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# Contents

October 2017

## 4 Sous-vide meets the washing machine

Now you can cook your meal in the washing machine while you do a load of laundry

## 6 Amazon to sell ready meals

With a 12-month shelf life and no need for refrigeration, Amazon's ready meals are going to provide some competition

## 14 Feeding the troops at Australia's Antarctic and sub-Antarctic stations

What would you put on your shopping list if it was 4000 km to the nearest supermarket?

## 24 What's driving the appetite for organics?

Australia's \$2 billion organic industry is surging in popularity. Why?

## 28 Beware the wrapper

Lots of food contact papers include chemicals known to be detrimental to human health — do yours?

## 34 The diet debate: are more fats or carbohydrates healthier?

You find the latest thinking on this conundrum in this article.



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**food**

Feeding the troops in Antarctica

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# Sous-vide meets the washing machine

Consumers can potentially cook their dinner and do a load of washing simultaneously if their ready meal is packed in Iftach Gazit's Sous La Vie bags.



**G**azit designed the bags as part of his industrial design course at Bezalel Academy of Arts and Design in Tel Aviv. His prototype bags were made of waterproof Tyvek paper with an inner, sealed plastic bag to stop leaks. The bags featured fully packaged meals and sides dishes, with recommended washing temperatures and nutritional information laid out in the style of clothes labels.

The ready meals are vacuum sealed in the bags and then cooked by the sous-vide method in the washing machine as it

completes a laundry cycle. As the vacuum-sealed food is immersed in hot water over a long period of time, the meals are evenly cooked and stay moist.

Gazit said, "Instead of following a sous-vide recipe and cooking a piece of meat at 58°C for two and a half hours, just set your washing machine to 'synthetics' for a long-duration program. Cooking vegetables? Set your machine to 'cotton' for a short-duration program."

This cooking method could also suit homeless people, Gazit believes, as they can use the laundromat as a safe haven as they cook their food and wash their clothes. □

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# Amazon to sell ready meals

12-month shelf life and  
no need for refrigeration





Muscling further into the grocery and ready meals markets, it is being reported that Amazon will be using new technology to create ready meals that have a shelf life of 12 months and do not need to be refrigerated.



The logistics savings alone will be huge. Not only that, the meals are nutritious, taste good, require minimal processing and have clean labels.

The microwave assisted thermal sterilisation, or MATS, technology, originally developed by Washington State University, is being commercialised by US start-up 915 Labs. The patented, FDA-accepted technology is very different from conventional processing systems such as retort, where food is exposed to high temperatures for up to an hour; HPP, which has limited product scope and requires refrigeration; and frozen, which is plagued by food safety, consumer inconvenience and sustainability issues.

In MATS, packaged foods are simultaneously immersed in pressurised hot water and heated with targeted microwave energy at a frequency of 915 MHz, eliminating pathogens and spoilage microorganisms in a matter of minutes. The unique process allows a wide range of foods to be packaged for the shelf, including many that cannot be conventionally processed today including salmon fillets, chicken breasts, pasta and whole vegetables.

By reducing exposure to high heat, MATS allows the natural nutrients and flavours in food to remain intact — and eliminates the need for artificial additives, preservatives and excess sodium.

915 Labs is now building MATS-30 commercial production systems capable of processing up to 10 million units annually, including single-serve trays, pouches and foodservice packaging formats.

The MATS-30 complements the company's small-scale MATS-B systems, which are operating in food innovation centres around the world.

### Australian Defence has been an early adopter MATS

Last October, the Australian government announced a \$7.2 million investment into improving food processing technology using the microwave processing systems sold by 915 Labs, beginning with a pilot-scale plant to be placed in the Defence Food and Nutrition Centre in Scottsdale, Tasmania.

"Microwave food processing can revolutionise the quality of packaged food," said

Prof Roger Stanley, director of the Centre for Food Innovation at the University of Tasmania. "The technology gives us the ability to deliver food that is much closer to fresh."

MATS and microwave assisted pasteurisation systems manufactured and sold by 915 Labs offer a faster way to sterilise or pasteurise food and beverages. By shortening the time food is exposed to high heat, the microwave technology can preserve nutrients, texture and taste and eliminate the need for additives and additional sodium.

"Microwave sterilised meals have the potential to improve the production and quality of ready-made foods across both Defence rations and the wider commercial market, both nationally and within the Asia-Pacific region," said Australia's Senator Marise Payne, Minister for Defence, when announcing the investment.

The Australian investment in MATS followed a feasibility study undertaken by the Defence Science and Technology (DST) Group in cooperation with Australian industry and the Centre for Food Innovation, a collaboration of DST Group, the University of Tasmania and Commonwealth Scientific and Industrial Research Organization (CSIRO).

The Australian government plans to use the pilot-scale MATS system to develop new and improved ration packs for its Defence forces. The government will also make the MATS pilot-scale machine available to food companies for product development and experimentation.

"It makes sense for the military and industry to work together because it is important to establish an industry base for the new technology before Defence can make use of it," said Coad. "Our investment de-risks the capital investment for industry and gives food companies the opportunity to explore the opportunities offered by MATS."

"By giving small to medium-size companies access to this innovation, we can help the regional hospitality and institutional food industries and improve the quality of emergency disaster relief rations," Prof. Stanley added.

In addition to the Australian sale, 915 Labs has sold MATS systems in the US, India, Singapore and South Korea. □

## Printed food could be easy to swallow for dysphagia sufferers

From tiny bird houses to car parts and even miniature models of yourself — 3D printing is fast becoming more accessible and easier to use than ever before. But did you know that you can 3D print food? Meat research leader Dr Aarti Tobin is working on dysphagia that could one day be helped by 3D printed food.

Dysphagia, or difficulty swallowing food or liquids, is prevalent in the elderly. It's caused by reduced muscle control, stroke, neurological dysfunction and even losing teeth. Dysphagia can lead to malnutrition, dehydration, aspiration pneumonia and sadly, death.

Food for dysphagia in elderly care settings is often minced and/or pureed and served with an ice-cream scoop. Texture modified, moulded and restructured foods are also commonly used. These preparation methods make food soft and very easy to eat and swallow for dysphagia sufferers, but the food can lack visual appeal. For others such as people with dementia, it mightn't look like food as they remember it and they can be less likely to eat it at all.

Tobin says that “we eat with our eyes”, so we make the decision whether we're going to eat something depending on how appetising it looks on our plate.

### Growing problem for an ageing population

With an expected 25% of the Australian population over 65 years old by 2045, it will be all the more important to make food look like food and be easy to eat for our vulnerable populations.

Enter 3D printing! 3D printing works by precisely adding layer after layer of a material to create a 3D object from one or more nozzles.

NASA has developed a 3D food printer that can make pizzas for astronauts in space. One nozzle mixes and prints a dough slurry, another a tomato layer and so on. It helps solve the problem of astronauts having to stomach rehydrated space food, often for long periods of time.

3D printing can also make food that looks like real food but is soft and palatable and contains the specific nutrition we require as we get older, such as high protein.

Even better, 3D printing could one day help us to personalise our nutrition. Need more iron this morning after that busy weekend? What if our clever biosensing device could talk to our benchtop 3D printing food generator and create an iron-rich lunch designed especially for us? We're starting to take sci-fi dreams like this to reality with our future science platforms.

CSIRO's Lab 22, a \$6 million additive manufacturing centre, is making 3D printing of metals more accessible for industry. The knowledge gained of 3D printing in other materials is now being applied to the world of food.

A lot of work is still needed on printed foods, such as getting the 'inks' right (that is, the food components), making sure they're safe over time, improving print speeds and more. And, of course, the food has to taste great!



## Finger food range

With customers increasingly looking for healthier alternatives to traditional fried-style finger food, Sunny Queen's catering products satisfy dietary needs and are quick and economical to prepare.

Sunny Queen Meal Solutions has produced a range of egg-based finger foods that offers caterers a nutritious, economical and versatile option.

The Sunny Queen Meal Solutions Finger Food range comes in a variety of flavours including: Smoked Ham and Cheddar, Creamy Fetta and Spinach, and Caramelised Onion and Parmesan Egg Bites; or Corn and Cheese, Corn, Caramelised Onion and Parmesan, and Spanish with Chorizo Mini Fritters. All of these contain no artificial colours or flavours and are gluten-free.

