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READ ONLINE!

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www.foodprocessing.com.au/magazine

Keeping your weights legal

It is so easy for the media to ring the alarm bells and have the community up in arms. Recently, *The Sydney Morning Herald* reported:

"Birthday sponge cakes sold at Woolworths and lamb chops prepared at Coles were among thousands of products found to be weighing less than what was promised on packaging, according to the National Measurement Institute."

The article was based on the National Measurement Institute's 'Trade Measurement Compliance in 2014-15' report and did go on to more reasonably expand on the actual contents in the report. The same could not be said for some of the radio reports.

If I only got my information from these radio stations I would believe that I am probably being short-changed on nearly every item I buy. I would definitely take up measuring the weights of all fruit and vegetables, meat and seafood that I purchase.

Yet this is not what the report actually said. During 2014-15, NMI trade measurement inspectors:

- audited over 11,000 business premises;
- tested over 10,000 measuring instruments;
- inspected over 400 weighbridges; and
- inspected almost 29,000 lines of packaged goods (nearly 120,000 individual packages) for correct measure.

While the inspectors found at least one example of non-compliance during 40% of initial audits, when follow-up visits were made to those non-compliant businesses only 14% continued to breach the law.

As part of the targeted inspection program directed to proper use of scales, NMI inspectors made anonymous 'trial purchases' at more than 720 businesses. Inspectors issued non-compliance notices for incorrect use of scales and/or not properly accounting for the weight of packaging at almost a third of those premises. The program identified particular issues among franchise businesses in the confectionery and dairy products (frozen yoghurt) sectors.

Overall, 93% of prepacked articles tested contained the correct amount. The product categories with the highest amount of incorrect weight detected were:

- seafood
- dairy products
- meat, and
- smallgoods.

I suggest that if you have any concerns about your legal obligations for weights and labelling, the NMI is the best place to seek help. And seek help sooner rather than later so you do not risk becoming a mass media headline.

Regards,
Janette Woodhouse



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Janette Woodhouse

Flavours, ingredients what'll be hot in 2016



and meals —



Healthy, fresh, natural and charred – some of the main food trends in 2016.

Convenience, health and sustainability are all predicted to be big players in the ready meals and high-volume catering industry in 2016. Read on to find out what your clients are likely to want in their meals this year.

Convenience

The ready-meal industry already offers convenience in spades — all consumers have to do is heat and serve or simply serve. However, competition is looming on the horizon for how consumers will access their ready meals. The traditional access methods are expected to be disrupted by order-and-pay apps, third-party online ordering and delivery services. Amazon and Uber are already muscling into this market.

Furthermore, food halls, food trucks and quick-service restaurants will offer another alternative to traditional ready-meal consumers. These outlets, which offer a bridge between traditional fast foods and restaurants, are keen to snaffle up business from the ready-meals sector.

In the US last year, quick service restaurants (QSR) were the strongest performing segment, representing 79% of all foodservice visits. The QSR Fast Casual category increased visits by 8% and retail convenience store foodservice traffic grew by 2%. These two top-growing QSR categories are on opposite ends of the price spectrum, but both are meeting consumers' needs for quality, convenience and value. Total growth for the QSR segment was 1%.

Another option for the convenience junkie is meal kit start-ups. With all of the ingredients supplied and ready to use, the purchaser simply constructs the meal. The main reason these meals can compete with ready meals is that purchasers often have the inner glow that have prepared a 'home cooked' meal.

These trends should not be taken lightly as it is anticipated that investment in on-demand delivery services and meal kit start-ups will

rise from \$600 million in 2014 to over a billion dollars in the US in 2016.

Health

So what will you need to put on your plates to not only keep your client base but grow it? It seems that the thing consumers want most alongside convenience is health. They want to incorporate more 'good-for-you' products into their lives and can justify indulgence if the meal includes more wholesome ingredients.

Consumers don't let science get in the way of belief when it comes to their food choices. The rise of 'gluten-free' is a classic example. Many consumers don't actually need products that are free from gluten but are demanding them anyway, as they believe them to be healthier. This has led to an explosion in the availability of alternative and wheat-free flours. Gluten-free flours are made from legumes, ancient grains, teff, amaranth and nuts. Chickpea flour is a quick riser, while other legume-based flours are showing up in bean-based pastas and other packaged goods.

