Food, Beverage and Pharmaceutical

Commercially made bread, fruit, snacks, beer, wine, and medicine are just some of the products created and manufactured by the more than 200,000 workers employed in Australia's food, beverage and pharmaceutical industries.

With Australians eating, drinking or using these products every day, consumer needs, preferences and demand play a big role in driving industry trends. In recent years, innovations in traceability, automation and contaminant control have affected the skills requirements of job roles throughout the supply chain. Consumers rely on employees in this sector to have the skills and knowledge to implement quality control measures, ensuring products are of high standard and safe to consume.

The importance of Australia's pharmaceutical manufacturing sector was highlighted this year with the COVID-19 pandemic. It reaffirmed the need for access to up to date skills standards to support an industry sector that puts science into action to produce and distribute life-saving and enhancing medical treatments. Society relies on the skills of this workforce to create safe and reliable products for both human and animal use, including molecular medicines, biologic drugs, and complimentary medicines such as vitamins, supplements, and sunscreens.

The national skills standards and qualifications for Australia's food, beverage and pharmaceutical industry are overseen by the Food, Beverage and Pharmaceutical Industry Reference Committee (IRC) and the Pharmaceutical Manufacturing IRC.

Employs more than

200,000 people

Contributes

$22.7 billion

to Gross Domestic Product

Revenue of

$93.3 billion

(Source: IBISWorld Industry Wizard, 2020)

Food manufacturing is the largest single source of manufacturing work in Australia, with total employment growing **5%** since 2010.

(Source: J. Stanford, 2020, A Fair Share for Australian Manufacturing: Manufacturing Renewal for the Post-COVID Economy, The Centre for Future Work at the Australia Institute)

Pharmaceutical manufacturing sector employ over **26,500** people, with one of the highest projected employment growth rates of any industry up to 2024 (**11.3%**).

(Sources: a) ABS, 2020, 6291.0.55.003 - Labour Force, Australia, Detailed, Quarterly, May 2020; EQ06 - Employed persons by Industry group of main job (ANZSIC), Sex, State and Territory, November 1984 onwards; b) Labour Market Information Portal, 2019, 2019 Employment Projections)

Skills Forecast

Annual update and proposed projects for 2020-2021

This year's Annual Update to the IRC Skills Forecast and Proposed Schedule of Work (Skills Forecast) proposed two key projects for 2020 – 2021 and identified specific changes to the industry environment.

The industry has seen a recent expansion in several emerging industry sectors, driven by consumers' desire to eat healthier, ethically-produced food, and reduce environmental impacts. Alternative protein foods, including plant-based meats, insects, algal and microbial proteins, new varieties and uses for legumes and edible hemp are in greater demand than ever before.

The indigenous food industry is also burgeoning, due to consumer demand for products with proven health benefits and uniquely marketable provenance. With 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. The Cooperative Research Centre for Remote Economic Participation is working to identify how national policies and institutions can support the meaningful inclusion of Aboriginal and Torres Strait Islander peoples in the commercialisation of their traditional plant foods.

There is also a greater focus on innovation in packaging, that has moved beyond attractive design for marketing, into sustainable packaging that contributes to the growth of the circular economy. Reducing and managing food waste is described as one of the biggest environmental challenges of our time and an important factor in growing the circular economy.

Technological advancements have driven a demand for higher numeracy, literacy and equipment operator skills, as well as problem-solving skills. A reduction in the manual roles in food, beverage and pharmaceutical factories is concurrent with increasing automation, which requires a greater level of digital literacy; for example, in operating computerised touch screen interfaces to control a variety of machines.

The Food, Beverage and Pharmaceutical IRC and the Pharmaceutical Manufacturing IRC are closely monitoring emergent industry sectors, along with external factors that affect industry operations and the impacts of rapidly changing technology, to look at ways to embed the skills and knowledge requirements in skills standards for future use.

Skye Blackburn from The Edible Bug Shop has farmed insects for food for over 12 years. In that time, she has seen consumer demand for sustainable, nutritious and ethical food increase. The market for insect protein in confectionary, snacks and powder form is steadily growing as our reliance on meat production reduces. Manufacturing products such as tortilla chips and pasta made from powdered crickets, Skye has built a successful business promoting edible bugs as a healthy and environmentally sustainable source of protein.

Projects for 2020-21

The following projects have been approved by the Australian Industry and Skills Committee (AISC) for 2020-21.