Snap frozen, giving the products a shelf life of 12 months, the Finger Food range can be easily prepared with a microwave, grill, hotplate or conventional oven, helping make catering simpler. Risk is also reduced by removing the need to handle raw eggs.

The Finger Food range is suitable for private caterers, function venues, pubs, stadiums and larger mainstream events.

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## Nutrition program could save hospitals \$3800 per patient

Maintaining high levels of nourishment in hospitals not only speeds up patient recovery times, but also proves to be cost effective. Implementing a nutrition program could save hospitals up to \$3800 per patient, according to a study published in the *American Health and Drug Benefits* journal and supported by Abbott.

Advocate Health Care implemented a nutrition care program in four of its Chicago hospitals using two nutrition Quality Improvement Programs (QIP). The study used 1269 participants aged 18 and over who were at risk of malnutrition and enrolled in hospital

between October 2014 and April 2015. Screening included a four-question test, and those showing signs of malnutrition were provided with additional nutrition supplements alongside their regular hospital meals.

Results published in December 2016 found that using nutrition programs reduced the 30-day readmission rates of patients by 27% and shortened hospital stays by about two days.

With 1 in 3 people admitted to hospital being malnourished or at risk of being malnourished, this decreases their likelihood of a quick recovery. Previous research has proven that malnutrition can also cause complications such as infections and falls, which encourages higher readmission rates. The average hospital visit costs an average of \$2000 per day, therefore extended hospital stays or multiple admissions caused by malnutrition can become a financial burden on the healthcare industry.

Advocate Health Care Executive Vice President and Chief Medical Officer Lee Sacks, MD, explained the benefits of value-based care.

"The study's findings demonstrate that modest changes in the way we care for patients, such as ensuring patients are nourished during their hospital stay, can have a big impact in reducing costs and improving health outcomes."

Health outcomes researcher at Abbott and lead author of the study Suela Sulo agreed.

"This research confirms that implementing nutrition-focused quality improvement programs, like the ones at Advocate Health Care, can help patients recover from their hospitalisation faster while also removing some of the burden of financial pressures placed on health systems today.

"As providers, administrators and payers face added pressures from rising healthcare costs, value-based nutrition interventions should be considered in all hospitals across the US."

Rising numbers of malnourished patients are becoming a concern, and hospitals and healthcare systems are investigating the value of nutrition to improve the care of patients.



## Jacketed cooking kettle

Metos Manufacturing's Proveno 2G series of combi kettles offers a cooking and cook-chill solution for commercial kitchens and food production facilities. It is suitable for the production of soups, sauces, casseroles, curries, mashed potato, chutneys and jams, while removing the physical labour and potential associated injuries that are commonly seen when staff are required to cook such foods in large volumes. With models ranging from 40 to 400 L, there is a model to suit most applications.

The TempGuard Intelligent temperature control is standard in all Proveno kettles, ensuring food products are protected from sticking, burning or scorching, while the integrated mixing arm eliminates manual stirring. The closed-cell polyurethane foam insulation ensures energy efficiency, reducing operating costs during every cooking cycle. Added features include programmability, in-kettle chilling, HACCP data recording and integrated safety functions for the protection of product, staff and equipment.

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# Behind the seams of hospital kitchen floors

Hygiene is a top priority when it comes to kitchen flooring, especially in a hospital environment. Not only must these floors prevent harmful bacteria from spreading, but the ramifications of poor hygiene on patients with vulnerable immune systems could be immense. The quality of the flooring is also crucial as it must withstand constant, high-stress environments including heavy footfall and regular transport of hospital equipment.

As a result, many hospitals are turning to antimicrobial polyurethane kitchen floors, such as those provided by Flowcrete. The Flowfresh seamless flooring material is more hygienic and easier to clean than traditional tiled floors that harbour harmful bacteria in the grout lines. Further benefits include their long life cycle, which can withstand the 24-hour operation of the hospital environment.

Many modern hospitals are beginning to use this polyurethane flooring, and South

Africa seems to be leading the way:

## Nelson Mandela Children's Hospital

Nelson Mandela Children's Hospital required a hardwearing, durable and hygienic floor. The hospital installed 1600 m<sup>2</sup> of the robust polyurethane resin floor screed Flowfresh RT in the site's kitchen, laundry and food storage areas. The \$70 million hospital knew that the flooring must be able to withstand the strain of the facility operations, and should they choose a weaker flooring it could lead to cracks. This would foster bacteria, and the time needed to replace or repair the

flooring would cause delays, disrupt hospital proceedings and possibly put lives at risk.

## Ahmed Al-Kadi Private Hospital

A new private hospital in Mayville, Durban, also chose to install 514 m<sup>2</sup> of Flowfresh RT in its kitchens and body layout rooms. The 164-bed, cutting-edge hospital applied coving along the kitchen edges to create a smooth transition between the floors and the walls, as well as incorporating stainless steel drainage channels into the finish to make the cleaning regime quicker and easier. This Flowfresh system demonstrates the commitment to improving hospital design using modern technology while also addressing hygiene requirements by incorporating Polygiene. The silver-ion based bactericidal agent is able to eliminate 99.9% of bacteria in contact with the floor.

## Fiona Stanley Hospital in Perth

Australia is following their examples of installing hygienic floors in hospital kitchens, as proven by the Fiona Stanley Hospital in Perth. The \$2 billion flagship health facility in Western Australia is the largest building project undertaken by the state government, and it uses state-of-the-art technology to provide clinical, research and education services. Over a period of six weeks, 1120 m<sup>2</sup> of seamless resin flooring Flowfresh SR was installed in catering areas.

Hospital flooring plays a fundamental role in safeguarding patients' health worldwide. While South African hospitals have seen a higher uptake of this high-performance Flowfresh floors, Australian health facilities are also looking to incorporate durable, seamless, antimicrobial flooring.

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## Vegetable shortening

Pura Shef's vegetable shortening melts and preps just like butter for a fraction of the cost. It is a clarified butter replacer made from 100% vegetable shortening. With natural colours and flavours it delivers a natural butter flavour with an easy-to-use soft texture.

It is versatile and can be used for sauces, marinades, filo pasty, baking, Indian and Greek cooking. It has also been specifically developed and tested for pan and griddle frying.

It can be stored at ambient temperatures in the resealable 10 kg container. The vegetable shortening is suitable for vegans and is Halal certified.

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# Feeding the troops at Australia's Antarctic and sub-Antarctic stations

*Nisha Harris, Australian Antarctic Division*







When the closest supermarket is more than 4000 km away, and resupply is just once a year, getting the shopping list right

for Australia's Antarctic and sub-Antarctic stations is crucial.

From Christmas feasts to the traditional mid-winter dinner, the man charged with ensuring everything is on the table is Australian Antarctic Division Chefs' Adviser Noel Tennant.

"Life on station pretty much revolves around food," Noel said. "Meals bring variety and excitement to the expeditioners' lives, particularly during the long, dark winter months when it can become a bit like Groundhog Day."

"Food is also the first layer of defence, to warm the body against the cold, so getting the right amount and type of food is essential."

The division has an annual catering budget of \$1.3 million for 12 months. This means today's expeditioners can enjoy greater variety and more appetising fare than the 'hoosh' (stewed pemmican and sledging biscuits) relied on by early Antarctic explorers.

"I work out the average amount of food a person would eat over a year, then I round up," Noel explained.

"We have to have some 'fat' in our stores, because we could end up with more people on station at any time, if the ship is late or people get stuck because of bad weather."

The station shopping list includes about 52,000 kg of frozen and fresh fruit and vegetables. Any fresh produce has to have a long shelf life.

"We send a lot of potatoes, carrots, apples and citrus south. We tend to steer away from soft fruit and vegetables that spoil easily," Noel said.

"Fresh eggs are oiled with paraffin before they are sent south, which essentially seals the shell and stops the egg from going off."

"In the dairy department, all the milk is powdered and the yoghurt is made from freeze-dried cultures. We mainly use hard and semi-hard cheeses that are more likely to last 12 months."

The food is generally not plate-ready and most things have to be made from scratch.



Noel Tennant, adviser to Antarctic and sub-Antarctic chefs.  
Image credit: Jessica Fitzpatrick, Australian Antarctic Division.