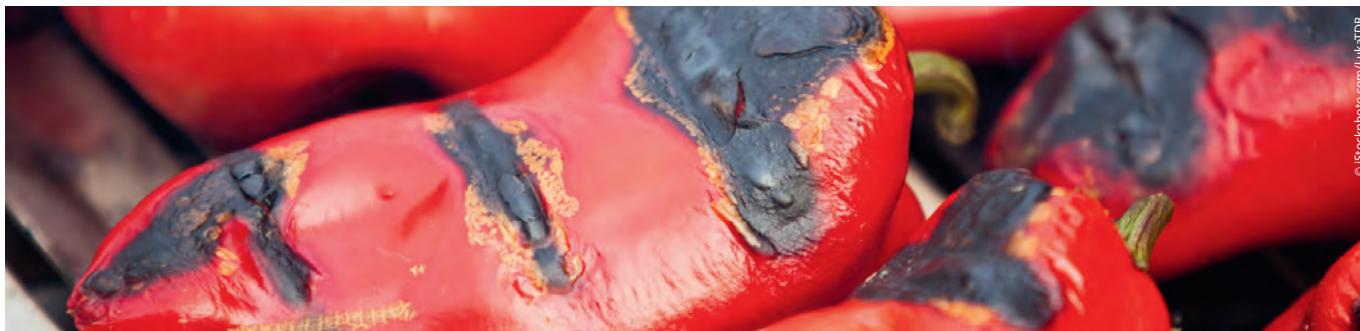
The 'free from' trend is not limited to gluten, with dairy and sugar among other 'no-go' ingredients.

Genetically modified (GM) ingredients are also out of favour. Many consumers are voting with their feet and demanding non-GM ingredients or, at the very least, menu labelling that clearly identifies if meals contain GM ingredients.

This will present problems for some manufacturers as they try to be honest and transparent in their labelling, as some crops and animal feeds fed to livestock have been genetically modified to boost yield and productivity. This means you will need to not only be aware where your meat, poultry and seafood came from, but also what they ate.

Food manufacturers will have to continue to make food products that are less processed as consumers demand more transparency and foods that are closer to their natural state. But they still want instant, feel-good cures — often there is no sense in what becomes a trend.





Fermented foods and probiotics are very much in vogue, and will continue to be in 2016. The belief is that such products not only improve intestinal health but that there is a gut/brain connection so probiotics may also be helpful in treating symptoms of depression. Spicy products like kimchi and gochujang will continue to gain steam, while innovative options like chigga beet kraut and non-dairy tonics will add variety to the fermented foods options.

Sprouted grains are also expected to become more mainstream as consumers believe that sprouting creates enzymes that make plant proteins, essential fatty acids, starches and vitamins more available for absorption.

More and more non-athletes are wanting the benefits they believe come with the protein and energy ingredients in sports nutrition products. So these products are also entering the mainstream convenience market.

On a positive note, while consumers are demanding fresher and more wholesome meals, they are willing to pay a premium for this. Gourmet ready meals, preferably created by a hatted chef, are one of the fastest growing sectors of the market.

Sustainability

Natural and minimally processed

Artisan or centuries-old food processing practices that bring a natural and authentic image to foods are in vogue. These products counteract some of the negative perceptions consumers have about heavily processed foods.

This is partly why heirloom ingredients (and not just tomatoes) are making a comeback. Ancient herbs like thyme, peppermint, parsley, lavender and rosemary are back in fashion along with ancient grains like amaranth and quinoa.

Consumers seem to like foods that come with a story. It seems that the magical properties of a berry that has been known 'only to the elders of a remote tribe' gives credibility to the consumption of particularly expensive ingredients.

A follow-on from the minimally processed and natural trends is 'morally conscious foods'. These products are not only clean label but also humane and kind to the planet. Cage-free eggs are just the tip of the iceberg — grass-fed is another trend. Grass-fed beef is being joined by grass-fed eggs, yoghurt, butter, cheese, meat snacks and even protein powders.

The selling power of morally conscious is best summed up when you realise that even McDonalds is moving towards cage-free eggs.

Fresh and locally sourced

One of the biggest trends is for locally sourced produce. As a differentiator from the mass-produced approach of supermarkets, consumers are responding to locally grown produce or specific area produce (Manning Valley eggs, Gippsland cream) or to specific breeds (Angus beef etc).

But what ingredients will be in vogue?

