



# food

JANUARY - MARCH 2019

# australia

OFFICIAL PUBLICATION OF AIFST

## Educate yourself for the future

### National Food Waste Strategy

### Food Regulation

Are plant-based alternatives milking the dairy industry dry?

### Training next-gen food scientists

Identifying core competencies

Regulars  
*Food Files*  
*Your Institute*  
*The Pulse*  
*Fast Five*



# ON THE COVER

## Educate yourself for the future

The Australian food and agribusiness sector is a significant contributor to the Australian economy. The industry is worth \$164 billion,<sup>1</sup> and employs 516,000 people in more than 175,000 businesses. This vast and complex domestic landscape is being impacted by the rapidly changing and unpredictable global markets (e.g. Brexit, Trump initiated trade wars etc). Companies need to remain relevant with the right knowledge, capability and capacity to respond in an agile and confident way to these changing market forces to ensure success. This means staying informed around consumer and market trends, and engaging in sustainable practices, whilst adopting new technologies and value chain thinking to help improve their business.

Luckily, these days education is more accessible than ever with tons of different resources, courses and degrees available at our fingertips through the Internet. Technological advancements and online learning are disrupting traditional education models. Universities and TAFEs are struggling to educate people in a timely fashion, as the Internet provides instant and extensive ways of accessing content and experts around the world at any time of day. However, it isn't just about learning the subject matter - the enterprise skills of commercial awareness, original and innovative thinking, problem solving, prioritisation management, strategic thinking, and working independently are just as important. Knowing how to apply information is essential for business success.

One such organisation that is recognising the importance of having



the right information and enterprise skills is Food Innovation Australia Limited (FIAL). The team at FIAL understands the needs and challenges faced by businesses because they are led by industry, and use this tacit knowledge to co-design relevant workshops with industry. FIAL offers a wide range of workshops that promote innovative thinking and cover business fundamentals. In addition, the not-for-profit organisation is continuously publishing content like market reports, technological insights, and case studies, with a focus on business capability and capacity building.

They are also working to support clusters, a network of diverse food and agribusinesses, researchers and associations throughout the country, who collaborate around building skills and innovative approaches in addressing regional challenges.

There are many social and economic benefits of clustering that come

from increased connectivity and collaboration, particularly in remote areas. Business leaders who see value in working together and believe in educating themselves further, will see growth in both their business and region. FIAL wants to help businesses and regions, so please contact them at [www.fial.com.au](http://www.fial.com.au) to find out how.

<sup>1</sup>Food Innovation Australia Limited's Sector Competitiveness Plan Feb 2018

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# FIAL



## FEATURES

### 24 Extended Labelling: The Quest For Information

Consumers are seeking more information about foods they purchase

### 26 No Use Crying Over Spilt Milk

Which products should be allowed to call themselves “milk”?

### 30 National Food Waste Strategy

Halving food waste in Australia by 2030

### 32 Training Next-Gen Food Scientists

Education is the key to strengthening the productivity of the food industry

### 38 What Makes a Profession?

What is the difference that distinguishes a profession?

### 40 Foods for Health: Trends and Opportunities

A health food boom is about to hit South East Asian markets creating unprecedented opportunities for Australian exporters

### 42 Sensory: Food Files

Latest research from around the globe

## REGULARS

05 By The Numbers

06 The Pulse

14 People

16 AIFST

46 Fast Five

47 Diary

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## Food for Thought

Happy New Year! Welcome to our first edition of *food australia* for 2019, in which education and learning is our key theme.

Nelson Mandela said that education is the most powerful weapon you can use to change the world. With the world of food science and technology so rapidly changing we need to ensure the industry keeps up.

In keeping with the theme, we explore a number of topics in this issue related to education – including training the next generation of food scientists and what makes a profession.

Other articles include the quest for information through extended labelling, the definition of “milk” and the Fight Food Waste CRC, of which AIFST is proud to be a supporting partner.

Education will be a major focus for AIFST more broadly as we develop and implement our 2019-2021 strategy built around our key priorities of grow, learn, connect and represent.

It is fitting that our first major event for this year is the AIFST Summer School. This year we are running two summer schools – the University of Queensland in Brisbane and the University of Adelaide will both host events in February. Head to page 16 for more information.

The AIFST Annual awards are a significant initiative of the Institute and a way to recognise the commitment of members and the contributions they make to both the Institute and the industry. Applications for the 2019 awards are now open. I encourage members to consider entering or recognising a colleague through a nomination. See page 23 for details.

Finally, the 2019 AIFST Convention (AIFST19) will be held in Sydney on 1-2 July. The theme is “*Feeding the Future: Challenges & Opportunities*”. This will be another great learning experience for members and colleagues so please lock this date into your calendars and keep an eye on our website for updates.

As always, I encourage all members to take an active role in engaging in the Institute. I invite those who have suggestions on improvements or opportunities to contact to me or my colleagues in the office or on the Board. Talk to us in 2019!

### Fiona Fleming

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# Industry Role Crucial in National Skills Standard

Who determines the content of nationally accredited vocational training qualifications? The short answer is industry. The Council of Australian Governments has established Industry Reference Committees to provide consultation on job outcomes and skills required to inform changes to existing qualifications, create new qualifications or delete irrelevant qualifications.

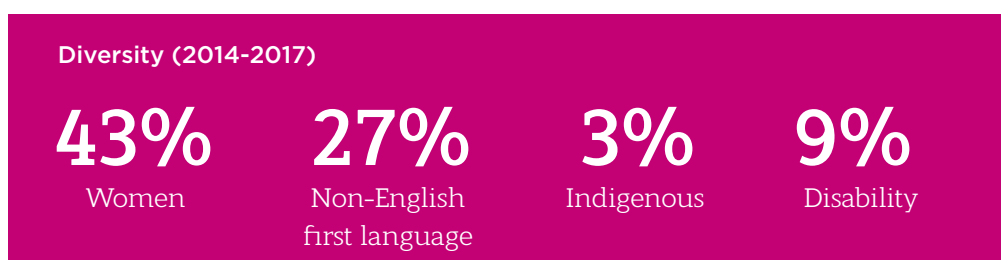
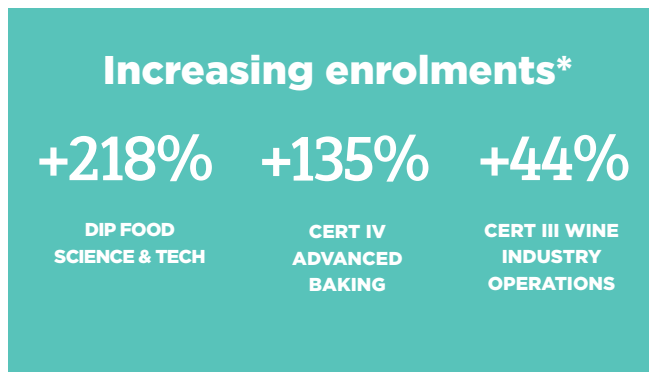
The reference committees ensure that industry needs are directly translated into national skills standards, which are delivered through training at accredited TAFEs and Registered Training Organisations (RTOs).

Skills Impact is one of the organisations tasked to support Industry Reference Committees, including the Food, Beverage and Pharmaceutical Industry Reference Committee, of which AIFST is a member. The organisation is working with industry to develop qualifications, skill sets and units of competency in the growing markets of artisanal cheesemaking, brewing and distilling, and, food and beverage fermentation.

There are 25 industry qualifications within the Food, Beverage and Pharmaceutical Training Package. When the reference committees identify skills gaps and the need to review and update the qualifications, the training packages are updated.

To have your say on the skills that Australia's future food science and technology workforce needs please [www.skillsimpact.com.au](http://www.skillsimpact.com.au)

In the meantime, let's take a closer look at some of the numbers.



\*from 2014 to 2017. Source: [www.skillsimpact.com.au](http://www.skillsimpact.com.au)

# Food Discovery Top Global Trend for 2019

Targeting increasingly adventurous consumers will be key to product development in the food and beverage industry in 2019, according to Innova Market Insights.

“The connected world means consumers of all ages are more knowledgeable of other cultures,” said the company’s Director of Innovation, Lu Ann Williams. “Take Japanese restaurants, for example, they are often full of children. Sweet potato and pumpkin, which are very traditional American vegetables, are now trending flavours in many food applications throughout Europe,” she said.

New product launches in the food and beverage sector are increasingly leveraging this knowledge.

“We saw a 35 percent growth in discovery claims on new food and beverage products globally between 2016 and 2017. Discovery claims are statements that include words like discover, explore, uncover, unveil and

unravel. We anticipate this trend to continue to impact the industry over the coming year and beyond,” she said.

The connected world also means that ‘adventurous consumers’ can now fact check any product claims.

“Everything has to have a story behind it,” said Ms Williams. “Big food manufacturers will have to think like small companies if they are going to compete for the hearts and minds of consumers.”



## NPD Responds to the Adventurous Consumer

Ingredients company Pecan Deluxe Candy has seen the trend to a more adventurous consumer drive new product development in the Australian market.

“The adventurous consumer along with Australia’s increasingly ethnic population is diversifying demand for a wider food range. We are seeing increased demand for Asian flavours such as matcha, magnolia, hibiscus, ginger, nutmeg and cinnamon,” said Pecan Deluxe Candy managing director for Asia Pacific, Graham Kingston.

“This has led to some exciting new product development. For instance, we have combined these Asian flavours with texturised inclusions to create a new consumer experience. Products like matcha brittles with cone coating, green tea and sesame barks or black sesame sauce and

praline watermelon seeds are all new product innovations that came of this insight,” said Mr Kingston.

Pecan Deluxe is also responding to consumer demand for transparency and single-sourced, traceable ingredients.

“A key part of the Pecan Deluxe Candy offering is the production of premium and indulgent ingredients using traditional artisan production methods, backed with full product traceability,” said Mr Kingston.

The company works with local distributor Hawkins Watts to supply a range of ingredients to help manufacturers to differentiate their offering.

“Ingredients can always be made to fit new consumer demands, and that means our customers are able to keep up with whatever trends Australia’s innovative foodies come up with next,”



said Mr Kingston.

“The Australian food market has enormous potential for growth. Flexibility and creativity are key.”

## Positive Pork CRC Outcomes



Happier pigs, an agreed model for pork eating quality and reduced industry greenhouse gas emissions are some of the key R&D achievements of the Pork CRC. The outcomes were presented by outgoing CEO, Roger Campbell, in his final annual report.

Researchers at Melbourne University, South Australian Research and Development Institute (SARDI), SunPork and Rivalea showed that dietary enrichment with straw or lucerne two days before farrowing significantly reduced still birth rate and improved the affective state of sows, but not gilts (young females).

The researchers also found that lucerne chaff offered throughout lactation improved colostrum intake and pre-weaning performance.

In another project, the team at SARDI developed an eating quality predictive model similar to the Meat Standards Australia system used by the red meat industry. The model comes up with a Pork Quality Score, based on a combination of eight factors at cooking temperatures of 70 or 75°C. These include gender, cut, cooking method, aging time, ultimate pH, moisture infusion, hanging method and electrical stimulation. It is hoped

that the model will revolutionise the marketing and eating quality of Australian pork.

A life cycle assessment (LCA) by Dr Stephen Wiedemann of Integrity Ag Services has predicted that greenhouse gas emissions of the Australian pork industry will fall from 3.6 kg (in 2010) to near 1.3kg of CO<sub>2</sub> equivalents by 2020-21.

“The reduction will be primarily due to two key factors. The uptake of biogas capture and use from effluent, and improved productivity,” Dr Campbell said.

In presenting his final report, Dr Campbell was optimistic about the future of Australia’s pork industry, which he felt would emerge from its current challenging situation stronger and more resilient.

“The industry will need this strength and resilience as globally things are getting tougher and this is unlikely to change,” he said.

The Pork CRC concludes June 30, 2019. Some of its work will be continued by the Australasian Pork Research Institute Ltd (APRIL).

## CSIRO Uncovers Key to Healthier Rice

A new gene with the potential to improve the health profile of rice has been discovered by Australian and Chinese researchers.

CSIRO, together with the Chinese Academy of Agricultural Sciences, have identified a variety of rice with a gene that allows it to develop an outer layer - the aleurone - 4-12 times thicker than in conventional rice.

The aleurone contains the majority of nutrients in a grain of rice. White rice is often less nutritious than brown rice because the aleurone is removed during white rice processing.

Researchers were able to isolate the variety’s unique gene and hope that applying it when cultivating other rice varieties will boost their nutrient profiles.

According to the Consultative Group for International Agricultural

Research (CGIAR), rice accounts for more than 42% of all calories consumed globally. Researchers hope this breakthrough will help improve the nutrition of billions of people worldwide.

Breeders in China, the world’s largest rice consumer, have successfully used the gene to cultivate red and black-grained rice varieties, an increasingly popular wholegrain alternative to white rice in China.

New varieties being developed have very little or no effect on the yield of the rice crop. This allows farmers continued profit in the likely shift to healthier rice varieties in coming years.

CSIRO is now working with Chinese scientists to develop other healthier alternatives to other popular grains including wheat, barley and sorghum.



# Cybertongue: Next Generation Diagnostics

A next-generation diagnostic tool that uses biological sensors to detect substances like lactose has potentially game-changing applications for food safety, environmental monitoring and human health. Known as Cybertongue, the tool has been developed by CSIRO and licenced to PPB Technology.

