years directly relate to concerns about biosecurity, contamination and new regulations aimed at mitigating the damage to Australian communities from COVID-19. In response, manufacturers have rearranged workers' shift arrangements to limit cross-contamination. They provided individualised packaging, preparing food in take away portions for home consumption. International export regulations have tightened, and the application of the Biosecurity Act 2015 has increased the focus on food safety and quality assurance processes.

Compliance with the various audit, certification and quality controls, and concerns about import and export regulations were important issues facing the food and beverage processing and pharmaceutical manufacturing industries, even before the COVID-19 pandemic. While manufacturers and processors believe that a strong biosecurity regime is essential to protect and promote their industries, the higher costs, uneven playing-field experienced by importers and exporters, and complexity of food safety and similar audit requirements manifest as obstacles to competing in domestica and international markets.

Adhering to the biosecurity and food safety regulations of the food, beverage and pharmaceutical industries requires particular skills and knowledge. Changes to the pharmaceutical qualifications and food and beverage processing qualifications within the *FBP Training Package* have focussed on increasing the expertise of the general workforce in allergen management, traceability systems and compliance, contamination mitigation, food fraud and enhanced labelling laws. Improving the overall skills and knowledge of these industries has been a key focus for stakeholders engaged in qualification reviews, including the FBP Industry Reference Committee and Subject Matter Expert Working Groups.

Food and beverage processing industries recognise the value of the reviewed and developed Certificates and Diploma qualifications and see these as pathway towards further study in food auditing, food

technology and biosecurity issues through the covering these fields.

Sustaining Plants and Animals

Food and beverage industries continue to develop and provide alternative proteins, meat-alternatives and vegan-friendly food and beverages, while pharmaceutical manufacturers have for many years been responding to the demand for information about use of animals in development and research practices. As the market demands cleaner, greener, meat-free and ethical products, the food and beverage processing and pharmaceutical manufacturing industries all face ongoing challenges and opportunities for product and process innovations and changes.

While customers are demanding healthier food for themselves, they are also expecting that meat and seafood products, dairy, eggs and other animal-based food items are increasingly sourced from healthier, happier animals. The wellbeing of animals providing these foods is, like the packaging and sourcing of non-biological ingredients, more and more important to the average Australian consumer. Free-range chicken eggs, dolphin-friendly fishing systems and milk from cows that eat a high standard of feed are all in demand. Similarly, some standard food and beverage processing and pharmaceutical manufacturing practices are under the spotlight. Processes for sourcing animal blood for pharmaceutical testing and development activities are increasingly scrutinised. Ensuring that animals are managed ethically, and are housed and raised in ways that cause less harm to the animals and the environment, is an important aspect of the 'clean and green' consumer choice.

Vegan lifestyles are increasingly popular among Australians, and this is changing the products processors are offering to consumers. For example, most wines were not totally animal-product free, which was mostly unknown by Australian consumers until wine retailers began promoting vegan-friendly wines in response to the growth in demand for animal-free foods and beverages experienced across the globe during the past ten years¹⁴.

Ecosystem Management and Continuing Climate Adaptation

As the environment changes, food processors and manufacturers are adapting and innovating. Changes to climate, land and natural resources caused by human habitation, European farming practices and other resource uses have created an ever-evolving environment for managing the Australian ecosystem (please also see the *Agribusiness, Food and Fibre Industries Skills Report* for discussion of the *Australia State of the Environment 2021* report). Food and beverage processors have reported changes to grape harvesting methods due to droughts or floods, with increases in grain crops after droughts broke creating jobs for grain millers and handlers and the need for skilling this new workforce.

The CSIRO describes how the Australian natural capital that drives the food, beverage and pharmaceutical industries must be part of sustainable and resilient systems to effectively manage and innovate around areas such as water and carbon. Advances, for which new and advanced skills will need to be developed, include:

- new water management systems
- resource recycling (water, heat steam)
- waste reduction and diversion from landfill
- sustainable packaging
- closed loop production

¹⁴ Decanter (2022); *What makes a wine vegan? Plus 10 wines to try*; <https://www.decanter.com/learn/advice/makes-vegan-wine-ask-decanter-406947/>; viewed 17/05/2022.

- sustainable energy use.

The expectation of managing the ecosystem through the use of sustainable, recyclable, ethical and adaptable processes and products has initiated a range of programs within the vocational and higher education systems. Innovation in packaging has become a key topic addressed in post-graduate Masters degrees in Australian universities, which aim to address demands for more sustainable, eco-friendly processes and foods.

Processors in the food and beverage industries are regularly announcing innovative systems and methods for more sustainable ecosystem management. Four Pillars, a Victorian gin and spirits producer, recently won awards for becoming a carbon neutral operation. Nestle have reported plans to reduce their carbon footprint, stating that providing products from sustainable sources that can be traced to specific farms and leave a smaller impact on the environment is becoming more important than ever before¹⁵. The Australian wine industry is implementing additional sustainable practices, moving towards net zero emissions target for the sector¹⁶. The Sustainable Winegrowing Australia program, managed in collaboration by the Australian Wine Research Institute, Wine Australia and Australian Grape & Wine, has hundreds of winemaker members who realise that sustainable practices are key to remaining competitive in an international market.

Driven by the purchasing decisions of mostly younger consumers, confectionery processors and other industry operators are employing people and practices to use renewable energy sources, reduce waste, use packaging that doesn't end up in landfill and reduce greenhouse emissions from manufacturing plants across the globe.

A project is underway in 2022 to develop a training package response to the need for skills to work in the burgeoning industry of Australian native foods. This project has also addressed the expectation that food is sourced, farmed, harvested, processed and packaged using environmentally safe methods and, where possible, acknowledging and adopting the traditional methods that have been used by Aboriginal and Torres Strait Islander communities for thousands of years. The demand for Australian bush food is not only about consumers wanting new tastes; they are also expecting products sourced naturally, using sustainable and culturally appropriate methods. The bush food industry expressed a strong desire to develop not only a skill set within the *FBP Training Package* but also formal recognition of the need for skills in sustainable practices and culturally sensitive awareness within its workforce.

Adapting to climate change

The future of food and grocery manufacturing is intrinsically linked to the land, water and agriculture, which are in turn impacted by climate change. Addressing climate change extends to many industry challenges, such as sustainable sourcing (of energy supplies, ingredients and other inputs), production and consumption. On an increasingly unpredictable planet, experiencing major weather events, wars, pandemics and political alliances, businesses are seeking ways to improve the efficiency and circularity of their food production activities, and consumers are seeking products that cause less damage to the environment.

One example of a food and beverage industry affected by changes to the climate and major weather events is the Australian dairy industry. Milk sales across the globe have been adversely affected by weather events over the past year. Both the Australian and New Zealand dairy industries have reported low production levels and weather-related events have resulted in a 'global milk production deficit', and that further dips in

¹⁵ Food Magazine (2019); *Why making a profit is no longer enough for big brands*; <https://www.foodmag.com.au/77695-2/>; viewed 17/05/2022.

