

food australia

JULY/AUGUST 2017

The Bottom-Line
BENEFITS OF
BALLANTYNE
DAIRY SOLUTIONS



INSIDE

- PERSONALISED FOOD REVOLUTION
- ORIGIN LABELLING: NOT AS EASY AS IT SEEMS
- WHAT'S ALL THE FUSS ABOUT ANCIENT GRAINS?
- WHY YOU SHOULD LET YOUR KIDS PLAY WITH THEIR FOOD

FINEST QUALITY  SINCE 1929

Ballantyne

DAIRY INNOVATION



BALLANTYNE DAIRY INNOVATIONS

Solution-based dairy experts.

PROMOTED BY BALLANTYNE

Formulated using local dairy ingredients – real cheese, butter and cream – Ballantyne cheese and dairy powders deliver the natural complex flavours that your customers prefer.

But the benefits don't end there. Replacing all, or part of, fresh cheese with Ballantyne cheese powders enables you to lower your cost in use as well as saving on storage and handling. Consistency is a bonus too. Unlike fresh cheese, Ballantyne products provide consistent flavour and functionality wherever you use them.


Ballantyne products provide consistent flavour and functionality wherever you use them.

Using specialist fermentation and biotechnology expertise, the Ballantyne Concentrate Range of dairy powders offer an enhanced natural cheese solution that delivers an intensity unchanged by high heat and retort processes. And where dry powder is not required, you'll find the Ballantyne Concentrate Paste range gives you additional cost in use savings, without compromising on quality or flavour.



Whatever your cheese requirement, Ballantyne can give you a better solution. From the ever-popular Cheddar to the hard-grating cheeses, Parmesan and Romano, as well as specialty boutique selections including, blue vein, ricotta and Edam cheeses. For your specialty dairy needs, Ballantyne has you covered, with batch-cultured dairy powders including yoghurt, crème fraiche and cream cheese.

All Ballantyne cheese powders are quality assured, providing up to 15 months' shelf life, which is sure to appeal to your production management. Ballantyne cheese powders also give you the opportunity to label your product "Contains Real Dairy", a claim your customers will love.

From ready meals, sauces and dressings to cheesy snack coatings, choosing Ballantyne dairy innovations brings you the combined benefits of great tasting products and a healthy bottom line. 



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Published by The Australian Institute of Food Science and Technology Limited.

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SUBSCRIPTION RATES

Australia \$110; overseas (airmail) \$175; single copies \$11; overseas \$17.50.

food australia is the official magazine of The Australian Institute of Food Science and Technology Limited (AIFST). Statements and opinions presented in the publication do not necessarily reflect the policies of AIFST nor does AIFST accept responsibility for the accuracy of such statement and opinion.

Editorial contributions are invited. Guidelines are available at <https://www.aifst.asn.au>.

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FOOD FOR THOUGHT

Welcome to the AIFST 50th Anniversary Convention issue of *food australia*! This month AIFST will take time to recognise and celebrate the historic milestone in the Institute's history – our 50th Anniversary.

Established in 1967 following just over a decade as a Branch of the US-based Institute of Food Technologists (IFT), AIFST has a long and proud history of supporting Australia's food industry professionals. During this time, AIFST has been required to evolve in response to an ever-changing food industry landscape. The next 50 years will require us to respond even faster in an environment where technology and innovation are leading the way.

We understand the challenges ahead. We are now prepared and excited to deliver an Institute for the future in light of the work done to date to modernise the Institute to be able to innovate as required. In this issue hear from Past President and AIFST Fellow Jenny Robertson on pages 6-7, where she discusses a time of growth and expansion of the Institute at the turn of the century.

As we look to the next 50 years we know that industry leadership is crucial. In this issue we hear from some of the Institute's Young Professionals who are taking a strong leadership role in promoting the industry and building their professional capacity. Read more on our Young Professionals in the Young and Hungry section of *food australia* on pages 26-27.

With skill and capability a core focus and priority for AIFST, we are pleased to see the leadership role of Food Innovation Australia Limited (FIAL), the Food and Agribusiness Growth Centre and CSIRO in the development of the Food and Agribusiness Roadmap. The Roadmap will be officially launched at the AIFST 50th Anniversary Convention; in the meantime, you can read more on pages 22-24.

There is still time to register for the premier event on the 2017 food industry calendar, the historic **50th Anniversary AIFST Convention** and **50th Anniversary Gala Dinner** being held in Sydney from 17-18 July 2017, co-located with **foodpro**. Visit the AIFST website today for more information.

I hope you enjoy this issue of *food australia* and I look forward to welcoming you to the Convention! 🍷

GEORGIE ALEY
AIFST CEO



The Rise of Bok Choy



At one time in our lives (and many more for most of us), someone has nagged you to eat your vegetables, especially your greens. Australians seem to be taking notice but instead of the traditional Brussel sprouts and peas, we are increasingly getting our essential nutrients from Asian greens.

In the year ending 28 January 2017, Nielsen Homescan data showed that volume sales for Asian vegetables jumped by 22 per cent versus the previous year, while dollar sales rose by 17 per cent.

Asian vegetables such as pak choy, bok choy, choy sum, Chinese cabbage/wom bok, gai choy and Chinese broccoli can be found in the kitchens of one-in-three (34.5 per cent) Australian homes. Asian vegetables are purchased around five times per year on average, with shoppers spending \$2.92 per shop.

Households in New South Wales and Victoria love their Asian vegetables, contributing almost two-thirds of total dollar sales (64 per cent) for the category. Asian vegetables are particularly popular in smaller households (1-2 people), with this group accounting for just under 50 per cent of sales.

Let's look at the numbers. 

ASIAN VEGETABLES GAINING GROUND IN AUSTRALIA



17%
Asian vegetables \$ growth



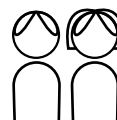
+22%
Asian vegetables volume growth

IN THE PAST YEAR:



Australian Households purchased Asian vegetables

NSW and VIC account for almost two-thirds of total \$ sales for Asian vegetables



smaller (1-2 person) households account for **47%** of volume sales for Asian vegetables.

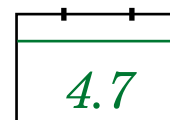
ASIAN VEGETABLES PURCHASING METRICS BY HOUSEHOLD



Purchased



Spent



Number of times purchased in a year

AIFST 50 YEARS YOUNG 2001-2003 – A TIME OF



<<
Jenny Robertson (left) being presented with the 2014 AIFST President's Award from the then AIFST President Dr Anne Astin.

AIFST talks to Jenny Robertson – AIFST President 2001-2003.

What have been your main roles in the Australian food industry?

An extensive resume! In summary, I have a BSc (Hons) in Food Technology from University of NSW (UNSW). My first roles as a food technologist were with Unilever Australia and Sydney Flour. Both roles were very different and demonstrated the breadth of opportunities open to food technologists in the food industry. While my children were pre-schoolers, I enrolled in a PhD at UNSW entitled "Whole Wheat Grain Feeding of Sheep" – an interdisciplinary study at the interfaces of agriculture, animal nutrition, reproductive physiology, biochemistry and food technology. My post-doc was at UNSW in the School of Physiology. After 10 years in medical research, it was time to return to the commercial world, first at George Weston Foods where I had the opportunity to expand and extend my knowledge and research interests in cereals, cereal products

and meat as an R&D Manager/Scientist. Afterwards a foray into food regulation as the scientific director in the newly created National Food Authority, which stood me in good stead in my later career. I spent several interesting and enjoyable years at Pauls Ltd in Brisbane working for Dr Roger MacBean and with AIFST stalwart Anthony Coope. Following the takeover of Pauls by Parmalat in the late 90s, I was approached by AIFST Fellow Callum Elder to join National Food Limited (NFL) in 1998. After he left for Simplot, I became general manager for technology and innovation. Since leaving NFL, I have undertaken several consulting and mentoring roles in the food industry. The senior management of NFL encouraged me to become involved in AIFST and other industry bodies, including becoming a director of Dairy Food Safety Victoria, president of AIFST and chair of the Food Safety Council of Victoria, a role reporting to the Minister for Health and which I held for more than seven years.

GROWTH



How did you first get involved with AIFST?

As students, associate professor Fritz Reuter encouraged us to join the IFT Northern Branch and to be active members by attending technical meetings and the Annual Convention. They were wonderful opportunities to broaden our technical base, to meet and to discuss technical issues with the greats of the Institute, the profession and overseas visitors. A wonderful legacy!! When AIFST was formed in 1967, I became a founding member. I was elected as president-elect of AIFST in 1999 and became president in 2001. I perceived this as a chance to give back to the Institute and to the members in recognition of the mentoring and encouragement I had received from the likes of Dr Reuter, Dr Vickery, Dr Farrer, Dr Martin, Dr Craske, all stalwarts of the Institute. The list can go on. From 2010-2014 I was on the AIFST Council, I won the President's Award in 2014 and am now a Fellow of the Institute.

What are some of the highlights of your time involved with AIFST?

1996 was an interesting year for me and my involvement within the Institute. For a variety of reasons, I was asked in late 1995 to chair the Convention Committee for the 1996 Convention to be held on the Gold Coast. In a matter of six months a small group of us in Brisbane pulled together the Convention program both technical and social. We drove some innovations in the construct of the program, which resulted in us having over 100 speakers and eventually more than 500 registrants. Many of the changes we introduced have continued to this day. During my time as president, AIFST introduced the Pilot Continuing Professional Development Program, which was built upon by Bronwyn Graham during Dr Anne Astin's time as president. We improved governance standards and developed four Steering Committees reporting to the Council to drive membership growth, value to members, financial stability and scientific integrity. During 2004-2006, AIFST had the largest membership base in its history. I think the founding fathers of AIFST would have been pleased.

How has AIFST helped your career?

I can never thank the founders of the Institute enough for their foresight in setting up a professional Institute. It has provided me with the courage to look outside the square, to think across disciplines and commodities. The technical meetings in the Branches provided an opportunity to learn about aspects of food science, technology, engineering, and regulation that increased my thirst for knowledge and passion for the food industry.

It has been this broad-spectrum base that has given me the opportunities in so many areas of the industry. Continuing professional development provided by AIFST, the industry, government and academia have been the catalyst for my career and what success I have enjoyed.

What do you see as the opportunity and future ahead for the next generation of food industry professionals?

The opportunities for young food industry professionals are enormous but challenging. There are openings in research, in teaching, in government, in food-legal, in the commercial world. There are no boundaries to where food technology can take us. Young professionals will need to take the opportunities that present themselves and strive for excellence. However, it is incumbent on everyone to engage in continuing their professional development, to read widely, to become involved with AIFST, and to "pick the brains" of senior members of the Institute or use us as sounding boards. The industry needs an integrated approach, from academic and research institutes nationally through to food companies, to ensure that our young professionals have the skills, capabilities and knowledge to carry the industry forward. Membership of AIFST, with all that it can and should offer in developing professional technical skills and knowledge to underpin continuing professional development and access to other members will be invaluable for the next generation.

What is your view on the state of the food industry? What do you believe are the current challenges and opportunities facing it today?

The food industry in Australia is doing it tough at the moment, irrespective of whether one is in academia, research institutes or companies. The industry is very innovative but hampered by high costs, lack of national infrastructure and to some extent domestically by retail policies. Some entrepreneurs are building their own infrastructure. There are huge opportunities including planting of new crops, but for success we need an integrated approach to food from agriculture, processing and the supply chain, from government, academia to research institutes to commercial reality. We have the research and development capability for new crops to be successful, despite high labour costs. The opportunities are there across the industry ready for picking. 🍷

Recent AIFST Member Events

VIC Trivia Evening

An annual Institute highlight is the Victorian Trivia Evening. The 2017 Trivia Evening brought together some of the sharpest minds in the industry, battling it out to take home the prestigious Halcyon Proteins perpetual trophy!

The trivia night dinner was generously supported by DTS Food Assurance. The DTS Food Assurance team also showed their trivia muscle, being the only team to correctly identify the bird with the largest wing span (the Wandering Albatross).