Image credit: Jessica Fitzpatrick, Australian Antarctic Division.

## Annual shopping list for all stations (2016–17)

Total frozen and +4°C food (no dry goods)	51,976 kg
Bacon	1310 kg
Beef eye fillet	457 kg
Frozen peas	864 kg
Ice-cream	1980 L
Coffee beans	546 kg
Potatoes	4800 kg
Fresh eggs (oiled)	34,560
Chocolate	864 kg
Cheese	2262 kg
Toilet paper	1920 rolls



Macquarie Island expeditioners enjoy a mid-winter banquet. Image credit: Australian Antarctic Division.

Casey Chef Eddie Dawson plating up pork belly, saffron pommes fondant and red cabbage for a mid-winter lunch. Image credit: Peter Hargreaves, Australian Antarctic Division. >>



"We provide a lot of base ingredients that take time to prepare; for example, the chefs have to make bread and pastry daily. But this also gives them more scope to produce different dishes."

The journey by ship across the notoriously rough Southern Ocean can take a toll on the condition the food arrives in, so Noel and his team have developed a range of methods to ensure the supplies arrive in top condition.

"We pack everything very carefully in refrigerated containers and use ozone generators in transit, to keep bacteria and fungi at bay," he said.

"We also put 'ethyl stoppers' in the containers of fresh fruit and vegetables, to slow the ripening process. Ethylene is produced by fresh food, such as bananas, when it ripens, which accelerates the ripening of everything else around it."

The kitchen at all the stations is a focal point and social hub for expeditioners, so getting the right chef is central to the happiness of the team.

While they don't have to be Michelin-starred chefs, they do need to be solid all-rounders, producing more 'home-style' food. They also need to be able to step it up when there are big social occasions, such as the traditional mid-winter feast, Christmas or birthday celebrations.

Each station has one winter chef, while there are two extra chefs at Davis and Casey over the busy summer period, when the kitchen can be catering for up to 100 hungry expeditioners.

The kitchens provides four meals a day, including morning tea. Casey serves nearly 56,000 meals each year, while Davis plates up about 47,000, Mawson 22,000 and Macquarie Island around 27,000.

"Our chefs generally work five and a half days a week and are rostered off on Sundays. On the rest day the 'slushy' usually steps in to fill the void, or it will be a 'catch and kill' affair, with expeditioners fending for themselves," Noel said.

Most importantly, chefs must manage their supplies carefully so that they don't use up all their ingredients within the first month.

"If you run out of an ingredient, you can't just ring up a supplier. You have to be innovative and resourceful in what you can produce from a finite Antarctic pantry." □

*This article is reprinted with the permission of Australian Antarctic Magazine: [www.antarctica.gov.au/magazine](http://www.antarctica.gov.au/magazine).*



## The Dinner Ladies soup up production



The Dinner Ladies, based in Matraville, NSW, was established in 2007 by two friends who create and deliver healthy, tasty prepared and semi-prepared dinners to time-poor and health-conscious families in Sydney and the surrounding suburbs.

The Dinner Ladies' comprehensive menu offers hearty family favourites and gourmet international fare, including soup, pasta, curries, stir-fries and desserts.

Over the past 12 months, increased sales have meant that the owners, Katherine and Sophie, needed to investigate semi-automation for several products that were proving time-consuming and messy to hand dose.

Depositor trials conducted in The Dinner Ladies' commercial kitchen using a Riggs Autopack Model 1000 Depositor gave The Dinner Ladies the confidence to invest in the food-grade piston filler, fitted with a suitable piston, barrel and filling nozzles for handling hot soups and sauces containing large particulates.

"The depositor has been great — we are getting busier and busier but our staff costs have stabilised, and we are handling product and finishing packaging much faster

than we did before. The Riggs depositor is really going to help us take our business to the next level," explained Katherine.

An advantage of the Model 1000 unit is that it has been designed for easy conversion to automatic production, with the simple addition of sensors and conveyors, should The Dinner Ladies need to achieve higher outputs in the future.

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## Ancient grain, teff, enters the retail market

Ancient grains have become part of the modern diet, with quinoa and chia featuring in many recipes due to their nutritional value.

Farmers from the New South Wales Riverina recognised their popularity and aimed to diversify their crops to include an ancient grain, teff. Teff is a gluten-free whole grain with a higher fibre content than wheat and rice. It is the world's smallest grain and it originates from Ethiopia where its main use is in injera bread.

Previously, the McNauls focused on growing wheat, barley, corn and rice; however, their focus on using teff stems from their aim to become more sustainable and innovative. Fitting between their usual rotations of crops, Teff's growing season runs between December and March, which allowed the McNauls to plant two varieties of the ancient grain, brown and ivory.

"We want to develop some products out of it that are more in line with the western palate, so that's what we are working on at the moment with our paddock to plate process under our own brand," stated Fraser McNaul.

In order to introduce this into the Western diet, they started a company, Outback Harvest, and approached CSIRO to help them develop Australian-grown teff baked goods and snacks.

"With CSIRO's expertise in food innovation and new product development, they produced prototype muffins, bread and dry cake mixes," McNaul said. "They also developed healthy extruded teff snacks. Their facilities and expertise helped make it all happen."

The McNauls developed prototype muffins, bread and dry cake mixes using brown and ivory teff varieties as well as a crunchy snack ball made from teff. These products are currently being commercialised and Fraser McNaul has relocated to Melbourne to organise the packaging, marketing and distribution of the first retail products.

The snacks have been endorsed as gluten-free by Coeliac Australia and Coeliac New Zealand, which has also gained significant interest.

McNaul explained their future plans to introduce further products into the retail and wholesale market. "We're also looking at other value-adding opportunities like snack bars, tortillas and flat breads, and exporting to Asia."





## Gut-friendly, ancient wheat developed for bakery products



GoodMills Innovation is set to introduce its new product 2ab Wheat, an ancient grain that is well tolerated by the gut even for those sensitive to wheat.

With food allergies and sensitivities becoming more prominent, modern bread wheat is becoming less desirable for consumers. As a result, personalised nutrition is rising in popularity as it allows those with food intolerances to adapt their diet for their individual requirements. GoodMills Innovation recognised this trend and collaborated with scientists, grain breeders and nutritionists to choose the ancient 2ab wheat variety that does not cause any digestive problems.

Gluten and wheat-free products often sacrifice taste and texture, which discourages consumers from buying them. According to the company, 2ab Wheat is not only easy to process, but it also mimics the texture and taste of ordinary wheat products with a full-bodied taste and a soft, lush golden crumb.

The new innovation provides bakers with an alternative to modern bread wheat and ancient grains such as einkorn or emmer, which score neither with their sensory properties nor technologically when processed on their own.

"For me, 2ab Wheat is the wheat of the future. Bakers now have a tasty solution for customers who react sensitive to wheat or who prefer original grain varieties. We are in the process of introducing 2ab Wheat into the market, and initial feedback from bakers has been consistently positive. Having discovered an easy-to-digest, delectable bread for themselves, customers are staying loyal to 'their' bakers," said GoodMills Innovation Managing Director Michael Gusko.

## Electronic LED fly killer

Replacing traditional blue-light fluorescent systems, Rentokil's Lumnia electronic LED fly killer improves catch rates compared with traditional tube lights. According to the company, the testing of these LED tubes shows 40% further throw of combined UVA/UVB than traditional fluorescent tubes.

With LED technology, the electronic fly killers also save an average of 61% of energy costs.

The unit has been designed with aesthetics to suit the requirements of the hospitality industry, with different lighting systems and an active lighting mode that adapts output according to the ambient lighting levels.

The product improves serviceability, with longer intervals between bulb changes and a discreet servicing process that does not interrupt business.

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## Recyclable CPET trays

Pac Food's CPET trays are a recyclable and versatile option of the ready meal concept in which meals can be kept frozen and heated when ready. They are suitable for a wide range of cuisines, food styles and applications.

The temperature range of these trays is -40 to +220°C, which allows for the product to be stored in a deep freeze and placed directly into a hot oven or microwave for cooking.

The features of the tray range include: a glossy finish, good barrier and properties, various sizes and shapes, leakproof seal, vast range of temperatures and recyclability.