¹⁶ Food Magazine (2022); *Australian wineries and vineyards begin transition to net zero*; <https://www.foodmag.com.au/australian-wineries-and-vineyards-begin-transition-to-net-zero/>; viewed 17/05/2022.

supply from all major dairy exporting regions of the globe are expected¹⁷. This industry has suffered from unfavourable weather, on top of labour shortages, logistic disruptions, elevated commodity prices and slowdown in demand for Australian milk from China. In response, dairy product prices are expected to rise, along with the food inflation experienced across food and beverage industries. Despite the negative influences, the Australian dairy industry continues to export high volumes of milk products including butter, and skim milk powder, while the price of milk and dairy products continue to rise. Supply lines for exporting dairy products that shut down during the first year of the COVID-19 pandemic have mostly reopened and the Asian demand for Australian milk, cheese and other dairy products remains high. Bega cheese reported having been impacted negatively by floods in Australia, among other global issues but as dairy prices increase, so does the recovery of this industry¹⁸.

Risks to the food and beverage industries from climate change and climate extremes such as droughts, heatwaves and floods, are considered major threats that also give rise to growth opportunities. The Food and Agribusiness Growth Centre has described these risks as initiators for developing innovative approaches and building resilience. These approaches may include adopting new water management systems, feed additives, sustainable packaging, innovative farming and energy management and changes to cultivars and products that tolerate climate extremes.

Tackling food and packaging waste in a circular economy

The annual cost of food waste to the Australian economy is reported to be more than \$30 billion¹⁹. The Fight Food Waste Cooperative Research Centre (FFWCRC) reported that Australia is currently wasting 7.6 million tonnes of food each year. This is a serious concern to many in food and beverage processing and published research supports a collaborative response with skills development and behavioural change at the forefront. Circular economy principles are being applied in manufacturing practices to re-use waste generated during production processes.

In 2017, the Australian Government committed to the United Nations Sustainable Development goal 12.3, to halve Australia's food waste by 2030 and reduce greenhouse gas emissions. It published the *National Food Waste Strategy*²⁰ to provide a framework to achieve this aim. In 2020, The Food and Agribusiness Growth Centre (FIAL) published the National Food Waste Strategy Feasibility Study²¹, considering the 2030 target and the collective actions required to achieve it. FIAL's study found a major contributor to the food waste problem is the manufacturing and processing of food and beverages and identified employee engagement and behaviour change as a major component of success, supported by policy changes and industry-led initiatives.

The FFWCRC reports that collaboration throughout the supply chain is needed to identify and eliminate food waste²². This includes educating and developing the awareness and skills of the food processing workforce, not just the process design engineers at manufacturing plants. An occupational skills analysis undertaken by FFWCRC researchers identified where food waste management skills and knowledge can be incorporated into vocational training to normalise the reduction of food waste by manufacturers and related industries. While this issue is expected to be raised during future qualification development work in a range of industries, building systems and developing technologies for addressing this financial drain on Australia's economy continues to be a focus of academic research, industry investment and higher education programs.

¹⁷ Food Magazine (2021); *Global dairy markets "teetering on the edge" – Rabobank*; <https://www.foodmag.com.au/global-dairy-markets-teetering-on-the-edge-rabobank/>; viewed 17/05/2022.

¹⁸ Food Magazine (2022); *Bega Cheese anticipates recovery following \$40 million hit*; <https://www.foodmag.com.au/bega-cheese-anticipates-recovery-following-40-million-hit/>; viewed 17/05/2022.

¹⁹ Food Bank (2022); *Food Waste Facts*; <https://www.foodbank.org.au/food-waste-facts-in-australia/?state=vic/>; viewed 17/05/2022.

²⁰ Commonwealth of Australia (2017); *National Food Waste Strategy*

²¹ FIAL (2020); *Reducing Australia's Food Waste by half by 2030*; <https://www.fial.com.au/sharing-knowledge/food-waste/>; viewed 17/05/2022.

²² Fight Food Waste CRC and Honey and Fox Pty Ltd (2020); *Australian industry food industry training needs analysis*; Adelaide, Australia.

Aboriginal and Torres Strait Islander custodianship

The vital role of Australia's First Nations people in the management of the land and sea and its produce is acknowledged by stakeholders and representatives of the food and beverage processing industries. All stakeholders approached by Skills Impact expected that Aboriginal and Torres Strait Islander peoples would be key participants in industry consultations during the Australian Native and Bush Food Project. In developing training package products that would describe and recognise the skills and knowledge required to produce bush foods and beverages for an ever-growing market, many different Indigenous communities and organisations were approached and invited to participate.

The majority of stakeholders involved in this industry are not Aboriginal and Torres Strait Islander people and have no connection with or relationship to Aboriginal and Torres Strait Islander communities. Despite this, many stakeholders agreed that initial consultations and ultimate validation of the project outcome should engage those who have traditional connections to the land in which the bush foods are grown, harvested, processed, packaged and marketed. The traditional custodianship of the land and its produce, and also the intellectual property and right to share knowledge and wisdom is a controversial and complex concern when addressing an identified skill need through a national training package. Establishing skill sets within the *Food, Beverage and Pharmaceutical Training Package* to impart skills and knowledge about managing, producing, processing and selling bush foods and native Australian ingredients was not seen by some as something that should sit within a generic, public document and be made available for training providers without connections to Australian First Nation's communities to deliver. The negotiated and agreed outcome for this project included units of competency that require demonstration of engaging with community members using appropriate communication methods, ensuring that cultural protocols and procedures are followed.

Digital & Automation Practices

Technological advancements in the food and beverage processing and pharmaceutical manufacturing industries, such as the integration of sensors and data analytics, cobots (collaborative robots), AI and machine learning, have improved productivity and reduced costs by optimising operations, streamlining logistics, developing greater scale, agility and efficiency, and more effective linking together of the value chain²³. This has driven a demand for higher numeracy, literacy and equipment operator skills, as well as problem-solving skills (especially in small to medium businesses). A reduction in the manual roles in food, beverage and pharmaceutical factories is concurrent with increasing automation and use of cobots, which requires a greater level of digital literacy; for example, in operating computerised touch screen interfaces to control a variety of machines and to code and program cobots to safely carry out tasks, from heavy lifting to precision work.

Innovations such as 3D printers are also changing food and pharmaceutical production and processing²⁴. Developing food by 'printing' ingredients into a food product is technically possible now, though not yet common. The ethical and nutritional potential of these innovations challenges traditional agricultural and food manufacturing systems, and there is a need to seek new solutions for improving 'supply certainty, product quality, sustainability and reduce volatility'²⁵.