The Institute would like to acknowledge all the supporters of the evening: Symbio Laboratories who hosted the cocktail hour and round sponsors Brenntag, Connell Brothers, Hawkins Watts, Sensient and Simone Dowie Consulting, as well as the generous in-kind support from Emma and Toms and Essential Flavours. Thanks also to AIFST member Martin Eagle for his tireless support and behind-the-scenes coordination of the night.

Ultimate winners on the evening were Team Sensient. Team captain Wayne Stuchbery said: "Sensient utilised IQ tests and ran sensory colour and taste evaluations to select the cream of our personnel to form the winning team that won the 2017 Victorian Trivia night. It was a great night and fantastic networking opportunity to catch up with colleagues and meet new people from the food industry."



US Health and Nutrition Webinar

AIFST members were able to take part in a recent webinar presented by Dr Maria Stewart, business scientist and clinical research Lead at Global Nutrition R&D Group, thanks to the support of Ingredion Incorporated. Dr Stewart had a hectic schedule during her time in Australia but was able to fit in a visit to the AIFST office to deliver the online presentation.

Dr Stewart gave an overview of the current US consumer and a delved into the "top 10" 2017 trends. These include the growth in personalisation and on-the-go products as well as greater emphasis on sustainability and "waste not". Dr Stewart noted that Mintel research found 43 per cent of consumers look for meals that are easy to prepare.


Another aspect Dr Stewart highlighted was research into some of the key ingredients consumers sought when choosing foods and identified differences between developed and emerging markets.

To round off the webinar, Dr Stewart gave an overview of an introduction to High-Amylose Maize Resistant starch, an Ingredion project. Our thanks to Dr Stewart and the team at Ingredion for enabling AIFST members to gain some insights into the work of our contemporaries in the US.

If you or your organisation would like to be a part of an AIFST webinar, please contact Shona.Gawel@aifst.com.au to discuss.

Career Webinar Series

Jana Chapman (QLD Community of Interest committee member) and Helen Pakhomov hosted the May webinar, looking at CV and cover letter skills for AIFST members. They reviewed what to include in your resume, how to make your CV catch the eye of would-be employers or busy recruiters and also the essential elements of a cover letter. In addition to delivering an informative lunch and learn webinar, Jana also reviewed the CVs of webinar participants and provided template documents for those looking to get started.

The next webinar on Wednesday 30 August will look at how SMEs can best use social media for their businesses. Book today <https://www.aifst.asn.au/other-event/career-webinar-social-media-small-businesses>. 

Clockwise from top: VIC Trivia Evening winning team, Sensient; Team DTS at the VIC Trivia Evening; Peter Schutz, AIFST chair, with Andrew from Symbio.

2017 AIFST AGM

The 2017 AIFST AGM will be held in the Pyrmont Theatre at the International Convention Centre, Sydney from 8.30am-9.30am on Tuesday, 18 July 2017. All members will have received a formal Notice of Meeting detailing the items of business to be discussed at the AGM.

A key item of business will be the appointment of Non-Executive Directors to the AIFST Board to fill the three positions required to retire by rotation under the AIFST Constitution at the 2017 AGM, and the ratification of a casual vacancy director appointment.

Following an extensive selection process, the proposed Non-Executive Directors for appointment by AIFST members are:

Fiona Fleming – retiring by rotation and seeking reappointment for a three-year term. As a Member of the previous AIFST Council and Transition Advisory Board and AIFST Professional Member, Ms Fleming brings over 30 years' food industry experience and significant AIFST corporate knowledge to the Board along with member services and corporate sponsorship and fundraising.

Steven (Steve) Lapidge – AIFST Member nomination seeking appointment for a three-year term. AIFST Member Dr Lapidge brings a diverse skill set relating to corporate sponsorship and fundraising as well as strong industry networks to the Board having held various roles in the food industry for the past 15 years.

Trent Hagland – Independent Director nomination seeking appointment for a three-year term. Mr Hagland brings extensive global finance and risk skills to the Board and Institute to assist with the long-term financial sustainability and viability of the Institute.

Chris Downs – Dr Downs was appointed an AIFST Director to fill a casual vacancy on the Board in November 2016 and requires member ratification for a one-year appointment to the AIFST Board. Dr Downs has been an active Director on the Board since his casual vacancy appointment in November 2016 and brings finance, strategy and member services skills to the AIFST Board.



At the meeting members will be asked to consider the resolutions relating to the appointment of the above Non-Executive Directors and a resolution relating to the appointment of AIFST's Auditor.

For members unable to attend the AGM, proxy forms have been distributed and are required to be submitted to AIFST no later than 8.30am on Sunday, 16 July 2017 to be counted. Members can submit their proxy form via:

Email: aifst@aifst.com.au Mail: Attention: Company Secretary, AIFST, PO Box 1961, North Sydney NSW 2059 Fax: 02 9394 8669



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VALE ELEANOR SCHMEDEMANN



It is with great sadness we share the news that Eleanor Schmedemann passed away suddenly in June. Eleanor was devoted to her family, husband Detlev and son Karl, and was passionate about food science.

Eleanor graduated with a Bachelor of Applied Science in Medical Laboratory Science from the South Australian Institute of Technology (now known as Uni SA) in 1985. She had over 30 years' experience working in the food industry and worked in the poultry, dairy, bakery, confectionary and regulatory sectors.

Commencing her journey at Inghams Enterprises as a laboratory technician/supervisor in 1986, Eleanor then went on to work as the laboratory supervisor with Dairy Vale Co-operative. Following this role, Eleanor moved with her family to WA, where she worked as the laboratory supervisor for Capel Dairy Company before moving to Peters & Brown's Group as the technical services officer in 1995. During this time Eleanor achieved an Advanced Certificate in Food Technology (Regency TAFE). Eleanor returned to SA and worked at Balfour Wauchope as the senior technical officer before becoming the quality assurance manager at Robern Menz in 2000.

From 2004 Eleanor worked at SA Health in the Food & Controlled Drugs Branch. Eleanor initially worked with the Food Standards Surveillance Section where she developed a risk-based bakery inspection regime for local government to implement across the state. In 2007 Eleanor joined the newly created Food Safety &

Audit Section where she was instrumental in the development, implementation and monitoring of Food Safety Standard 3.3.1 in South Australia. Eleanor conducted state-wide regulatory auditing in the vulnerable populations sector and provided advice to South Australian food businesses on food safety risk assessment and management approaches.

Eleanor also spent a large part of her career dedicating valuable spare time and energy to the South Australian Branch of AIFST. Eleanor held positions of Branch Chair, Councillor and Convention Chair over the best part of 10 years. Most certainly one of the highlights was the outstandingly successful 2006 convention held in Adelaide, with Eleanor leading the way enthusiastically and tirelessly as Convention Chair. Eleanor was dedicated to education in food science and was a wonderful mentor to the younger "up and coming" members of AIFST. Eleanor was awarded the AIFST President's Award in 2008.

Eleanor will be remembered for her warmth and kindness and her great understanding of food science and how it impacts our lives. She will be dearly missed and our thoughts are with her family and friends at this very sad time. 🕯

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NEW FOOD LABELLING HUB HELPS YOU KNOW YOUR FOOD FACTS

It provides consumers with confidence and certainty by helping them understand how to correctly read food labels.

Promoted by NSW Food Authority



Navigating the complex world of labelling can be a challenge for consumers, but help is at hand in the form of the NSW Food Authority's recently launched food labelling hub – an online, interactive resource dedicated to all things food labelling.

NSW Food Authority CEO Dr Lisa Szabo said she was excited to provide a resource to help consumers better manage their food choices.

“We recognise that with so much information out there it can be difficult to find it and understand it – for business, and for your customers” Dr Szabo said.

By law a food label must stipulate various things like a list of the ingredients, warning or advisory statements about the presence of allergens, a nutritional information panel, the shelf life of a product be it “use by” or “best before” dates and the country of origin.


Food sold in Australia must comply with the Food Standards Code and one of those requirements is correct labelling.

“One of our many roles at the NSW Food Authority is to inform and to educate,” Dr Szabo said.

“This tool provides consumers with confidence and certainty by helping them understand how to correctly read food labels and the happy consequence of that is it helps consumers make informed choices. It is designed to be mobile and tablet friendly so food labelling information can be accessed anytime, anywhere.

“One of the features of the hub sure to appeal to users is the 3D function where a virtual cereal box pops up and visually guides people through the type of information that is required on food packaging.”

The NSW Food Authority is expanding the hub with a focus on food businesses. By the end of 2017, an online resource will be available for businesses to help guide them in meeting regulatory requirements.

“This will be a real ‘one-stop-shop’ resource for both industry and consumers.” 

The food labelling hub can be found at www.foodauthority.nsw.gov.au/labelling.



industry bites



REVIEW OF THE HSR “AS PREPARED” RULES



The Health Star Rating (HSR) Advisory Committee (HSRAC), responsible for overseeing the implementation, monitoring and evaluation of the HSR system, is reappraising the form of the food (“as prepared”) rules in *The Guide for Industry to the HSR Calculator*. The Guide includes provisions for products that may be unfairly compared to other products when based on the form of the food as presented for sale. This covers items such as powdered soup, sauce mixes or drink flavourings, which are not intended to be consumed as sold and must be prepared prior to consumption, and which once prepared can reasonably be compared with similar products. Current guidance allows these products to display a HSR based on the product “as prepared” according to the instructions on the product packaging. However, products may be prepared in multiple ways, despite specific directions or instructions for preparation.

Concerns have been raised by public health and consumer organisations that because of this, the HSR, calculated according to current guidance, may not be representative of the way that the product is being prepared and consumed and may be misleading in these instances. The Australia and New Zealand Ministerial Forum on Food Regulation has asked the HSRAC to address these concerns as a matter of priority. An initial call for industry data and public submissions was held during June and the themes raised through the initial consultation period will be collated and provided to stakeholders at workshops. Results from this public submission process and the workshops will be analysed to inform the development of an options paper. The options paper will be released to industry, public health and consumer groups and individuals before further workshops are held. Industry is encouraged to review the Department of Health website for more information on the review process.

AMAZON IN TALKS WITH AUSTRALIAN SUPPLIERS

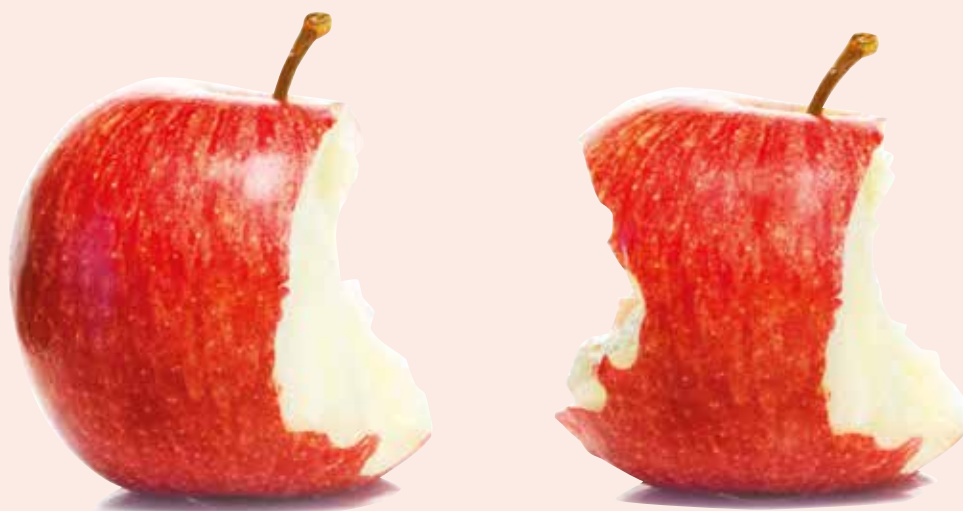
A UBS survey has reported that Amazon is already speaking to Australian suppliers about launching in Australia. The survey says one in five of its surveyed suppliers are already in discussions with Amazon. All of these suppliers are producers of non-perishable foods or non-food items, leading to new speculation Amazon will not be selling fresh produce, dairy goods or similar non-perishable foods in Australia anytime soon. UBS said it was surprised Amazon is already speaking to suppliers as it thought Amazon would not launch in Australia until the 2019 financial year. “One out of five suppliers are already in discussions with Amazon, and 96 per cent believe Amazon will enter grocery in the next three years,” the published UBS survey results state.