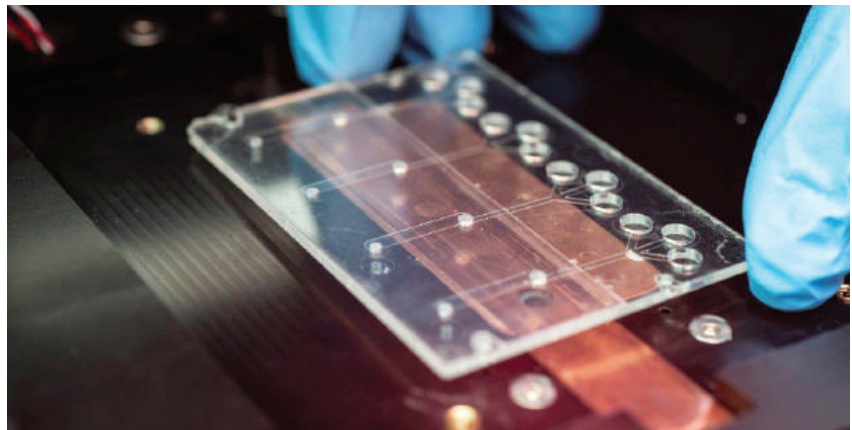
Former CSIRO researcher and PPB Technology founder, Dr Stephen Trowell, said the company would first focus on the tool's diagnostic potential in the dairy industry, detecting lactose and spoilage enzymes in milk.

"It is estimated that four per cent of Australians are lactose intolerant and this problem may affect up to 65 per cent of the world's human population," said Dr Trowell.

"We are seeing a growing number of people in Australia and around the world preferring lactose-free dairy alternatives.

"The global market for these products is set to grow to \$15 billion over the next six years.

"For milk processors, current diagnostic methods for lactose are expensive and it can take up to a week to receive results, causing costs and delays for processors and increasing prices for consumers.



"By using a special biosensor for lactose, the Cybertongue technology provides accurate and close to real time measurements anywhere in the production line, meaning products can be distributed sooner without risking product quality."

CSIRO is developing future sensors for wider applications of Cybertongue as part a formal strategic partnership between CSIRO and PPB Technology.

"The unique way we have built the technology means we can develop sensors that detect a wide range of substances including toxins, allergens and enzymes," senior CSIRO researcher Dr Alisha Anderson said.

This means the technology can be

applied to a range of applications and industries such as food, environmental monitoring, biosecurity and human health.

"In human health this technology could mean potentially fatal health conditions like sepsis could be diagnosed in just a few minutes rather than current methods which take a few hours, potentially leading to faster and more effective treatment," Dr Anderson said.

"It could also be used for the early diagnosis of some cancers.

"This is a great example of how a startup can take science and innovation developed inside of CSIRO into the Australian community."

## State of the Industry 2018

Despite challenging conditions during 2016-17, Australia's \$131 billion food and beverage, grocery and fresh produce sectors now account for nearly 40 per cent of Australian manufacturing jobs.

The Australian Food and Grocery Council's (AFGC) State of the Industry 2018 report highlights the importance of the fsector to Australia's economy, and its resilience in the face of a significant loss of competitiveness.

According to AFGC CEO Ms Tanya Barden, the 2018 report shows how resilient the sector is in the face of mounting pressure.

"Input costs are rising on everything from commodities to labour and energy. This, along with six years of retail price deflation, continues to cut margins."

"Continuing to stimulate investment in site modernisation is critical, particularly in light of the mounting input cost pressures. We are in danger of drifting into a low investment trap, where uncertainty about return on investment flowing from retail price deflation and rising costs is seeing investment decisions deferred or dumped," said Ms Barden.

The AFGC recommends that targeted investment allowances be adopted to bring forward investments in Australia, to retain jobs and businesses here, particularly in regional areas where approximately 38.8 per cent of the sector's jobs are located

The report highlights that the industry's growth prospects increasingly lie in export channels.

"An increase in exports in 2017-18 shows that the ability to realise premium prices for value-added food and beverage products in growing export markets is a key source of growth. It contrasts with the low growth, deflationary domestic trading environment."

"For the Australian economy to grow, we need strong regional employment, a strong manufacturing base and export-led growth. The food and grocery sector offers these three aspects but requires policies that address cost competitiveness and ensure fairness in retailer supplier trading," said Ms Barden.

For more on the report visit [www.afgc.org.au/2018/11/state-of-the-industry-2018-report-food-and-grocery-the-future-of-australian-manufacturing/](http://www.afgc.org.au/2018/11/state-of-the-industry-2018-report-food-and-grocery-the-future-of-australian-manufacturing/)



# CSIRO Launches Gut Health Diet

CSIRO has launched a new *Total Wellbeing Diet for Gut Health*. The new program includes a higher fibre menu plan, combined with protein and low GI carbohydrates for appetite control.

According to Dr Gilly Hendrie, CSIRO Research Scientist and report co-author, the new diet plan has been developed in response to research that shows people who are overweight or obese are more likely to experience gut health symptoms.

“Fifty per cent of Australians experience digestive upsets and one in seven experience distressing gut symptoms that can affect their quality of life,” said Dr Hendrie.

“People who are overweight or obese generally have less than the recommended amount of fibre in their diet. But they may actually need to eat much more fibre, especially



readily fermentable types, to overcome the adverse effects of an unhealthy diet.”

The research shows 83 per cent of Australians aren't getting enough fibre in their diet and a high proportion of their fibre intake is coming from junk food.

“The Total Wellbeing Diet has been developed through years of scientific research and its format of menu plans, shopping lists, and at-home exercises can really help people who might feel overwhelmed or confused about how to lose weight,” Dr Hendrie said.

## *We're passionate about food.*

Our Food Science team is committed to ensuring the availability of safe, healthy food to sustain us now and in the future.

Our program, which includes the Graduate Certificate, Graduate Diploma and Master of Science (Food Science and Technology), is the only one of its kind in Western Australia, with specialised facilities that include the state's only sensory evaluation lab.

At the undergraduate level we offer courses in Agricultural Science, Agribusiness, Biochemistry & Nutrition and Food Science.

Our industry ready graduates find diverse and rewarding careers in quality assurance, research and development of new products and processing technologies, microbiology, technical consulting, sales and marketing.

To take the first step toward your career in food, visit [curtin.edu/food-sci](http://curtin.edu/food-sci).

**BE THE INNOVATOR**



## New Research Centre to Tackle Food Waste

The biggest research and development collaboration to fight food waste was launched in Adelaide in October 2018. The Fight Food Waste Cooperative Research Centre (FFW CRC) will investigate ways to drastically reduce food waste and confront Australia's alarming \$20b food waste bill.

"The initiative brings together 57 of the best Australian researchers, organisations and food industry companies to collectively tackle the food waste issue head on to generate prosperity, a stronger economy and regional job security for Australia," said FFW CRC chief executive officer Dr Steven Lapidge.

Australia has committed to contribute to the United Nations Sustainable Development Goal of halving per capita global food waste at the retail and consumer levels and reducing losses along production and supply chains, by 2030. This will be achieved through the National Food Waste Strategy (NFWS) with the



Hon. Tim Whetstone, Dr Steven Lapidge and John Webster (Chair) at the launch.

support of the FFW CRC.

"The best way of achieving this ambitious goal is through turning 'waste' in to a resource through adopting circular bio-economy principles. Along with reducing waste in the supply chain and transforming unavoidable waste into innovative high-value coproducts, the FFW CRC will engage with industry and consumers to deliver behavioural

change," said Dr Lapidge, who is also a non-executive director of AIFST.

It is anticipated that with less food ending up in landfill there will be an increase in donated food, which means the CRC can contribute to redirecting food to people in need through our two participant food charities, Foodbank and OzHarvest.

AIFST is a proud supporting participant in this important initiative.

## Sweet Sainsbury's Deal for Nexba



Australian sugar free beverage company, Nexba will launch into the UK market through a broad distribution deal with prominent supermarket chain, Sainsbury's.

The initial launch will see Nexba's no sugar and nothing artificial sparkling water range available in over 500 Sainsbury's supermarkets. Nexba's full range, including Naturally Sugar Free soft drinks, tonic waters and

kombucha, will be offered in the UK market in 2019.

Nexba co-founder and global chief executive officer Troy Douglas said the brand resonates with the sugar-conscious UK market, especially after 2017's introduction of the soft drink levy.

"The levy has already driven a rise in artificial substitutes as brands seek quick fixes to maintain sweetness.

Naturally sugar free alternatives that don't compromise on taste and do not use artificial ingredients are a great counterpoint," said Mr Douglas.

Sainsbury's head of future brands, Rachel Eyre said the deal with Nexba was a natural fit.

"Nexba is a distinctive brand with an innovative, great-tasting products for consumers who are concerned about their sugar intake. Nexba provides another step towards making Sainsbury's a home for truly unique brands," said Ms Eyre.

The secret to the brand's sweet success is its proprietary sweetener blend with a mixture of ingredients that include stevia, erythrolol, natural flavours and fruit extracts.

Nexba's strive for innovation has struck a chord with Aussie investors, with equity crowdfunding platform VentureCrowd backing its global expansion. The Australian-owned company has raised \$4.5 million to fund Australian innovation and scale the business globally.

# FoodEDU Delivers Secondary School Training



FoodEdu team David Welch, Mel Malloch and Duncan McDonald.

Training provider FoodEDU is educating Australia's secondary school teachers by giving real world insights into the food industry and the latest innovations in food technology and food safety.

Recently the organisation held its inaugural accredited professional learning day for teachers of Food Technology and Food Technology Mandatory. The program was presented in partnership with the NSW Food Authority, NSW Department of Primary Industry and the Professional Teachers Council NSW, along with the Technology Educators Association and the Home Economic Institute of Australia.

The program was a full day of information sessions, teaching tools and demonstrations, including experiments and case-studies to be used by the teachers to inspire students. Attendees spanned teachers from public, Catholic and independent schools.

FoodEDU was established by Provyda managing director Duncan McDonald and ex-Sunrice executive David Welch to provide specialist education, information and training services in agri-food science and technology. Along with its school programs, the organisation provides food businesses with individual or team training and coaching.

"We focus on transfer of technical skills and knowledge to help build capabilities and performance," said David Welch.

"Some food businesses do not have the resources fulfil critical internal professional development needs and there are limited opportunities presented by external public courses, especially for very specific areas of technology or business activity.

"We bring subject matter experts to deliver customised training. We can combine training with consulting to help build skills in the context of solving an immediate business challenge."

FoodEDU taps into a network of associates to provide in depth knowledge, which enables the organisation to create bespoke training solutions.

"Our associates represent some of the best available expert knowledge in their fields," said co-founder Duncan McDonald.

"In the current digital age, there is an overwhelming amount of information available. The challenge for teachers, students, food technologists, marketers and other industry professionals is finding the right information and then having the skills and knowledge to apply it.

"Our aim is to make that process as efficient and effective as possible," said Mr McDonald.

## New Syllabus: NSW Food Authority Delivers Food Safety Lessons

A new mandatory technology syllabus is being implemented in NSW schools in 2019 for years 7-8. It includes agriculture and food technologies. With around 26,000 students currently studying food technology in NSW, it is one of the fastest growing areas of interest in the school syllabus.

In order to deliver the new syllabus, teachers are required to participate in accredited professional development programs, like the FoodEDU workshop.

As part of the workshop, the NSW Food Authority delivered an interactive session on practical risk assessment. The session focused on learning how to identify high risk foods and increasing understanding of food safety during food preparation to mitigate the risk of foodborne illness.

"Secondary school teachers have identified that they find it difficult to access usable resources relating to these subjects. The provision of tools along with real-

world knowledge and experiences was invaluable," said NSW Food Authority's Geneveive Bonello.

"Promoting food safety education in schools is vital to increasing the knowledge of the whole community so that the continued wellbeing of the community is maintained."

Copies of resources are available on the Department of Primary Industries website at [www.dpi.nsw.gov.au/education-and-training/school-resources/secondary-schools](http://www.dpi.nsw.gov.au/education-and-training/school-resources/secondary-schools)

# Education: PhD Research Opportunities

The Fight Food Waste CRC has a range of opportunities for students interested in being part of this \$121 million, 10 year, Australia-wide, whole of value chain,

industry-led, research collaboration. Students will receive a generous stipend, enhance their career prospects by participating in bespoke career mentoring activities, as well

as undertaking a business focussed graduate certificate.