Large-scale automation and digital equipment is increasingly being used to boost productivity, with consequences for the profile of the industry worker. This trend favours major companies, though the use of technology extends well beyond major manufacturers. The necessary skills for the workforce are evolving beyond 'traditional' practices to include machinery, supply chain and traceability systems management and food safety regulations compliance. This is evident in the flour milling industry where a need for highly

²³ CSIRO Futures (2020); *COVID-19: Recovery and resilience*, CSIRO; Canberra.

²⁴ Forbes (2019); *How Technology Is Transforming The Food Industry*; <https://www.forbes.com/sites/nicolemartin1/2019/04/29/how-technology-is-transforming-the-food-industry/#6cc0000c20a3>; viewed 01/02/2020.

²⁵KPMG (2018); *Talking 2030: Growing agriculture into a \$100 billion industry*, National Farmers' Federation; pp.12 & 35.

skilled technical millers has replaced the previous unskilled labour that was more easily employed and required less training²⁶. At present, new employees' technical milling skills are gained through an international correspondence course and supplemented by practical exercises facilitated by an industry association.

Manufacturing Modernisation Fund supporting business transformation

Round two of the Manufacturing Modernisation Fund (MMF)²⁷, the first of the key initiatives launched as part of the Australian Government's Modern Manufacturing Strategy, has awarded \$55 million in grants to 86 Australian businesses, including food and beverage processors. Round two is running over three years up to 2022-23 and is supporting manufacturers by co-funding capital investments and associated reskilling to adopt new technologies, encourage innovation, become more productive and competitive in the market, and create more jobs. The program aims to support small to medium manufacturing enterprises through:

- investment in transformative manufacturing technology and processes
- jobs growth and a more highly skilled manufacturing workforce (which, to assist in the integration of new technology, will be supported through relevant training and skills development, including upskilling and accreditation in advanced processes).

There are numerous examples²⁸ of food and beverage businesses upgrading their facilities and processes, and so creating high skilled jobs, as a result of MMF grants:

- Bonissimo Coffee Roasters in Western Australia are using their grant to help reduce the number of plastic-lined coffee cups and coffee pods destined for landfill. To do this, it is installing \$1.4M worth of new equipment to manufacture cups and pods made from biopolymers that are 100% organic and fully compostable. The upgrade will enable a six-fold increase in Bonissimo's coffee pod production, allowing them to hire more staff and pursue new export opportunities for its products.
- Modus Operandi (Mereweather, NSW) is expanding its brewery operations and will develop thermal energy storage to reduce power consumption and chemical use.
- Garlo's Pies (Kingsgrove, NSW) is upgrading its production facilities, increasing production of pie products to 8,000 units per hour. This will create up to 27 new jobs and increase export opportunities.
- Forager Foods (Western Junction, TAS) is establishing a world class freeze-drying and processing facility.
- D.T.R. Holdings (Alloway, QLD) is installing next-generation food processing technology.

Food Safety QA, Regulatory Compliance

Australia is internationally renowned for producing food, beverage and fibre products with high levels of safety and freedom from disease. Food processors, for example, can source quality produce at competitive prices from the agricultural sector because of high food security and safety standards that are supported by a strong and stable regulatory system, which oversees aspects of production such as food labelling. This requires high levels of skill, knowledge and collaboration across different sectors.

It is important that the food, beverage and pharmaceutical industries work with other industries on issues of mutual responsibility as products travel along the value chain towards the consumer. This is because

²⁶ ATMA (2017); *Training*; <https://www.atma.asn.au/training>; viewed 17/01/2022.

²⁷ Australian Government (2021); *Funding for manufacturers to modernise and reskill*; <https://business.gov.au/grants-and-programs/manufacturing-modernisation-fund>; viewed 29/06/2021.

²⁸ Food & Beverage Industry News (2021); *Australian food and beverage businesses benefit from MMF round two*; <https://foodmag.com.au/australian-food-and-beverage-businesses-benefit-mmf-round-two/>; viewed 29/06/2021

there are numerous intersecting interests and areas of legislation; for example, in the food and beverage processing, retail and hospitality industries.

Strict food safety standards apply across food and beverage processing, meat processing, agriculture products, and aquaculture and wild-caught products. These industries are all part of the same value chains; the regulations, codes of practice and guidelines that determine practices in one sector also have an impact on others. Please see the *Agribusiness, Food and Fibre Industries Skills Report* for more details on national standards and safety assurance systems enforced by Food Standards Australia New Zealand (FSANZ), the Food Standards Code ('The Code'), HACCP Australia and other relevant requirements.

With the number and complexity of food safety regulations, codes of practice and guidelines, it is extremely difficult for new sectors to become established quickly. The emerging native and bush food sector is an example of where upskilling workers to adhere to strict food safety guidelines is crucial to industry growth. New job roles are emerging in this sector, requiring specific skills for working in Aboriginal and Torres Strait Islander communities and remote locations, harvesting and processing wild food, and exporting products according to international regulations. There are only around 18 native foods currently in commercial production (from roughly 6,400 varieties) and, in the context of growing international demand, the industry is lacking support in expanding its markets. According to Australian Native Food and Botanicals (ANFAB) deputy chair, Russell Glover, there are skills shortages in working with the strict food safety regulations in order to commercialise bush food products²⁹. To address such concerns, nationally recognised training products have been developed³⁰.

Workplace and Value Chain Risk Management and Safety Culture

Workplace safety

Increased mechanisation and operation of sophisticated equipment in food and beverage processing and pharmaceutical manufacturing plants has brought with it an increased focus on workplace health and safety. While the harmonisation of work health and safety (WHS) regulations and laws across the country has created a more easily understood and manageable system for maintaining the health and safety of the workforce, the complexity caused by equipment and process changes has become a concern for many enterprises. The shortage of skilled workers, changes to factory systems and operations to adapt to pandemic-initiated restrictions, complex regulations and laws about food safety, contamination and food handling, and the ongoing push to produce more and more products to meet consumer demands have increased risks for all workers.

Although all vocational education products endorsed through the Food, Beverage and Pharmaceutical Industry Reference Committee have included workplace health and safety skills and knowledge, the industry continues to report insufficient knowledge across its workforce due to limited training delivery. Injuries at work in this industry remain higher than many other manufacturing industries. References to hazardous work conditions cited to explain the ongoing concern of food and beverage processors include explanation about the use of refrigeration equipment, wet and crowded floor spaces, use of chemicals and toxic materials, manual handling and transporting of products and the risks involved in dealing with biological materials that can be contaminated, spread diseases and cause injuries and illnesses. Natural hazards like bushfire have been raised by organisations working within remote communities and especially those engaged with the harvesting and processing of Australian bush foods.

While the provision and use of training and personal protective equipment has been regulated, the food and beverage processing and pharmaceutical manufacturing industries remain high risk environments with

²⁹ ABC News (2019); *Australian bush tucker industry push to transform native foods for international consumption*; <https://www.abc.net.au/news/2019-11-17/native-bush-foods-australian-bush-tucker-going-global/11658008>; viewed 18/02/2022.