FOOD STRUCTURE, DIGESTION AND HEALTH ON THE AGENDA

CSIRO will host the 2017 Food Structures, Digestion and Health International Conference from 24-27 October 2017 focused on increasing awareness that food format and food structure have a significant effect on the bio-availability of nutrients. The focus has shifted development of nutritional guidelines away from the more traditional approach of simply examining the nutrient composition of foods. The conference presents a unique opportunity to bring together food industry professionals and world-leading scientists – from diverse disciplines including food science, nutrition, digestive behaviour, genetics, medical science and engineering – with

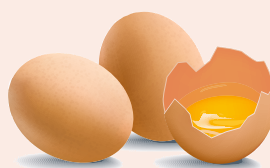
a common interest in food design that delivers better nutrition and functionality and improves consumer wellbeing. AIFST is a partner of the conference supporting our young food scientists and technologists’ contribution.





REASON BEHIND FREE-RANGE EGG PURCHASES REVEALED

A study by Adelaide University presented an unexpected finding when it discovered the reason consumers purchase free-range eggs relates more to their high priority ranking around quality and taste than ethical concerns. Consumers who bought free-range eggs said that they thought free-range eggs were of better quality, more nutritious and safer to eat. The perception that free-range is more “natural” for chickens implied that consumers thought free-range eggs were “naturally” better. Researchers had initially assumed that the rationale behind free-range egg purchases was driven by consumer concern over the welfare of the chickens, but the idea “happier” chickens produce better quality eggs is the broader message.



WFSCC OPTIMISING WINE SUPPLY CHAIN AND MANAGEMENT

Recently Wine and Food Supply Chain Council (WFSCC) researchers developed a decision support system for harvesting grapes at a winery in South Africa. With more than 80 different suppliers each divided into vineyard blocks, harvesting decisions involved sorting through large volumes of data. WFSCC researchers solved and automate this problem and have undertaken similar exercises in Italy, Chile and Australia/New Zealand. Currently, the WFSCC is using its world-class expertise in quantitative supply chain management and analytics to tackle these trends in wine and food logistics: increase in online retailing; new industry initiatives; continuously rethinking value and cost; blurring and extending the boundaries of food factories; and increased use of behavioural models.

Formed in 2007, WFCC is an international network of researchers composed of supply chain professionals committed to improving wine and food supply chains through the application of quantitative methodologies. Partner institutions include the Supply Chain and Logistics Institute of Georgia Institute of Technology (USA), the University of Bologna (Italy), the University of Stellenbosch (South Africa), the Pontifical University of Chile, the National University of Cuyo (Argentina), and Australia's own CSIRO.

For more information go to: <https://research.csiro.au/wfsccl>. ▶▶

SAVE THE DATES

NATIONAL

16-19 July 2017

Foodpro 2017
SYDNEY

17-18 July 2017

AIFST 50th Anniversary Convention
SYDNEY

17 July 2017

NSW DIAA Conference
SYDNEY

18 July 2017

AIFST 50th Anniversary Gala Dinner
SYDNEY

19 July 2017

AIFST Humanitarian Food Science
and Technology Symposium
SYDNEY

7 September 2017

Fine Food Awards Presentation
MELBOURNE

11-14 September 2017

Fine Food Australia
SYDNEY

24-27 October 2017

4th Food Structures, Digestion
and Health Conference
SYDNEY

INTERNATIONAL

4-6 July 2017

NZIFST Annual Conference
NELSON, NZ

9-12 July 2017

International Association for
Food Protection
TAMPA, FLORIDA

27-29 July 2017

17th Global Summit on Food
and Beverages
CHICAGO, USA

5-6 September 2017

Vitafoods Asia
SINGAPORE

20-22 September 2017

67th Australasian Grain
Science Conferenc
CHRISTCHURCH, NZ

Executives on the move

Bellamy's has appointed ex-Fosters managing director, **John Murphy**, as its new non-executive independent director. Bellamy's has also appointed a new chairman, **John Ho**.

Clean Energy Finance Corporation has appointed **Ian Learmonth** as its new chief executive officer to replace outgoing CEO Oliver Yates.

Mike Spencer has been formally appointed as the new general manager of Paradise Beverages, the South Pacific region's leading beverages company. Formerly the head of operations for Paradise Beverages, he was appointed acting general manager last October following the departure of Tony Scanlan.

ASX-listed Australian Agricultural Company (AACo) has appointed **Dr Shehan Dissanayake** as executive director to accelerate the businesses export market expansion. Dr Dissanayake will report to the board and AACo CEO/managing director Jason Strong.

Australian Dairy Farmers have appointed new chief executive officer **David Inall**, who will return to Australia in July following a four-year stint in the US. Prior to working in the US, Inall was chief executive officer of the Cattle Council of Australia.

David Irvine has commenced as the new chair of the Foreign Investment Review Board. Irvine was the former director general of the Australian Security Intelligence Organisation and Australian Secret Intelligence Service.

Greg Seymour has been appointed new chief executive officer of the Australian Olive Association.



DEAKIN UNI TO STUDY SUPERMARKET INFLUENCE OVER IMPROVING DIETS

Deakin University announced a new National Health and Medical Research Council Partnership grant-funded study that will explore whether traditional supermarket marketing techniques can be used to help Australians eat better.

Working in conjunction with IGA, participating IGA supermarkets will display health promotional material, signage on trolleys and baskets, floor decals, flyers, posters, banners and staff will be trained in health promotion. This is the first time a comprehensive controlled trial will be carried out in Australian supermarkets, testing new anti-obesity measures like the government's Health Star Rating System.

\$10 MILLION APPROVED FOR DEXA INSTALLATIONS

Meat & Livestock Australia (MLA) will invest up to \$10 million to co-fund the installation of dual-energy X-ray absorptiometry (DEXA) objective measurement systems in red meat processing plants following multiple requests to accelerate the adoption of the technology. Four major processors – Gundagai Meat Processors, Frewstal, Wagstaff Cranbourne and Teys Australia – have already partnered with MLA to implement the automation technology. MLA managing director Richard Norton said the introduction of DEXA technology will enable red meat supply chains and the businesses within them to drive new efficiencies, generate more value and better meet market demands, which will ultimately improve the Australian red meat industry's international competitiveness.

AUSTRALIAN FOOD BRANDS FEATURED IN CELEBRATING AUSTRALIAN FOOD AND AGRIBUSINESS INNOVATIONS

Food Innovation Australia Limited (FIAL) has launched the second edition of Celebrating Australian Food and Agribusiness Innovations. Chosen by an expert panel of judges from industry, academia and research, the book showcases 50 diverse innovations from across Australia's food and agribusiness industry. The innovations hail from micro businesses to multinationals, and span the entire food and agribusiness value chain. They are aligned to one of seven global megatrends, as identified by CSIRO, that are shaping the world as we know it today and into the future. From new varieties of wheat and novel ingredients to revolutionary packaging formats and alternative processing methods, the stories in the book inspire future collaboration and innovation, which will ensure the Australian food industry remains competitive in local and global markets.

AUSSIE PLANT BIOSECURITY GETS A \$21 MILLION TECH INJECTION

Australia is on track to adopt some of the most sophisticated plant pest surveillance technologies in the world after Horticulture Innovation Australia secured a federal government grant and co-investor funding to deliver a \$21 million plant biosecurity push. The \$6.8 million Rural R&D for Profit grant will complement more than \$14 million in investment across the seven plant Research and Development Corporations (RDCs) and partners such as the CSIRO, universities and state government agencies. Vegetable industry body AUSVEG and Plant Health Australia are also key collaborators. Commencing from July 2017, the five-year project will see the construction and establishment of eight state-of-the-art mobile pest monitoring hubs, including a suite of smart surveillance traps that capture airborne fungal spores and insects and reference them against GPS, temperature, humidity, wind speed and direction data. The new \$21 million initiative will use next-generation technologies to build on Australia's reputation of offering clean, green plant products. 



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ORIGIN LABELLING IS NOT AS EASY AS IT SEEMS

At almost half way through the industry's two-year implementation period, many are struggling to work out what to put on their product labels and what data they need to substantiate their labelling.

Words by Chris Preston
Australian Food and Grocery Council

If you are one of those people struggling, I feel your pain. Even as a lawyer I often have to re-read the Information Standard to work out how the scheme is supposed to work. It seems timely, then, to deal with some of the more common issues that come across my desk. Hopefully they may answer your questions as well!

THE BIG PICTURE

The new scheme has a hierarchy – Product of Australia, Made in Australia, Imports – in that order.

Product of Australia is 100 per cent Australian ingredients and additives – not 99.999 per cent. Overseas processing must be declared.

Made in Australia means substantially transformed here, that is, in Australia. You need to declare the minimum percentage of Australian ingredients and additives for your product, which may be zero even though for most of the year that product may have significant amounts of Australian ingredients! If so, know you are in good company. You should work out if an averaged declaration, with all its extra monitoring and reporting, is an option for you.

The minimum percentage is calculated on the basis of ingoing ingredients and additives, with some rules for water used to reconstitute a dehydrated or concentrated ingredient and for water as a liquid packaging medium (that is typically discarded in use). It is your recipe that forms the basis of the calculation, not the finished product.

BAR CHART VERSUS STATEMENT

The percentage shown in the bar chart is rounded down to a regulated percentage point – 0, 5, 10, 20, 30, 40, 50, 60, 70, 80, 90, 95 and 100 per cent. The percentage declared in the text statement is the actual percentage, rounded down to the nearest whole number.

So a product that has a minimum of 99.5 per cent Australian ingredients and additives shows a bar chart filled to 95 per cent and declares a minimum of 99 per cent Australian ingredients in the statement. One that is a minimum of 48.3 per cent Australian shows a bar chart filled to 40 per cent and declares 48 per cent in the text statement.

SUBSTANTIAL TRANSFORMATION

A food is substantially transformed in a country if, as a result of one or more processes undertaken in that country, the goods are *fundamentally different in identity, nature or essential character* from all of their ingredients or components that were imported into that country.

The key concept is that the goods have changed their identity. The definition is not about the processes that the food has undergone, it is about whether the identity of the food has changed. Questions like “Is cooking a substantial transformation?” misunderstand this key concept, because in



some cases the process might change the identity of the food and in other cases it may not. It is about if the process changes the identity, not the process itself.

You also need to think this through from the consumer's perspective. It is more of a pub sniff test (is what comes out the same as what went in?), than a legally prescriptive formula.

IMPORTS

The labelling of imports is quite complicated in the *Information Standard* because there are many options to identify Australian content in, and Australian packing of, imported foods. However, the basic rule is actually very clear. You state, in a box unless it is a non-priority food, the country (or countries) in which the food was grown, made or produced. All the other things are optional. If in doubt, keep it simple.

NON-PRIORITY FOODS

The list of non-priority foods in the *Information Standard* might not mean what you think it means. Check the dictionary at the back of the *Information Standard* to understand the scope of each term on the list – your intuitive sense from working in the food industry is not going to work here. For example, ice cream is confectionery for origin labelling purposes.

ENFORCEMENT

With just 12 months to go, some people are scared about what happens if they make innocent mistakes. Well, first make sure they are truly innocent and were made in a genuine attempt to meet the new labelling requirements. Document your decisions and the evidence on which you made those decisions.

The good news is that the Australian Competition & Consumer Commission (ACCC) will be more concerned about compliance than punishment for innocent mistakes, at least for an initial period after the rules come into effect on 1 July 2018. If anyone is trying to game the system, the ACCC will not be as patient, but it recognises that genuine mistakes are likely to happen. If the ACCC comes knocking, be open about why you took the approach you did and to the ACCC's concerns ▶▶

You will need evidence to back up your label claim, so start gathering the data NOW. You need to think not only about what is going into your products today, but also next week, next month, and next year.