Vegetables

Consumers know that they need to eat more greens but are not always keen. The addition of hidden vegetables in foods like fusion smoothies or high vegetable pastas is allowing people to increase their vegetable intake without facing the fact that they don't really like to eat vegetables.

Broccoli, brussels sprout, carrot, radish, beetroot and parsnip chips are just some of the dehydrated vegetables that are available.

Ethnic experiences

Well-travelled consumers are looking for authentic products from all over the globe.

Sriracha, a hot sauce from Thailand, is already a popular way to add instant ethnic cachet to everything from a simple sandwich to whole dishes. Ghost pepper from India, sambal from Southeast Asia, gochujang from Korea and harissa, sumac and dukka from North Africa are all predicted to rise in popularity this year.

Charred, burnt or smoked

Smoked is becoming a bit passé as consumers are now going for charred and burnt

foods. Charred vegetable sides, desserts with charred fruits or burnt-sugar toppings, cocktails featuring smoked salt, smoked ice or smoky syrups — this trend is covering all food groups.

This is quite interesting when you consider their simultaneous drive for healthful foods, as charring and burning foods is known to create carcinogens.

Uncommon meat and seafood

Lesser-known meat and seafood options and unusual cuts of meat are still featuring on menus across the country.

Less sugar

In the attempt to eat less sugar, natural sweeteners like stevia, maple syrup, agave syrup, monk fruit, date sugar and coconut palm sugar are in high demand. Even though the sugars in most of these products are metabolised in exactly the same way as the sucrose in cane sugar, they still appeal to consumers and are perceived to overcome the horrors of 'added sugar'.

Full-fat dairy

There is a distinct trend away from fat-free dairy product to full or reduced fat and it is forecast that full-fat will continue to gain favour.

Pulses

The United Nations has declared 2016 the International Year of Pulses, bringing awareness to these crops harvested for dry grain — lentils, beans, chickpeas, etc. The UN's goal is to heighten public awareness of the nutritional benefits of pulses as part of sustainable food production, aimed towards food security and nutrition.

Pulses fit in with the 'healthy 3' trend as they are truly functional foods, not just because of their protein and amino acid content, but also because of their positive impact on the environment.

So, there you have it, 2016 on a plate. Admittedly a full-fat, clean-label, no added sugar, morally acceptable, charred, healthy and convenient plate. □

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Ready meals are no longer the poor relation of the restaurant, catering and food service industries.

Creating restaurant-quality fare

on a high-volume basis

“

Savvy food manufacturers are recruiting seasoned, successful master chefs to their high-volume production kitchens ...

Hectic, demanding lifestyles are making both frozen and ready-to-eat meals increasingly popular, but consumers are no longer satisfied with convenience alone. Many are demanding restaurant, or even gourmet, quality.

Savvy food manufacturers are recruiting seasoned, successful master chefs to their high-volume production kitchens to work as executive chefs and new product developers so they can ensure their products satisfy the modern consumers.

“I believe we are entering an era where master chefs will play a much more important role in the development of higher quality products for the food processing industry,” said Chef Mike Matranga, new product development manager at Sandridge Food Corporation.

Matranga, a European-trained chef, said that food processors are beginning to recognise that culinary artists like himself play a vital role in the conception and preparation of high-quality food products. No longer can processors afford to depend on food scientists, technicians and engineers to fill this role.

“Although I have a great love of the gourmet restaurant kitchen and European foods involving delicately made soufflés or game dishes such as pheasant, I saw the opportunity to work at Sandridge as a chance to help bring a new level of quality and freshness in products that the general public can enjoy,” explained Matranga. “For their part, Sandridge decided to put a chef in the kitchen to create recipes and flavours the correct way, so that other chefs want to buy their products.”

Sandridge has been a leader in the North American refrigerated foods industry for more than 50 years. The company specialises in fresh refrigerated deli salads, sides, soups, sauces and specialty dishes created by culinary experts including Matranga.

Equipment challenges in moving from the kitchen to high-volume production

Justin Donaldson, executive chef at Unitherm Food Systems, agrees that there is a significant trend among food manufacturers to improve product quality and variety, and that the employment of distinguished chefs seems to play a significant role in achieving this goal.

Donaldson was himself a chef at two Michelin Star-rated restaurants as well as other award-winning locations. His role as executive chef at Unitherm is to help customers identify their goals. Donaldson then translates this to the engineering team — together they decide what needs to be modified, or in some cases radically changed, to most effectively achieve the specifications requested. This can be adjusting the targeted equipment to suit the customer’s needs, applying another process entirely or the birth of a brand new machine.