³⁰ Skills Impact (2022); *Australian Native and Bush Food Project*; <https://www.skillsimpact.com.au/food-beverage-and-pharmaceutical/training-package-projects/australian-native-and-bush-food-project/>; viewed 18/02/2022.

workers confronting many potential hazards and complex regulations.

Natural disaster planning, response and recovery

While responding to natural disasters has not been an issue reported by the food, beverage and pharmaceutical (FBP) industries, floods and bushfires have had major impact over the past 12 months on primary industries that are the source of many products that FBP industries rely on. As reported in the *Agribusiness, Food and Fibre Industries Skills Report*, the devastating effects of and responses to natural disasters are being reviewed to identify skills gaps and seek training package solutions that may mitigate future risks to communities and industries.

Industry Summary and Trends

Workforce, Business and Market Summary

Australia's food, beverage and pharmaceutical (FBP) industries contribute to the nation's food security, health and wellbeing. These industries employ over 285,000 people and around 27,000 individual businesses operate and trade in locations spanning all states and territories, comprising of a variety of small, medium and large enterprises. Approximately 37% of businesses are non-employing, 50% employ between one and 19 staff, and larger enterprises employing over 20 staff account for 13% of businesses. Many of the larger businesses in this industry operate in regional communities for the mutual benefits of direct employment and strengthening local economies.

The workforce of the FBP industries are becoming more diverse, with many women now employed in highly skilled roles as well as the lower-paid factory processing jobs. Brewing and distilling have long been male-dominated industries, but a new generation of women are now actively participating in the workforce. The Independent Brewers Association are taking practical steps to develop resources for the industry to build a safe and inclusive work environment for all brewing industry employees³¹.

It is estimated that 54% of the industry's turnover is created by just 5% of businesses. Most of these large companies are multinational organisations, including Coca-Cola Amatil, Nestlé and Mars Wrigley, which select Australia as one of their bases for manufacturing and processing operations. As these organisations achieve scale in their operations through capital investment and well-developed workforces, they are important to the sector's success and creating jobs and economic stimulus in Australia.

The FBP industries also indirectly support the employment of many more people through areas such as wholesaling, transport, maintenance and construction. Taking into account its wider influence, Alcohol Beverages Australia³², for example, states that beverage manufacturing businesses support 485,000 jobs and contribute \$52bn to the national economy. This industry exports \$3.6bn of product, benefits regional communities, and invests heavily in environmental sustainability, research and development projects and innovation. They estimate that the industry could grow to directly employ an additional 47,700 Australians by 2030.

³¹ Food and Drink Business (2021); *Women in Industry: Change is brewing*; <https://www.foodanddrinkbusiness.com.au/news/women-in-industry-change-is-brewing>; viewed 29/08/2022.

³² Alcohol Beverages Australia (2021); *2030 Vision for the Alcohol Beverages Industry: Realising out potential*; p.3

Table 1: Industry Financial Activity

Training Package-Related Industries	Revenue (\$billion)	Industry Value Added (\$billion)	Businesses	Employment
Food, Beverage and Pharmaceutical	\$157.89	\$31.80	27,072	285,939

Source: IBISWorld Industry Wizard, 2022

Expansion into new markets

The COVID-19 pandemic has seen some industries change focus and realign their outputs to meet changing demands. As global markets, supply lines and export channels were suppressed, shipping was delayed and freight costs increased, many industries experienced an inability to source ingredients, workers, packaging, and products. Shipping challenges also included shipping lines bypassing specific ports or, in some cases, bypassing Australia altogether. The lack of available shipping containers, shipping bookings, delays and cost increases has caused difficulties for export-reliant industries, including the Australian wine industry. These issues are expected to continue to cause problems for years.

With the loss of significant export revenues from the Chinese market following anti-dumping duties being applied, Australian wine producers have promptly enacted plans for diversifying their business operations, including direct-to-consumer sales, and expanding into new markets to overcome export volume shortfalls. The UK is now Australia's largest market by volume and value³³. There are also examples of producers establishing or expanding in markets such as India³⁴ and the USA³⁵. In support of the industry, the Australian Government has invested \$50 million in the Export and Regional Wine Support Package, which includes funding for targeted marketing campaigns in overseas markets and capability development programs³⁶.

Australian Grape & Wine (AGW) were awarded almost \$1 million in grant funding to explore new markets, including through pilot programs aimed at promoting exports to consumers in high value markets such as Japan and South Korea. The South Australian Wine Industry Association (SAWIA) has been funded through the South Australian government to develop resources focusing on emerging markets in Japan, South Korea and New Zealand³⁷. A large producer, Yalumba, has benefited from Austrade funding to expand their market into India where an interest in premium wines is developing³⁸. At a time when trade disruptions are affecting Australian wine exports to traditional Asian markets, the move into India reflects the work this industry is undertaking, looking for new ways of engaging directly with consumers, in partnership with retailers, as part of a broader market diversification plan³⁹. Further opportunities for the Australian wine industry to reach a wider market have opened with reduced tariffs in the United Kingdom. According to one

³³ Wine Australia (2021); *Australian wine exports reflect challenging year*; <https://www.wineaustralia.com/news/media-releases/australian-wine-exports-reflect-challenging-year>; viewed 31/01/2022.

³⁴ Food & Beverage Industry News (2021); *Australian wines establish a growing presence in India*; <https://www.foodmag.com.au/australian-wines-establish-growing-presence-india/>; viewed 31/01/2022.

³⁵ Premier of South Australia (2021); *Cheers to Wine Australia's US Market Entry Program*; <https://www.premier.sa.gov.au/news/media-releases/news/cheers-to-wine-australias-us-market-entry-program>; viewed 31/01/2022.

³⁶ Wine Australia (2021); *\$50m Package Highlights*; [https://www.wineaustralia.com/whats-happening/highlights-of-the-\\$50m-package](https://www.wineaustralia.com/whats-happening/highlights-of-the-$50m-package); viewed 31/01/2022.

³⁷ South Australian Wine Industry Inc. (2020); *Emerging Markets Program – Japan*; <https://www.winesa.asn.au/news-resources/market-development/emerging-markets-program/japan-market-intelligence-resource/>; viewed 31/01/2022.

³⁸ Food Magazine (2021); *Australian wines establish a growing presence in India*; <https://www.foodmag.com.au/australian-wines-establish-growing-presence-india/>; viewed 31/01/2022.

³⁹ Australian Government (2021); *Raise a glass for market access*; The Hon. David Little proud MP; <https://minister.awe.gov.au/littleproud/media-releases/atmac-grant-australian-grape-wine>; viewed 29/09/2021.

of the state wine associations, these changes will take many years to benefit the industry, and more immediate benefits will be seen as the Australian wine industry increases their market share in already established markets within the United Kingdom and United States of America.