Applications for the trays include: airline catering where the trays can be preprepared days earlier and in large quantities; Meals on Wheels services, where the food is delivered to the consumer, who then heats up the meal; hospital meal service, as they provide an easy solution for the elderly or unwell consumer; and meal programs for weight control and special dietary requirements.

The trays are easy to handle and there is no preparation or washing up needed. The film is easy to peel and no tools such as knives or scissors are required to open the tray.

The trays are beneficial for central kitchens that prepare individual or bulk meals for multiple sites. Once the meals are frozen, they are then easily distributed to other locations or end customers.

The company offers seven tray sizes from its standard stock, with many more sizes and shapes for custom orders.

Pac Food Pty Ltd  
www.pacfood.com.au

## Packing ready-to-eat poultry

Packaging demand in the ready-to-eat market will be boosted by solid prospects for store-made prepared foods in the retail segment as consumers continue to seek convenient, affordable meal options that require little or no preparation, often combining a pre-cooked product with home-cooked side dishes. This trend will stimulate demand for a variety of packaging products, including domed plastic containers, trays, bags and foil containers.

The ready-to-eat market comprises packaging of prepared foods by foodservice operations of supermarkets, convenience stores, mass retailers and other stores such as natural foods stores and club stores, and excludes pre-cooked products from food manufacturers.

Demand for packaging for ready-to-eat poultry applications is projected to climb 4.6% annually to \$450 million in 2021, according to The Freedonia Group's study 'Poultry Packaging Market in the US'.

The largest share of demand in the ready-to-eat poultry packaging market will be held by plastic containers, due to the proliferation of large domed containers for the packaging of rotisserie chicken and roasted turkey breast products.

According to analyst Katie Wieser, "Gains will exceed the product average due to the fact that roasted chicken and turkey are some of the most popular products in this segment."

Paper bags and folding cartons, usually with windowed portions, also are used in this segment for the packaging of fried chicken products, while plastic film and trays are used to package a wide range of ready-to-eat meals, including prepared chicken breast products as well as smaller portions of roasted and fried chicken.



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## How is your personality impacting your diet?

Maintaining a healthy diet can be difficult, and a new report conducted by CSIRO suggests this may be due to psychological and emotional reasons.

Developed by behavioural scientists at CSIRO, the CSIRO Diet Types survey analysed the eating habits and personality traits of over 90,000 Australian adults. Looking at participants' responses to questions about their attitudes, obstacles and triggers relating to their food choices and weight loss attempts, they established five main diet types:

- The Thinker (37%): They tend to overthink their progress leading to stress and mood swings. As a result, worry about failure often derails their diet.
- The Craver (26%): Cravers typically find it hard to resist food cravings which encouraged overeating and poor food choices.
- The Socialiser (17%): Food and alcohol play a big role in their active social life, so flexibility is key to maintaining a healthy diet.
- The Foodie (16%): They are passionate about preparing, eating and experiencing food and tend to have higher alcohol consumption.
- The Freewheeler (4%): Freewheelers are spontaneous and impulsive eaters who fail to plan meals and often rely on takeaway or convenience food.

Of the 90,000 respondents, 83% of those were female with an average age of 46 years. The survey found that there were a range of factors effecting the diet type including gender and age.

"For anyone who has found eating to lose weight difficult, your personal Diet Type, daily habits and lifestyle factors could provide the answer to why some weight loss methods haven't worked for you in the past," the report's co-author, CSIRO Behavioural Scientist Dr Sinead Golley said.

While women were most likely to be thinkers and relied more heavily on monitoring their intake of calories in order to lose weight, men were more likely to be foodies or freewheelers and used exercise as their main weight loss method. Other popular methods to lose weight among both women and men included cutting carbohydrates, reducing sugar and alcohol consumption, and using meal replacement shakes.

"People with the most common diet personality type — known as the 'Thinker' — tend to have high expectations and tend to be perfectionists, giving up when things get challenging," explained Golley.

She also suggested food personality trends changed across generations, with younger people using apps to lose weight as opposed to the support groups and books that the older generations preferred.

"Baby boomers and the older, silent generation (aged 71 years and over) were more likely to be Socialisers and Foodies — suggesting lifestyle and social connections influence a person's eating patterns at different stages of life — while millennials and Gen X were more likely to be Cravers, Thinkers and Freewheelers," she said.

Cravers seemed to be a particularly problematic personality type, as it not only had the highest number of obese participants (58%), but they also had the most trouble sticking to a diet. They tried more weight loss methods than other types, and the survey found that 1 in 5 cravers had attempted weight loss more than 25 times. This issue did not seem to affect Foodies in the same way, as they were most likely never to have dieted and they tended to remain a normal weight. This could be due to the fact that cravers were likely to consume a high portion of carbohydrates whereas Foodies were most likely to meet the Australian Dietary Guidelines for fruits and vegetables. The survey provided behavioural insights into an individual's potential to successfully lose weight.

"If you're frustrated by unsuccessful weight loss attempts, having a better understanding of your personal triggers and diet patterns can be the crucial piece of the puzzle," Golley said.

The survey is available online, takes 3–5 minutes and presents individuals with: a profile describing their personal diet type; weight-loss tips; the characteristics of their diet type; and a recommended weight-loss target.

## Ready meal packing company acquired by Advent

Danish packaging manufacturer for the ready meal, 'food-to-go' and fresh meat markets Færch Plast is in the process of being acquired by global private equity investor Advent International.

Advent brings significant operational resources, capital and sector expertise, which will help accelerate Færch Plast's growth and strategy to expand its international footprint organically and through add-on acquisitions. Færch Plast has an established, ambitious growth strategy, which has recently resulted in the acquisitions of Anson Packaging in the UK and Sealed Air's Food Tray Business in Europe with factories in Great Britain and Spain.

Ranjan Sen, managing partner at Advent International, commented, "Short shelf life food packaging is an attractive segment of the market with strong long-term prospects. As convenience becomes increasingly important in all areas of everyday life, the demand for ready meals and food to go will continuously gain momentum. Færch Plast is well positioned to benefit from these trends and to continue to serve its customer across Europe."



## Ovenable paperboard trays

Confoil's Dualpak ovenable paperboard trays are suitable across food preparation markets, offering an option for the freezing, chilling and reheating of food.

The ranges of paperboard trays are available in a selection of sizes from single serve, family portions and a bulk catering pack. The containers can be printed or branded, and the product is an environmentally friendly alternative to plastic containers. Add a clip-on lid for a simple take home package or select a sealing machine from the company's range to produce tamper-evident, heat-sealed meals.

Confoil Pty Ltd  
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## Colour-coded commercial wipes



Hygiene is critical for restaurants, cafes, hotels and food manufacturers, and Livi's HACCP certified commercial wipes make it easier to keep surfaces clean. The versatile wipe is made from a soft, non-woven viscose mix that is strong and absorbent and is colour-coded for use in a range of areas, including commercial kitchens, washrooms and dining areas.

The durable cleaning wipe is available in a selection of colours: blue for general purpose; green for commercial kitchens and food preparation areas; brown for cafes; yellow for when infection control is critical; and red for washrooms areas. As each colour wipe is designed for a specific area and task, this helps ensure that materials are not used in multiple locations. This way the risk of cross-contamination is minimised.

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## Emrich delivers a fresh packaging solution for Youfoodz

Queensland company Youfoodz was established in 2012 and is already a growing presence in the delivered meal industry.

Because Youfoodz offers its more than 20,000 customers a range of different food formats (including meals, drinks and snacks), the company's packaging requirements are extensive. Rather than purchase a dedicated machine to package each unique item, Terri Ann Goninon, snacks manager at Youfoodz, looked to Emrich to provide one multitasking packaging solution.



The Emrich team supplied and set up a Pearl D3256 Flow Wrapper in the Youfoodz Snacks department, resulting in a significant reduction in labour costs and unsellable product due to the flow wrapper's simple, one-operator set-up and manning.

"The flow wrapper can easily be changed from wrapping single or twin protein balls, to bars with or without cardboard inserts, to packing cookies in plastic cookie trays — all with simple set-up and minimal changes to

the pitch," explained Dean Gleeson, business development manager at Emrich.

"Youfoodz is constantly developing new products and the Emrich flow wrapper allows us to easily change the set-up of the machine to accommodate new products," said Goninon.

Packaging via the Pearl not only protects and keeps the product fresh, but is also visually appealing to the customer. While speed and efficiency are important in the fast-paced delivered meal environment, so is product quality.