Flour Milling

The flour and grain milling industry has been adapting its operations to keep up with continuing high demand and meet growing consumer preferences for healthier options. Organic, gluten-free and wholemeal products are no longer a niche market. 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 project will review the Certificate IV in Flour Milling, to meet the current skills requirements of technical millers in Australia.

High Volume Production Baking

The operation of factories that produce bread, bread products, biscuits and cakes, is becoming increasingly digitalised and automated. Many of the required skills and knowledge, including enhanced quality control, traceability and supply chain systems, and managing allergens and contaminants, are similar to the skills that are reflected in the units and qualifications that are under review as part of the Food and Beverage Processing Project that is currently underway. This project will include a review of the Certificate III in Plant Baking and consider whether to replace it with a specialisation within the Certificate III in Food Processing.

Qualification Flexible Enough to be Used by Multiple Industry Sectors

Vocational education and training is considered valuable by employers when it can be contextualised to specific industries.

For example, the Certificate III in Food Processing is proving very popular for both aspiring craft beer brewers and artisanal cheese makers.

Stephen Nelsen, Head Brewery Lecturer at TAFE SA has developed a brewing course using the Certificate III in Food Processing. In recent years, there has been a dramatic increase of craft and micro beer brewers. He said his course is always fully booked, with approximately 30 per cent of students enrolling from interstate.

"There are backyard brewers starting up every day. They need the training to develop their commercial brewing knowledge and to manage the health and safety risks that come with producing food and beverage products."

Graduate Janie Butterworth from Beer Garden Brewing, said the course was an important step in her journey to commercial success, "The technical focus of the Certificate III means that we have the capability to produce award winning, world class beer in our beautiful but isolated part of the world".

Another graduate of the same course, Lachy Mutton, Head Brewer and Owner of Little Rippa Brewing Company, said "The course helped me to produce more consistent products and expand my business to a commercial level operation". Lachy was awarded TAFE SA Brewery Student of the Year in 2019.

Gina Dal Santo has also contextualised the Certificate III in Food Processing to develop a cheesemaking course. Gina teaches at The Artisan Cheese Making Academy Australia (ACMAA), which operates as part of TAFE SA.

Students who have undertaken the cheese-focussed course at the Artisan Cheese Making Academy Australia have a high success rate in finding work associated with their learning soon after graduating: 29 out of the 30 recent graduates of this course are now working in cheese production facilities, start-up companies, as chefs or in retail roles.

The success of the cheese making course is what encouraged Gina to support the development of a national Diploma in cheesemaking, to incorporate the higher-level skills for producing premium high-value artisan cheeses.

"I saw the opportunity to start something big. Since then we've run short courses, done a Churchill Fellowship on cheese education overseas, and secured not only a Cert III in Food Processing, which I contextualise for cheese making, but a new diploma in cheese!"

Gina's contribution to the development of Australia's future cheese makers was recognised in the National Training Awards. Gina was a Finalist for the VET Teacher/Trainer of the Year Award.

The Certificate III in Food Processing is valued by the food and beverage processing industry because it is flexible enough to suit the needs of a range of sub-sectors.

The qualification is currently under review as part of the Food and Beverage Processing Project to make sure it meets the skills needs of the diverse range of sub-sectors. It is also being revised to incorporate new and current skills needs brought about by innovations and changes to processes due to changing consumer preferences for healthy, sustainable, organic and allergen-free foods.

Jake Nicholas, Janie Butterworth and Dan Treagus.
Photo: Robert Lang Photography.

Projects

Project work between 2019-20

Outlined over the following pages is a summary of projects Skills Impact managed between July 2019 and June 2020.

The Food, Beverage and Pharmaceutical IRC and the Pharmaceutical Manufacturing IRC oversaw the project development, as part of their responsibility to support engagement with their industry and to ensure the projects meet stakeholder needs.

The skills standards and qualifications being reviewed and developed as part of the Food and Beverage Processing Project, will continue into 2020-21.

The skills standards and qualifications updated as part of the Pharmaceutical Bioprocessing Project are expected to be endorsed by the AISC and State and Territory Ministers later in 2020.

Food and Beverage Processing Project

A lot has changed in the food and beverage processing world in the past decade. Consumers want healthy, sustainable, organic and allergen-free foods. This is driving new innovations in the sector, with more options available today than ever before. Consumers also care more about where their food comes from, what is in it and how it is packaged. Industry is responding to the needs of the consumer, using new technologies and systems to improve the quality and diversity of products.

The industry now has a greater need for skills and knowledge relating to traceability, risk management, food fraud, contamination, allergens, recall procedures, sustainability, health and safety, and automation and digitalised manufacturing. These skills are required across the production chain, for those on the processing line, through to labelling, packaging and bottling.