Challenges and opportunities for Australia's food and grocery sector

The Australian Food and Grocery Council (AFGC) report, *Sustaining Australia: Food and Grocery Manufacturing 2030*⁴⁰, outlines challenges and opportunities for the FBP industries, including the investment and policy decisions required to guarantee a strong future in both domestic and international markets. The report finds that, with carefully planned policies and incentives, Australia's food and grocery sector can double its turnover to \$250 billion by 2030, with a resulting 54% increase in employment to 427,000 people. To achieve this, the food and grocery sector must increase the level of domestic consumer spending by enhancing product innovation and the quality of food and grocery products, stemming the recent increases in imported product market penetration and increasing the rate of export growth.

Achieving growth in these areas will be challenging. The AFGC's subsequent *State of the Industry*⁴¹ report cautions that, due to COVID-19, businesses have incurred increased costs associated with the expense of maintaining safe workplaces, operational changes to meet increased demand, supply chain disruptions, a tripling of sea freight charges and increases in commodity and packaging prices. The report considers that the average annual increase of 5.2% in capital investment is below the levels needed to achieve the vision of doubling industry turnover by 2030. To boost industry performance, AFGC⁴² have published key recommendations for policymakers covering the industry's long-term strategy, investment incentives, workforce skills, regulatory reform, digital labelling, retailer-supplier relationships and export growth strategy.

The *Food and Beverage National Manufacturing Priority road map* notes that barriers to achieving growth in the opportunity areas identified above are:

- the high cost of adopting smart technologies
- lack of leadership and higher-level skills for technology adoption and innovation
- inconsistent availability of data
- lack of data and information sharing
- underutilisation of domestic inputs
- lack of collaboration due to integration gaps within industry and global supply chains and
- low rates of industry collaboration and coordination.⁴³

Shortage of skilled workers

More so than any other barrier, widespread shortages of skilled labour continue to jeopardise the short- and long-term viability of many food, beverage and pharmaceutical (FBP) businesses.

The National Skills Commission (NSC) regularly reviews the national skills needs of Australia and, from June 2021, has responsibility for releasing a Skills Priority List (SPL) annually. A key element of the SPL is the determination of occupational shortages, when 'employers are unable to fill or have considerable difficulty filling vacancies for an occupation or cannot meet significant specialised skill needs within that occupation, at current levels of remuneration and conditions of employment and in reasonably accessible

⁴⁰ Australian Food and Grocery Council (2021); *Sustaining Australia: Food and Grocery Manufacturing 2030*; p.13.

⁴¹ Australian Food and Grocery Council (2021); *State of the industry 2019-2020*.

⁴² Australian Food and Grocery Council (2021); *Sustaining Australia: Food and Grocery Manufacturing 2030*.

⁴³ Australian Government (2021); *Food and Beverage National Manufacturing Priority road map*; pp.9-10.

locations'⁴⁴. Occupational shortages designated by the NSC for food, beverage and pharmaceutical are:

Table 2: 2021 Skills Priority List Occupations

ANZSCO Code	Occupation	Current national shortage overall?	Future demand (five-year period)
351111	Baker	Yes (especially regional areas)	Strong
351112	Pastrycook	Yes (especially regional areas)	Strong
399211	Chemical Plant Operator	Yes	Moderate
711911	Chemical Production Machine Operator	Yes	Soft
234212	Food Technologist	No (shortage in NSW)	Moderate
234213	Wine Maker	No	Moderate
621511	Retail Supervisor	No (shortage in NSW & NT)	Moderate

Source: National Skills Commission (2021); 2021 Skills Priority List

Feedback from industry stakeholders suggests that on-the-ground shortages are more severe than the NSC represents. Food and beverage processing industries are currently experiencing labour shortages that are limiting production and profits. As with many Australian industries, the lack of immigrants and backpacker employees, availability issues caused by illness and isolation rules, and movement restrictions across internal and international borders have all contributed to the difficulties still experienced in 2022. Labour shortages, caused by the slow return of international students and migration levels, is affecting the hospitality and tourism industries, which in turn affects the market for food and beverage products produced by processors and manufacturers. In the same way, labour shortages affecting the agricultural industry, meat and seafood processing industries is causing concerns for food and beverage processors as it restricts the supply of raw and primary ingredients and products. In particular, it has been hard to source electricians, select types of engineers, laboratory technicians, skilled machine operators, food scientists, food technologists and packaging technologists. More broadly, businesses have also had trouble sourcing the right non-technical or management skillsets for supply chain management, quality control, financial management, digital marketing and international business⁴⁵.

KPMG⁴⁶ note that, as in many industries, the beverage manufacturing industry and its suppliers experience skills shortages and face difficulties in attracting role specialists and technically skilled staff. In particular, they highlight businesses' struggles in recruiting laboratory technicians, skilled machine operators, food scientists, food technologists and packaging technologists. On a broader level, businesses also experience difficulties sourcing the people with non-technical or management capabilities for supply chain management, quality control, financial management, digital marketing and international trade.

KPMG further highlight that the location of many businesses' manufacturing facilities in regional areas impacts on the availability, attraction and retention of skilled workers, especially as they are competing with the mining industry for comparable technical skills. They note that while some businesses hire and train apprentices to meet their labour demand, other operators have been unable to implement this strategy successfully, in part due to the lower and often uncompetitive wages offered to apprentices. KPMG found that greater financial incentives in the form of tax benefits or increased wage subsidies from the government could stimulate the growth of apprenticeships in the industry as a means to solving skills shortages.

Several food and beverage processing operations reported the negative effects of the JobKeeper initiative,

⁴⁴ National Skills Commission (2021); *Skills Priority List Methodology*; p.5.

⁴⁵ *A Refreshing Recovery: A Post-Coronavirus Recovery Blueprint for the Australian Drinks Industry*.

⁴⁶ KPMG (2020); *A Refreshing Recovery - A Post-Coronavirus Recovery Blueprint for the Australian Drinks Industry*; p.11.

offering higher rates of government financial support to workers unemployed due to COVID-related effects on their industry. Offers to work in unskilled manufacturing jobs that paid minimum or low wages were much less attractive and difficult to fill. This added to the overall labour shortage experienced by these operations.

Businesses also reported that the government could play an enhanced role in promoting apprenticeship and vocational programs, as well as encouraging partnerships between Registered Training Organisations (RTOs) and industry to strengthen the rigour of these programs. This is seen as a way to increase the uptake of FBP qualifications and boosting the pool of skilled labour.

In some cases, businesses have adjusted to the domestic skills gap by adjusting the recruitment process to focus more on aptitude rather than qualifications, thereby employing people who then receive training. Alternatively, some businesses have sourced the required skills from overseas where possible. Australia's immigration policy has helped provide a pathway for skilled migration which has helped fill the gap for certain supply chain management, logistics and technical skills. However, securing a working visa can be a difficult process and an additional cost to business, thus limited to only a few, big companies. Furthermore, travel restrictions in the wake of the COVID-19 pandemic have almost ruled out this avenue in the short term. Going forward, it is suggested that there may be value in easing visa requirements and extending working holiday visas to four years, which in turn could provide a pathway to permanent residency for skilled workers. There may also be an opportunity to encourage free movement or special treatment under the nascent Australia-United Kingdom free trade agreement. Given a shared language and strong education systems in both countries, laws enabling easy access and movement of skilled professionals could be mutually beneficial.