"At Youfoodz we are fastidious that our all our products arrive to the customer as fresh and appealing as they left our kitchen. The flow wrapper ensures that each and every product that is packaged through the machine maintains its integrity and freshness, which gives us an end product that not only maintains our high standards of food quality, but is visually appealing and professionally finished," Goninon explained.

**Emrich Industries Pty Ltd**  
[www.emrich.com.au](http://www.emrich.com.au)

### Fat levels in ice-cream and consumer acceptability

Does higher-fat ice-cream really taste better? The answer is no, according to Penn State University researchers, because on the whole consumers can't tell the difference between fat levels in ice-creams.

"I think the most important finding in our study was that there were no differences in consumer acceptability when changing fat content within a certain range," said Laura Rolon, a former graduate student in food science and lead author of the study. "There is a preconception of 'more fat is better', but we did not see it within our study."

In a series of taste tests, participants were unable to distinguish a 2% difference in fat levels in two vanilla ice-cream samples as long as the samples were in the 6–12% fat-level range. While the subjects were able to detect a 4% difference between ice-cream with 6 and 10% fat levels, they could not detect a 4% fat difference in samples between 8 and 12% fat.

Not only were the consumers unable to distinguish between fat levels, the levels did not affect their 'liking' of the ice-cream. Their liking stayed the same even when the fat content dropped from 14 to 6%, for example.

The traditional belief is that consumers prefer ice-cream with higher fat levels, but this research is not supporting this. So ice-cream manufacturers may be able to adjust their formulae to help control costs and create products for customers with certain dietary restrictions without sacrificing taste

The researchers released their findings in a recent issue of the *Journal of Dairy Science*.



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## Isolated soy protein

DuPont's SUPRO XT 55 Isolated Soy Protein is designed to improve the profitability of ready-to-drink, high-protein beverages by helping beverage manufacturers more effectively manage protein costs.

With the product, it is possible to replace up to 50% of the dairy protein in beverage formulations without compromising sensory performance or protein nutrition. It provides a food balance of viscosity and protein stability, while delivering cost savings and good flavour performance. The product is a high-quality, sustainable source of plant-based protein, with all the associated nutrition and health benefits of soy protein.

The isolated soy protein addresses the limitations of previous soy protein technologies by delivering lower viscosity and improved protein stability.

With a Protein Digestibility-Corrected Amino Acid Score of 1.0, it is equivalent in protein quality to dairy protein. Therefore, when replacing dairy, it will have no impact on the protein quality of the finished formula.

DuPont (Aust) Limited  
www.dupont.com.au

## Resources to encourage recycling of foodservice packaging

In the US, the Foodservice Packaging Institute's (FPI)

free Resident Education Kit includes dozens of images, researched terms, best practices and other resources for adding foodservice packaging to new or existing recycling programs.

The kit includes recommended language and best practices related to foodservice packaging. Other complimentary resources include a customisable educational flyer; key takeaways from a foodservice packaging recycling survey; and a library of high-resolution images of clean paper and plastic cups, containers, pizza and sandwich boxes, paper bags and more.

"For years we have collaborated with industry professionals, material recovery facilities, residents and recycling program coordinators to learn how to encourage more recycling of foodservice packaging," said Lynn Dyer, president of FPI. "This past year we specifically focused on getting input that would result in education and awareness resources to effectively increase the amount of cups, containers, bags and more that get recycled.

"Whether you already have recycling outreach materials or you're starting from scratch, our kit gives you valuable resources and tried-and-true verbiage and images for a successful recycling campaign," said Dyer.



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# What's driving the appetite for organics?

Janette Woodhouse

**B**y 2018, the total value of Australia's organic industry is anticipated to exceed AU\$2 billion. It was already worth \$1.72 in 2014. Last year two-thirds of Australian households bought organic products. Why?

The 2017 Australian Organic Market Report claims that personal health concerns are the key driver for consumers switching to organics.

Highlights of the report include:

- Shoppers said the trigger to make the switch to organic was a health crisis/issue affecting themselves or their family (18%).
- The top three perceived benefits of organics:
  1. chemical-free (83%)
  2. additive-free (75%)
  3. environmentally friendly (65%)
- The number of consumers who have become more aware of the impact of food, fibre (textiles) and cosmetics on the environment has risen from 32% in 2014 to 41% in 2016.

- Organic producers, processors and handlers have grown from 2567 in 2014 to 3751 in 2016 (up by 46%), with producers representing the largest group in Australia (2075).

Weighing into the Australian Organic Market Report is a national consumer survey conducted by Mobium Group, LOHAS (Life Styles of Health and Sustainability Australia) with 1024 households polled over one week in June 2016<sup>1</sup>.

Key LOHAS survey findings included:

- Personal health for the buyer and their family is the strongest driver for organic product purchases in 2016.
- 85% of all shoppers say an organic certification mark on a product would have influence on their purchase decision.
- The Australian Certified Organic (ACO) Bud logo is the most recognised certification mark — 46% of Australian consumers recognising this logo in 2016.

The Australian Organic Market Report revealed Australia officially holds the largest amount of organically managed farmland in the world at 53%; however, this is still not enough to meet growing demand locally.

September is Australian Organic Month and more information can be found at <http://austorganic.com>.

I find some of the reasons behind people's move to organics incomprehensible. Major lifestyle changes following a health scare I understand but moving to organics because they are 'chemical-free' I do not understand. Everything, including everything organic, is made of chemicals.

Additive-free, pesticide residue-free, even GMO-free I get. But really, chemical-free?

While we are going down the food safety path, I would like to put in a little plug for preservatives. In truth, preservatives have probably saved more lives than antibiotics, just because they have stopped the consumption of pathogens. I understand that modern refrigeration technologies and transport logistics have lessened our reliance on preservatives but I don't think we should throw out the baby with the bathwater and unilaterally condemn them.

What are your thoughts on the use of preservatives, the groundswell towards organics and other food industry trends?

Have your say and write to me at [jwoodhouse@wfmmedia.com.au](mailto:jwoodhouse@wfmmedia.com.au). ☐



## Diet dilemma: why weight loss depends on gut bacteria

Some people lose weight more easily than others and this could be due to the type of bacteria in the dieter's intestines, according to a study published in the *International Journal of Obesity*.

The study randomly assigned 62 overweight participants to follow either the New Nordic Diet or the Average Danish Diet. The Nordic diet is common in countries such as Iceland, Norway and Denmark and contains a higher volume of dietary fibre and wholegrain. This includes fibre-rich, plant-based foods such as berries, cruciferous vegetables, root vegetables, apples and pears, fish and lean meats. To establish the bacteria in their intestines, stool samples were taken and participants were divided into two groups depending on the abundance of *Prevotella* bacteria types compared to *Bacteroides* species. About half of the group fell into the high-volume *Prevotella*-to-*Bacteroides* group, whereas the other half were placed in the low ratio group. After the initial 26-week study period, all 62 participants followed the New Nordic Diet for another year.

Led by Mads Hjorth and Arne Astrup of the Department of Nutrition, Exercise and Sports at the University of Copenhagen, the study found that the success of the diet and participants' ability to lose and maintain weight depended on this particular combination of bacteria.

"These results are a breakthrough demonstrating that certain bacterial species play a decisive role in weight regulation and weight loss," stated Astrup. "Now we can explain why a high-fibre diet does not always lead to weight loss. Human intestinal bacteria is an important part of the answer and will from now on play a role in the treatment of the overweight."

Of the 31 people following the New Nordic Diet for 26 weeks, participants lost an average of 3.5 kg, whereas the 23 subjects following the Average Danish Diet only lost 1.7 kg. The study found that participants in the high-volume *Prevotella* group were more susceptible to weight loss with the New Nordic Diet compared to the Average Danish Diet, losing about 3.15 kg more body fat. However, the type of diet had no impact on how much weight participants in the low ratio group lost.

"The health-promoting aspects of the New Nordic Diet in terms of body weight regulation seem mainly to apply to a subset of the population," said Hjorth. "This could apply to as much as half of the population."

Hjorth suggested that personalised nutrition could be aided by research into gut bacteria in the future, as grouping people into one of the two types of enterotypes or bacteria could indicate whether specific diets will work for them or not.