SUBSTANTIATION

You will need evidence to back up your label claim, so start gathering the data NOW. You need to think not only about what is going into your products today, but also next week, next month, and next year. How reliable is your supply chain? Is your Australian supply vulnerable to fire, flood or pestilence, and if so do you have alternative Australian supplies in place?

No, there is no stated plus or minus, or variance, for your declared percentages. The declaration is either a minimum percentage, which is a floor threshold not to be undercut, or an average based on historical data. Either way, it needs to be evidence-based.

NATURAL DISASTERS

Speaking of fire, flood and pestilence, there is no allowance for natural disasters in the *Information Standard*. To the contrary; you are expected to allow for known risk factors – North Queensland does get cyclones and Southeast Australia is prone to bushfires. While regulators are sympathetic to true “force majeure” events when the scope and severity is outside your control, the mere occurrence of a cyclone will not always be an excuse for overstating your Australian content.

RECORD KEEPING

The minimum is three years from the end of the product’s shelf life. Don’t be fooled by the reference to one year in the *Information Standard* – that relates to information provided off label for non-retail sales. And when I say minimum, I mean the barest minimum. Longer is better, especially as archival disk space is cheap.

SAFE HARBOUR

You must comply with the *Information Standard* even if you think it misrepresents your food. People have called me worried that it is false and misleading to call Australian water something else just because it dilutes an imported concentrate. Or that it is misleading to state “minimum zero per cent Australian ingredients” when the product has a large amount of Australian ingredients for most of the year but those ingredients are unavailable for a short period of the year.

You can take up the moral case with your local MP, but the law is clear – the *Australian Consumer Law* declares that you are NOT making a false, misleading or deceptive representation if you comply with the *Information Standard*. No-one is going to coming kicking down your door at dawn if you have met your obligations under this new law.

Now here I am well over my word limit and I’ve only just scratched the surface! Remember there are tools and guidance available on the government’s business website (see www.foodlabels.industry.gov.au/), and good luck! 🍷

Want to know more about the changing food regulatory environment? Chris Preston from AFGC will be presenting at the AIFST 50th Anniversary Convention from 17-18 July 2017. Register today at <https://aifst.asn.au>.



SAVING LIVES

Mandatory allergen food labelling plus food regulation decisions on hemp and fortification of bread.

Words by Food Standards Australia New Zealand

Throughout May, Food Standards Australia New Zealand (FSANZ) held a month-long campaign to raise awareness of the mandatory allergen labelling requirements in the Australia New Zealand Food Standards Code.

Allergen food labelling can mean the difference between life and death for someone with a food allergy, as some foods and food ingredients or their components can cause severe allergic reactions including anaphylaxis. This is why there are mandatory allergen labelling requirements in the Code.

Food businesses are responsible for understanding and meeting mandatory allergen labelling requirements. As well as protecting public health and safety, awareness can save time and money for food businesses by avoiding food recalls of their products. Many food recalls occur because the food business hasn't declared an allergen that must be on the label. Undeclared allergens were responsible for 33 recalls in 2016. This costly and lengthy process can easily be avoided by food businesses staying on top of labelling requirements.

To stay up-to-date with the latest on mandatory food allergen labelling subscribe to the FSANZ notification circular or publications on our website at www.foodstandards.gov.au.


At the end of April, the Australian and New Zealand Ministerial Forum on Food Regulation met in Adelaide to discuss a range of food regulation issues.

The Forum finalised the Food Regulation System priorities for 2017–2021 and identified three priority areas that would strengthen the System. They included building a nationally-consistent approach to reducing foodborne illness, supporting the public health objectives to reduce chronic disease related to overweight and obesity, and maintaining a strong, robust and agile food regulation system that gives confidence to consumers.

Ministers considered FSANZ's most recent decision on allowing low-tetrahydrocannabinol (THC) hemp seeds to be legally sold as a food in Australia and New Zealand. They did not seek a review of the decision, which means low-THC hemp foods will be permitted in around six months. The food standard comes into effect in six months after it has been gazetted to allow all states and territories to amend legislation.

Hemp or industrial hemp is a cannabis plant species (*Cannabis sativa*). Hemp is cultivated worldwide, including in Australia and New Zealand (under strict licensing arrangements), and is currently used in Australia and New Zealand as a source of fibre for clothing and building products. Hemp seeds and oil are used in other countries, including Europe, Canada and the USA, in a range of foods. Hemp seeds contain protein, vitamins, minerals and polyunsaturated fatty acids, particularly omega-3 fatty acids.

Cannabis extracts have also been used in medicine for a variety of ailments. Hemp does not have therapeutic effects because it has low levels of cannabidiol, the active component of cannabis extracts used for medicinal purposes. Hemp is different to other varieties of *C. sativa*, which are commonly referred to as marijuana, as it contains no or very low levels of THC (delta 9-tetrahydrocannabinol), the cannabinoid associated with the psychoactive properties of marijuana.

Ministers also discussed the final report into the mandatory fortification of bread that highlighted significant achievements from two fortification campaigns. The mandatory folic acid fortification of wheat flour for bread initiative in Australia reduced the incidence of neural tube defects. The mandatory iodine fortification of wheat flour for bread initiative in both Australia and New Zealand addressed the re-emergence of mild iodine deficiency in the general public and led to iodine sufficiency at population levels. 



SUSTAINING AUSTRALIA'S FOOD AND AGRIBUSINESS SECTOR

CSIRO has released its Food and Agribusiness Roadmap, charting a course for sustainable growth in the sector amid a highly competitive global market.

By Greg Williams
CSIRO Futures

It's an exciting time to be in the food and agribusiness sector. A rising global demand for food must be met despite harsher and less predictable farming conditions, supply chains are more globally connected than ever before despite increasing geopolitical instability, and technology advances are disrupting every element of the value chain. Consumers are evolving too, demanding: convenience for both in- and out-of-home consumption; a broader range of flavours and food-based experiences; customised offerings; more information about how and where their purchase originated; and products that improve mental and physical wellbeing.

While for many businesses these changes are a cause of stress and anxiety, the most innovative Australian businesses are already identifying new products, services and business models that arise from the emerging needs of tomorrow's global customers.

Australia has a rich history in food and agribusiness but achieving growth within this changing landscape cannot be sustained through productivity improvements alone. Enhancing the proportion of on-shore value-adding is key, whether it be through the creation of unique products for niche markets or through developing varieties of commoditised goods with unmatched quality attributes and competitive production costs. While Australia's size hinders our ability to become Asia's food bowl, our nation could and should be aiming to become its delicatessen of high quality products.

Being a small player in a global market, Australia must work harder to develop and promote unique differentiators. We have the potential to strengthen our position as a small but significant exporter of sustainable, authentic, healthy, high quality and consistent food and beverage products. Early signs of this shift have been identified by recent Austrade analysis, which showed that in the three years to 2016 Australia's value-added foods have accounted for the majority (60 per cent) of food export growth for the first time in history.

CSIRO's *Food and Agribusiness Roadmap* has been developed through a process of industry consultation and analysis. It outlines food and agribusiness value-adding opportunities that align with Australia's comparative strengths in the global landscape. These include products for health and wellbeing (free-from and natural foods, supplements, fortified and functional foods and personalised nutrition); sustainability-driven products and processes (waste conversion, alternative protein sources, sustainable packaging and green and ethical value chains); and products that focus on the food experience (high quality convenience, luxury products, tourism and novel tastes, smells and textures).

Want to know more about the future of the Australian food industry?

Register now to attend the AIFST 50th Anniversary Convention from 17-18 July 2017 focused on the science, technology and innovation underpinning the next 50 years of the Australian food industry. Register today at <https://aifst.asn.au>



Meals by Design Polish borscht, Indian lentil soup and Italian osso buco. Developed by CSIRO, they provide healthy, chilled convenience meals that cater for people with specific nutritional or functional needs. Photo courtesy of CSIRO.

While the *Roadmap* provides specific examples of these opportunities across food and beverage industries, it is noted that each business is different and identifying opportunities is only the first step. The next steps – understanding what is required to pursue these long-term opportunities and the tangible actions that need to be made today – are more difficult.

To help with these questions, the *Roadmap* identifies five key growth enablers: traceability and provenance; food safety and biosecurity; market intelligence and access; collaboration and knowledge sharing; and skills. For each enabler, the *Roadmap* provides examples of science and technology solutions, business actions and broader ecosystem support that can help unlock this growth.

From blockchain applications for provenance to genetic tools for personalised nutrition and sensors and data analytics for improved customer insights, it is clear that sustained growth across all identified opportunities will require the proactive investment and translation of science and technology. However it is critical that these investments are supported by business and ecosystem decisions that improve culture, skills, business models and knowledge within the sector.

Businesses, in collaboration with the food and agribusiness ecosystem, must act quickly or risk losing future revenue streams to the competitive global market.®

The Food and Agribusiness Roadmap will be officially launched at the AIFST 50th Anniversary Convention on Monday, 17 July 2017. Readers will then be able to access the full Roadmap developed by CSIRO Futures at csiro.au/futures.

Young & Hungry



Awards and accolades

AIFST Member **William Gimzewski** won a place to attend the 2017 Food Sure Safety and Quality summit in Amsterdam. William attended the convention during May and joined safety and quality professionals from around the world, looking at the latest innovations in next generation risk assessments tools.

AIFST Member **Alyson Richard** was recently awarded the University of South Australia's Australian Institute of Food Science and Technology Prize. This is awarded to the student with the highest GPA in the final year of the Bachelor of Nutrition and Food Science program. Acknowledging her award Alyson said: "I enjoyed the scientific focus of my course, particularly the biochemistry and microbiology subjects. These added a new dimension to my food knowledge.

I'm still not entirely sure where I want my career to head. I think I'd enjoy a career which combines science, nutrition and food." Congratulations Alyson!

AIFST Member **Sze Teng Tan** received the University of Adelaide Australian Institute of Food Science and Technology Prize. Sze Teng has received a one-year graduate membership to the AIFST and a collection of the Institute books. Congratulations Sze Teng!

QLD Food Science Careers and Networking Night a hit with our next food professionals

Words by Oliver Melville and Chrysanthea Budiman

The QLD Food Science Careers and Networking Night proved a hit with our future food professionals. In May, over 70 people attended the first collaboration between the University of Queensland (UQ) Food Science Club and AIFST Young Professionals Community of Interest, held at the UQ. This event was a great opportunity for budding food professionals to hear about the dynamic and rapidly changing nature of the food industry. Matt Kowal (CEO, PERKii), Dr Heather Shewan (AIFST Member, research fellow UQ Chem. Eng.), Robin Sherlock (AIFST Member, technical manager DTS FACTA), and Josh Hemelaar (AIFST Member, vice president of sales, GELITA) outlined the most rewarding aspects of their careers in the food industry and what they did to achieve their goals.

AIFST member Jarethan Mullen hosted the Q&A session. "Each of the presenters emphasised the tight-knit nature of the Australian food industry, where connections made during their degree or early in their career have lasted over the years," he said. "I took great comfort in knowing the connections I have made during my career will continue to last to test of time."

QLD Food Science Careers and Networking Night. Photography by Jordan Condon.



Australian Native Food Industry research project

Rebecca Richmond, AIFST Graduate Member, has just commenced a three-year research project through the University of Newcastle focusing on Australian native fruits for the development of a food or pharmaceutical product.

Rebecca's initial focus is on Kakadu plum and the quandong, investigating the physicochemical, functional, nutritional, anti-nutritional and microbiological properties. "Kakadu plum has the highest Vitamin C content by dry weight of all fruits," says Rebecca. "It has 70 times more than an orange! Who knows what other amazing things we can discover from these fruits in our own backyards?"

Rebecca is excited by the opportunities to introduce these unique Australian flavours to the food industry. "I have always loved working with food and when I was looking for a career change, food was the one thing I wanted to keep constant. Food is such an invaluable part to life and I wanted to understand more about the link between food and our health."