Topics for student projects available to start from early 2019 are:

TOPIC	COURSE, UNIVERSITY AND INDUSTRY PARTNER	CONTACT
Integrating save food packaging design criteria into NPD processes	PhD at RMIT University, Australian Institute of Packaging	Karli Vergheze Karli.Vergheze@rmit.edu.au
Consumer perceptions of the role of packaging in reducing food waste	PhD at RMIT University, Sustainability Victoria and Woolworth	Karli Vergheze Karli.Vergheze@rmit.edu.au
Integrating decision support tools into organisations for food waste strategies	PhD at RMIT University, Empauer	Simon Lockrey Simon.Lockrey@rmit.edu.au
Waste-to-Energy: Fuelling sustainable wastewater treatment with food waste	PhD at University of Queensland, Queensland Urban Utilities	Paul Jensen p.jensen@uq.edu.au
Techno-economic modelling of food waste transformation	PhD at University of Queensland, Queensland Department of Agriculture and Fisheries	Joe Lane j.lane@uq.edu.au
Consumer food waste prevention: Identification of effective behaviour change interventions	PhD at Central Queensland University Sydney campus, Woolworths	David Pearson d.h.pearson@cqu.edu.au
Enhancing engagement from volunteers in food rescue organisations	PhD at Central Queensland University Sydney campus, Foodbank	Upamali Amarakoon u.amarakoon@cqu.edu.au
Improving the awareness and impact of food rescue through collection and reporting of data	PhD at Central Queensland University Sydney campus, Foodbank	Upamali Amarakoon u.amarakoon@cqu.edu.au
Biomass characterisation and adding value to waste biomass	PhD at University of Adelaide, Potato Industry	Vincent Bulone vincent.bulone@adelaide.edu.au
Torrefaction process for the production of liquid chemicals and biochar from food waste	PhD at University of Adelaide, Peats Soils	Weoi Saw weoi.saw@adelaide.edu.au
Alternative preservatives to SO <sub>2</sub> in abalone	PhD at University of Adelaide, Abalone Council of Australia	Stephen Pahl stephen.pahl@sa.gov.au

Successful PhD students will undertake a four-year program and receive a total tax-free stipend of \$35,000 per annum (comprising a scholarship from the host university, such as a University of Australian Postgraduate Award, with

a top up from the Fight Food Waste Cooperative Research Centre).

To receive the University scholarship, applicants will generally need a First-Class Honours degree or Masters level qualification. Specific details of each

research project will be developed together with the identified industry partner.

To register your interest, email the contacts above.

## Foodbank Supplying Staples To Australia's Most Vulnerable

A staggering four million Australians have experienced food poverty in the past 12 months, according to the latest report by Foodbank, Australia's largest food relief organisation.

The organisation's annual snapshot on the state of food security in the community, exposes a growing problem in both metro and country areas. During the last year, 1.5 million people from regional and remote areas have experienced the uncertainty of not knowing where their next meal is coming from. They are 33% more likely to experience food insecurity than their city cousins.

One of the key challenges for relief organisations is securing sufficient volumes of key staple foods, like milk, rice, pasta and cereal. Long shelf lives and demand predictability, means the supply chains for these foods are extremely efficient with little waste. As a result, food relief organisations have to obtain them by other methods. Foodbank is the only organisation in the sector to take on this challenge through its Key Staples Program.

Foodbank partners with farmers, ingredient suppliers, manufacturers, retailers and transporters to source key staples to supplement its offering. In collaboration with the food industry, Foodbank is able to obtain \$5 worth of food (retail value) for every \$1 invested in the program.

Through the program, Foodbank has developed a strong working relationship with over 30 food manufacturers and suppliers. Through these relationships, the organisation was able to source over 2.3 million kilograms of extra food in 2017/18, including fresh and long-life milk, breakfast cereal, rice, pasta, pasta sauces, sausages, canned fruit, vegetables and meals and teabags. Unfortunately, this was down from 3.2 million kilograms in 2016/17 due to a reduction in federal government funding.

The charities supplied by Foodbank assist 710,000 people each month, almost a third of whom are children. Charities are forced to turn away 7% of those seeking food relief because

of lack of food and resources and the situation is getting worse. Half of all charities reported an increase in people seeking food relief last year.

The provision of food is particularly important to charities. They see the food as a significant reason why people seek their assistance and it helps to build trust leading to being able to offer other services. The provision of food relief addresses the nutritional, physical and mental health needs of vulnerable people contributing to their general wellbeing, social relationships, academic achievement and overall standard of living.

In a study of the Social Return on Investment of Foodbank's services (Net Balance 2014), the forecasted value per kilogram of food is \$23. In a single year, the social value forecast of Foodbank activities is in excess of \$850 million.

To find out more about Foodbank's Key Staples Program, please go to [www.foodbank.org.au](http://www.foodbank.org.au)



## Australian Dairy Technology Wins Awards



*IChemE Award of Excellence recipient Professor Sally Gras, University of Melbourne.*

Australian universities are leading the world in dairy innovation, recently taking out two prestigious chemical engineering awards.

Professor Cordelia Selomulya, and her team at Monash University, received a Chemical Engineers (IChemE) Global Award for the development of technology that extends the shelf life of powdered dairy exports.

Milk powders, whey powders, and milk protein concentrates together make up half of Australia's \$2 billion dairy export industry. The new "smart drying" technology helps to maintain powder quality during transport and storage, which has the potential to assist the dairy industry in meeting demand from overseas markets. By

using lower temperatures and more efficient evaporative processes, this technology also saves energy and reduces waste. The award was presented at the 2018 IChemE Global Awards, in England.

Meanwhile, Professor Sally Gras, from the University of Melbourne, was awarded an IChemE Award of Excellence, recognising the contributions made by chemical engineers in Australia and New Zealand.

Prof. Gras was honoured for her work as Director of the ARC Dairy Innovation Hub - a five-year, \$12m program that is helping dairy manufacturers address the scientific and technical challenges that constrain productivity and growth.

### 2018 AIFST Bruce Chandler Book Prize



Hilton Deeth was awarded the 2018 AIFST Bruce Chandler Book Prize. Unfortunately Hilton was unable to be at the 2018 AIFST Convention to receive his award in person, so it was subsequently bestowed by AIFST member Professor Mark Turner, University of Queensland. Hilton won the award along with Michael Lewis for their book *High temperature Processing of Milk and Milk Products*. The comment from the judges was "well-deserving of the prize and of a very high standard internationally. Likely to become a classic text in its field."

## Two New Board Members for MLA

Meat and Livestock Australia has elected two new members to its board.

**Professor Manny Noakes** is an expert in nutrition and health including the food regulatory system and functional food substantiation. She is currently an Adjunct Research Professor with the University of South Australia and was formerly a Senior Principal Research Scientist and Director for the Nutrition and Health Program at CSIRO.

**Jo Pye** is an expert in large scale customer engagement, marketing and strategy within the fast-moving consumer goods industry, with a focus on food and beverage. She is currently Director - Food Service for The NPD Group, is undertaking a Diploma in Leadership Coaching and is a member of the Australian Institute Food Science & Technology (AIFST)

The appointments take the female representation on the Meat and Livestock Australia board to four.



# RMIT Appoints Food Technology Lecturer



Dr Tuyen Truong has been appointed as lecturer in Biosciences and Food Technology, RMIT University, Melbourne.

Dr Truong previously lectured in food processing technology and food materials science at The University of Queensland, and has also lectured in sensory evaluation of food at Nong Lam University, Vietnam.

Dr Truong is known for the development of a carbon dioxide-enhanced crystallisation technique and dairy-based oleogels system to improve functionality of butter, low fat spreads and whipped cream.

Her current research continues to focus on innovations for dairy products and processes, and she is also interested in the challenges of oil structuring for fat-reduced food products. She is working to develop innovative templates for gelling of oil (oleogelation) that are suitable for a broad range of applications including food, pharmaceuticals and nutraceuticals.

Dr Truong was awarded MADP2017 Young Scientist Excellent Award. She has a doctorate and master's in philosophy in food engineering from The University of Queensland.

# GrowCoastal Accelerating Local Food Innovation

Twelve of the Sunshine Coast's most innovative local foodpreneurs are gearing up for the 2019 GrowCoastal Food Accelerator program, designed specifically for producers looking to deliver new food and beverage innovations to market and then to scale fast.

The program is a partnership between the Innovation Centre Sunshine Coast and the Food & Agribusiness Network (FAN), and is sponsored by Advance Queensland. It offers emerging businesses support with connections, expertise, seed capital and mentoring. Just twelve businesses are selected to participate, with each accessing over \$10,000 in value over the three-month accelerator program.

Mark Paddenburg, chief executive officer of University of the Sunshine Coast's Innovation Centre said the program reinforced the region's fast-growing reputation for supporting innovation and entrepreneurship.

"The Sunshine Coast region has a well-earned reputation for quality food. We have a huge variety of small, medium and large producers with innovation built into their DNA," Mr Paddenburg said.

"The GrowCoastal Food Accelerator program was launched in 2015 and has gone from strength to strength in that time.



*The 2018 graduates of the GrowCoastal were: Jodie Cameron, Barenuts Macadamias. Zoe Wombwell, Black Lemonade Bakery. Sharlene Kelly, Boneafide Broth Co. Megan Dean, Embassy XO. Kelly Burton & Mick Dan, Good Harvest Organic Farm. Ann Ross, Hive Haven. Amanda Schultz, LuvBerry. Brigid Woolnough, KOKOPOD Chocolate. Daniel Joyce, Mighty Bean. Martin & Regine Rellstab, Sunshine Coast Cider. Nick Gravis & Matthew Weller, The Wholefood Artisan. Michelle Mascher, Ugly Duck Preserves.*

"The 2017 cohort employed 17 new staff in the last year, nearly tripled its customer numbers and had a 140% increase in revenue.

"The 2018 cohort has employed 16 new staff, had a 53% increase in customers numbers and a more than 50% increase in revenue over the last nine months."

FAN Chair Jacqui Wilson-Smith is proud of the initiative.

"The GrowCoastal program will increase the pipeline of food innovation and supports FAN's purpose to help members connect, collaborate and grow," she said.

The 2019 program will be held in February.

# AIFST Holds Two Summer Schools in 2019



As part of AIFST's ongoing support for students and young professionals, the AIFST Summer School is returning for 2019 – not once but twice! This year we are pleased to announce we will be running two summer schools to give more students and young professionals a chance to be involved.

AIFST Summer School provides opportunities for student and young professional members to develop knowledge. It also provides important networking opportunities.

AIFST Summer School is an opportunity to:

- build a network of professional food industry contacts;
- learn from industry guest speakers, who provide insight and advice on prospective career paths in both research and industry;

- gain valuable firsthand industry knowledge with a site tour of an industrial or research facility;
- build industry relevant skills, including presentation and public speaking skills;
- the potential to present your current research in front of your peers; and
- build technical knowledge with workshops designed to develop critical thinking skills.

Our 2019 hosts are **The University of Queensland**, 18 – 19 February 2019 and **The University of Adelaide**, 26 – 27 February 2019.

Further information on the 2019 AIFST Summer School can be found at [www.aifst.com.au](http://www.aifst.com.au).



## The Future is Sweet

William Angliss Institute students in their final semester of the Diploma of Food Science and Technology have shown that the future is in good hands, with some sweet entries in the Student Product Launch for Semester 2, 2018.

First prize was taken by talented student Farrah Megson, who produced a delicious and creamy chocolate with a filling of strawberry gum and Davidson Plum. Her vision was to create a reasonably priced product that appeals to travellers as a souvenir to share the tastes of Australian indigenous flavours when they get back home.

AIFST sponsored the Student Product Launch and it was exciting to see the innovation and creativity of our next generation of food scientists and technologists.



AIFST board member Andreas Klieber presenting at William Angliss Student Product Launch 2018.



## 2019 Student Product Development Competition: Fight Food Waste

The annual AIFST Student Product Development Competition (SPDC) is designed for undergraduate and post-graduate students who want to take part in real life new product development, from brief to shelf.

The SPDC was established 16 years ago and since then has attracted team entries from leading educational institutions across Australia. Many previous entrants have gone on to find fulfilling careers in both the Australian and global food industry.

In 2019, the focus is on food waste and sustainability. It challenges

students to come up with a creative solution to food waste with an innovative new product that has market appeal and tastes great.

After initial submissions, a short list of finalist teams will further develop their product for presentation at the 2019 AIFST Convention in Sydney in July, where the winning team will be announced.

For more information on the 2019 SPDC, including submission dates, eligibility criteria and the full competition brief, please visit [www.aifst.com.au](http://www.aifst.com.au)

Want to take part in AIFST's student programs in 2019? Join AIFST. Student members are entitled to free registration to the 2019 Summer School and the opportunity to enter into the Student Product Development Competition. To join or renew, visit [www.aifst.com.au](http://www.aifst.com.au)



2018 SPDC winning team members - Kinga Wokciechowski, Adelaide Spicer & Edina Odor for their product Pulse Granola Clusters.



Finalists Jenai Knight and Emily Lees with their product entry, Emai Smoothie.



Finalists Timothy Halls, James McMordie and Shelley Haslett with their entry Jacks Plant Based Meats.



Judging of the entries in the SPDC 2018.

## 2019 AIFST Mentoring Program



Class of 2018 - Mentoring program graduation.

AIFST is pleased to announce its national mentoring program is on again for 2019, following a successful national rollout in 2018. Launched as a pilot in NSW in 2017, last year's inaugural national program attracted more than 50 participants.

The AIFST Mentoring Program is designed to connect an established industry leader with someone who

is seeking support and guidance in their professional life. It is open to all AIFST members and registrations are currently open via the AIFST website.

Members interested in being a mentor or mentee need to apply by Friday, 1 March 2019. After a matching process, induction sessions will take place throughout March 2019 for successful applicants.

While the frequency of meetings will be decided by the pairs themselves, it is anticipated that a minimum of an hour a month will be required. For mentors who have not participated in a mentoring relationship in the past, AIFST has support materials to guide the mentoring process.

Please join us for this fantastic program and help to cultivate great future industry leaders.

The 2019 program will run for a six-month period from March-September 2019, culminating in wrap-up sessions in September. For further information contact the Membership Services team at [aifst@aifst.com.au](mailto:aifst@aifst.com.au) or visit the AIFST website to download an application.