Unitherm manufactures a wide variety of thermal processing equipment, including direct flame grills and spiral ovens, which are included along with other advanced continuous cooking solutions at its test kitchen facilities.

Of course, chefs such as Matranga, who move from the bistro to the production environment, have to make adjustments including broadening their viewpoint to in-





clude high-volume manufacturing equipment.

Matranga found the mass production environment is totally different, particularly in terms of the equipment used and the scale of production.

"When you're used to a 100 L tilt kettle on a stove and then you're working in a plant that does 1000 kg batches of potato salad, or making your own mayonnaises in 350 kg batches, it's a little bit different than using a Cuisinart food processor or other restaurant kitchen tools. So you have to learn about different types of machinery and how they operate."

Donaldson said that although food processing equipment is usually much larger than and different to restaurant kitchens, including devices such as HMI (human-man interface) screen-based panels and other control systems that can 'recall' recipes and adjust batch sizes or ingredients is usually very helpful to chefs that are new to the production environment.

Matranga said two factors helped him successfully adjust: his ability to find new or temporary uses for equipment, which is a common 'makeshift' requirement of even

the finest restaurant kitchens, and his ability to collaborate on the design of production equipment, including working with in-house technicians and equipment manufacturers.

Getting access to innovation

"In some cases we work with the engineers at the equipment factory," said Matranga. "For example, at Unitherm we bought a grill that featured a steam searing option. I told their engineers that I needed the equipment to steam all the way across so that it could be used for a project I'm working on. So, they customised the steam manifolds accordingly; they work with you to conform the equipment to your needs."

Matranga believes that some equipment manufacturers are very proactive in developing systems that are essential for producing restaurant-quality foods with a high level of efficiency.

"Here again, Unitherm can serve as an example," he said. "They have a piece of equipment that is a combination oven. Their engineers know colour development is crucial, specifically on products in CPET trays such as scalloped potatoes and lasagne.

So, they've engineered a specific design that allows penetration across the surface of the product for colour development and browning; further, the same equipment can be used for pasteurisation."

Donaldson mentioned that having access to equipment that is versatile enough to be used for a variety of foods or recipes is also important to many executive chefs at food processing companies. For example, the spiral oven that Unitherm manufactures enables food processors to maximise productivity and profitability with a small footprint system that is ideal for cooking many types of foods.

As far as the future is concerned, Donaldson said he wouldn't be surprised if the trend towards restaurant-quality processed foods continues to build.

"I believe we may be reaching the point where food manufacturers are using safer, healthier ingredients," he said. "I believe that someday these types of foods will help societies overcome health issues such as obesity, diabetes and heart disease." □

Unitherm Food Systems BV
www.unithermfoodsystems.com

Homestyle poached eggs in a hurry

Sunny Queen Meal Solutions has solved the problem of how to serve rustic-looking poached eggs with soft, creamy yolks in a fraction of the time and minus the mess. With a handmade appearance and consistent taste, Sunny Queen Poached Eggs are pasteurised, halal certified, gluten-free and HACCP certified.

Made with fresh eggs from Sunny Queen farms, there's no waste and no mess — products can be heated and served within minutes. The eggs are available in two sizes: medium (60 mm diameter) and large (80 mm diameter) in cartons of 48 eggs.

The eggs are frozen, with a shelf life of nine months from date of production. The poached eggs can be defrosted in the fridge and heated in a microwave or combi oven.

Sunny Queen Meal Solutions
www.sunnyqueenmealsolutions.com.au



Single-serve dispensing system

Bulla Dairy Foods has released Bulla Real Dairy Soft, a single-serve dispensing system for commercial retailers.

The machine employs pod technology to dispense Bulla Dairy Soft with the touch of a button. The process requires no cleaning and is completely recyclable.

The pod system has four flavours: cookies and cream, chocolate, strawberry and vanilla.

Bulla Dairy Foods
www.bulla.com.au

Minimising waste in school lunches

The US Department of Agriculture's National School Lunch Program is the second-largest food assistance program in the United States, with federal spending of more than \$11 billion per year. It is a valuable nutrition safety net for school-age children that provides free, reduced-price or full-price lunches to more than 31 million children each school day. Currently around 45% of all food served at schools is wasted, with vegetables being wasted the most (51%) — even though it is well known that most children do not consume enough fruits and vegetables in their diet.