AIFST Graduate Member Rebecca Richmond is researching Australian native fruits.



UNSW Food Science Careers Evening – AIFST members share their experiences

The UNSW Food Science Association held an information evening for students. Presenters were asked to answer the question "What I wish I'd known when I was at UNSW:"

AIFST was well represented with presentations from members Soumi Mukhopadhyay, Cindy Romero, Chloe Paton, Gordon Fung and Belel Rathborne. Advice ranged from how to make the most out of an industry membership like AIFST, to take care of yourself physically as well as mentally while studying and, above all, to make the most out of the university experience. 



UNSW Food Science Careers Evening.

ALL EYES ON THE FUTURE OF FOOD

More than 500 food industry professionals will gather this month to discuss the science of food.



The AIFST 50th Anniversary Convention will be held from 17-18 July 2017 at the new International Convention Centre (ICC) in Sydney. Co-located with the popular foodpro exhibition, the Convention provides an opportunity to network with colleagues at the largest grouping of food industry professionals; hear first-hand insights from over 65 speakers including three international presenters examining the technology, science and innovation that will underpin the next 50 years of the Australian food industry; and enjoy an exclusive wine and cheese tasting evening and celebrate AIFST's 50th Anniversary at a milestone Gala Dinner.

REGISTER NOW!

Registrations are available for the Convention and Humanitarian Symposium via the AIFST website until Friday, 14 July 2017. Full Convention registrations, one-day Convention and Symposium registrations and social function only tickets are available for purchase. Visit <https://aifst.asn.au> for more information.

HUMANITARIAN EFFORTS TAKE GLOBAL STAGE

AIFST will host a global Humanitarian Food Science and Technology Symposium on Wednesday, 19 July 2017 at ICC following the AIFST 50th Anniversary Convention. This unique symposium will bring together a number of experts from Australia and around the world to discuss issues related to humanitarian and emergency feeding. The Symposium will benefit those working in humanitarian and emergency activities in NGOs, governments, academia, research institutes and the private sector and will also provide networking opportunities.

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Australia's very first frozen ready meal designed specifically for junior foodies.

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You're on your way home from after school soccer practice, it's late, and while there's defrosted meat on the bench you're tired and the kids are screaming in the back that they're starving! You don't want to resort to takeaway or a bowl of plain pasta, but what else is there?

Well, if you haven't already discovered this gem of a tasty, healthy meal solution that even the fussiest of eaters will love, then you need to experience Coco & Lucas' Kitchen! Australia's very first frozen ready meal designed specifically for junior foodies aged between 3-12, Coco & Lucas' Kitchen is experiencing phenomenal growth and earlier this year won Best New Brand/Business at the IFE World Food Innovation Awards in London. They also found themselves on the glossy pages of Food Innovation Australia Ltd's second edition of *Celebrating Australian Food and Agribusiness Innovations*. The book is the first of its kind to celebrate the innovation and creativity of Australia's food and agribusiness sector. Launched in May 2017, the second edition has received overwhelmingly positive feedback from the industry.

So, who's behind this success story of Coco & Lucas' Kitchen? Meet the humble and very passionate Diem Fuggersberger. Diem arrived in Australia as an eight-year-old refugee from Vietnam in 1980. Despite experiencing considerable hardship during her early years, some of Diem's strongest memories were sharing in the preparation of meals with her mother and grandmother. When Diem had her own daughter, Coco, she realised just how precious these memories were and that in this fast-paced, time-poor world we live in today, many people simply don't have the time to create nutritious and tasty meals from scratch.

It was when Diem's nephew Luca was diagnosed with a range of food allergies and Diem saw firsthand how his mum struggled to find meals that he enjoyed and could eat, that Coco & Lucas' Kitchen was born. It's hard to believe that this was less than two years ago and that Coco & Lucas' range of gluten-free and lactose-free frozen meals for junior foodies only hit supermarket shelves in 2016. Diem's team has expanded to 10 and is continuing to grow. Currently they are producing two million handmade meals annually from the \$2.5 million purpose-built commercial kitchen located south-west of Sydney.

It took Diem nine months to get the flavour profile right, which is no mean feat when the product is gluten-free, lactose-free and has to appeal to children's palates. Diem's husband, a food scientist, ended up making the gluten-free flour and premixes in-house so they contained no preservatives, additives or colouring. Impressively, Coco and Lucas' meals contain up to 90 per cent Australian grown or made products and Diem is committed to supporting local farmers. The integrity of Coco & Lucas' meals extends to the biodegradable packaging; their partner is one of only two packaging companies in the world that make a tray that is freezer, oven and microwave friendly. Coco & Lucas' Kitchen's innovative packaging design, created by Sydney-based Boxer and Co., picked up a Bronze Print and Packaging Award at the 46th Creativity International Awards in 2016.

Coco & Lucas' meals are available in a range of independent stores and 205 Woolworths stores across Victoria. Woolworths will launch the range nationally by the end of 2017. "To be ranged in Woolworths nationally in every state in over 900 stores is the highest achievement of my career," Diem said. When you consider that the frozen meals category in the major

supermarkets is dominated by big brands such as Nestle, Heinz and McCain, Diem has made something special happen by being the catalyst for a brand new category in the frozen section for children's ready meals. At \$5 for the standard meals and \$5.99 for gluten-free and lactose-free meals, Diem has worked hard to ensure that the price point is achievable for many families.



So what's next for Coco & Lucas' Kitchen? Apart from increasing production, expanding the range and developing new products, Diem has her sights set on school canteens. "One of my biggest aims in life is to be able to educate kids to eat healthily from a very young age," Diem said.

Diem's vision was always going to be bigger than Australia, and Coco & Lucas' meals will soon be on supermarket shelves in Singapore, Korea and a number of European countries. She would love to see her meals heading to other parts of Asia, including her homeland Vietnam.

Diem has faced much adversity throughout her life and attributes her entrepreneurial nature to having innovation in her DNA. She considers herself to be a "disruptor in a sensible way" and cites the importance of research and development and consumer insights as essential ingredients for any business.

To end with some consumer feedback from Diem's inspiration and two of her most important critics, 12-year-old Miss Coco's favourite meals are Chicken Schnitzel and Spaghetti Bolognese, and 5-year-old Master Luca's are Beef Cottage Pie and Spiral Pasta & 5 Veggies. Bon appetit! 🍴

CELEBRATING AUSTRALIAN FOOD AND AGRIBUSINESS INNOVATIONS

The book showcases 50 companies and their innovative solutions to today's challenges.

Order your copy today at <https://foodbook.fial.com.au>



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WHAT'S NEW

Recently published research looks at glycaemic load, absorption of zinc from milk, and dietary fats.

Words by Dr Ramon Hall
Deakin University

IN NUTRITION?

HAS GLYCAEMIC LOAD CHANGED OVER TIME IN AUSTRALIA

In a study conducted at the University of Sydney, researchers investigated whether carbohydrate quality has changed in Australia since the introduction of the glycaemic index (GI) measurement in 1995 (Kusnadi et al, 2017). The study was designed to compare the average dietary GI and glycaemic load (GL) and contributing carbohydrate foods in the last two Australian national dietary surveys. Dietary data from adult participants was taken from the 1995 (Australian National Nutrition Survey; n = 8703) and 2012 (National Nutrition and Physical Activity Survey; n = 6278) Australian Nutrition Surveys, both using single 24-hour food recall methodology. The main sources of dietary GL in the two surveys were assessed and the contributions of the food groups to interindividual variations in dietary GI and GL were also investigated.

The results revealed that dietary GI decreased by 5 per cent and dietary GL decreased by 12 per cent over the period between 1995 to 2012. Interestingly, breads were the main contributor to GL at both time points and potatoes and sweetened beverages contributed less in the later time point. Cereal-based dishes also contributed more in 2012 than they did in the 1995 survey.

The authors concluded that, “the average dietary GI and GL declined between 1995 and 2012, trends in specific carbohydrate foods suggest that Australians are avoiding potatoes and sugary beverages in favour of a greater variety of carbohydrate foods, particularly cereal products”.

These findings should be of interest to manufacturers of products making claims related to glycaemic index and glycaemic load and dietary practitioners. Manufacturers should innovate to further reduce the GL of breads and cereal-based dishes to consequently have an overall impact on population health.

ARE DIETARY NITRATES RELATED TO ATHEROSCLEROTIC VASCULAR DISEASE MORTALITY RISK?

Researchers from the University of Western Australia have investigated the relationship between the intake of dietary nitrates from vegetables and an atherosclerotic vascular disease (ASVD) mortality risk (Blekkenhorst et al., 2017). It is reasonably well established that nitrate-rich vegetables lower blood pressure and improve endothelial function in humans. However, it is currently unknown whether increased consumption of nitrate-rich vegetables confers a lower risk of ASVD mortality. Therefore, the researchers sought to investigate this relationship using the data from a Western Australian Prospective Cohort Study involving 1226 women aged 70-85 without prevalent ASVD and/or diabetes whom were recruited in 1998 and studied for 15 years. Demographic and ASVD risk factors were assessed at baseline (1998), and a validated food-frequency questionnaire was used to evaluate dietary intake, and nitrate intake from vegetables was calculated using a comprehensive database. The primary outcome was any death attributed to ASVD ascertained by using linked data provided via the Western Australian Data Linkage system.

The results revealed that over the follow-up period of 15,947 person-years, a total of 238 of the women enrolled 1226 (19.4%) died of ASVD-related causes. The mean vegetable nitrate intake was 67.0 (SD: ± 29.2) mg/d. For every standard deviation increase in vegetable nitrate intake there was an associated with a significantly lower risk of ASVD mortality following both unadjusted and multivariable-adjusted analyses. Additionally, this relationship was further attenuated after adjustment for diet quality. Furthermore, a higher vegetable nitrate intake also was associated with a significant lower risk of all-cause mortality after multivariable-adjustment.

The authors concluded that “nitrate intake from vegetables was inversely associated with ASVD mortality independent of lifestyle and cardiovascular disease risk factors in this population of older adult women without prevalent ASVD or diabetes. These results support the concept that nitrate-rich vegetables may reduce the risk of age-related ASVD mortality”.

This study should be of interest to manufacturers of nitrate-rich vegetable products (such as beetroots, rocket salad and spinach) and dietary practitioners. »



ABSORPTION OF ZINC FROM MILK AFFECTED BY DILUTION BUT NOT THERMAL PROCESSING

In a study undertaken in a collaboration between HarvestPlus (Colombia), Friesland-Campina (Netherlands) and the Swiss Federal Institute of Technology (Switzerland), researchers investigated the absorption of zinc from milk undergoing various processing and preparatory steps and from intrinsically labelled high-phytate rice consumed with milk or water (Talsma et al., 2017).

It is believed milk food matrix can facilitate an increase zinc absorption, but it is not known whether the effect of heat processing may affect the bioavailability of zinc from milk in humans. This study involved two randomised controlled crossover trials in healthy young women who were aged 18-25 years old. The first study using 19 participants compared the consumption of 800 mL full-fat ultra-high temperature (UHT), full-fat UHT milk diluted 1:1 with water (heat-treated milk and water), water, or unprocessed (raw) milk, each extrinsically labelled with ^{67}Zn . The second study used 18 participants to compare the consumption of 90g intrinsically ^{67}Zn -labelled rice with 600 ml of water (rice and water) or full-fat UHT milk (rice and milk). The fractional absorption of zinc (FAZ) was measured with the double-isotope tracer ratio method. Additionally, *in vitro*, zinc extraction was assessed from rice blended into water, UM, or HTM with or without phytate.

The results revealed that absorption (FAZ) from UHT treated milk was 25.5 per cent and was not significantly different from unprocessed milk (27.8 per cent). Absorption (FAZ) from water was higher (72.3 per cent), whereas absorption from diluted milk was significantly lower (19.7 per cent) than UHT treated milk and unprocessed milk. Absorption (FAZ) from the rice milk mixture (20.7 per cent) was significantly higher than from rice and water mixture (12.8 per cent). Additionally, the *in vitro* measurements indicated that the UHT treated milk and the unprocessed milk were several orders of magnitude higher in extraction of zinc than from rice with UHT treated milk than from rice with water at various phytate concentrations.