## Chris Preston in Bangkok

Food Innopolis  
International Symposium



*Chris Preston representing AIFST at Food Innopolis Symposium 2018, Bangkok*

On 6 November, 2018, Chris Preston of ComplyANZ represented AIFST as an invited speaker at the Food Innopolis Symposium 2018, Bangkok. Food Innopolis is an initiative of the Thai Government to establish a centre of excellence for food technology and innovation, and the symposium was the first of what is intended to be an annual event.

Chris spoke in a session on Food Safety and Standards, addressing

the safety assessment and regulation of novel foods as well as describing how regulation sits within a hierarchy of food needs. The session received the highest rankings at the event for participation, interest and relevance.

The trip was fully funded by the conference organisers and Chris was able to spend time showcasing the role and activities of the AIFST to a global audience, including participants from Europe, Asia and North America.

## Oceania Food Regulatory Conference



AIFST non-executive director Andreas Klieber represented the institute at the recent Oceania Food Regulatory Conference, held in Melbourne on 20 November 2018.

The program covered the latest food regulation updates in China, including infant formula, health food, food for special medical purposes, certification and registration, food safety law and food contact materials.

The conference was hosted by ChemLinked in collaboration with AIFST, Complementary Medicines Australia (CMA) and The Australia China Business Council. It was attended by global food companies including as Fonterra, Blackmores and A2.

## Careers Night



The AIFST careers evening held in partnership with University of Adelaide and Food South Australia was a great success. It was attended by more than 35 final year Food & Nutrition Science students, 10 directors from Food SA and AIFST Non-executive director, Dr Steven Lapidge.

## WA Food Safety: Listeria Lessons



The AIFST WA Community of Interest organised an educational evening on food safety with a particular focus on listeria outbreaks.

*Foodborne Listeria Outbreaks and Lessons Learnt* was held on 15 November 2018, at the ChemCentre, Bentley Perth. Professor Elna

Buys, University of Pretoria and Ms Elizabeth Frankish, University of Tasmania shared their insights on causes and prevention, using recent real-world examples.

The event was a great success. It was attended by 44 representatives of the food processing industry,

food analysis laboratories, academic and research institutes, as well as organisations interested in food science and nutrition.

Thank you to our keynote speakers, as well as Mr Giles Aley and Dr Justin Whitely for helping to organise this event.

## 3RD FOOD ALLERGEN MANAGEMENT SYMPOSIUM

13 - 16 MAY 2019, MELBOURNE AUSTRALIA | STATE LIBRARY OF VICTORIA

### *Navigate the science, manage the risk*

Registrations and abstract submissions are now open for the 3rd Food Allergen Management Symposium (FAMS2019)

To register for FAMS2019, submit an abstract, find out more about the program and speakers, or learn about sponsorship and exhibition opportunities – please visit [fams2019.com.au](http://fams2019.com.au)

The Food Allergen Management Symposium is a biennial international symposium held in Australasia. FAMS2019 will provide a unique opportunity for the ANZ and international food industry to learn from, and interact with, some of the key global figures in food allergy and food allergen management.

FAMS2019 is proudly presented by the Allergen Bureau, Dairy Food Safety Victoria, National Measurement Institute, and University NSW.

### *Who should attend?*

- Food industry - manufacturers, suppliers, retailers
- Researchers and technicians
- Clinicians and dietitians
- Consumer groups
- Regulatory agencies

**ABSTRACT SUBMISSIONS CLOSE**  
Friday 12 April 2019 (11:59 PM AEST)

**REGISTRATIONS CLOSE**  
Tuesday 30 April 2019 (11:59 PM AEST)

All Allergen Bureau members will receive significant member discounts on their FAMS2019 registrations.



**FAMS**  
2019

# Student Solutions to Global Food Security

A system used to grade the quality of fruit and vegetables on farm in order to determine appropriate use and relevant distribution channels has been created by South Australian students as part of a two-day food sustainability challenge.

Year 8 students from Hamilton Secondary College partnered with Food and Nutrition Science students from The University of Adelaide to design and prototype solutions to problems associated with food sustainability.

Students worked in teams to investigate the impact of food production on the global environment, including consideration of issues connected to food wastage, dwindling resources and changing climate.

Along with mentoring from a student from The University of Adelaide, the teams were also assisted by visiting experts, including Helen Morris, Program Coordinator for Food and Nutrition Science, and Dr John Carragher, Food Innovation Theme Industry Liaison Manager, both from The University of Adelaide) and Dr Steven Lapidge, CEO Fight Food Waste CRC and AIFST non-executive director.

The winning pitch came from Mohamad (Toe) Imad and Dan Pescud who, along with fellow student Daniel Block, designed the Apple Scale Staging System: a system used to grade the quality of leftover farm produce (fruit and vegetables) to determine an appropriate use and relevant distribution channel.

Special mentions went to Nicole (Kim) Valente, Cassie Albanus, Christopher Birkin and Javeria Khan for their

edible sticker campaign: Help Stick it to Food Waste, and to April Hansen and Princess Basa for their Re-banana campaign to collect bananas wasted at the farm gate and turn them into edible products for sale, returning a portion of the money to banana growers.

“The Food Sustainability Challenge was great because it gave children a real chance to make an impact on the world,” said winner Mohamad (Toe) Imad. “It taught us to think critically about global problems and showed us that our ideas can contribute to positive change”.



*Students from the Hamilton Secondary College and their mentors from The University of Adelaide.*

## Feeding the Education Gap

*Words by April McElligott*

The global population is expected to reach 9.7 billion by 2050, with demand for food expected to increase up to 98%. Do we have enough food?

The challenges facing the future of food availability are complex. They include poor agricultural productivity, unsustainable use of natural resources, climate change, poverty, convoluted food systems, rapidly increasing income earnings and international governance policies.

To overcome these obstacles, we need to explicate ideas. There is an overwhelming consensus that food availability and security will only improve once agricultural lands are expanded and new methods of precision farming are adopted. Although these pose significant potential, boosting production is not a sufficient solution. To truly alleviate this issue, focus needs to be placed on the contributing factors: food wastage, food technology and food distribution.

Education is the key to empowerment and addresses deeply-rooted issues. It facilitates one's learning and progression of skill, which allows individuals to build

opinions and develop a critical thinking. The future of food lies within educational institutions and their ability to provide courses and training in science, technology, engineering and agriculture.

Informed graduates with a diverse knowledge of food entering the food industry will provide hope for minimising the consequential impact associated with this complex issue.

Yet, in the past 10 years, universities, TAFEs and colleges have been phasing out food-related courses. Some courses have completely dissolved, while others have shifted to become Major, Masters and PhD opportunities. Consequently, food-related professions have declined.

Considering the future demand of food, specialised professionals with a diverse knowledge in food-related fields is critical. Ensuring our educational institutions are addressing this is crucial.

*April McElligott is a Food and Agribusiness student at the University of Sydney and interned at the AIFST in 2018.*





Sip it

Mini  
**Praline**  
Nuts



Spoon it

**Brownie**  
Pieces

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**Chocolate**  
Shapes



Shake it

Chocolate Chip  
**Cookie Dough**  
Pieces



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# SAVE THE DATE- 2019 AIFST CONVENTION 1-2 JULY 2019

**SYDNEY INTERNATIONAL CONVENTION CENTRE**

## **FEEDING THE FUTURE: CHALLENGES & OPPORTUNITIES**

The AIFST Convention is held from 1 - 2 July 2019 at the International Convention Centre (ICC).

The Convention theme is Feeding the Future: challenges & opportunities. The program will include tangible and practical information that is relevant to today's operating environment, as well as insights and information that is future focussed.

## **WHAT CAN YOU EXPECT IN 2019?**

AIFST19 will feature four concurrent streams with keynote speakers featured in the plenary sessions on each of the two days.

The 2019 AIFST Convention will feature networking opportunities including the Young Professionals & Mentoring Networking Breakfast, Wine & Cheese Tasting Sensation and an industry trade exhibition.

## **SPEAKING OPPORTUNITIES - SUBMIT AN ABSTRACT**

AIFST is calling for abstracts that demonstrate cutting-edge science, technologies and innovation.

If you or your organisation has something new to say, then let us know! If you are interested in submitting an abstract, please see the abstract information on the AIFST website and submit your expression of interest to AIFST

via [aifst@aifst.com.au](mailto:aifst@aifst.com.au) by close of business on Monday, 25 February 2019.

## **PARTNERSHIP OPPORTUNITIES**

Partnership opportunities are available for companies wanting to link their brand with the Convention and extend their reach in the Australian food industry. To discuss ways your organisation would like to participate in the 2019 AIFST Convention, contact AIFST today via [aifst@aifst.com.au](mailto:aifst@aifst.com.au).

## **CALL FOR POSTER PRESENTATIONS**

AIFST is calling for Poster Presentation submissions. For more information visit the AIFST website. To be eligible for a poster presentation, at least one of the authors must be registered to attend the Convention. To submit a poster, please use the provided poster template on the AIFST website and submit to AIFST via [aifst@aifst.com.au](mailto:aifst@aifst.com.au) by close of business on Monday, 18 April 2019.

## **WINE AND CHEESE TASTING SENSATION - 1 July 2019**

The ever-popular Wine and Cheese Tasting Sensation remains a key part of the social program.

The Wine and Cheese Tasting Sensation is included in all Full Convention Packages and any one-day Convention Registrations purchased for Monday 1 July 2019.

## **CONVENTION REGISTRATION**

Registrations to attend the 2019 AIFST Convention open in mid-March via the AIFST website. All Full Convention Registrations include a ticket to the Wine and Cheese Tasting Sensation. Early Bird Registration is available until close of business on Monday 20 May 2019. After this date full pricing will apply. AIFST offers individual and group booking options including corporate registrations and discounted packages. Contact us to find out more information.





## Extended Labelling: The Quest For Information

Words by Geoffrey Annison, PhD. Australian Food and Grocery Council

Consumers in Australia and overseas, are seeking more and more information about the foods they purchase. The drivers for this quest are manifold but for most consumers they fall into two major categories. They want to know:

1. How foods contribute directly to their overall wellbeing. Apart from its nutrient composition consumers often consider other aspects of the food and its production which they perceive is important for its 'healthiness'. For example, whether it is 'organic' or 'free range'; and
2. The role of foods in other issues important to them. These might include country of origin or sustainability and package recycling.

Of course, some topics may span both categories. They are also linked by the fundamental maxim and community expectation that if information is desired by consumers the food industry must provide it, and moreover, if the information is not provided voluntarily governments may demand its provision through regulation.

In the past, and indeed still, the primary means for providing information to consumers has been through mandatory and voluntary information on food labels. This has been supported by other traditional methods such as advertising (print and broadcast) and consumer call centres.

The food industry is very aware of the rising information demands of consumers about food, its origins and production methods. And food companies meet those information needs through providing as much transparency as possible to their products and along the supply chain to the origins of their ingredients. For a number of years companies have provided a great deal of information which includes, and goes beyond, the mandatory information requirements on food packages. Consumers can access this information directly on company websites. The advantage of a food label, however, is that it provides information at point of sale, and this is considered critical to assist consumers' informed choice.

Recently digital linking to web-based information through smart

phones and other portable devices and their apps has become more common. They can provide rapid access to websites through scanning on-pack barcodes, QR codes and other images. The apps also have the potential to be personalised by the user so that information of interest is prioritised for display. As with food labels, this information can be provided at point of sale, but unlike food labels the web is not constrained in the amount of information that can be provided.

Thus the concept of 'extended labelling' has been developed. It is simply the provision of information to consumers through the internet, and particularly through the use of smart phones and scanning technology.

### Regulatory Policy Implications

It has been proposed that on-line provision of information to consumers may be a useful alternative to on-pack labelling, most recently in Australia in the 'added sugars' labelling consultation. And indeed, this concept has been formally adopted in



regulatory arrangements in the USA in relation to the labelling of foods containing material from genetically modified organisms.

In the US, the Agricultural Marketing Act 1946 was amended to insert a new National Bioengineered Food Disclosure Standard, to allow a food disclosure regarding the use of gene technology in the form of digital link on a label rather than a label statement. Specifically it requires:

- A mandatory text context for the electronic link, to the effect “scan here for more food information” or “call here ...” in the case of a telephone number.
- The linked page must make the required declaration itself with no promotional or marketing material on that page, and must be readable on a phone
- No personal data may be collected, analysed or sold about visitors using the link
- There must be a telephone contact in addition to the electronic link.

The approaches in the USA illustrate key issues to be addressed if consumer information is to be provided using extended labelling as a regulatory measure. Agreement must be secured regarding:

1. The type of ‘on-pack’ device(s) (such as barcodes) for provide a digital link to information
2. The label statements which will indicate to consumers that additional information is available through the digital link
3. The format of the ‘landing page’ and other pages accessed by consumers through the extended labelling apps
4. Appropriate assurances for consumers that information accessed through extended labelling apps is accurate and current
5. Appropriate safeguards for consumers using the apps, and
6. Any additional constraints or measures necessary to protect the consumer using the system and the integrity of the system itself.

If extended labelling is to be seriously entertained as a mechanism for providing information to for consumers’ informed choice as

required by current FSANZ and related legislative requirements, it will be necessary to develop further policy principles to define the circumstances under which it should be utilised.

In other words, consideration must be given to the information to be provided on pack or off pack through extended labelling. It may be that some information, for instance where substantial detail is required, will only be suitable for extended labelling.