A recent study, led by a team of Texas A&M University System researchers, looked at the relationship between particular meals with particular vegetables. The researchers were interested to find how waste was affected when popular meals were combined with unpopular vegetables, popular meals were combined with popular vegetables, unpopular meals were combined with unpopular vegetables and unpopular meals were combined with popular vegetables.

The study found school meals paired with popular vegetables are less likely to wind up in garbage bins. The study was funded by the Alliance for Potato Research and Education and is published in the journal *Food and Nutrition Sciences*. It can be found at <http://bit.ly/1JEbPjz>.

When the most popular meals (chicken nuggets and burgers) were paired with less popular vegetables, such as leafy greens and broccoli, wastage of these vegetables increased.

Conversely, meals paired with potatoes — served as tator tots, oven-baked French fries and wedges — experienced the least amount of overall waste.

Does this mean if you want children to eat their leafy greens, you should make the meal pretty average?



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Modular commercial kitchen

B+S Commercial Kitchens' VERRO range integrates Asian and European lines to reflect Australia's cultural and culinary diversity.

Built from AISI 304-grade stainless steel, the range creates an efficient cooking environment, with flexibility and improved kitchen flow.

The modular approach means that chefs can select from a large range of combinations, mixing and matching to suit their needs. Features include futuristic trivets, pressed cooktops, solid and heavy-duty cabinet doors and gas burner options.

The fan-forced oven has the biggest internal gastronome capacity in its class, according to the company, and is designed to meet the needs of demanding kitchens.

B+S Commercial Kitchens
www.bscommercialkitchens.com

Genetically engineered salmon gets the green light

The US Food and Drug Administration has issued the first approval for a genetically engineered animal intended for food.

AquaAdvantage Salmon, developed by AquaBounty Technologies, is an Atlantic salmon that reaches market size more quickly than non-GE, farm-raised Atlantic salmon.

"The FDA has thoroughly analysed and evaluated the data and information submitted by AquaBounty Technologies regarding AquaAdvantage Salmon and determined that they have met the regulatory requirements for approval, including that food from the fish is safe to eat," said Bernadette Dunham, DVM, PhD, director of the FDA's Center for Veterinary Medicine.

Among the requirements AquaBounty Technologies had to meet are that food from the fish is safe to eat; the rDNA construct (the piece of DNA that makes the salmon grow faster) is safe for the fish itself; and the AquaAdvantage Salmon meets the claim about faster growth. In addition, the FDA determined that food from AquaAdvantage Salmon is as safe to eat and as nutritious as food from other, non-GE Atlantic salmon, and that there are no biologically relevant differences in the nutritional profile of AquaAdvantage Salmon compared to that of other farm-raised Atlantic salmon.

The approval does not allow AquaAdvantage Salmon to be bred or raised in the United States. It may only be raised in land-based, contained hatchery tanks in two specific facilities in Canada and Panama.

The FDA has determined that the approval of the AquaAdvantage Salmon application would not have a significant environmental impact because of the measures being taken to contain the fish and prevent their escape and establishment in the environment, including a series of physical barriers placed in the tanks and in the plumbing that carries water out of the facilities to prevent the escape of eggs and fish. In addition, the AquaAdvantage Salmon are reproductively sterile so that even in the highly unlikely event of an escape, they would be unable to interbreed or establish populations in the wild.



Redesigned combi-steamer oven range

The Convotherm 4 range of combi-steamer ovens has been redesigned, with an updated look and additional features.

The ovens offer a choice of panel interface: easyTouch, which delivers touch control via a 9" touch screen with a configurable user interface; and easyDial, with manual operation which displays all functions on the one level at a glance.

All ovens in the range now come with a range of additional features, including Advanced Close System+ (ACS+) for consistent cooking results; sure-shut function doors for tabletop appliances; HygienicCare antibacterial surfaces in the operating areas; and a USB-port integrated control panel.

The range has been redesigned with a space-saving footprint, making it suitable for open-plan restaurant designs where the kitchen is on display.

Seven sizes of ovens are available, each with six different model options, offering a total of 56 models.

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When in doubt throw it out

In spite of advances in modern technology and efforts to provide safe food, foodborne diseases remain a major public health concern. The reality is that there is always some risk of toxicity from eating any food.