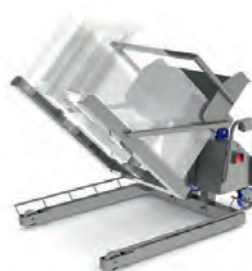
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## Organic powdered bone broth

Vital Proteins has launched the USDA organic powdered bone broth. The products — Beef Bone Broth Collagen (grass-fed, pasture-raised and unflavoured) and Chicken Bone Broth Collagen (free-range and unflavoured) — showcase the company's clean label collagen collection. The single-ingredient Bone Broth Collagen powders are available in 20-serving canisters and single-serving stick packs.

The bone broth collagen (9 g of collagen/serving) is extracted from USDA organic grass-fed, pasture-raised or free-range bones that are simmered slowly for maximum nutritional potency. The result is a pure, nourishing collagen-rich powder packed with clean protein, natural chondroitin sulfates and other nutrients — the same nutritional profile found in traditional bone broths.

Unflavoured and soluble in hot liquids, these bone broth powders can be added to any savoury dish or drink.

The collagen is a clean source of protein and a natural nutrient that helps to boost the immune system, support joint health, enhance skin hydration and promote digestion and gut health.

**Vital Proteins**  
[www.vitalproteins.com](http://www.vitalproteins.com)

## Cooking bag for oven or BBQ

Sirane's oven/BBQ bag comes with a range of options which make it a suitable cooking bag for people looking to sell into the barbecue sector.

The oven/BBQ bag is simple to use and open, and it can be used in almost any cooking environment, from ovens to barbecues, griddles to hot plates.

It is a foil bag capable of withstanding significant direct heat, allowing for its use on a barbecue as well as in an oven. The food will be tender, retain all the juices and flavours as well as the goodness, and could be sold over the counter in the pack.

The bag is available in a number of sizes and in a standard and non-stick version. It comes with a clear top panel — so users can see what's being cooked — and can be heat-sealed.

It is suitable for meat, fish, poultry and vegetables and it means the user will no longer have to cook separately for meat eaters and vegetarians, as the bags can sit side by side.

The company also has flavoured cooking bag options. They use a blend of kilned beech mixed with frozen herbs and spices, which are placed in a sachet and slipped below the bag's siliconised layer, allowing the flavours to transfer during cooking.

There are six flavour combinations as standard: onion, mustard and spices; rosemary, juniper and spices; garlic, ginger and spices; mustard, sweet basil and spices; bay leaf, onion and spices; and juniper, pine cone and spices. However, other flavour combinations can be developed.

**Sirane Ltd**  
[www.sirane.com](http://www.sirane.com)

## AMA tells hospitals to remove processed meats from menus

With about 34,000 cancer deaths per year worldwide caused by diets high in processed meat (Global Burden of Disease Project), the American Medical Association's House of Delegates has called on US hospitals to improve the health of patients, staff and visitors by:

- providing a variety of healthful food, including plant-based meals and meals that are low in fat, sodium and added sugars;
- eliminating processed meats from menus; and
- providing and promoting healthful beverages.

This resolution, which was co-sponsored by the Medical Society of the District of Columbia and the American College of Cardiology, has been commended by the Physicians Committee — a non-profit of 12,000 doctors.

Processed meats include all pork, beef, lamb, goat and other red meats, poultry, offal or meat by-products such as blood that have been transformed through salting, curing, fermentation, smoking or other processes to enhance flavour or improve preservation. Ham, bacon, sausages, hot dogs, corned beef and biltong, as well as canned meat and meat-based preparations and sauces, are all examples of processed meats.

The World Health Organization has classified processed meat as 'Group 1, carcinogenic to humans' based on epidemiological studies showing the development of colorectal cancer in exposed humans.





## Is adopting the Mediterranean diet a millennial challenge?

Although millennials' social media accounts often feature pictures of delicious foods, they do not necessarily maintain a healthy diet. Age and culture may play a significant role in a person's dietary choices.

Lluís Serra-Majem, professor at the University of Las Palmas de Gran Canaria and president of the International Foundation of the Mediterranean Diet, has criticised the eating habits of millennials, claiming their diet has shifted over the generations.

"Young people in the Mediterranean region have been eating more processed, Western-style foods and meat than older generations."

While foods such as red meats, poultry, eggs, cheese and yoghurt are staple food items of Western cuisine, the Mediterranean diet consumes those foods in moderation. Instead, the diet promotes a higher intake of vegetables, fruits, nuts, seeds, legumes, potatoes, wholegrains, breads, herbs, spices, fish, seafood and extra virgin olive oil.

As a consumer of the diet, Serra-Majem began researching its health effects in the late 1980s. He found that despite the World Health Organization's fat restrictions painting olive oil in a negative light, there are many proven health benefits of the Mediterranean diet.

"The science behind the diet is now very strong, with large-cohort studies and randomised clinical trials, like the Predimed and the Predimed Plus studies," he said.

These health benefits include greater protection against cardiovascular diseases, obesity, diabetes, some cancers, cognitive decline, depression, allergic and respiratory diseases, and bone diseases.

Poor dietary habits may have been passed down through generations, but Serra-Majem also acknowledged the impact of culture on people's diets.

"We are aiming to construct a worldwide scenario where environment and culture should be considered strong determinants of the sustainability of the Mediterranean diet."

While Asian cuisine already adopts healthy habits, statistics from the Australian Institute of Health and Welfare (AIHW) show that 63% of Australian adults are overweight or obese. The rising obesity rates in Australia therefore suggest dietary changes are necessary in the future.



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# Beware the wrapper



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**A** recent study found 46% of food contact papers were contaminated with chemicals known to be detrimental to human health. Now, researchers have found a way of tracking these chemicals after they have migrated from the pack to the food and been ingested. Perfluorinated and polyfluorinated alkyl substances (PFASs), present in many fast-food

wrapping papers, can now be tracked when they enter the body. In a recent study of more than 400 packaging materials, 46% of food contact papers were contaminated with PFASs. Previous studies have shown that PFASs can migrate from the packaging, contaminate the food and then accumulate in the body.

Known to be harmful to the human body, PFASs are often used in stain-resistant products, firefighting materials and non-stick cookware, and are not meant for ingestion. Diseases including kidney and testicular cancers, thyroid disease, low birth weight, immunotoxicity in children and other health issues have been linked to PFASs in previous studies.

Research teams from the University of Alabama at Birmingham's School of Medicine and the University of Notre Dame have developed a method whereby radiolabels are attached to three forms of the PFASs, enabling the scientists to follow the fate of these chemicals after ingestion.

The novelty of the newly designed method is that one of the fluorine atoms on the PFAS molecule was replaced with a radioactive form of fluorine (fluorine-18) — the same radioisotope that is used for medical positron emission tomography scans in hospitals around the world.

"For the first time, we have a PFAS tracer or chemical that we have tagged to see where it goes in mice," said Suzanne Lapi, PhD, senior author of the study published in the *Journal of Environment Science and Technology*. "Each of the tracers exhibited some degree of uptake in all of the organs and tissues of interest that were tested, including the brain. The highest uptake was observed in the liver and stomach, and similar amounts were observed in the femur and lungs."

Now that it appears likely that any PFASs that can be synthesised and isolated could be radiolabelled and used to directly measure uptake and biodistribution kinetics in biological systems, it opens the possibility of directly measuring uptake in human volunteers.

"This is possible since trace amounts of the compounds are easily measurable and the radioactivity short-lived," said Graham Peaslee, PhD, the study co-author and

professor of experimental nuclear physics in the College of Science at the University of Notre Dame. "It's an important discovery because PFASs are a really persistent chemical that, once in the bloodstream, stays there and accumulates, which is not good."

Now that researchers have identified which PFASs initially accumulate — and in which specific organs — and with some surprising differences, the authors say there are health implications far beyond this initial study.

"There was concern that these chemicals might directly enter the food that was wrapped with treated packaging," said Peaslee, who used particle-induced gamma-ray emission to make the findings. "A larger concern is that, because these chemicals persist for a long time in the environment, when the treated consumer products enter the landfill, these chemicals will re-emerge into our drinking water. These overall results already call into question the safety of these alternative shorter-chain PFAS compounds."

Lapi said the novel new tool developed by the research teams can be used for studying PFAS behaviour in environmental remediation studies to measure the fate of radiolabelled compounds in environmental treatment systems.