As a result of these changes and more, the content and design of the food processing qualifications are currently being reviewed. Industry experts have been consulted to review and draft skills standards, which consider many key changes in the industry, from regulatory changes affecting food safety and manufacturing processes to trends in what consumers want to eat and drink.

The Certificate I, II and III in Food Processing and Certificate II and III in Food Processing (Sales) and the units of competency within them are all being reviewed. Consultation and review of these documents will continue into the second half of 2020.

Project to Replace FDF Units in FBP Qualifications

Many trainers have asked why qualifications still contain the old FDF units. A project is underway to update these to the revised FBP units.

Many of the units of competency for the food and beverage industry have been updated over the past two years. As part of the update they received a new code – FBP (previously FDF). They were updated as part of national projects, that underwent consultation with industry and training providers. Qualifications that were part of these projects have been updated to include the FBP units. However, several qualifications were not part of these projects and so the FDF units could not be replaced with the updated FBP version.

This additional side project is underway to make sure the FDF units that have already been reviewed will be replaced by equivalent FBP units in qualifications which were not updated in the past two years.

The qualifications and units will be released at the same time as qualifications and units from the Food and Beverage Processing Project to ensure the changes can be incorporated into one major update on training.gov.au.

Pharmaceutical Bioprocessing Project

Pharmaceutical bioprocessing techniques can be used to create life-saving and enhancing medical treatments such as vaccines, blood plasma products and gene therapy medicine. Specialist skills are needed to manufacture and distribute these products, as they contain delicate bacteria, yeast or mammalian cells prone to degradation, variation and contamination. High level analytical capabilities are also required for working with new technologies and interpreting data. This is a critical step in the supply chain, putting science into action to produce products for treatment and diagnosis and making them available for use.

With pharmaceutical companies playing a key role in the COVID-19 pandemic, through manufacturing of testing kits and vaccines, it is important manufacturers are equipped with all the expertise they may require. This includes the unique skills used in producing and distributing products made using pharmaceutical bioprocessing techniques.

National skills standards for pharmaceutical bioprocessing have been reviewed alongside industry experts and the drafts have undergone broad national consultation with industry. They have been revised to include work functions that reflect current job roles in the industry and to incorporate the latest technologies, equipment and advances in bioprocessing in pharmaceutical manufacturing.

"Bioprocessing skills are an essential and growing part of the pharmaceutical industry, with seven out of the top ten drugs by sales value globally requiring such skills for the manufacture. I know from personal experience that these skills are needed, now and in the future, in order for our pharmaceutical manufacturing sector to grow and flourish. The recent pandemic crisis has underlined this need, not just globally but within Australia, for increased pharmaceutical manufacturing capacity in order for the country to meet current and future needs more self-sufficiently. I therefore wholeheartedly support the endorsement of the Bioprocessing Technologies training units." Dr Paul MacLeman, Chair of the of the Pharmaceutical Manufacturing Industry Reference Committee

Key Outcomes

- Nine units of competency updated to describe the skills required to work in pharmaceutical bioprocessing manufacture. Feedback was sought on the need for a qualification specific to the manufacture of pharmaceuticals using bioprocessing techniques, but the majority of those who contributed indicated that it was not required at this time. The units were revised to include terminology that is current and accurate to the context of pharmaceutical bioprocessing. This includes:
  - The term 'plant based' materials has been replaced with 'organic' materials to be inclusive of the use of mammalian blood in some processes.
  - The unit FBPPHM3018 Operate a sterilisation process using an autoclave has been updated to apply to Good Manufacturing Practice (GMP) or other accreditation or certification requirements, enabling it to be used across many other training packages and settings.
  - The unit FBPPHM3007 Operate a separation process using chromatography has been renamed FBPPHM3XXX Operate a chromatography manufacturing process.

Completed Projects

The following projects were endorsed by the Australian Industry and Skills Committee (AISC). The revised qualifications, skill sets and units of competency, that were developed as part of these projects, are published on training.gov.au and available for delivery by registered training organisations (RTOs).

Visit www.skillsimpact.com.au/completed-projects for further details.

Advanced Wine Operations Skills Project

Skills standards were developed to include the coordination and leadership skills that are required of people working in cellar operations and bottling and packaging.

Artisanal Food and Beverage Processing Project

Qualifications and skills standards were developed to support the specialist skills required to produce premium small-batch artisan food and beverages such as cheese, olives, fermented foods and beverages.