Many consumers are convinced that they will avoid any foodborne illnesses by avoiding processed foods and conventionally farmed produce and relying on fresh organically grown produce. However, all produce including organically grown produce, contains naturally present toxic substances, for example:

- Members of the Brassica genus (which include broccoli, brussels sprouts, cabbage, cauliflower, mustard greens and radishes) also contain goitrogens, substances that suppress the function of the thyroid gland.
- Teratogenic glycoalkaloids (α -solanine and α -chaconine) are found in potatoes, particularly the peels, sprouts and sun-greened areas.
- Lectins, substances which bind to and agglutinate red blood cells, are present in lima beans, kidney beans, peas and lentils.
- Almost every fruit and vegetable contains natural pesticides that are rodent carcinogens, some at orders of magnitude higher levels than synthetic pesticides.

In truth, there is no escaping exposure to microorganisms, mycotoxins, heavy metals, bioactive substances and pesticides from food. Some of the most potent toxins known are produced from bacteria and fungi.

Good condition is the best start

One of the simplest and most effective ways of minimising exposure to toxic substances in food is to ensure produce is in good condition and to use it before it spoils.

Plants that are stressed contain more toxins than healthy plants; for example, concentrations of furocoumarins (sub-

stances with phototoxic and photomutagenic properties) in spoiled and diseased parsnips may be up to 2500% higher than fresh parsnips. Infection with fungal pathogens induces production of the furocoumarins timethylpsoralen and 8-methoxypsoralen in celery, increasing the potential for photo-dermatitis from celery handling. Synthesis of α -chaconine and α -solanine in potatoes is stimulated by light or mechanical injury, and concentrations of solanine in green or blighted potatoes are increased sevenfold. Bruised or soft fruits and vegetables can be contaminated with mould below the surface and should be discarded.

Washing helps

Wash produce thoroughly to remove toxins and pathogens that may be present on the surface of food. In the US the FDA recommends washing all produce thoroughly under running water before eating, cutting or cooking, even if the produce will be peeled before eating. Produce with rinds, grooves or waxy skin like cucumbers, citrus, melons and potatoes should be scrubbed with a brush.

Heat is an effective kill step

High temperature will kill most pathogens and inactivate heat-sensitive toxins — temperatures between 70 and 100°C kill most bacteria. High-temperature cooking destroys goitrogens in Brassica vegetables and lectins in beans. Cooking temperatures under 80°C do not destroy lectin so slow cooking is not advised for cooking beans.

Be cool with your storage

Contamination with pathogens is possible, even in foods that have been cooked at high enough temperatures to kill bacteria. Cooked food can become contaminated with bacteria from food handlers, uncooked or undercooked food or utensils. Bacteria grow

“

Plants that are stressed contain more toxins than healthy plants

most rapidly in the range of temperatures between 4 and 60°C, doubling in number in as little as 20 minutes. Cases of botulism have occurred in people consuming salads prepared from foil-wrapped baked potatoes and sautéed onions stored at room temperature.

The USDA recommends that food should not be left out of refrigeration for more than two hours and leftovers should be transferred to shallow containers for quick cooling and refrigeration within two hours.

To sum it up, the best way to reduce the potential for poisoning from a meal

is to use good quality produce and wash it before use, cook food at temperatures necessary to kill pathogens and inactivate toxins, and to keep perishable food at room temperature for less than two hours. A little common sense goes a long way in reducing the potential for poisoning from food. □





Sliced pears in natural juice

Riviana Sliced Pears in Natural Juice are sweet and juicy treats, suitable for use in baking applications like flans or pies, as part of a breakfast buffet, as an accompaniment to other desserts or simply with ice-cream.

The pears are packaged in an easy-to-handle 3 kg can, suitable for many different needs.

The range also includes halved pears in natural juice, fruit salad, two fruits, peaches and more.

Riviana Foods
www.rivianafoodservice.com

Ready-to-serve egg products

Sunny Queen Meal Solutions has launched a range of ready-to-serve egg products that offer commercial caterers an alternative way to prepare fresh egg dishes easily and safely.

The range includes gourmet omelettes, scrambled egg mixes, egg bakes and poached eggs. All products can be prepared in a microwave, grill, combi or conventional oven; are free of gluten, artificial colours and flavours; and are HACCP certified. They are made from fresh eggs and then either pasteurised or fully cooked, for consistency and food safety, before being snap frozen.

The products are suitable for a range of environments including cafes, health and aged care services, food services companies and those catering for large groups such as the defence force, mining companies, workplace cafeterias and airlines.