"This is a tremendous first step," Lapi said, "and it underscores the need for further studies to aggressively investigate different PFAS compounds in different biological and environmental systems to assess the full impact of this novel radiosynthetic method."

In addition to kidney and testicular cancer, scientists have previously found high cholesterol, thyroid disease, pregnancy-induced hypertension and ulcerative colitis to be correlated to the amount of perfluorooctanoic acid, or PFOA, found in the blood of people who were exposed to the tainted water.

As a result, the Environmental Protection Agency and US manufacturers reached a compromise to voluntarily remove two specific long-chain PFAS from the US market by 2015 — including PFOA. However, industry has switched from these long-chain forms of PFAS to shorter-chained versions of the same chemicals, Peaslee says. There is no toxicology data available for most of the alternative short-chain PFAS compounds used commercially. □

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**A recent study found 46% of food contact papers were contaminated with chemicals known to be detrimental to human health.**



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## Ready meals market will rise to US\$146,247 million by 2023

With people adopting busier lifestyles they do not have the time to spend on cooking, and the demand for quick and easy meals is increasing. Ready meals are precooked dishes that require minimal preparation and cooking time, and the convenience associated with them is attractive to these time-sensitive consumers.

Allied Market Research has published a report called 'Ready meals Market by Type, and Distribution Channel: Global Opportunity Analysis and Industry Forecast, 2017-2023', which segmented the global ready meals market based on type, distribution channel and geography. Type divided the market into categories such as chilled pizza, dried ready meals, frozen pizza and prepared

salads, while the distribution channels looked at store based or online. Geographically, the report included North America, Europe, Asia-Pacific and LAMEA.

Ready meals are particularly popular among low-income consumers such as students, and those who only want to cook single portions. Although ready meals often appeal to those who want to create meals with minimal effort, the report suggested that online portals are not as popular as store-based retail outlets as consumers prefer to view the products in person.

In 2016, the ready meals market was valued at US\$72,257 million (about AU\$91,057 million), and this is expected to rise to US\$146,247 million (about AU\$184,301 million) by 2023. It will have a compound annual growth rate (CAGR) of 10.6% during the forecast period, according to the report. However, the market growth has been hindered by poor quality products and negative health connotations associated with these types of foods.

Consumers are moving away from traditional ready meal options, which often have poor nutritional value. Frozen pizza ranked as the highest investment opportunity, along with prepared salad, as they are considered the freshest ready-made options by consumers. Frozen pizza has been gaining popularity in the global ready meals market, and chilled pizza is expected to follow suit with a projected CAGR of 14.1% during the forecast period. Together, frozen and chilled pizza accounted for more than a one-third share in the global ready meals market in 2016.

As well as nutritional concerns, consumers are often driven by quality and poor transportation and storing procedures could hinder the quality of ready meals. Therefore, manufacturers aim to improve packaging to ensure the flavour, texture and quality of the meals are maintained in the future.

Europe has dominated the global ready meals market in the past and is expected to continue to grow at a substantial CAGR. This is due to the fact that the food and drink sector is continuously growing and there is a consistently increasing demand for packaged food. In 2016, Europe and Asia-Pacific accounted for about a three-fifths share of the total ready meals market. The increasing consumption of ready meals in Asia-Pacific can be attributed to the growing population and stable economic growth. By 2023, the report suggested that China will take up over half of the total share of the Asia-Pacific ready meals market.

Regardless of the nutritional value and perceived quality, the convenience that ready meals provide consumers ensure their continued popularity in the future. The prominent companies in the report suggested their key strategy to gain significant share in the market was product launch. Prominent players in the report included: Bakkavor Foods Ltd, JH Heinz Company Ltd, Nestle SA, Unilever Group, Northern Food Ltd, Kerry Foods Ltd and Premier Foods Group Ltd.

## Glass bottle for hot beverages

VGM International's Glass Café Mug is a glass bottle for hot coffee or tea on the go. With a protective insulating foam sleeve, the product keeps beverages warm and fingers protected. The bottle is made from thick, sturdy, borosilicate glass for durability and to safely handle temperature changes.

All caps are interchangeable between the company's styles and sizes.

The gripping sleeve comes in vibrant colours and provides a cool-touch, non-slip gripping surface to improve durability and protection. Environmentally friendly and easy to clean, the bottles are dishwasher safe with a wide mouth opening.

Other key features include: 350 mL capacity, BPA/BPS-free and phthalate-free, and viewing ports to watch brewing.

VGM International Pty Ltd  
[www.vgminternational.com.au](http://www.vgminternational.com.au)

## Hot cups supporting social change

Detpak's Coffee Origins Cup Gallery is a collection of hot cups featuring vivid imagery inspired by the architecture, textiles and traditions of coffee-producing nations with a goal to support social change using the power of coffee.

The range of PE-lined cups features three designs, influenced by Guatemala, Cuba and Mexico, with imagery reflecting the countries' rich history, design traditions and cultures.

The company is working with charities in coffee-growing regions to drive positive social change with 5% of cup sales donated to partner organisations.

Detpak NZ Ltd  
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## Allpax partners with LSU to develop shelf-stable foods

Allpax has announced it is partnering with the School of Nutrition and Food Sciences from Louisiana State University (LSU) Agricultural Center to assist North American shelf-stable food companies that create nutritious products. Over the past five years, shelf-stable foods have developed significantly due to multiple research studies and advances in technology. As a result, these products can produce a similar culinary experience to refrigerated or frozen products, are easy to store and provide the added convenience of reducing preparation and cooking time.

"We know that taste is a fundamental driver of food sales. By combining food formulation with messaging that connects with a target audience, I know that shelf-stable foods can fit the lifestyles of even the most discerning consumer," explained Dr Louise Wicker, Professor and Director of the School of Nutrition and Food Sciences, LSU Agricultural Center.

This partnership combines sensory scientific research with packaging laboratory capabilities, and allows researchers to have access to technology such as the Allpax Shaka retort. The Shaka's retort capability reduces cooking and cooling times required for in-container sterilisation of low-acid foods.

Allpax's 2402 multimode R&D retort is customisable and can work in combination with seven easily changeable modular agitation modes: still, end-over-end, swinging, Gentle Motion shaking (low-speed), The Shaka (high-speed), hydrostatic simulation and axial rotation. They can be used for cans, bottles, pouches, cups, trays, metals, glass, plastics and double-seam film.

"We have the ability to prepare and package foods into metal cans and injection in-mould-label oxygen barrier packaging," Wicker said. "We can evaluate foods after retort processing for quality, acceptance and stability, and allow informed decisions about commercial viability."

With food such as shrimp creole, gumbo and jambalaya featuring heavily in Louisiana's cuisine, the partnership between LSU and Allpax makes these staple foods more convenient for global consumption, which is partly a result of retort technology.



## Dough sheeting machine

In the modern bakery, a dough sheeting machine is standard equipment — and an essential tool for the application of a baker's craft. The FRITSCHE ROLLFIX offers a high degree of uniformity and a high quality of dough sheeting, with a wide range of extended functionalities and heightened performance capabilities.

The company's development of the automatic reversing gear has enabled the possibility of sheeting dough continuously in alternating directions, as well as of adjusting the feed speed step by step to arrive at the desired final thickness. The addition of a pedal switch parallel to the regular hand switch has meanwhile freed the baker's hands to do other things.

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## TOMRA Sorting boosts foodservice supplier's expansion

Established 40 years ago, the family-run business Mrs. Gerry's Kitchen now supplies salads and side dishes such as mashed potato to grocery stores, restaurants, universities and healthcare facilities across the US. The business sells more than 15.9 million kilograms of food each year, operating from a 20,000 m<sup>2</sup> facility in Southern Minnesota which employs more than 200 people.

Mrs. Gerry's has grown steadily across its lifetime, undertaking nine expansions of its production facility. Two major challenges have faced the company as it has grown: keeping pace with the increasing steam capacity required to produce sufficient quantities of its products to meet demand and running out of production capacity for the more than 120 different products produced by the business.

The latest expansion was designed to enable the company to increase its range of 'Ready to Eat Refrigerated Entrees'. Chad Vogt, CEO at Mrs. Gerry's, said the company spent six months researching various peeling solutions for its processing line and toured manufacturing facilities to evaluate steam consumption data before choosing machines from TOMRA Sorting Food.