### Product Digitisation

The capacity to store and access electronic data sets of information describing comprehensively consumer products, including food products, is being implemented at an increasing rate around the world. This is driven by a number of factors including:

- Efficient information provision about products in the supply chain including product identity (e.g. Baked Beans) and physical attributes of the product (e.g. 250g can)
- Supply chain efficiency allowing tracking of product down the supply chain
- Demand forecasting through monitoring of products through scanning products at the supermarket checkout, and
- Food safety and consumer protection. Critical information about product in the supply chain can assist food withdrawals and recalls, i.e. traceability.

Greater consumer interest in the origin, production processes and nature of the food products they purchase is also driving demand for more information. At the same time there is increasing scope and complexity of both government regulations and industry quality standards, and an absolute requirement for companies to demonstrate their social license to operate.

In order for product digitisation to be as useful as possible to both business and consumers, standards and protocols are required for:

- **Information Integrity.** Agreed standards and definitions for information gathering and collation are necessary for high levels of data

accuracy and currency to provide absolute confidence and trust in the system for data users – businesses and consumers alike


- **Information Storage.** Robust IT systems with appropriate levels of security to protect it in the longer term from harmful events of both human origin (e.g. hacking, human error) and physical world origin (e.g. accidents, natural disasters), and
- **Information Access.** User friendly access for end-users of all types of the information is critical to maximise the value of data digitisation.

The AFGC electronic Product Information Form (ePIF), is the first element under the *AFGC Authorised Food Data System*<sup>®</sup>. This initiative will assist companies to better source, manage and provide information about their products. The ePIF contains more than 1000 data fields covering a wide range of product attributes including all of the information required for consumers mandated by regulation i.e. mandatory labelling requirements. The system is expandable to future-proof it enabling additional information to be included whether on a voluntary or mandatory nature.

The ePIF facilitates information exchange between businesses along the supply chain. The digitisation of the data means it can also be used for other purposes including being the source data for extended labelling functionality of smart devices.

### Usefulness of extended labelling on food products

The effectiveness of extended labelling relies on the penetration of smart devices into the consumer market. Current estimates are that there are around 21 million smart phone users in Australia so it is no exaggeration to say that access to smart ‘phones and the internet is not going to limit the potential effectiveness of extended labelling product digitisation in the future.

*Dr Geoffrey Annison is Deputy Chief Executive at the Australian Food & Grocery Council and Professional Member of AIFST.* 



# NO USE CRYING OVER SPILT MILK

Words by Georgina Hey and Isobel Taylor

Vegan, dairy-free or plant-based diets are becoming more and more popular for health, environmental, ethical or lifestyle reasons and as a result, it is unsurprising that dairy-free alternatives (and the inevitable backlash from dairy traditionalists) are on the rise.

But should these products be allowed to call themselves “milk”? We consider the definition of the word under existing Australian food labelling regulations, and whether this definition accurately reflects current consumer understandings, both in Australia and overseas.

## What do we mean by “milk”?

Under the Australia New Zealand Food Standards Code (Code), “milk” is defined as *“the mammary secretion of milking animals.”*

At first glance, this appears to be a fairly narrow and traditional definition, which certainly does not encompass the plant-based dairy alternatives mentioned above. As the Commissioner of the US food regulator Food and Drug Administration (FDA), Scott Gottlieb, quipped at a summit in July last year, “an almond doesn’t lactate”.

The Code also requires that *“if a food name is used in connection with the sale of a food (for example in the labelling), the sale is taken to be a sale of the food as the named food unless the context makes it clear that this is not the intention”*.

Interestingly, one of the specific examples provided under this section states that if the context within which foods such as soy milk or soy ice cream are sold is indicated by use of the word “soy” in the name, this will be sufficient to indicate that the product is not a dairy product to which a dairy standard applies. This exception effectively broadens the narrow definition above by allowing non-dairy products to be called “milk”, as long as the name or surrounding context clearly indicates the origin of the “milk” product – be it soy, coconut, almond, oat, or whatever new product will be doing the café rounds next.

## Are plant-based alternatives milking the dairy industry?

In light of the implications of this broad exception, a number of Australian and New Zealand ministers have recently voiced their support for a review of the current wording of the Code. In their view, food producers

are exploiting loopholes such as this, marketing their non-traditional products using traditional terminology that could mislead consumers.

Among the voices calling for an overhaul of the current regulations is Nationals deputy leader Bridget McKenzie, who is the Regional Services Minister and also chairs the Australia and New Zealand Ministerial Forum on Food Regulation. She has recently sought an options paper from the Food Regulation Standing Committee on how the Code and other regulations might be amended to address food descriptors that have the potential to mislead consumers, or what Senator McKenzie refers to as “fake” food. The paper will be presented to the Forum in May this year.

Unsurprisingly, farm lobbies such as Dairy Connect and the National Farms’ Federation have joined the calls for closer scrutiny of exceptions in the current Code, seeking a return to the traditional meaning of words like “milk” and “meat”.

## Community Standards

Despite the loud calls of ministers and special interest groups for a return to these traditional, narrow

meanings, it is arguable that consumer understandings of these words have actually changed with the times, and it is primary producers who need to keep up.

This was the view taken by the Advertising Standards Board (now called the Ad Standards Community Panel), which in 2017 dismissed a consumer complaint against a Vitasoy advertisement picturing oat, coconut, rice, almond and soy products and describing them as “milk”.

The complainant argued that *“you cannot milk an oat, like you can a cow. To base a whole advertisement around a lie, and a voiceover that says MILK, MILK, MILK, MILK over and over again is misleading. It just isn’t true”*.

Vitasoy responded to the complaint, saying that consumers are familiar with the use of the term “milk” to describe plant-based alternatives that are milky in colour, texture and often used as milk substitutes. It relied upon the above-quoted exception in the Code, as well as the Macquarie Dictionary definition for milk, which defines milk as both the *“white liquid secreted by the mammary glands of female mammals”* and *“liquid obtained by crushing parts of plants as beans or nuts or tubers”*.

The Board considered whether the advertisement breached the AANA Food and Beverages Advertising and Marketing Communications Code, particularly whether the advertisement was false or misleading. The Board ultimately concluded that the advertisement was not misleading or deceptive in its promotion of the plant-based milk products, and specifically noted that most members of the community would accept and recognise plant-based “milk” products as milk.

Given that the Board is intended to represent wider community standards, the dismissal of the complaint suggests that most Australians generally understand that the word “milk” can have multiple meanings, not limited to dairy milk. The Board also seems to ascribe to the average Australian consumer the basic level of intelligence required to recognise that a product labelled “almond milk”, for example, is made with almonds

– a level of confidence that is not, apparently, shared by all.

## Overseas Developments

Australia is not the only country currently grappling with the use of dairy-based terminology on dairy-free products. Last year, the European Court of Justice (ECJ) handed down a preliminary ruling regarding the advertising and promotion of plant-based products using dairy designations.

The ruling came in response to an action brought by the Verband Sozialer Wettbewerb (the German equivalent of the Australian Competition and Consumer Commission) against a German company called TofuTown for selling products with names like “tofu butter”, “plant cheese” and “rice spray cream”. TofuTown argued that using words traditionally associated with dairy products in conjunction with qualifiers such as “tofu”, “veggie” or “rice” to indicate the plant-based origin of the products meant its advertising would not confuse consumers.

However, the ECJ did not agree, holding that the fact that TofuTown had added descriptors did not prevent them from infringing EU regulations, which reserve the use of terms including “milk”, “cream”, “butter”, “cheese” and “yoghurt” for products made from mammary secretions (with some named exceptions such as “peanut butter”). The ECJ found that the likelihood of consumer confusion as a result of TofuTown’s names could ultimately not be excluded, reconfirming the dairy industry’s effective monopoly over the use of these words in food marketing and labelling.

In the wake of the ECJ decision, the FDA announced earlier this year that it also intends to start enforcing its strict, traditional definition of “milk”, reflecting a concern that consumers might be misled about the nutritional properties of plant-based dairy alternatives.

The FDA is currently seeking public comment on the matter before issuing new guidance on the use of the word “milk”. It remains to be seen whether the existing narrow standard will be

retained as in the EU (as the dairy industry hopes) or whether the new guidance will feature an updated standard, which arguably reflects evolving consumer understandings of the multiple meanings of the word “milk”.

## Takeaways for Businesses

The ongoing debate, both in Australia and overseas, provides an important reminder for businesses, whether they are selling dairy products or dairy-free alternatives. Businesses should ensure that their advertising and labelling remains compliant with the specific requirements laid out in the Code. This includes whether they can call their products “milk” and what other advisory statements may be required (for example, that the product is not suitable as a complete milk replacement for children), while also being mindful of the overarching requirements of the Australian Consumer Law not to mislead or deceive consumers.

For now at least in Australia, it is full steam ahead, as plant-based dairy alternatives can continue to be described as “milk”. However, businesses should continually monitor for amendments to the law to ensure that their communications remain compliant, especially if the dairy industry gets its way and the existing loopholes are tightened up. In this case producers of plant based “milk” will have to be careful about how they describe their plant-based-dairy-free-alternatives-to-milk.

## References

- 1 Australia New Zealand Food Standards Code, Standard 2.51.
- 2 Australia New Zealand Food Standards Code, Standard 1.11-13(4).
- 3 Advertising Standards Board Case No. 0437/17.
- 4 Court of Justice of the European Union Case C-422/16 *Verband Sozialer Wettbewerb eV v TofuTown.com GmbH*.
- 5 Regulation (EU) No 1308/2013 of the European Parliament and of the Council of 17 December 2013 establishing a common organisation of the markets in agricultural products and repealing Council Regulations (EEC) No 922/72, (EEC) No 234/79, (EC) No 1037/2001 and (EC) No 1234/2007 (OJ 2013 L 347, p. 671).

*Georgina Hay is an intellectual property lawyer and partner at Norton Rose Fulbright Australia. Isobel Taylor is an associate at Norton Rose Fulbright Australia.*





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# NATIONAL FOOD WASTE STRATEGY: HALVE FOOD WASTE IN AUSTRALIA BY 2030

Words by Nerida Kelton

With an estimated cost to the Australian economy of around \$20 billion each year, Food Waste is a serious problem. Australian consumers throw away around 3.1 million tonnes of edible food a year with another 2.2 million tonnes disposed of by the commercial and industrial sector.

The problem of food waste requires an end-to-end supply chain approach but the first step to ensuring effective strategic change is having long-term policy commitment that addresses the seriousness of the Food Waste issue by the Federal and State Governments.

The development of the *National Food Waste Strategy* by the federal government represents the first step. This strategy provides a framework to support collective action towards halving Australia's food waste by 2030.

Over the next two years, Food Innovation Australia Limited (FIAL) will receive funding from the federal government to develop the *National Food Waste Strategy* Implementation Plan, including a Voluntary Commitment Program and an evaluation framework to monitor progress. The government recently appointed a *National Food Waste*

*Steering* Committee to support the implementation of the National Food Waste Strategy.

FIAL has been working with the National Food Waste Steering Committee to help identify the short, medium and long-term initiatives crucial to the delivery of the strategy against the four priority areas that have been identified: policy support, business improvements, market development and behaviour change. The implementation plan is due in March 2019 and will provide the road map for Australia to meet the goal of halving food waste by 2030.

The steering committee has also been working closely with FIAL to identify the pathway to success for an industry-led and -championed voluntary commitment program. This program is a call to action for businesses that want to deliver a meaningful and collaborative reduction in food waste, through partnerships, collaboration, shared expertise and innovation.

## **Fight Food Waste Cooperative Research Centre**

The Fight Food Waste Cooperative Research Centre (CRC) directly

supports the federal government's National Food Waste Strategy working on identifying priority projects for the next three years. The Fight Food Waste CRC involves 60 participants from around Australia and overseas, who collectively raised \$103 million in addition to the \$30 million from the initial CRC Program grant. This initiative will be an Australia-first, bringing industry, government and research bodies collectively and collaboratively together to tackle the food waste problem in this country.

The CRC's mission is composed of three core aims:

1. **Reduce** food waste throughout the value chain.
2. **Transform** unavoidable waste into innovative high-value products.
3. **Engage** with industry and consumers to deliver behavioural change.

## **The Australian Institute of Packaging**

The Australian Institute of Packaging (AIP) has taken an active role in helping educate the packaging industry on the true role of packaging in minimising food waste by contributing to the National

Food Waste Strategy, having a representative on the National Food Waste Steering Committee and as a core contributor to the Fight Food Waste CRC.


The Institute runs training courses, design awards and is developing criteria and guidelines for packaging technologists and designers to use as the standard for 'Save Food Packaging' design.

AIPs objectives are to:

1. Encourage all packaging technologists and designers to use Save Food Packaging key criteria and guidelines across the globe. The key criteria include, but are not limited to *"resealability, openability, improvement of barrier packaging and extension of shelf-life, portion control, better understanding of Best Before vs Use By dates, improved design to reduce warehouse and transport damages and losses, better use of active and intelligent packaging and Life Cycle Assessments"*.
2. Ensure that all packaging technologists and designers are utilising Lifecycle Analysis Tools within their Save Food Packaging framework. Today there is a strong focus on the environmental aspects of food packaging, to ensure that at the end of its life (after use of the product contained) that it can be reused, repurposed, recycled or composted.
3. Encourage Manufacturers to actively engage in designing innovative Save Food Packaging and communicating these initiatives to their customers and consumers.
4. Recognise a wider range of Save Food Packaging innovations through the Packaging Innovation & Design (PIDA) Awards and the international WorldStar Packaging Award program.
5. Showcase Best Practice Award-Winning Save Food Packaging innovations across Australia and New Zealand.
6. Contribute to consumer education and engagement projects to change the narrative around packaging's roles in minimising food waste. Consumer education is needed to help them better understand the true role of Food Packaging: *"protection, preservation and promotion of product, shelf-life extension, tamper resistance, barrier from external elements all the while ensuring safe delivery of food."*

The National Food Waste Strategy and the establishment of the Fight Food Waste CRC have enabled for the first time the bringing together of an extensive range of like-minded industry professionals, who are working collaboratively across the entire supply chain for a common goal: *"halving food waste by 2030"*.