A potential solution to bridge the existing skills gap could be the development of partnerships between industry and education providers. Involvement of the industry in the development of training programs can ensure the right skills are being developed to meet industry needs. If provided with appropriate know-how and direction, medium to large scale competitive businesses have expressed an interest in pursuing this in a post-pandemic world. Consideration must also be given to ensuring that the education sector is providing the right kinds of skills for the future, such as skills in automation, high-tech manufacturing, food science and food technology, data analytics, and technical project management, which will be valuable not just in the beverage industry but also across the broader manufacturing industry.

Workforce management and planning strategies

Industry commitments to investing in skills

In addition to ensuring that workers develop the capabilities needed for current practices (including traditional methods of production still in use), skills development is also intended to help drive technology utilisation and innovation. This includes goals to map the value chain and adopt distributed ledger technology (e.g. blockchain) to establish the quality and sustainability of products by verifying their origin and ingredients. Once provenance is verified at the point of transaction, distributed ledger technology can be used to provide accountability and transparency right through the value chain. There is also a move towards automation, A.I. and robotics, with various new technologies, from autonomous vehicles to completely automated supply chains, being actively planned for implementation over the coming years.

Identifying mutual objectives and skills needs

Raising skill levels to facilitate sovereign capability

There is significant potential for disruptions in the supply of manufactured food, beverage and pharmaceutical products in Australia unless skills needs are addressed. Industry businesses must have the capabilities not only to seize opportunities in domestic and export markets, but also be able to respond to, and adjust during, times of crisis, as has been shown throughout the COVID-19 pandemic. Growing

sovereign capability will help safeguard Australia from future supply chain vulnerabilities but will require industry to expand their manufacturing operations and raise the skill levels of the workforce⁴⁷.

Skills development is central to the growth and sovereign capability strategies within numerous influential publications:

- As one of three 'key areas of opportunity', the Australian Government's Modern Manufacturing Strategy⁴⁸ identifies 'Smart food and beverage manufacturing for consumer-driven products'. To achieve this, industry and government must 'invest in capability development such as industry upskills and cross-skills'.
- 'Skills' is one of five key growth enablers identified in CSIRO's *Food and Agribusiness Roadmap*
- FIAL's 'Sector Competitiveness Plan 2020'⁴⁹ defines the 'Businesses of Tomorrow' as actively pursuing new markets and continuously investing in building their skills and knowledge.

Higher-level skills needed for technology adoption and innovation

A recent report by the Food and Agribusiness Growth Centre (FIAL)⁵⁰ identifies that food manufacturing sector growth will result in large employment opportunities over the next decade. A substantial number of jobs could be created, both for existing and new roles, which will emerge as the sector invests in new technology. As most of the newly created roles will be in higher skilled occupations, a skills development and enhancement strategy is recommended.

The evolution of manufacturing processes, including with the use of robotics, AI, 3D printing, and predictive analytics, necessitates higher-level skills to operate automated production equipment and digital systems. However, many businesses are reluctant to adopt new technologies due to their current workforce not having advanced manufacturing skills or innovative behaviours. To address this, the AFGC⁵¹ recommends that the Australian Government provide funding for an industry 'skills audit' to identify and respond to any gaps (especially in light of increasing automation and digitalisation), expanded access to advanced manufacturing training, and grants for on-the-job training or integrated learning programs that connect the sector with training providers. This would complement the work of IRCs in ensuring national skills standards are updated and reviewed so that learners are equipped with transferable technical and employability skills.

The AFGC contend that the FBP workforce developing higher-level skills will stimulate capital investment and so the productivity, resource efficiency and sustainability of the industry. This will require upskilling across the workforce, from small to large businesses, and support from government funding for advanced training programs, especially in rural and regional areas (as these account for 40% of industry employment).

The Australian Government's *Food and Beverage National Manufacturing Priority road map* also recommends 'aligning the tertiary education system output to industry needs, and providing the right incentives to potential workers to create high-paying, high-skilled Australian jobs'⁵².

Management capabilities

To achieve greater innovation and sovereign capabilities, as described above, the FBP industries must also develop their managerial capabilities to enhance the effectiveness and efficiency of people, processes and technology. In essence, implementing stronger management systems improves productivity and bolsters

⁴⁷ IBSA (2021); *Scaling Up: Developing Modern Manufacturing through a Skilled Workforce*

⁴⁸ Australian Government (2021); *Food and Beverage National Manufacturing Priority road map*

⁴⁹ Food Innovation Australia Limited (2020); *Sector Competitiveness Plan*; Food and Agribusiness Growth Centre

⁵⁰ Food and Agribusiness Growth Centre (2020); *Capturing the prize: the A\$200 billion opportunity in 2030 for the Australian food and agribusiness sector*.

⁵¹ Australian Food and Grocery Council (2021); *Sustaining Australia: Food and Grocery Manufacturing 2030*; p.57

⁵² Australian Government (2021); *Food and Beverage National Manufacturing Priority road map*; p.10

the connection between business performance and the workers involved due to the leveraging of internal and external resources to add value for stakeholders. According to FIAL⁵³, this requires:

- building the leadership skills and knowledge of the industry for better business results
- management skills to oversee operational administration and strategic planning to ensure the effective and efficient use of resources
- capabilities to assess the value and potential of physical and technical systems, especially considering Industry 4.0, digital innovations and customer relationship management platforms.

Training Summary

The Australian Government's *Food and Beverage National Manufacturing Priority road map*⁵⁴ states that growth and improved competitiveness requires a pipeline of skilled workers. This will include keeping apprentices in jobs, helping jobseekers re-skill and promoting vocational training.