"We are very familiar with the innovative solutions manufactured by TOMRA, as we have been using their steam peeling machines since 2001, and we recently purchased TOMRA's Orbit 350 peeler with OBD 6/20 brusher and M01 steam accumulator as part of our expansion plans," said Vogt.

### Productivity into growth

"The Orbit peeler is able to process large quantities of produce with a shorter cycle time while also reducing steam usage, which has led to significant increases in productivity and the reduction of energy costs. We know that we are now using less steam than before and the machine also provides improvements in the uniformity of peeling, which can help to reduce waste," explained Vogt.

The Orbit peeler uses innovative technology to monitor and send information to the machine's control panel, ensuring the lowest steam times and the reduction of peel loss to minimal levels.

Vogt concluded: "Shorter cycle times and increased productivity give us the opportunity to focus on continuing to grow our existing business and securing new customers through the development of new product ranges, while maintaining our reputation for high-quality products and remaining profitable."

**TOMRA Sorting Solutions Pty Ltd**  
[www.tomra.com](http://www.tomra.com)



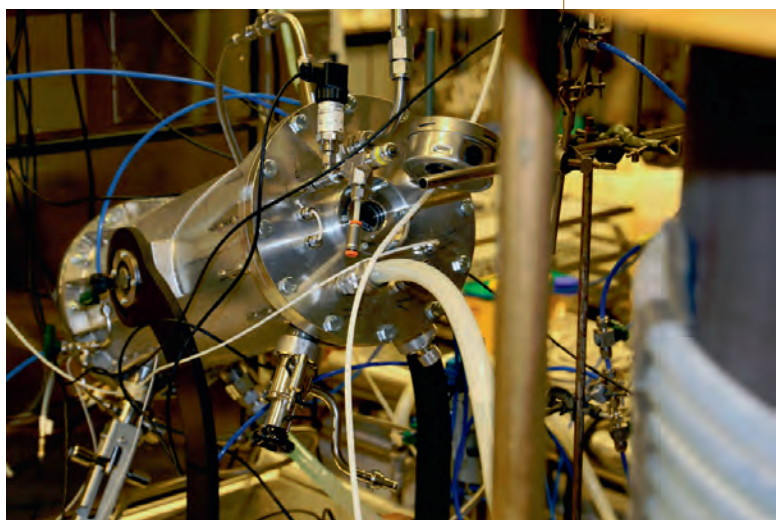
## Creating food from electricity

Feeding the world would be vastly easier if food could be produced from air and electricity alone. In a joint project, researchers from Lappeenranta University of Technology (LUT) and the VTT Technical Research Centre of Finland produced a batch of single-cell protein in this way.

The method releases food production from restrictions related to the environment, as the protein can be produced anywhere renewable energy, such as solar energy, is available. The protein produced in this way can be further developed for use as food and animal feed.

"In practice, all the raw materials are available from the air. In the future, the technology can be transported to, for instance, deserts and other areas facing famine. One possible alternative is a home reactor, a type of domestic appliance that the consumer can use to produce the needed protein," explained Juha-Pekka Pitkänen, principal scientist at VTT. Along with food, the researchers are developing the protein to be used as animal feed. The protein created with electricity can be used as a fodder replacement, thus releasing land areas for other purposes, such as forestry. It allows food to be produced where it is needed.

"Compared to traditional agriculture, the production method currently under development does not require a location with the conditions for agriculture, such as the right temperature, humidity or a certain soil type. This allows us to use a completely automatised process to produce the animal feed required in a shipping container facility built on the farm. The method requires no pest-control substances. Only the required amount of fertiliser-like nutrients is used in the closed process. This allows us to avoid any environmental impacts, such as run-offs into water systems or the formation of powerful greenhouse gases," said Professor Jero Ahola of LUT.







## Panasonic develops prototype for a robotic fridge

Panasonic presented its concept for a movable fridge at IFA, a large European tech conference, at the beginning of September in Berlin.

The movable fridge responds to voice commands and delivers food and drinks to an individual without them needing to move.

This raises the question: how does it avoid obstacles and prevent crashing into anyone or anything?

"With an embedded sensor technology, it accurately measures the distance, it maps out the room, it recognises itself within the room and it continuously updates the map. That is why it can move around safely without bumping into anything such as pets or kids," Tobias Wobbe from Panasonic explained.

Theoretically, the device would listen for a command such as "Fridge, come here" and appear from a hole in the kitchen wall. With the use of the built-in LIDAR and depth sensor, the autonomous fridge would safely navigate around a property and carry food to a specified location. The company suggested this concept was developed to prevent the elderly or those with mobility issues having to make unnecessary trips to the kitchen. However, it would likely be a popular device for other able-bodied individuals looking for convenient household technology. Panasonic also highlighted another useful feature of the fridge, in which it can remove dirty dishes from the table after a meal and carry them to the sink or dishwasher.

While it remains a concept at the moment, the product could be available to buy in the next decade.



## Fully automatic tray filling and sealing line

The Tramper D-360 Tray Denester, Tramper F-360 Filling Unit and Tramper S-360 Tray Sealer tray filling and sealing line automatically denests the empty trays out of stacks and places them on the servo-driven Walking Beam Infeed System. The empty trays are then positioned underneath the Tramper F-360 Filling system with plungers that fill the trays automatically. The Tramper S-360 Sealing machine with sealing surface of 300 x 600 mm will then seal the trays. The machine is also able to do modified atmosphere packaging.

If necessary, Tramper will also place a lid onto the tray. When there is not a lid, the Tramper C-360 Seal Inspection System can check on any imperfections in the seals. This is to ensure the optimal quality of the sealed trays.

The servo-driven equipment from Tramper Technology is used throughout the complete food sector. Tramper Technology can be used to pack meat, poultry, ready meals, soups, vegetables and fruit in an efficient and accurate way.

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# The diet debate: are more fats or carbohydrates healthier?

**G**lobal perspectives on the nutritional value of carbohydrates and fats need to be reconsidered, according to the Prospective Urban-Rural Epidemiology (PURE) study.

Published in *The Lancet*, the study looked at the diet of 135,335 individuals from 18 low-, middle- and high-income countries, and analysed the consumption of carbohydrates, total fats and types of fat. Researchers then compared these diets to cardiovascular (CV) problems and mortality using questionnaires.

They found that high carbohydrate intake is linked to higher mortality rates and non-CV mortality compared to a high fat intake.

Researchers therefore disagreed with the belief that total fat intake should be limited to less than 30% of a person's energy.

"Limiting total fat consumption is unlikely to improve health in populations, and a total fat intake of about 35% of energy with concomitant lowering of carbohydrate intake may lower risk of total mortality. In fact, individuals with high carbohydrate intake, above 60% of energy, may benefit from a reduction in carbohydrate intake and increase in the consumption of fats," explained Dr Mahshid Dehghan from the Population Health Research Institute, McMaster University.

After following the participants' health for an average of seven years, they found that those with the highest intake of di-

etary fat, consisting of 35% of their daily calories, were 23% less likely to have died during the study period than those whose fat intake only accounted for about 10% of their daily calories.

The high-fat diets were also linked to an 18% reduced risk of stroke, and all three different types of fat — saturated, mono-unsaturated and polyunsaturated — were associated with 14–20% lower mortality rates.

Although a high intake of carbohydrates (around 77%) was associated with a higher risk of death, the risk of CV events did not change.

"For decades, dietary guidelines have focused on reducing total fat and saturated fatty acid (SFA) intake based on the presumption that replacing SFA with carbohydrate and unsaturated fats will lower LDL-C ['bad' cholesterol] and should therefore reduce CVD events," Dehghan said.

However, Dehghan was careful to highlight that this evidence focuses on Western populations where there is a nutritional excess.

"PURE provides a unique opportunity to study the impact of diet on total mortality and CVD in diverse settings, some settings where over-nutrition is common and others where under-nutrition is of greater concern," she said.

Overall, researchers concluded that the best diets include about 50–55% carbohydrates and around 35% total fat, including saturated and unsaturated. PURE co-author Dr Andrew Mente suggested more fruits, vegetables and legumes reduces the risk of mortality, but this does not need to exceed three to four servings a day. □





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