Every business has a role to play...do you know yours?

Nerida Kelton is the executive director of the Australian Institute of Packaging. 



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# TRAINING NEXT-GEN FOOD SCIENTISTS

*Words by Dr Kim-Yen Phan-Thien and Dr Mark Turner*



The food sector is regarded as a critical source of economic growth and job creation in Australia. Strategic investment in research capacity, innovation, infrastructure and skilled workforce have been identified as crucial, to strengthening the productivity and competitiveness of the food industry and capturing trade opportunities in Asia.<sup>1</sup>

The structure of the workforce supporting agrifood production and processing in Australia, and the framework for agrifood education and training are both critical issues.

The bottom line is we need to attract more young people into the sector to foster fresh ideas and

innovation, and we need more skilled people. Despite renewed media interest in food and agriculture, and ‘mining boom to dining room’ style rhetoric, attracting and retaining people in food and agriculture remains a challenge.

Replacement and succession planning are concerns in some parts of the food industry, though it is not clear how widespread recruitment problems are.

Admission into food and agriculture courses in the vocational education and training (VET) and higher education sectors suggests that food and agriculture is being overlooked in the study and career choices of young Australians.<sup>2</sup> From 2007-2012

VET commencements in agrifood-related training had slower average annual growth (2%) compared to VET qualifications generally (6%); undergraduate commencements in agrifood-related degrees decreased by 19%; and postgraduate commencements decreased by 8%.

On the other hand, University programs have been buoyed by increased international student enrolments. This is an emergent trend across most disciplines, not just food and agriculture.

So, what can we do about it? Attracting and retaining people in food and agriculture is an issue common to both tertiary education providers and to industry. Is there





a role for AIFST to channel the combined efforts of universities, VET and industry, towards generic marketing campaigns about the breadth of careers and experiences in food and agriculture? Are there ways to better engage with primary and secondary school sectors to facilitate exposure to food science and technology, and demonstrate the scope of opportunities?

The UK Institute of Food Science and Technology has a program called 'Love Food Love Science' with an attractive website that offers teaching resources targeting secondary school Food Preparation and Nutrition, Chemistry, Biology, and Physics curricula. The US IFT also has

school teaching resources and food scientist career promotion material on their website. Is the development of Australian curriculum-aligned resources an approach we could collectively explore?

At the end of 2017, AIFST held a roundtable meeting to explore ideas for expanding university-industry engagement. Initiatives discussed included a working party to examine the quality of food science education in Australia, along with outreach to community and schools.

### **Core Competencies for Food Science Graduates in Australia**

In the past few years, several Australian universities have started offering new programs containing food science. In addition to this, established food science and technology programs are regularly being modified and/or paired with other disciplines such as nutrition, business or biosecurity. These changes may be driven by new strategic plans within the university, academic expertise/interest, the desire to attract more students, and/or budgetary pressures.

With this growing diversity of programs on offer, it is timely for universities and industry to consider standards in food science and technology education. In the parlance of higher education, what are the threshold learning outcomes from our food science degrees? Are our students getting adequate scientific training and professional skills to develop into competent food scientists? What are the attributes that industry looks for in our graduates? Are our degrees fulfilling these requirements?

The Institute for Food Technologists (IFT) provides a list of core competencies ([www.ift.org](http://www.ift.org)) that is used to evaluate and approve undergraduate food science programs in the USA and internationally (Table 1). These fall into five main areas: food chemistry and analysis, food safety and microbiology, food processing and

engineering, applied food science, and success skills.

In their review process, IFT evaluates coverage of the IFT core competencies in the curriculum, along with how well these are supported by academic staffing and expertise. The required support includes a minimum of four academics with expertise covering the sub-disciplines of food science, available facilities and equipment for teaching, specific assessment items, and student outcomes. Following program approval, an annual progress report is required, with a formal review process every five years.

UNSW is currently the only Australian University to offer an IFT-approved food science program in Australia. However, it is likely that several other Australian programs would satisfy IFT requirements but have not sought accreditation.

Given that the IFT already prescribes core competencies for food science degrees, one approach to benchmarking Australian science food degrees would be to follow suit. That is, to encourage more Australian Universities to explore IFT guidelines, develop or modify their program accordingly, and ultimately seek IFT approval of their degrees.

While some universities may not be in a position to apply for IFT program approval, it is still important that their food programs contain a minimum amount of food science curriculum in fairness to students studying them and also to the food industry, where most will gain employment. It is also worth considering that industry expectations of food science graduates in Australia and USA may be quite different.

### **AIFST Working Party**

To determine what the food science guidelines should be in an Australian context, a working party under AIFST will be established in 2019. This group will determine, with input from industry, what competencies are important in Australia.

The working party will develop a questionnaire that will be distributed to the food industry. The results of the survey will be collated by the working

Table 1

CORE COMPETENCY	CONTENT	BY THE COMPLETION OF FOOD SCIENCE PROGRAM, THE STUDENT SHOULD:
<p><b>Food Chemistry and Analysis</b></p>	<p>Structure and properties of food components, including water, carbohydrates, protein, lipids, other nutrients and food additives Chemistry of changes occurring during processing, storage and utilisation.</p> <p>Principles, methods, and techniques of qualitative and quantitative physical, chemical, and biological analyses of food and food ingredients.</p>	<ul style="list-style-type: none"> <li>• Know the chemistry underlying the properties and reactions of various food components.</li> <li>• Have sufficient knowledge of food chemistry to control reactions in foods.</li> <li>• Know the major chemical reactions that limit shelf life of foods.</li> <li>• Use the laboratory techniques common to basic and applied food chemistry.</li> <li>• Know the principles behind analytical techniques associated with food.</li> <li>• Be able to select the appropriate analytical technique when presented with a practical problem.</li> <li>• Demonstrate practical proficiency in a food analysis laboratory.</li> </ul>
<p><b>Food Safety and Microbiology</b></p>	<p>Pathogenic and spoilage microorganisms in foods.</p> <p>Beneficial microorganisms in food systems.</p> <p>Influence of the food system on the growth and survival of microorganisms.</p> <p>Control of microorganisms.</p>	<ul style="list-style-type: none"> <li>• Identify the important pathogens and spoilage microorganisms in foods and the conditions under which they will grow.</li> <li>• Identify the conditions under which the important pathogens are commonly inactivated, killed or made harmless in foods.</li> <li>• Utilise laboratory techniques to identify microorganisms in foods.</li> <li>• Know the principles involving food preservation via fermentation processes.</li> <li>• Know the role and significance of microbial inactivation, adaptation and environmental factors (i.e., aW, pH, temperature) on growth and response of microorganisms in various environments.</li> <li>• Identify the conditions, including sanitation practices, under which the important pathogens and spoilage microorganisms are commonly inactivated, killed or made harmless in foods.</li> </ul>
<p><b>Food Processing and Engineering</b></p>	<p>Characteristics of raw food material.</p> <p>Principles of food preservation including low and high temperature processes, water activity, etc.</p> <p>Engineering principles including mass and energy balances, thermodynamics, fluid flow, and heat and mass transfer.</p>	<ul style="list-style-type: none"> <li>• Know the source and variability of raw food material and their impact on food processing operations.</li> <li>• Know the spoilage and deterioration mechanisms in foods and methods to control deterioration and spoilage.</li> <li>• Know the principles that make a food product safe for consumption.</li> <li>• Know the transport processes and unit operations in food processing as demonstrated both conceptually and in practical laboratory settings.</li> <li>• Be able to use the mass and energy balances for a given food process.</li> <li>• Know the unit operations required to produce a given food product.</li> </ul>

CORE COMPETENCY	CONTENT	BY THE COMPLETION OF FOOD SCIENCE PROGRAM, THE STUDENT SHOULD:
<p><b>Food Processing and Engineering</b> (continued)</p>	<p>Principles of food processing techniques, such as drying, high pressure, aseptic processing, extrusion, etc. Packaging materials and methods.</p> <p>Cleaning and sanitation.</p> <p>Water and waste management.</p>	<ul style="list-style-type: none"> <li>• Know the principles and current practices of processing techniques and the effects of processing parameters on product quality.</li> <li>• Know the properties and uses of various packaging materials.</li> <li>• Know the basic principles and practices of cleaning and sanitation in food processing operations.</li> <li>• Know the requirements for water utilisation and waste management in food and food processing.</li> </ul>
<p><b>Applied Food Science</b></p>	<p>Integration and application of food science principles (food chemistry, microbiology, engineering/ processing, etc).</p> <p>Computer skills.</p> <p>Statistical skills.</p> <p>Quality assurance.</p> <p>Analytical and affective methods of assessing sensory properties of food utilising statistical methods.</p> <p>Current issues in food science.</p> <p>Food laws and regulations.</p>	<ul style="list-style-type: none"> <li>• Be able to apply and incorporate the principles of food science in practical, real-world situations and problems.</li> <li>• Know how to use computers to solve food science problems.</li> <li>• Be able to apply statistical principles to food science applications.</li> <li>• Be able to apply the principles of food science to control and assure the quality of food products.</li> <li>• Know the basic principles of sensory analysis.</li> <li>• Be aware of current topics of importance to the food industry.</li> <li>• Know government regulations required for the manufacture and sale of food products.</li> </ul>
<p><b>Success Skills</b></p> <p>(Success skills should be introduced in lower level courses and practiced in as many upper division courses as possible)</p>	<p>Communication skills (i.e., oral and written communication, listening, interviewing, etc).</p> <p>Critical thinking/problem solving skills (i.e., creativity, common sense, resourcefulness, scientific reasoning, analytical thinking, etc).</p> <p>Professionalism skills (i.e., ethics, integrity, respect for diversity).</p> <p>Life-long learning skills.</p> <p>Interaction skills (i.e., teamwork, mentoring, leadership, networking, interpersonal skills, etc).</p> <p>Information acquisition skills (i.e., written and electronic searches, databases, Internet, etc).</p> <p>Organisational skills (i.e., time management, project management, etc).</p>	<ul style="list-style-type: none"> <li>• Demonstrate the use and practice of different levels of oral and written communication skills. This includes such skills as writing technical reports, letters and memos; communicating technical information to a non-technical audience; and making formal and informal presentations.</li> <li>• Be able to develop a process for solving and preventing reoccurrences of ill-defined problems; know how to use library and internet resources to search for quality information, and solve a problem; and make thoughtful recommendations.</li> <li>• Apply critical thinking skills to new situations.</li> <li>• Commit to the highest standards of professional integrity and ethical values.</li> <li>• Work and/or interact with individuals from diverse cultures.</li> <li>• Explain the skills necessary to continually educate oneself.</li> <li>• Work effectively with others.</li> <li>• Provide leadership in a variety of situations.</li> <li>• Deal with individual and/or group conflict.</li> <li>• Independently research scientific and nonscientific information.</li> <li>• Competently use library resources.</li> <li>• Manage time effectively.</li> <li>• Know how to facilitate group projects as well as be a good team member.</li> <li>• Handle multiple tasks and pressures.</li> </ul>

group and used to formulate guidelines for Australian universities offering food science programs.

If endorsed by AIFST and industry, the guidelines could serve as a benchmark for Australian food science programs. It will not be used to endorse programs, but used as a guide when establishing new programs or evaluating existing programs. It may also be used as a stepping stone towards IFT approval.

This initiative aims to promote excellence in food science education and allow the continued graduation of high-quality food scientists and technologists from Australian universities into the future.

If you are interested in joining the AIFST working party, please contact us. We encourage people from both industry and academia to join.



**References**

- 1 Australia. Department of Agriculture, Fisheries and Forestry (2013). National Food Plan: our food future. Department of Agriculture, Fisheries and Forestry, Canberra.
- 2 Australian Workforce and Productivity Agency (2013). Food and beverage workforce study. Department of Education and Training, Canberra.

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# What Makes a Profession?

Words by Chris Preston



Is food science and technology a profession, in the way that we talk about the legal, medical or accounting professions? Or is it merely a career involving tertiary studies? What is the difference that distinguishes a profession from other jobs?

I think it's time for a serious discussion on this, because never before has food science been so much under the spotlight for political and social ends. If anyone at all can claim expertise, how is the community to judge between opinions? Some touchstone is needed not with the intent of silencing the debate, but rather to enhance its quality and understanding so as to arrive at an outcome that, if not optimal, might at least draw upon science with some degree of credibility.

So what distinguishes a profession? Despite the image, professionalism is not a dress code. Doctors may have their white coats and stethoscopes, accountants their suits and lawyers their wigs and gowns, but we are all adults and know that there is more to it than simply playing dress-ups.

That fount of meaning in the Australian vernacular, The Macquarie Dictionary, defines profession as 'a vocation requiring knowledge of some

department of learning or science, especially one of the three vocations of theology, law and medicine'. That's comforting to lawyers, doctors and priests, but what about food science and technology? It certainly requires knowledge of some department of science, but is it a 'vocation'.