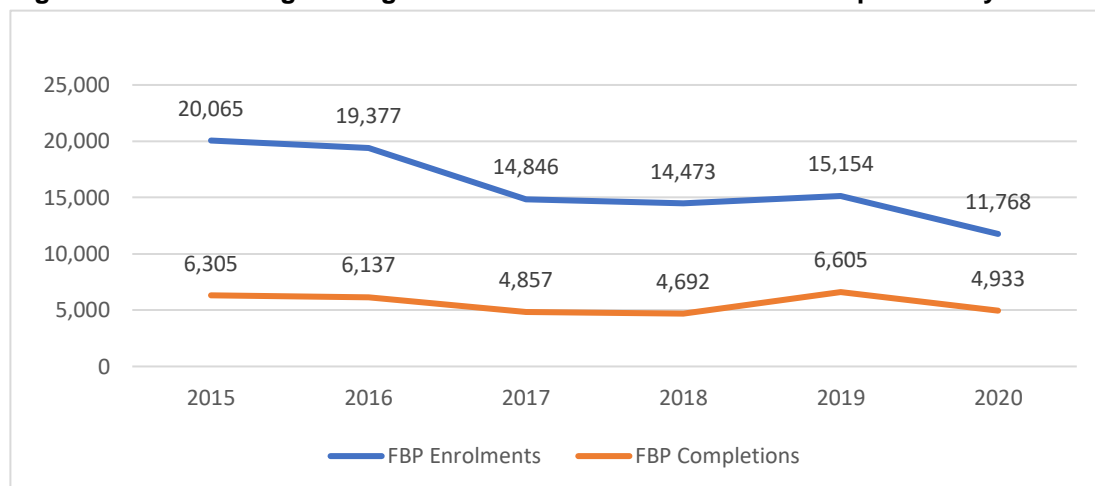
VET training products

Food, Beverage and Pharmaceutical Qualifications

In 2020, there were 11,768 enrolments in *FBP Food, Beverage and Pharmaceutical Training Package* qualifications.

There were 4,933 qualification completions in 2020.

Figure 3: FBP Training Package Qualification Enrolments and Completions by Year



Source: NCVET VOCSTATS, TVA program enrolments 2015-2020

The greatest number of qualification enrolments in 2020 were in Queensland (4,684), followed by Victoria (3,378) and New South Wales (1,610).

⁵³ Food Innovation Australia Limited (2020); *Sector Competitiveness Plan*; Food and Agribusiness Growth Centre; p.13

⁵⁴ Australian Government (2021); *Food and Beverage National Manufacturing Priority road map*; p.3

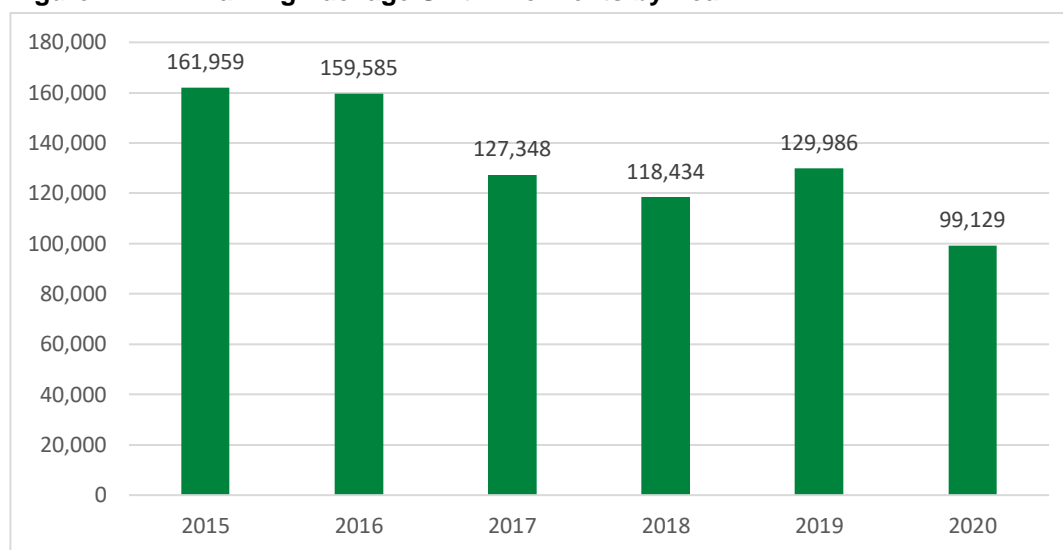
Pharmaceutical Manufacturing

- The now-deleted *Certificate I in Pharmaceutical Manufacturing* registered four enrolments in 2017 and two in 2018.
- The *Certificates II and IV in Pharmaceutical Manufacturing* have had zero enrolments.
- The *Certificate III in Pharmaceutical Manufacturing* has shown consistent enrolments, with training delivered in New South Wales and overseas only.
 - In 2020, all 49 enrolments in the *Certificate III in Pharmaceutical Manufacturing* were for overseas delivery.

Food, Beverage and Pharmaceutical Units of Competency

In 2020, there were 99,129 enrolments in Food, Beverage and Pharmaceutical (FBP) units of competency. This includes enrolments through qualifications (in any training package), apprenticeships and non-apprenticeships, skill sets and micro-credentials.

Figure 4: FBP Training Package Unit Enrolments by Year



Source: NCVET VOCSTATS, TVA subject enrolments 2015-2020

Employers' use and views of VET and other forms of training

Please see the *Agribusiness, Food and Fibre Industries Skills Report* for information on learners' motivations for undertaking training and employers' choice of training method and provider, which is influenced by such variables as local availability of training services, training provider reputation, time constraints, capital (associated with business size and sector) and perceived return on investment.

Products from various training packages are sought out by employers for specific reasons, including for safety requirements, machinery operation, business operations and mental health training. There may be cyclical or intermittent demand. For example, since the breaking of drought in 2020, Australian grain harvests have grown to be some of the most valuable on record. Strong returns for many grain producers, and the potential to capitalise on the unfavourable conditions in other world grain producing countries, has

created jobs and opportunities for grain producers across Australia⁵⁵. SunRice, Australia's major rice processing organisation, has reported that recruitment increases in response to the booming harvest may see the *Certificate III in Rice Milling* being used to train the new generation of rice millers.

COVID-19 has influenced some employers' adoption of a mixed model of training, comprising formal VET and informal workplace-based capabilities development. Many businesses have had to redesign their training programs, particularly where previously there were arrangements for training providers to enter the workplace for training and assessment. For example, food processing businesses without embedded trainers have been forced to discontinue regular face-to-face training and find alternative options that are compatible with both strict food safety regulations and COVID-19-related restrictions.

Licensing and regulatory requirements are a primary driver of at least some engagement with the VET sector. To complement such accredited training, many large businesses also retain in-house trainers and assessors who deliver internal programs, which may be designed with reference to VET training packages and align with Australian Qualifications Framework (AQF) guidelines. Training that does not align with the AQF can later be recognised against national standards through processes such as Recognition of Prior Learning (RPL) and Recognition of Current Competency (RCC), though many employers report barriers to facilitating this for employees due to difficulties establishing eligibility.

Barriers to employers using nationally recognised training

The National Centre for Vocational Education Research's (NCVER's) data on employer's views of the VET system cites the principal reasons for dissatisfaction with nationally recognised training (whether of graduates recently hired or current learners, including apprentices and trainees) as:

- not enough focus on practical skills
- poor access to training in regional/rural areas
- relevant skills are not taught
- training is of a poor quality or low standard.

Other issues include:

- employers question the work-readiness of 'competent' students
- training packages perceived as unresponsive to industry needs
- difficulties for RTOs attracting and retaining qualified trainer and assessors with dual VET/industry experience.