The authors concluded that, "milk enhanced human absorption (FAZ) from high-phytate rice by 62 per cent compared with water. Diluting milk with water decreases its absorption-enhancing properties, whereas UHT processing does not".

These results should be of interest to manufacturers of products containing minerals such as zinc and nutrition practitioners. Further research should be undertaken in other minerals to determine the effect of different processing and the impact of varying food matrices and potential anti-nutrients (like phytates).

CURTIN UNIVERSITY RESEARCHERS AWARDED THE NUTRITION SOCIETY PAPER OF THE MONTH

A paper recently submitted by Curtin University researchers (Irawati et al., 2017), published in the British Journal of Nutrition was awarded the Nutrition Society Paper of the Month. Each month a paper is selected by one of the editors of the five prestigious Nutrition Society publications (British Journal of Nutrition, Public Health Nutrition, Nutrition Research Reviews, Proceedings of the Nutrition Society and Journal of Nutritional Science).


The awarded paper was entitled "Dietary fat and physiological determinants of plasma chylomicron remnant homeostasis in normolipidaemic subjects: insight into atherogenic risk" and extended the understanding of how the size distribution of chylomicrons in the absorptive state varied. The study used normolipidaemic subjects and explored the postprandial distribution of the chylomicron marker, apoB-48, in a TAG-rich lipoprotein plasma fraction (Svedberg flotation rate (Sf) > 400), in partially hydrolysed remnants (Sf 20–400) and in a TAG-deplete fraction (Sf < 20), following ingestion of equal calorie meals with either palm oil, rice bran or coconut oil.

"Trends in specific carbohydrate foods suggest that Australians are avoiding potatoes and sugary beverages in favour of a greater variety of carbohydrate foods, particularly cereal products."

The results from this study showed that most of the fasting chylomicrons are within the potentially pro-atherogenic Sf < 20 fraction (between 70–75 per cent). In addition, following the ingestion of test meals, chylomicronaemia was also mainly distributed within the Sf < 20 fraction, however approximately 40 per cent of subjects demonstrated exaggerated postprandial lipaemia specifically in response to the palm oil meal, with a shift to more buoyant chylomicron fractions.

The authors concluded that, "some healthy normotriglyceridaemic individuals are susceptible to develop exaggerated chylomicron remnant aemia in response to meals enriched in SFA derived from palm oil. Hyper-responder subjects were susceptible to a greater exposure of atherogenic small-sized remnants in response to palm oil-enriched meals with modest or no effects indicated for rice bran oil and coconut oil. Silent hyper-remnant aemia in response to palm oil-enriched meals in some normolipidemic subjects may contribute to atherogenic risk, but not in others".

Furthermore, the authors contextualise these results indicating that the "study findings reiterate that fasting plasma TAG is a poor indicator of atherogenic chylomicron remnant homeostasis and emphasises the merits of considering specifically, chylomicron remnant abundance and kinetics in the context of atherogenic risk. Few studies address the latter, despite the majority of life being spent in the postprandial and absorptive state".

This article provides an update on the intricacies of plasma chylomicron remnant homeostasis in relation to intakes of dietary fats and should be of interest to manufacturers of foods containing lipids, practitioners and other researchers. 

References for this article can be found on the AIFST website: <https://www.aifst.asn.au/>



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Why You Should Let Your Kids Play With Their Food

What happens when you reduce salt, sugar and fat in food? Does sweet food make you happier? What's in latest food flavour sensation matcha?

Words by Drs Russell Keast, Gie Liem, Megan Thornton and Sara Cicerale
The Centre for Advanced Sensory Science,
Deakin University



HOW MUCH CAN YOU REDUCE PROBLEM INGREDIENTS IN FOOD?

There is constant pressure on the food industry to reduce the levels of problem nutrients in foods – salt, sugar and fat. But this is difficult to achieve because these problem nutrients have multisensory effects and usually stimulate a liking response. Removing even small proportions of them can have negative impact on how much the consumer likes a food.

The development of methodology to assess hedonic thresholds has been developed by researchers in Brazil. They claim that the compromised acceptance threshold (CAT) can accurately and

reproducibly determine the point at which an ingredient can be removed without adversely affecting consumer acceptance of a food. In a method validation study, the CAT for sugar reduction in grape juice was assessed. Sugar-free grape juice was sweetened with nine (control), eight, six, four and two per cent sucrose. Then 150 consumers were given the control and reduced-sugar sample pairs. Consumers rated liking on a nine-point hedonic scale. The method was repeated five times on different days, at two locations.

The authors conclude that CAT has suitable precision (repeatability, intermediate precision, and reproducibility), accuracy, and robustness (by reducing the consumer panel size) levels and efficiently provides reliable results. It could, however, be argued that the gradient decreases in sucrose were too large, meaning that changes in sweetness were obvious compared to the control. This presumably reflected in obvious changes in liking making the reproducibility and precision more stable than if smaller, perhaps more industry-relevant, reductions in sucrose were used. Nevertheless, the methodology is interesting and worthy of further investigation, especially as pressure to reduce salt, sugar and fat remains a priority.

SWEET EMOTIONS

Sweet-tasting foods and positive feelings go hand-in-hand, right? Maybe not. Individual variations in the degree of pleasantness experienced from sweet-tasting foods is thought to be an important determinant of food preferences.

Kim and colleagues' recent study classified people according to sweet liker status, and examined how they expressed emotions to foods varying in sweetness. Subjects tasted two beverages (orange-flavoured drink and mango juice) and two biscuits (wheat and chocolate), mango juice and the chocolate biscuit being the sweeter foods. Subjects were then asked to rate their liking of the samples and any emotions elicited by them immediately after consumption. Based on liking responses to five differing concentrations of sucrose solutions, participants were placed in either a sweet likers (SL) or sweet dislikers (SD) group. The results showed SD preferred lower concentrations of sucrose (three per cent and six per cent), while SL preferred high sucrose concentrations (24 per cent and 36 per cent). SL expressed a higher liking and positive emotions ("pleasant", "satisfied") in response to the mango drink and chocolate biscuit but a lower liking and negative emotions to the orange-flavoured drink ("upset", "irritable"). SD expressed a higher liking and positive emotions for the wheat biscuit ("friendly", "good"), but a lower liking and negative emotions ("disgusted", "irritable") for the chocolate biscuit. Unexpectedly, SD expressed strong positive emotions to the mango juice.

The authors note that a possible explanation for this finding is that separate processes underlie the development of liking for a product and the nature of the emotions a product might elicit. Overall, this study demonstrated that sweet liker status may indeed act as a factor associated with varied emotional states experienced after consuming foods varying in sweetness. ▶▶



MAKE MINE A MATCHA!

Food flavour sensations come and go, and matcha (Japanese green tea) is gaining in popularity around the world in foods such as icecream, chocolate and cookies. Matcha is different to other green teas due to the processing of the tea leaves – matcha is sundried without rolling and ground in a stone mill. This leads to a sweeter, roasted odour compared to the fresh green aroma of sencha green tea. Japanese researchers recently analysed matcha using Gas Chromatography-Olfactometry techniques to identify the aroma compounds and to compare the aroma compounds of three grades of matcha (high, medium and low based on market price).

SAFE-AEDA with GC-O and GC-MS were used to determine the most potent aroma compounds present in the three grades of Matcha leaves. It was also noted that as Matcha is often made from a powder, rather than the leaves themselves, GCO-headspace analysis of the dissolved powders was performed. A total of 39 odour peaks (with FD factors between 43 and 47) were identified across the three grades of tea, most of which had not been previously identified in matcha. Interestingly, the same eight compounds exhibited the highest FD factors in all three quality grades, including furaneol (sweet), 3-methyl-2,4-nonanedione (green), and alpha-ionone (floral). Instead it was the “roasted” aroma compounds, including 2-ethyl-3,5-dimethylpyrazine and 2,3-diethyl-5-methylpyrazine, which contributed higher FD factors in the high-grade matcha and differentiated it from medium and low-grade samples.

The researchers also noted the presence of cis and trans-epoxydecenal compounds (sweet, juicy, metallic), which are usually found in black (and not green) teas due to fermentation processes and lipoxygenase activity. Through analysis of the content of stereoisomers, it was determined that these compounds were not produced by lipoxygenase activity, but potentially through matcha’s unique manufacturing process.

PLAYING WITH FOOD

Children love to play, even when it comes to food. This often frustrates parents as more food ends up on the floor than in their children’s mouths – especially foods their children don’t particularly like, such as vegetables. Many studies have shown that to increase children’s liking for food, repeated exposure is key. Not just looking at the food, but actually tasting the food. We also know that gradually familiarising children with different sensory aspects (texture, smell, taste) of novel food will facilitate their willingness to try that food.

Drs Coulthard and Sealy of the De Montfort University in the UK conducted a small experimental study with 62 children to test the hypothesis that playing with fruit and vegetables can increase children’s willingness to try novel fruit and vegetables. Children were randomly assigned to either a food play, non-food play, or visual condition. In the food-play condition children were asked to make a food artwork with a range of fruit and vegetables. Children could squash and reshape the fruit and vegetables as they pleased, which gave them plenty of opportunity to become familiar with the texture of the food. Children in the non-food play condition played with non-food items. Children in the visual condition did not interact with the food and just watched the researcher make a piece of art with food.

After the children finished playing/watching, they were taken to a separate room where the researcher presented them with a range of fruit and vegetables. Some of the foods children used while making their piece of art, others were completely new to them. The children were asked if they wanted to taste the different fruit and vegetables. The children in the food-play condition tasted more fruit and vegetables, even if they had not played with them earlier in the experiment, than children in the non-food play or visual condition.

The study suggests that children’s willingness to taste food can be increased if they have played with the food. The results also suggest that there is a more generic benefit of letting children play with novel food – the more comfortable they are with novel foods, the more willing they are to try novel foods in general (even if they have not played with them before).

Given the benefit of eating fruit and vegetables, perhaps parents should allow their children to play with food. Sure, they may occasionally drop their food on the floor, but the family dog won’t mind. 🐾

References for this article can be found on the AIFST website: <https://www.aifst.asn.au/>

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WHAT'S ALL THE FUSS ABOUT ANCIENT GRAINS?

Are they really more nutritious than traditional grains?

Words by Alexandra Locke

Grains & Legumes Nutrition Council

Recent media hype has seen a group of little grains touted as a considerably more nutritious option than traditional grains such as wheat, oats and rye. These ancient grains, such as quinoa, buckwheat, teff and amaranth, are now a selling point for many products on supermarket shelves and are commonplace on restaurant and café menus.

But with so much conflicting information out there, do you really get more bang for your buck when investing in trendy over traditional? We've compared the nutrient profiles of some of the most well-loved grains to find out which group packs a superior nutritional punch!

What do we mean by trendy or ancient grains?

Trendy grains have actually been around for many years, but have only recently enjoyed a surge in popularity, in part due to increasing numbers of people looking for alternatives to wheat. Many of these grains, including quinoa, amaranth and buckwheat aren't even "true" grains, but rather belong to the seed family and are known as pseudo-cereals. Perhaps due to their exotic sounding names, many people think pseudo-cereals are nutritionally superior to the traditional grain. This is not the case – pseudo-cereals have benefits similar to true grains and are used in much the same way.

So do trendy grains really contain more protein?

One of the most common misconceptions is that trendy grains have much higher levels of protein than traditional grains, but they're actually very similar. While quinoa and amaranth do indeed top the list for protein content in our grain comparison, traditional wheat comes in a close third with a hefty 13.4g of protein per 100g, closely followed by rye. Another misconception is that quinoa is the only grain to contain the complete spectrum of amino acids – in fact, all grains contain complete amino acids with quinoa having only slightly higher levels!

What about fat?