Again, turning to the venerable Macquarie Dictionary, a vocation is 'a calling or summons, as to a particular activity or career'. This comes closer to the true idea of professionalism, which is a shared state of mind between practitioners on a number of key qualities, such that a commitment to those qualities becomes a calling or summons. The qualities in question are minimum standards of knowledge, stated ethics, continuous learning, accountability for one's own actions and a shared responsibility for the actions of the profession.

**Minimum Standards** All generally accepted professions mandate tertiary qualifications, usually of at least four years, with additional supervised 'on the job' or professional postgraduate course work in order to be registered. In some instances there is a specific entrance examination for the profession beyond completion of tertiary studies.

## Ethics

I know it may seem odd for a statement of ethics to come from a lawyer, but for example lawyers are bound to act first and foremost with a duty of integrity to the courts, to act in a fiduciary manner (ie trustworthy and with full disclosure) towards clients, and to act in certain ways when dealing with other lawyers. In fact there is a hefty volume of Solicitor's Rules to be obeyed. Doctors in turn have their Hippocratic Oath and CPA's have their by-laws to observe.

## Continuous Learning

This is a biggie. Clients or employers rely on their professionals to be correct, and in most professional fields, what is correct changes significantly over time. Everything I was taught at University regarding s.92 of the Australian Constitution, for example, is now wrong - even though it made up 50% of the 3 hour final year exam in Constitutional Law! To give effective legal advice, I need to keep up to date not just with food standards but with changing approaches to statutory interpretation, regulatory behaviour and a myriad of other fields. A commitment to formal and informal continuous learning is an essential element of professionalism.

## Accountability

It is worth restating that clients or employers rely on their professionals to be correct. That is more than simply focussing on a specific 'yes / no' task, it involves judging risks (but not the decision to take risks - always be conscious of this distinction) and giving your employer or client the security of 'no surprises'. In the legal profession, advice is culpable - we get it wrong and we can be sued! It is true that the risk is spread across the industry by insurance, but it remains a feature of legal advice that the client is recompensed for damage if the advice is wrong.

## Shared Responsibility

Did you know that all practising lawyers contribute to a fidelity fund that means that clients are protected even if their lawyer runs off to Bolivia with the trust account funds? Beyond personal accountability, the legal

profession provides a community assurance about dealing with lawyers generally that your money is safe. The legal community also staffs legal aid offices through volunteer and pro-bono work and has commitments to lobbying on relevant social justice issues, including civil rights and privacy.

So is food science and technology a profession when assessed against these criteria? It is not necessary that profession be formally regulated by statute, although medical and legal professionals are. Accountants, by contrast, are usually not, but with the oversight of their various professional accountancy bodies (eg CPA and CA) they do meet the above criteria.

I think it is worth taking a serious look at the above five qualities and asking whether there is a shared vision across each of them that could be formally established and recognised for food science and technology. What minimum learning should characterise

a food technology professional? What minimum continuous learning should be considered adequate to maintain professional skills? What ethical statements might characterise such a profession, and how can we implement standards of accountability and social responsibility? What role should the AIFST play in governing specialist accreditation?

If I were to add my 2c worth, I would recommend small steps. Rather than trying to address all of the above at once, there are some initial actions that could be taken in the way of formal accreditation for professionals with appropriate knowledge that can demonstrate continuous learning over the past 12 months. And that may be all that is needed to start.

*Chris Preston is principle legal Adviser, Australia at ComplyANZ.* 

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## Foods for Health: Trends and Opportunities

A health food boom is about to hit South East Asian markets creating unprecedented opportunities for Australian exporters, according to a new report by CSIRO and KPMG.

Functional foods, reformulation of staple products, probiotics, alternative proteins are expected to be among the foods in highest demand as the rapidly growing Association of South East Asian Nations (ASEAN) region grapples with a dramatic escalation in lifestyle diseases and an aging population.

The report - *Food for Health: Trends and opportunities in health and wellness in the ASEAN region* - was prepared by the CSIRO, in conjunction KPMG, following market analyses, industry interviews and a workshop in Singapore in 2018.

Deputy Director of CSIRO Agriculture and Food Professor Martin Cole said links between nutrition and health were increasingly under the spotlight in the ASEAN region.

“The region is forecast to experience a sharp rise in chronic health conditions such as obesity, type 2 diabetes, cardiovascular disease and cancer. As a result, the

role food and diet can play to prevent these illnesses becomes crucial,” said Prof. Cole.

“Using emerging science and Australian innovation in areas such as functional foods, alternative protein, and CSIRO’s capabilities in digestive testing and modelling means, as a nation, we have a compelling offer to meet the needs of the ASEAN market.”

Globally, health and wellness is one of the fastest growing food and beverage categories accounting for 20 per cent of the US\$2.181 billion global packaged food market and it is forecast to grow by more than five per cent year-on-year between 2018 and 2022.

Looking at key ASEAN nations and the health and wellness category is predicted to grow by 9 per cent in Malaysia, 6 per cent in Vietnam, 6 per cent in Indonesia, 5 per cent Thailand and 3 per cent in Singapore, between 2017 and 2022.

Asia Pacific consumers have already started reducing their sugar and fat consumption as they turn to healthier alternatives. Sixty-eight per cent of Asia Pacific consumers have cut down their intake of fats

and 60 per cent have reduced sugar consumption. Many global food corporations, active in the area, have already begun adjusting their product portfolios.

KPMG Australia Partner and Agtech Sector Leader Mr Ben van Delden said Australian food, health and wellness businesses were well-placed for success in ASEAN.

“Australian businesses and researchers are known for their strengths in this area and can apply expertise and creative development to form products and business models that meet the complex needs of the ASEAN consumer,” said Mr van Delden.

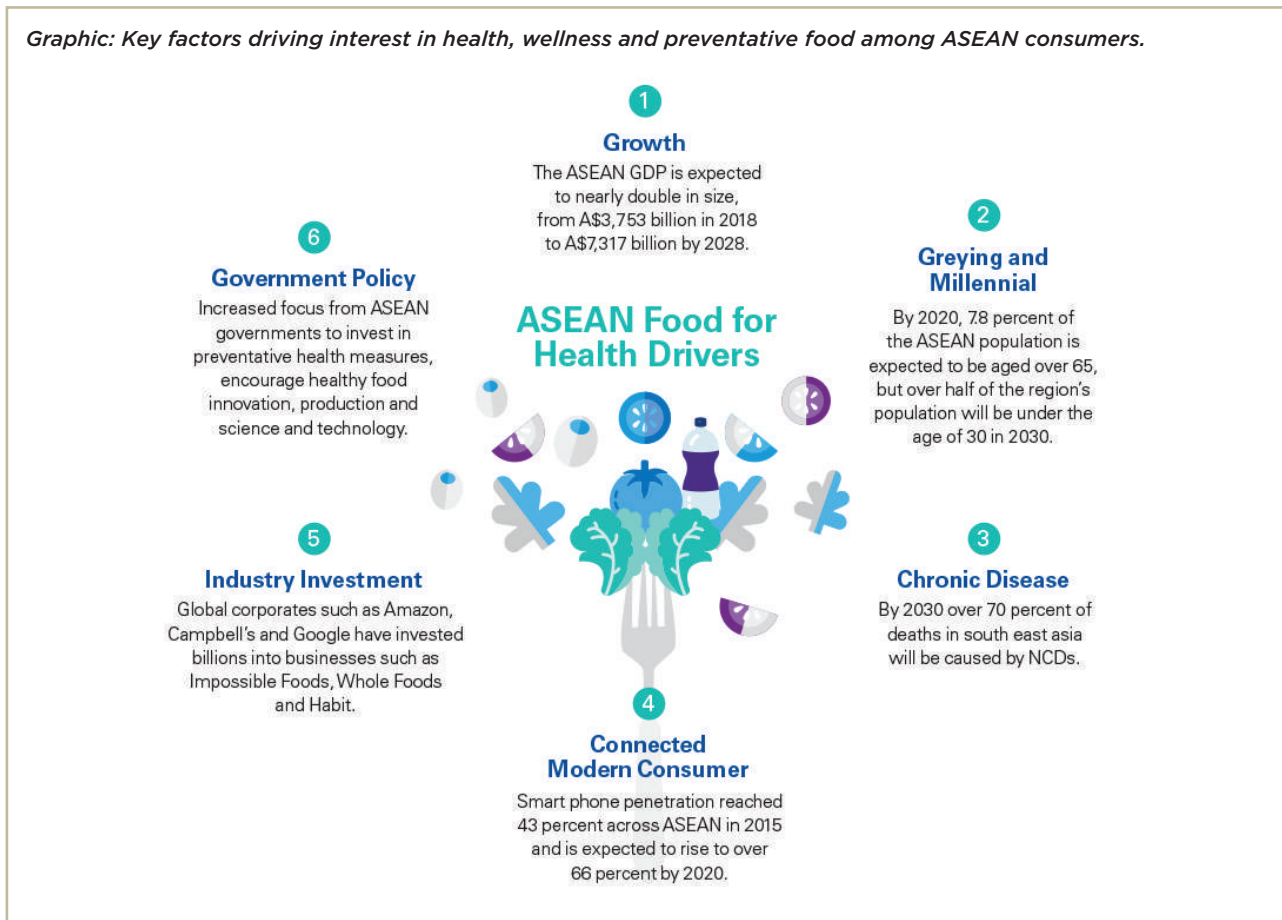
“However, there is work to be done to finesse market entry approaches and ensure alignment to the complex region and its dynamic base of consumers.”

The report recommends three core approaches:

1. Personalising to local consumption preferences in specific markets.
2. Leveraging increasing consumer awareness of health and wellness and rising affluence.
3. Partnering for successful entry and distribution.



Graphic: Key factors driving interest in health, wellness and preventative food among ASEAN consumers.



The top four consumer-led market opportunities highlighted in the Food for Health: Trends and opportunities in health and wellness in the ASEAN region report:

- 1. Health by Stealth** - With diet and lifestyle related diseases expected to reach epidemic proportions across ASEAN by 2030, government intervention and consumer demand is driving the growth for healthier food products. Opportunities exist to capture this market through the introduction of functional food and the reformulation of staple food, reducing sugar, salt and saturated fat without compromising taste or texture. The healthy packaged food market is expected to increase by five percent year on year between 2018 and 2022.
- 2. Alternative Proteins** - The global population is forecast to increase to approximately nine billion people by 2050, consequently the demand for protein will double. Significant investment is flowing

into this sector as organisations innovate and commercialise alternative protein products that offer nutritional value and alleviate the environmental impacts associated with traditional protein production. The alternative protein market is expected to be worth US\$5.2 billion by 2020. ASEAN is predicted to be a high growth market for alternative protein because of both the rapid population increase and the population's cultural history of consuming non-meat based protein.

- 3. Gut Health** - Increasing consumer awareness, rising chronic disease and affluence, has enabled products targeted at gut health and microbiome to grow significantly. As more consumers seek products to support their health, the product segment targeted at gut health will continue to propel forward. The market for probiotics is growing by 7.1 percent per year in

the region, with the overall market value in 2020 expected to reach US\$96 billion. The overall gut health market is predicted to be much larger.

- 4. Precision Nutrition** - Consumers are increasingly looking for personalised advice to alter both their diet and lifestyle to prevent, or manage, chronic disease. Real time personalised nutritional advice is being enabled through advanced predictive analytics, affordable diagnostics kits and a rapid uptake of wearable technology across the region. The global market for precision medicine will be worth up to US\$2,452 billion by 2022, with personalised health and wellness contributing to 67 percent or US\$1,640 billion. Over a third of ASEAN's consumers now demand personalised nutrition solutions.

*A full copy of the report is available on the KPMG website.*



# FOOD FILES

Words by Drs Russell Keast, Georgie Russell, and Robert Shellie

## Flavour enhancing properties of Geranic Acid

Researchers in Japan have revealed that hop-derived Geranic acid (CAS 459-80-3) enhances the flavour intensity of other hop-derived terpenoids and may altogether change the flavour character of beers.

Recognising that the flavour hop variety Sorachi Ace imparts unique pine-like, woody, dill-like, citrus, and lemongrass-like characteristics in finished beers, researchers attempted to identify variety-specific flavour compounds responsible for these characteristics using a

range of one- and two-dimensional gas chromatography with mass spectrometry and olfactometry detection.

Detailed and careful analysis using GC-O/MS revealed several aroma-impact compounds such as Linalool,  $\beta$ -Citronellol, Geraniol, Perillyl alcohol, and Farnesol, but these identified compounds could not account for the pine-like and woody characteristics. However, headspace GC-MS using solid-phase microextraction revealed presence of Geranic acid as a variety-specific compound in Sorachi Ace hop. After hypothesising that Geranic acid was obscured by a coeluted

compound in previous GC-O/MS experiments, the researchers employed two-dimensional GC-O/MS. Although this approach provided baseline resolution of Geranic acid, trained panellists still failed to detect the odour of this compound.

Since the enhancing effects of certain carboxylic acids is widely reported in the literature, it was postulated that Geranic acid, while not being odour-active itself may function as an enhancer of hop-derived terpenes. Therefore, an experiment was performed using a series of spiked and non-spiked model beers.



The researchers found that model beer spiked with hop-derived terpenoids plus Geranic acid closely resembled the flavour profile of beer which had been dry-hopped with the Sorachi Ace variety.

This work describes a comprehensive analytical strategy for determination of unique non-odour active flavour compounds and reminds us to leave no stone unturned when trying to unravel the mysteries of flavour.