Other barriers to engaging in nationally recognised training include difficulties establishing and clarifying the value proposition of VET, preferences for engaging in flexible and shorter-form training that addresses immediate workplace needs, and RTOs' challenges with delivering in thin markets (where supply and demand is imbalanced, often due to the practical challenges of operating in regional areas).

RTOs reported that restrictions on learners in workplaces and the closing of many businesses during lockdown periods were major barriers to the delivery of nationally recognised training. While some enterprises were unable to keep employing trainees or provide formal training during the initial stages of the pandemic, others paused operations and training activities temporarily. Reporting on the formal training activity for a major beverage processor on the outskirts of Melbourne, one education coordinator reported that there is still some reluctance to engage in training while there are workforce shortages and a focus on recovering from the damages of the 2020 and 2021 restrictions on operations and markets.

⁵⁵ Food Magazine (2021); *South Australian harvest tipped to reach record \$2.8 billion value*; <https://www.foodmag.com.au/south-australian-harvest-tipped-reach-record-2-8-billion-value/>; viewed 13/10/2021.

Other barriers reported by RTOs include the increasingly casualised workforce reducing the number of formal trainees, more workers already holding higher qualifications and therefore not eligible to attract government funding for vocational training, the reluctance to let workers off the process line for training when volume of product is a higher priority by most enterprises and the poor understanding of the benefits of formal traineeship programs to the organisation.

Unaccredited and informal training

Several sectors within the food and beverage processing and pharmaceutical manufacturing industries have for many years recognised qualifications that are delivered by international providers outside of Australia's Vocational Education and Training (VET) system and do not align with industrial awards. Some of these qualifications are considered by industry operators to be superior to current training package products, and are considered the most prestigious, relevant qualification for a worker to attain.

The flour milling industry, represented by the Australian Technical Millers Association, recognises a training program delivered and awarded through internationally approved training providers authorised through the National Association of British and Irish Millers (NABIM). During analyses of the Certificate IV in Flour Milling that previously existed within the Food, Beverage and Pharmaceutical Training Package, Skills Impact discovered that units of competency relating to flour and grain milling no longer described the tasks involved in the job and that to progress within the industry, the NABIM course was considered vital. While exploring the possibility of redeveloping the Australian Certificate IV qualification the industry found that the NABIM course met the majority of their skill and knowledge development needs and only a few flour-specific units of competency were of value to a small number of mills for developing skills within their workforce.

Closely related to the skills and knowledge required for flour-milling, stockfeed milling and processing is another field where skills are addressed through non-accredited education programs. Offered jointly by UQ Skills and the Stock Feed Manufacturing Council of Australia, the advanced feed milling training program provides workplace-focussed, knowledge-based training for feed mill operators and supervisors. Much of the content of this program replicates units of competency included in the stockfeed milling specialisation of the *Certificate III in Food Processing*.

In a similar vein, the sugar milling industry decided in 2022 to allow the removal of the sugar milling qualifications from the *FBP Training Package* in preference for learning options made available through the Sugar Research Institute, partnering with Queensland University of Technology. These training programs use descriptions from sugar milling units of competency to provide underpinning knowledge training to factory operators, supervisors and managers. The low numbers of mills interested in providing millers with nationally recognised training through a formal VET program meant that no RTO was able to offer accredited training. Most sugar mills in Australia address the issue of workforce training through informal in-house programs or access the training options provided by the Sugar Research Institute.

Several peak bodies offer accreditation for their own, industry-specific training programs that are considered industry requirements. The Australian Beverages Council offers member organisations a skills development program about quality management. The requirement to have at least one certified person on each production line is now considered a requirement for membership of this peak industry body. This program is not a part of the nationally recognised VET system.

Other internationally recognised and valued non-VET programs in regular use across the food and beverage processing industries include the programs offered through the British-based Institute of Brewing and Distilling (IBD). IBD courses are well respected throughout the brewing and distilling industries and form the basis of in-house training for several of the larger enterprises. Carlton United Breweries, for example, offers IBD courses to leading hands in their larger brewing plants, providing practical in-house training which is then assessed by IBD-accredited assessors and awarded globally recognised courses. However, the skills and knowledge addressed through several of these programs has now been replicated in the newly developed qualifications addressing the skills for working in both small-scale and larger

breweries and distilleries.

Use of non-nationally recognised training in the pharmaceutical manufacturing industry includes skilling employees in the use of new equipment, machinery and technologies, provided by suppliers. This training is widely valued by this industry, is usually provided by highly experienced professionals and provides bespoke skills training, tailored to specific job and organisation skills needs. General Electric (GE) is one of the major providers of this training to the pharmaceutical manufacturing industry, delivering initial and follow-up sessions to the workforce of organisations who purchase their equipment and technology.

Attracting young people to VET training for occupations in Food, Beverage and Pharmaceutical

At a time when labour is short and proposals for making access to vocational education cheaper and more accessible across the country, it is timely to identify occupations where jobs are growing and state-funding for training is available.

The baking industry is listed in national, state and territory government lists of skills shortages and job vacancies. During the initial phases of the COVID-19 pandemic, when the Department of Education, Skills and Employment was seeking to respond to movement restrictions, closures and job losses, the need for baking assistants with *Certificate II in Baking* was highlighted as a potential way forward for hospitality industry workers who were now unemployed and seeking new careers. While this industry continues to experience labour shortages it is still expected to grow, creating approximately 2,000 new jobs over the coming two years.

Rural, Regional & Remote Summary

The *Agribusiness, Food and Fibre Industries Skills Report* provides information on the many and intersecting challenges of stimulating industry growth and communities in rural, regional and remote areas. It is described how many food, beverage and pharmaceutical (FBP) enterprises are located in regional locations where access to skilled workers, and resources for inexperienced workers' development is limited. A lack of infrastructure, housing, public transport, health services, broadband and mobile connectivity, and access to education and skills training services makes moving to some locations an unattractive proposition, and businesses are forced to incentivise potential employees by offering higher wages, which can often be challenging financially⁵⁶.

Implementing the recommendations of the *National Regional, Rural and Remote Tertiary Education Strategy* ('the Naphthine Review')⁵⁷, as has been asked of Australia's first Regional Education Commissioner, will complement the VET reform agenda as well as efforts by regional industries to improve productivity and profitability. The Transition Advisory Group⁵⁸ are clear that businesses in regional areas must be adequately represented in the reformed VET system so that appropriate training is delivered where and when it is needed. This requires improving employer engagement with the national training system, creating collaborative relationships between employers and training providers, and working towards longer-term workforce development objectives.

⁵⁶ Infrastructure Australia (2022); Regional Strengths and Infrastructure Gaps Overview

⁵⁷ Commonwealth of Australia (2019); *National Regional, Rural and Remote Tertiary Education Strategy*.

⁵⁸ Transition Advisory Group (2021); *Final Advice – New Industry Engagement Arrangements*; Australian Government Department of Education, Skills and Employment; p.2.