Traditional grains steal the show on this one with brown rice, rye, barley and wheat all being lower in fat than trendy grains. And there's more good news for wheat, with recent Australian research showing that adults with the highest intakes of core grain foods, including breads and breakfast cereals made from wheat, had a similar waist circumference and no difference in Body Mass Index (BMI) compared to those with the lowest core grain food intake. While oats top the list with the highest total fat levels, much of this is healthy fat which we need as part of a balanced diet.

Surely trendy grains have more fibre than wheat or rye?

Again, traditional grains top the list with rye containing a whopping 14.6g of fibre per 100g, followed by wheat and barley, while trendy grains sorghum, quinoa and amaranth lag with around half the fibre content of rye. Many breads and

breakfast cereals are wheat-based and these foods have become the leading source of fibre in the Australian diet. What's more, whole grain wheat, oats and rye can help to promote good gut health due to their prebiotic fibres, which encourage growth and activity of health-promoting bacteria in the gut.

What about wheat?

Contrary to common perception, wheat is a particularly nutritious grain, even when compared to grains like quinoa. Although wheat has taken a hammering in recent years, with many people avoiding gluten or cutting out carbs, this nutritious grain is easily accessible and readily found in many breads and breakfast cereals. And several recent studies have shown that individuals who regularly consume whole grains (mostly wheat-based) are at a reduced risk of developing Type 2 Diabetes, compared to those who eat less.

So what's the verdict?

The message is that while many trendy grains do offer certain nutritional benefits, traditional grains offer comparable nutrients and in some cases have a more substantial nutrient profile. The best advice is to mix it up every once in a while and enjoy a variety of grains as part of a balanced diet. For industry, a new influx of different grains means a whole new host of possibilities to market products to consumers – but traditional grains clearly shouldn't be forgotten! 🍞

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ECO EATING

Consumers are demanding sustainable food and all sectors of the complex food chain need to step up to the table.

Words by Sarah Hyland
AIFST

It is becoming a normal part of the consumer narrative for people to ask questions about the origins of their food, its broader impact on the environment, and the way in which it eventually finds its way onto their tables. Expecting food manufacturers and producers to produce and deliver food in a way that is sustainable and not harmful, is clearly becoming an everyday consideration in 2017 and beyond.

Market research firm Ipsos run a regular FoodChat survey. In 2015, of the top 10 agreed statements from over 3000 Australians, the following were deemed notable and demonstrate that Australian consumers are concerned about sustainability:

- #3** Farming and food production should be conducted in a manner not harmful to the environment.
- #6** Food production should use our country's resources in a more environmentally sustainable way.
- #9** Food and drinks should be packaged in recyclable packaging.

Reducing Food Waste

The environmental and social impacts of food waste have moved front and centre in recent months. Better managing our resources and reduction of food waste is regarded as an important means to reduce greenhouse gas, conserve natural resources and address global hunger.

According to the Food Wastage Footprint report from the Food and Agriculture Organization of the United Nations (FAO) in 2013, it is estimated that around 30 per cent of all food produced for human consumption never makes it to our plates. This translates to 1.3 billion tonnes globally, or almost US\$1 trillion in retail value. There is also waste associated with the numerous resources required to grow and distribute food – fertiliser, nutrients, water, transportation, storage and packaging.

More recently, the popular three-part ABC TV series, *War on Waste*, revealed that Australia's waste is growing at double the rate of our population. We generate 52 mega tonnes of waste a year and Australia is ranked 5th highest for generating the most municipal waste in the world. The show urges Australians to seriously re-examine the ways we consume and dispose of consumer items.

A number of food movements and campaigns have been launched to help consumers reduce this waste. In Australia, the “nose-to-tail” movement is gaining momentum with farms such as River Cottage Australia in NSW embracing the philosophy “nothing is wasted, and everything is celebrated”. It runs a nose-to-tail cooking course that teaches home cooks how to “love offal” with a day of learning about how to cook less popular parts of animals or cuts of meat. The “root-to-stem” movement promotes full use of produce to minimise waste. There are many innovative ways to use fruit and veggie “scraps”, many of which are also high in nutrients such as potato skins. So give carrot top dip, broccoli stalk soup, pickled watermelon rind or apple core jelly a go.

Producing Ethical Food

More consumers than ever are demanding food that has not been produced at the environment's expense. As Kimberley Gillian notes in her article “How to Eat Ethically” on [bodyandsoul.com](#), it is not uncommon to see people out shopping consulting apps for information about the products they are considering buying.

Gillian interviewed ethical food consumption researcher at the University of Adelaide, Rachel Ankeny, who says that consumer behaviour is influencing farmers and supermarkets. “If you look at marketing research, it's clear that people are wanting humane products, such as free-range and grass-fed. It's partially due to cooking shows and those like *The Biggest Loser*. People are more aware of what they're eating. Retailers like Woolworths and Coles have developed lines, particularly in the animal-welfare domain, in response to consumer demand,” Ankeny says.

While consumers are increasingly choosing foods that reduce their greenhouse gas emissions and environmental footprint, such as eating locally, choosing sustainable seafood and reducing meat consumption, another ethical consideration is human rights. The high standard of workplace conditions and the supporting regulatory regime that we have in Australia are not enjoyed by all countries. Many popular products such as coffee, tea and chocolate are produced in developing countries where workers are not treated fairly. Fairtrade Australia suggest that, where possible, consumers should buy products marked with the Fairtrade logo.

Interestingly, a recent survey of Australian consumers found that quality and palatability perceptions played a more important role than ethics, at least regarding one food product – eggs. The Adelaide University study found that chickens' welfare was not a top priority and that shoppers bought ethical eggs because they believed that free-range eggs were tastier and more nutritious than those laid by caged chickens.

Back to reality - price

According to the FAO, “Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life.”

In Australia, there is segment of our population who are very concerned about where their food is coming from – but with a completely different perspective than middle-class consumers cruising the supermarket aisles, checking their apps in the search for sustainably produced groceries. Two million Australians seek food relief each year, half of them children, and the demand for food relief is rising despite our national economic growth. According to the Foodbank Hunger Report 2016, one in six Australians reported having experienced food insecurity at least once in the last 12 months and the number of people seeking food relief in 2015 increased by eight per cent.

Many ethically superior food products have a price premium, which precludes some Australians from accessing this type of food. While it is important to be aware of and act upon consumer demands, Australian food professionals have a significant role to play in ensuring ALL Australians are well nourished with an affordable, sustainable, nutrient-dense and clean food supply.

Is Sustainable Food Sustainable?

Sustainable food is multifaceted – it involves ecologically responsible, healthy food produced locally and with minimal waste that is produced fairly and is accessible to all. Creating a sustainable food system is as complex as the food chain itself and needs to be addressed from production, processing, distribution, access, consumption, and resource and waste recovery perspectives. But it is a challenge that the food industry must address. 🌱

WORLD'S FIRST NATURAL OMEGA-3 YOGHURT

It is a step on the path to producing dairy foods with optimal fat composition.

Words by Suresh Kumar Gulati, The University of Sydney, **Jonty Barnett**, Westhaven Dairies, **Geoff Cox**, Naturale (Aust) Pty Ltd, **Trevor William Scott**, Naturale (Aust) Pty Ltd.

Many consumers buy yoghurt regularly for health reasons because they believe it is a good source of protein, fat, conjugated linoleic acids, calcium, phosphorous, magnesium, thiamine, vitamin D, B, B12 and other nutrients. In Australia, there is an increasing demand for yoghurt and the predicted annual growth is 2.4 per cent per annum for the next four years with total market value predicted to reach \$1.1 billion by 2018, according to Datamonitor.

Consumers also favour low fat dairy products and often these are fortified with extra sugar that can increase the risk of developing diabetes and obesity in genetically susceptible individuals. For decades, there has been debate about the role of fats in human health. As our understanding of the interactions between specific fatty acids, metabolic pathways and gene regulation becomes clearer, it will be feasible to design dairy foods with optimal fat composition to match the requirements of the individual human genome.

The production of omega-3 dairy foods is a step in that direction. Omega-3 fatty acids are important for human health, particularly in brain development, vision, cognitive behaviour, mental health, immunity and in prevention and treatment of cardiovascular disease.

Attempts to fortify dairy foods with omega-3 enriched oil has not received positive consumer sentiment mainly because of the "off-flavours", sensory and organoleptic properties that develop from the added unsaturated oils containing DHA (C22:6 – Docosahexaenoic acid) and EPA (C20:5 – Eicosapentaenoic acid). These problems do not exist when naturally produced omega milk is used to manufacture dairy foods, including yoghurt.

The *Australian New Zealand Food Standards Code* describes yoghurt as fermented milk produced by bacterial fermentation. The bacteria used to make yogurt are known as "yogurt cultures", a culture of *Lactobacillus* species *delbrueckii* subsp. *bulgaricus* and *Streptococcus thermophilus* bacteria. Fermentation of lactose by these bacteria produces lactic acid, which acts on milk protein to give yogurt its texture and characteristic tart flavor. Cow's milk is commonly available worldwide and therefore is the milk most commonly used to make yogurt. Milk from water buffalo, goats, ewes, mares, camels and yaks is also used to produce yogurt where available locally.

DHA AND EPA CONTENT OF DAIRY FOODS

The DHA and EPA content in naturally produced omega-3 milk can be varied by customising the composition or blends of oils used when manufacturing the supplements and the rate at which the cows are fed. The amount of supplement can be optimised according to the average production of the herd. Examples of omega-3 (DHA+EPA) content of cow's milk are shown in Table 1. The ratio of DHA to EPA can be changed as per the requirement of these nutrients for different consumers. For example, a higher DHA content in dairy foods is considered more desirable for children.

Examples of the DHA and EPA content of yoghurt are shown in Table 2. Adult and children's omega-3 yoghurt provide a good source of (DHA+EPA) omega-3 (≥ 60 mg per serve). The production of naturally produced omega-3 dairy foods also provides consumers with nutritionally important bio-actives including minerals, vitamins and proteins. Approximately 50 per cent of the palmitic acid is located on the Sn 2 position of the milk fat triglyceride and this is considered to be important for digestion and metabolism in young infants, and therefore this type of naturally produced omega-3 milk could be useful in the manufacture of infant formula.



TABLE 1. Ω -3 CONTENT (DHA+EPA) OF COW'S MILK

	(%)		(mg/250g serve)	
	FAT	EPA	DHA	TOTAL Ω -3
CONTROL	3.9	tr	tr	tr
#1	4.2	63	63	126
#2	4.1	42	21	63
#3	4	20.9	44.9	65.8
#4	3.8	40.1	38	78.1

tr-trace

TABLE 2. Ω -3 CONTENT (DHA+EPA) OF YOGHURT

	(%)		(mg/serve)	
	FAT	EPA	DHA	TOTAL Ω -3
Control	4.2	tr	tr	tr
Yoghurt Adults	4.1	50	25	75
Yoghurt Children	3.8	23	47	70

tr-trace

Omega-3 yoghurt is now manufactured commercially by Westhaven Dairies using naturally enhanced omega-3 milk produced by Naturale (Aust) Pty Ltd. Both companies are located in Tasmania. Tasmania's Westhaven Omega-3 Yoghurt launched in November 2016 and is available in 500g Natural and Mixed Berry, and 200g Raspberry and Vanilla flavours and is sold at IGA supermarkets in Tasmania and South Australia. The yoghurt will be launched in Victoria and New South Wales in July 2017. 

How is Omega-3 Yoghurt Made?

Omega-3 yoghurt from cow's milk is enriched with DHA (C22:6 – Docosahexaenoic acid) and EPA (C20:5 – Eicosapentaenoic acid) by feeding special supplements to lactating animals consuming rye grass/clover-based pasture. These highly unsaturated omega-3 oils are embedded in a matrix of rumen inert soybean protein that is made resistant to microbial degradation, by using methyl-glyoxal, a naturally occurring flavouring agent found in many foods such as manuka honey, cheddar cheese.

This enables the DHA and EPA to by-pass the rumen environment of the cow, be digested and then incorporated into milk triglycerides.