*Sanekata, A, Tanigawa, A, Takoi, K, Nakayama, Y & Tsuchiya, Y 2018, "Identification and characterization of geranic acid as a unique flavor compound of hops (Humulus lupulus L.) variety Sorachi Ace", Journal of Agricultural and Food Chemistry, published online October 26 doi:10.1021/acs.jafc.8b04395*

### **Packaging Attributes as Tools to Influence Consumers**

Food packaging plays an important role in communicating to consumers. In the marketplace, food packaging carries a wide range of signals that communicate various attributes and benefits of a product. Some of these attributes explicitly state such benefits, such as written health claims. Other attributes implicitly signal product benefits, such as images and colours.

A recent review by Festila and Chrysochou (Festila & Chrysochou, 2018) analysed the use of implicit (e.g., imagery, structural elements) and explicit (information) packaging

attributes across twelve food categories in two countries and noted that both were used extensively to communicate health. Given their prolific use, then, how do consumers make sense of, and use, implicit and explicit packaging attributes?

Dual-process models of decision making and information processing, popularised in Daniel Kahneman's book *Thinking, Fast and Slow*, propose that humans judge and make decisions using two systems: those that are totally automatic, effortless, involuntary and fast (System 1), to those that require a lot of cognitive effort, concentration and attention, and are slower (System 2). Decisions and therefore behaviours can be the result of either of these systems, or a combination.

In the case of food packaging, explicit packaging attributes could be processed using System 2, and implicit packaging attributes with System 1. However, because System 2 requires consumers to pay attention to and process information, this leaves it open to misinterpretation, misattribution or simply being ignored. For example, a consumer who is not motivated by environmental benefits could ignore or misinterpret information on a product's carbon emissions.

In contrast, the automatic and involuntary processing of implicit attributes (e.g. the shape of a bottle, images on the pack), which are activated by emotions and non-conscious associations, means that they are likely to affect consumers regardless of their attention and motivation. Therefore, the effects of implicit attributes on choice may be more powerful than explicit attributes. Interestingly, recent research has shown that implicit packaging attributes affect product perceptions independently of explicit attributes (van Ooijen, Franssen, Verlegh, & Smit, 2017).

When attempting to shift consumer behaviours, then, considering both explicit and implicit packaging design elements could lead to more desirable outcomes.



*Festila, A., & Chrysochou, P. (2018). Implicit communication of food product healthfulness through package design: A content analysis. Journal of Consumer Behaviour, 17(5), 461-476.*  
*van Ooijen, I., Franssen, M. L., Verlegh, P. W. J., & Smit, E. G. (2017). Packaging design as an implicit communicator: Effects on product quality inferences in the presence of explicit quality cues. Food Quality and Preference, 62, 71-79.*

### **Taste may not be the most important factor in food selection**

What we experience as the flavour (taste) of a food is determined by the components of that food and is known to be a key determinate of food liking. Taste is also influenced by information and research has shown that the liking of products can be influenced by descriptive labelling.

Descriptive labelling provides consumers with additional information about the product (e.g., country of origin, production methods, ingredients, health and taste benefits) and is mostly placed on the front of

the food package (also referred to as the front of the pack), to attract consumers' attention.

Researchers from University of Tokyo and other Universities in Japan investigated responses to three rice varieties: one using conventional production methods (Niigata); one using less pesticide and fertiliser (Sado); and one the same as Sado, but also using a cultivation method that considers the eco-system (Ibis).

Chefs (n=44) tasted and ranked their most preferred rice. Regular rice consumers (n=344) also tasted the rices and provided willingness to pay them both with and without the information on cultivation, price or chef's preference.

While the research uses overly complicated design and statistics, the findings were interesting. The chefs rated the Niigata, the rice that uses conventional methods as the best

rice, however the chefs preference had little effect on the consumers. The cultivation information had a stronger positive influence on consumers, who were willing to pay more for the ecologically friendly production methods, than rice deemed to be superior in taste.

Perhaps the result is a function of the commodity and culture of the research, but nevertheless an interesting finding that taste is not the most important factor in willingness to pay for a food.

*Aoki et al (2018) The impact of information on taste ranking and cultivation method on rice types that protect endangered birds in Japan: Non-hypothetical choice experiment with tasting. doi: <https://doi.org/10.1016/j.foodqual.2018.11.021>*

*Drs Russell Keast, Georgie Russell and Robert Shellie are from The Centre for Advanced Sensory Science, School of Exercise and Nutrition Sciences at Deakin University.*



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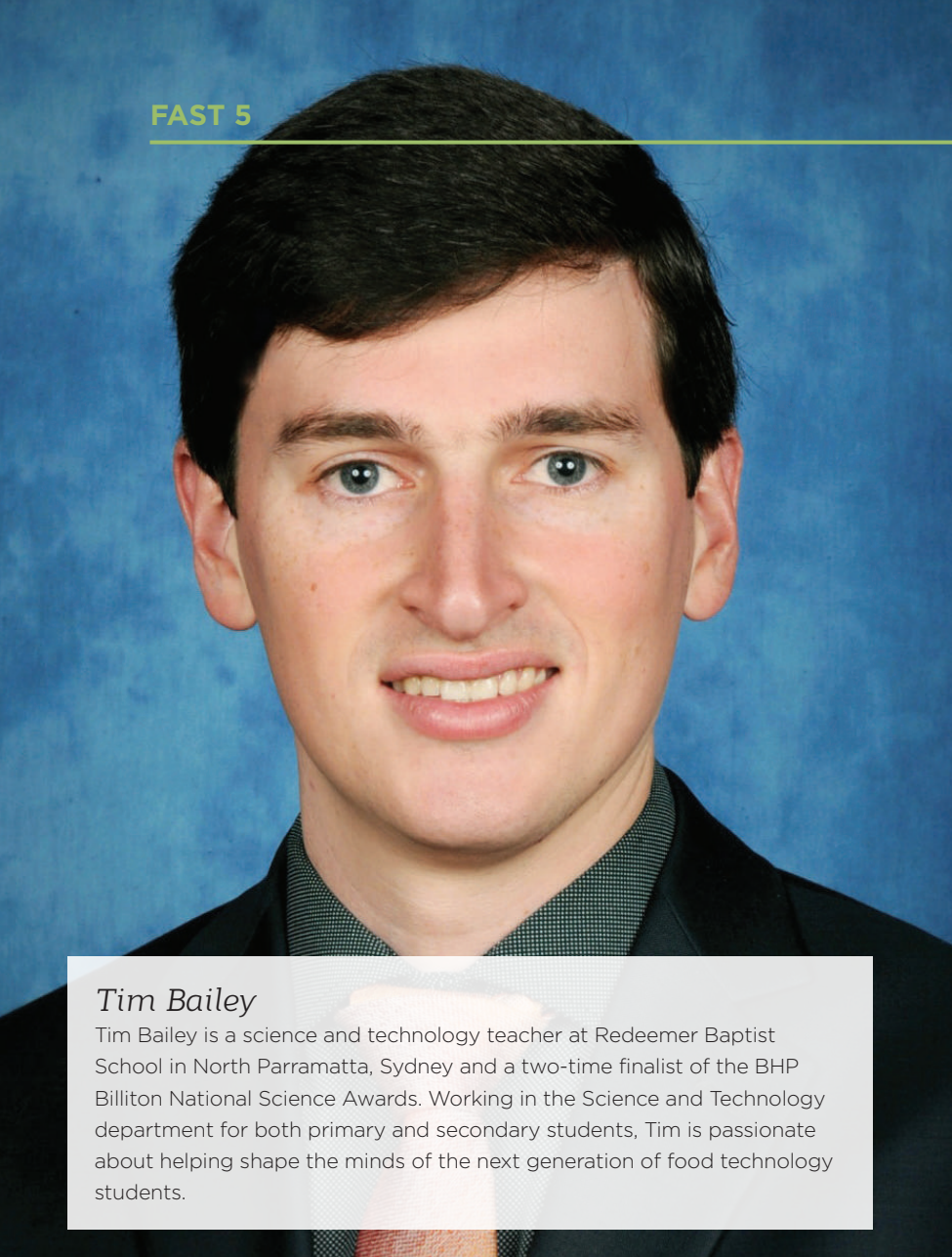
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### Tim Bailey

Tim Bailey is a science and technology teacher at Redeemer Baptist School in North Parramatta, Sydney and a two-time finalist of the BHP Billiton National Science Awards. Working in the Science and Technology department for both primary and secondary students, Tim is passionate about helping shape the minds of the next generation of food technology students.

#### What first sparked your interest in teaching?

Growing up, science and faith were both freely discussed at mealtimes. Conversations could range from the latest discoveries in physics to age old wisdom for life. I was inspired from an early age to love learning and seek knowledge. My headmaster at school was a respected scientist in the food industry for many years and his stories and knowledge inspired me to follow this career path.

#### How have you managed to apply your food technology skills?

My knowledge of both the science of food and the food industry has allowed me to analyse what causes a recipe to behave in a certain way; and then work out what the process looks like on an industrial scale. It then

comes down to how I present these more complex ideas in meaningful ways for students.

#### Do you think there is a role growing for food technology in education?


Absolutely. With growing media and social media coverage shaping trends in the area, the next generation of students is far more aware of food and the food industry. But they are often misinformed as these sources lack a depth of knowledge. As educators our role is to equip students with the base knowledge required for them to make good choices and encourage them to question the validity of what they read. Rigour in research, even casual information gathering, is a vital skill when there is so much information available.

# FAST 5

#### Does having industry knowledge in a different sector better equip you as a teacher?

While I don't have direct industry experience, coming from a science degree (Bachelor of Science: Food Technology and Master of Teaching: Secondary) gave me a depth of knowledge that is beneficial in teaching. There are many teachers at my school who came to teaching after many years in the industry and I often discuss concepts with them and get perspective through their knowledge. A culture of shared knowledge is a critical aspect to quality education.

#### Is it important to stay up to date with the food technology sector?

Yes, we need to stay informed from reliable sources on innovations and concerns in the food technology sector. We then bring those new ideas into the classroom and encourage students to bring their own news items. The recent strawberry needle crisis was a hot topic, and we spent quite a bit of time discussing the importance of a secure food supply. 

## Australia and New Zealand 2019

**February 3-5 2019 13th NZOZ Sensory and Consumer Science Symposium** University of Otago, Dunedin, New Zealand. [www.otago.ac.nz/nzoz-sensory-symposium/](http://www.otago.ac.nz/nzoz-sensory-symposium/)

**February 28 2019 Food Recall Workshop** Melbourne. [www.aifst.asn.au/vic-2019-food-recall-workshop-melbourne](http://www.aifst.asn.au/vic-2019-food-recall-workshop-melbourne)

**March 6 2019 Proteins for food and health: Sustainable alternatives for future food seminar series.** Melbourne, Adelaide, Sydney, Brisbane [events.csiro.au/Events/2018/December/11/Protein-for-food-and-health-seminar-series](http://events.csiro.au/Events/2018/December/11/Protein-for-food-and-health-seminar-series)

**May 13-16 2019 The 3rd Food Allergen Management Symposium - FAMS2019** State Library Victoria, Melbourne, [allergenbureau.net/events-2](http://allergenbureau.net/events-2)

**May 24-26 2019 The Food Show 2019** Wellington, New Zealand, [www.foodshow.co.nz](http://www.foodshow.co.nz)

**June 24-26 2019 Hort Connections 2019** Melbourne Convention Centre, Melbourne, [hortconnections.com.au](http://hortconnections.com.au)

**July 1-2 2019 The AIFST Annual Convention 2019** Sydney International Convention Centre, Sydney, [www.aifst.asn.au/2019-aifst-convention](http://www.aifst.asn.au/2019-aifst-convention)

**2-4 July 2019 NZIFST Annual Conference** Christchurch, NZ [www.nzifst.org.nz/conference.asp](http://www.nzifst.org.nz/conference.asp)

## International 2019

**April 15-16 2019 3rd International Conference on Food and Nutritional Sciences** Paris, France, [www.foodscienceconference.org](http://www.foodscienceconference.org)

**May 10-11 2019 4th Global Food Security, Food Safety and Sustainability Conference** Montreal, Canada, [www.foodsecurity.conferenceseries.com](http://www.foodsecurity.conferenceseries.com)

**May 23 2019 International Conference on Food Science and Technology** Barcelona, Spain, [www.clytoconferences.com/international-conference-food-science-and-technology](http://www.clytoconferences.com/international-conference-food-science-and-technology)

**June 2-5 2019 IFT19 Feed Your Future** New Orleans, LA, [www.iftevent.org](http://www.iftevent.org)

**July 26-27 2019 The 7th International Conference on Nutrition in Medicine 2019** Grand Hyatt, Washington, D.C., [www.pcrm.org/icnm](http://www.pcrm.org/icnm)

**August 7-10 2019 Vietfood and Propack 2019** Saigon Exhibition & Convention Centre, HCMC, [www.hcm.foodexvietnam.com/en](http://www.hcm.foodexvietnam.com/en)

**September 23 2019 International Dairy Federation** Istanbul, Turkey, [www.fil-idf.org/event/idf-world-dairy-summit-2019-istanbul-turkey/](http://www.fil-idf.org/event/idf-world-dairy-summit-2019-istanbul-turkey/)

**September 25-26 2019 Vitafoods Asia** Sands Expo & Convention Centre, Marina Bay Sands, Singapore, [www.vitafoodsasia.com/en](http://www.vitafoodsasia.com/en)



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