Suresh Kumar Gulati is a hon research fellow at the Faculty of Veterinary Science, The University of Sydney; Jonty Barnett is general manager of Westhaven Dairies, Geoff Cox is CEO of Naturale (Aust) Pty Ltd, Trevor William Scott is a scientific advisor to Naturale (Aust) Pty Ltd.

Want to know more about this innovative technology?

Suresh Gulati will be presenting at the AIFST 50th Anniversary Convention from 17-18 July 2017.

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FOOD REVOLUTION

Scientists are developing an intelligent food generator that will customise food for the individual to deliver superior performance and wellbeing every day.

Words by **Nicholas Archer, Debra Krause, Amy Logan**
CSIRO

What will the food industry look like in 2030? Can food be designed and structured to provide better nutrition? What foods will consumers want and how will technology change the way they eat? These are some of the challenging questions being answered by a multi-disciplinary group of CSIRO scientists and engineers as part of a multi-year research platform aimed at developing smart and personalised “inside-able” materials (that is, materials that enter the body, whether that be as a food or absorbed through the skin) to deliver superior health and performance outcomes.

MEETING THE NEEDS OF A CHANGING CONSUMER

Consumers are better informed and more aware than ever of what they eat. Their eating choices are based on nutritional information, sustainability of ingredient sources, and manufacturing methods. An increasing number of consumers regularly monitor their activity and bio-response information through personal devices, such as Fitbits, to remain healthy. People are also more time-poor, which is driving a trend towards the convenience of virtual shopping, delivery of goods/purchases, and reduced food preparation time.

While food supplements are popular with some people who want to improve their health, there is also a growing desire to go back to eating highly nutritious foods that may provide enhanced health benefits. Moreover, consumers are increasingly interested in food that has been customised to meet their individual needs. Personalisation of food can be designed to meet functional and nutritional needs based on age, sex, health, activity level, food preferences or allergies and, in the not too distant future, genetic makeup.

WHAT ARE THE SCIENTIFIC CHALLENGES?

This exciting project looks at food customisation, and aims to design smart new inside-able materials and manufacturing technologies. These technologies will incorporate information from sensors that monitor an individual's health status and other information, including a person's genetic makeup, phenotype and physiological conditions, to prepare a personalised smart food for optimum wellbeing.

The first step in achieving this is understanding the relationship between food structure and how it behaves in-body throughout the digestive process. To do this, computational models will be developed that will help build our hypotheses and answer scientific questions. For example, how does food structure affect the release and subsequent bioavailability of nutrients in the body, and how does this vary based on one's genetic makeup and environmental factors?

The next stage of the research will focus on:

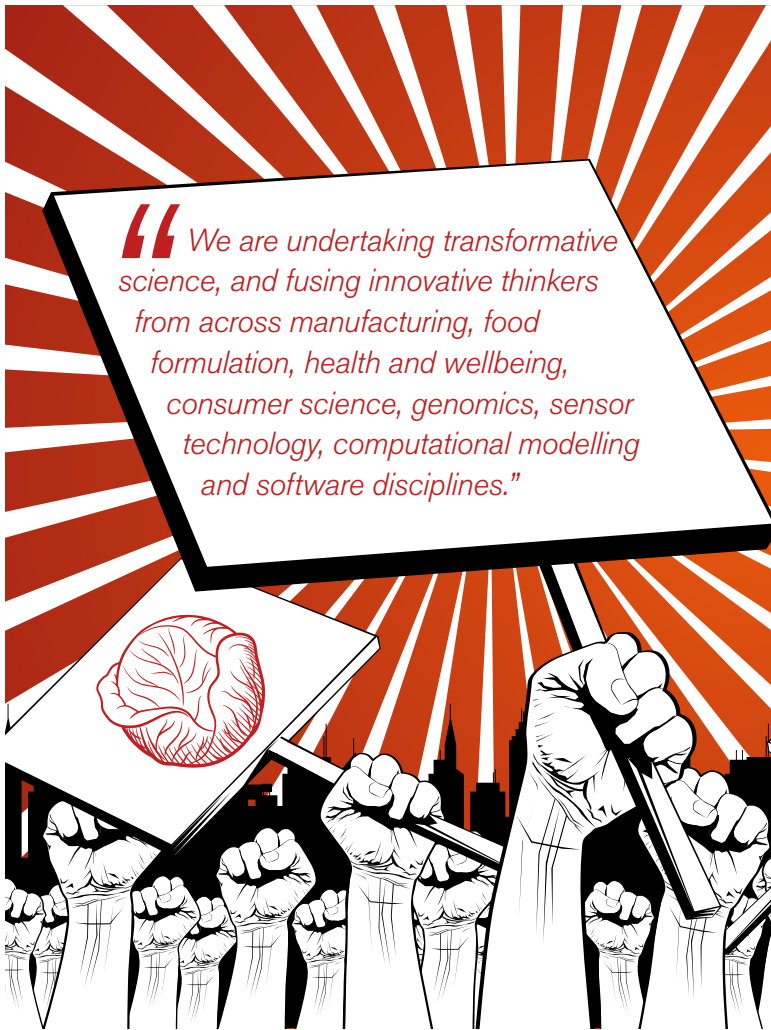
- * Identifying and developing food structures that can deliver nutrition to meet customised nutritional needs.
- * Developing the next generation of personalised and intelligent food technologies for the manufacture of smart, structured food materials.
- * Integrating sensor technologies that measure food-body interactions with personal information (genetic, phenotype and lifestyle data) to inform food design.

THE VISION

While traditional food manufacturing is based on a one-size-fits-all model, this research will move the food and nutraceutical industries towards products that are personalised to an individual.

The CSIRO team envisage a future where an intelligent “food generator” will use personal information collected in real time, such as a consumer's health status and what they are planning to do, combined with information such as their genetic makeup and age, to create a smart food matrix and nutrient load that is personalised to meet their requirements for that day. Ultimately, an intelligent food generator would prepare personalised foods or inside-able material for each member of the family, on a daily basis.


CSIRO project leader Dr Amy Logan said: “This is a difficult challenge to meet. In order to achieve this, we are undertaking transformative science, and fusing innovative thinkers from across manufacturing, food formulation, health and wellbeing, consumer science, genomics, sensor technology, computational modelling and software disciplines.” ▶▶



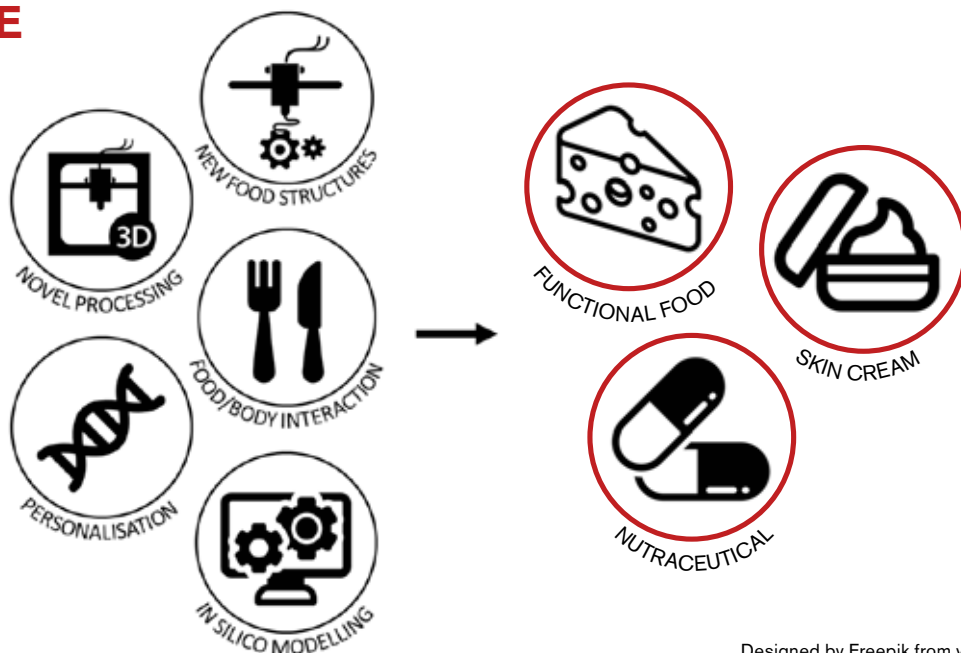
The Personalised Fabrication of Smart Food Systems project is a CSIRO led collaboration working closely with scientists from national and international research institutes to deliver transformative science. This program builds on the combined knowledge of a multidisciplinary CSIRO team and renowned scientists from the Research Institute of Sweden, UMR STLO INRA-Agrocampus Ovest in France and RMIT University in Melbourne, Australia.

“We are keen to also work closely with industry, and encourage companies wanting to be part of this personalised food revolution to get in touch,” Dr Logan said.

CSIRO AIM FUTURE SCIENCE PLATFORM

This research is supported by the CSIRO AIMFuture Science Platform (FSP). The purpose of the FSP is to invest in science that underpins innovation and has the potential to reinvent and create new industries for Australia. AIM will lead ground-breaking advances at the interface of big data, advanced autonomous systems and materials science. Other AIM research initiatives include the creation of revolutionary robots, the development of new technology to monitor coral reefs, and eliminating food loss. 

INSIDE-ABLE MATERIALS



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Want to know more about the future of technologies?

CSIRO will be presenting on four emerging technologies at the AIFST 50th Anniversary Convention from 17-18 July 2017. Register today at <https://aifst.asn.au>.



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STICKY FINGERS

*5 quick questions with
WA-based AIFST
Member Lyn Bentley.*



What do you think will be the most significant change in our sector over the next 5 years?

If we work towards fulfilling our export potential, I think that will bring a major beneficial change, not only to my sector but to our national balance of payments – and both of those are good things.

**What has been the most important or interesting food innovation you've witnessed in your lifetime?
Was it a success in your eyes?**

On a personal level, it's been the vast array of amazing flavours that migrants have brought to this country with them. I remember my mum thinking that she was so exotic the first time she made Rice-a-Riso for us. My, how things have changed!

What's the most unusual or interesting job you've ever had?

The most interesting job I've ever had, is the one I have now – the most interesting, the most challenging, the most rewarding and the most fun.

What might other AIFST members be surprised to learn about you?

That I've been known to eat two litres of ice cream in one sitting.

What do you see as the most valuable benefit of being involved with AIFST?

Being able to work towards building a support group for WA food and beverage folks. We've been left to fend for ourselves for far too long and I look forward to the day when we come together as a cohesive group that has the power to bring about change.

Lyn Bentley is the managing director of Sticky Fingers Gourmet Foods, which manufactures homemade condiments.





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Want to showcase your business and feature new releases and business developments? AIFST can work with you to ensure you get a great advertorial to accompany traditional advertising. Layouts are flexible and multi-issue bundled package discounts apply.

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To book your advertising bundle contact Rebecca Freeman on 0414 844 425 or email rebecca.freeman@aifst.com.au to discuss your requirements. We can work with you to tailor an advertising package to fit your needs and budget.

Don't Be The Odd One Out...



JOIN AIFST TODAY!

The Australian Institute of Food Science & Technology (AIFST) is the only national membership organisation providing an independent voice and network for Australia's food industry professionals.

AIFST provides a suite of services for our members and the industry to expand knowledge and networks, advancing Australia's position as a sustainable, world-leading food industry.

Whether you have years of experience in the food industry, or are starting your career, we have a membership category to suit you.

Top 10 reasons to join AIFST:

1. Continuing Professional Development (CPD) Program including workshops, seminars and webinars, career planning and Certified Food Scientist Credential.
2. Subscription to *food australia* magazine.
3. Access to the only Australia-wide food industry professionals' network.
4. Access to key industry events at member rates, including the Annual AIFST Convention.
5. Professional focus for career progression.
6. Monthly *BiteSize* e-newsletter with regular member updates, career development opportunities and events.
7. Discounts on professional reference books and publications.
8. Free 12-month subscription to Inside FMCG digital magazine.
9. The opportunity to apply for key industry awards.
10. Access to the National Salary Survey for the Australian food industry to assist salary benchmarking against peers.

Visit www.aifst.asn.au or phone 02 9394 8650 to join today!