Sunny Queen Meal Solutions
www.sunnyqueenmealsolutions.com.au

Revolutionising ready meals

Food industry supplier OAL Group has announced a research project that the company hopes will revolutionise ready meals.

The project, part-funded by Innovate UK, will last two years and aims to develop an innovative cooking and cryogenic cooling system for ready meals in order to improve product quality and healthiness. The project seeks to help tackle the current levels of food waste and increase the speed of production.

The project, to be undertaken at the University of Lincoln's National Centre for Food Manufacturing, will see OAL partner with BOC, the University of Lincoln and Iceland Manufacturing. It will combine OAL's rapid-cooking Steam Infusion Vaction technology with a cryogenic cooler from BOC.

The team plans to gain a full scientific understanding of the effects of rapid cooling using liquid nitrogen on sauces and soups and the vegetables, fruits and meats they contain in order to maximise nutritional values. Product shelf life could also be increased and waste minimised, as the group hopes to develop a fully flexible process that will reduce production, cleaning and changeover times for increasingly variable supply requirements.

Home-style slices

Springhill Farm is a family-owned and operated business based in regional Victoria, with over 30 years' experience in producing delicious home-style slices. The business caters to many catering requirements, with a customer base that includes Qantas Catering, Coles Supermarkets, Spotless Catering and Hudson's Coffee.

Springhill slices and hedgehogs are available individually wrapped for minimum wastage or pre-cut and vacuum-packed for freshness. The products feature a long shelf life, in a range of flavours, including gluten-free and nut-free options.

Springhill Farm
www.springhillfarm.com.au



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Before and after mixing results with the GAROS GBT 300

VEGETABLES SALAD



After 1 minute

CHICKEN COATED WITH SPICES



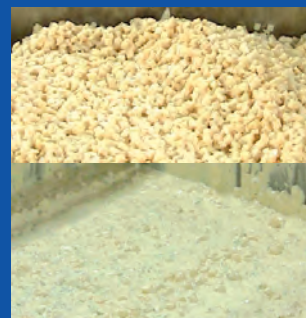
After 5 minutes

MEAT COATED WITH SPICES



After 1 minute

MAYONNAISE BASED POTATO SALAD



After 12 minutes

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The case for tamper-evident packaging

Packaging is critical to food, for keeping food fresh as well as safe to eat. Packaging security is just as important as it prevents everything from consumer tampering to bioterrorism to product counterfeiting.

Tampering involves the intentional altering of information, a product, a package or a system.

Tamper-evident packaging has an indicator or barrier to entry which, if breached or missing, can reasonably be expected to provide visible or audible evidence to consumers that tampering has occurred.

Tamper-evident solutions may involve all phases of product production, distribution, logistics, sale and use. No single solution can be considered as 'tamper proof'. Most times many levels of security need to be considered to minimise the risk of tampering. Some considerations are:

- Identify all feasible methods of unauthorised access into a product or package. In addition to the primary means of entry, also consider secondary or 'back door' methods.
- Improve the tamper resistance by making tampering more difficult.
- Add tamper-evident features to help indicate the existence of tampering.
- Educate consumers to be aware of tampering.
- Ensure that the window of opportunity to tamper is minimised.

A fundamental reason to incorporate security features into packaging is to provide protection against vindictive tampering, or at least evidence of an attempt.

Threats of tampered baby food have already been used by extortionists several times. Great Britain faced its worst case of food tampering in 1989, when slivers of glass, razor blades, pins and caustic soda were found in products of two baby food manufacturers —

H.J. Heinz and Cow & Gate. The scare began with a blackmailer trying to extort \$1.7 million from Heinz and then escalated as copycats capitalised on the initial report.

Tamper-evident packaging was seen to have the potential to overcome the public concern about purchasing deliberately contaminated product. Jars of food items soon started appearing with a metal bubble-top lid, commonly known as a 'safety button', which popped out if the jar had been opened.

Newer jars of food tend to come with a plastic shrink-sleeve on the edge of the lid, which is removed when opening.

The Johnson & Johnson Tylenol Crisis of 1982 involved over-the-counter medications. Due to various regulations, many manufacturers of food (and medicine) now use induction sealing to assist in providing evidence of tampering. Packaging that tears open in a ragged manner or otherwise cannot be resealed is also used to help indicate tampering.

In many cases, multiple layers or indicators are used because no single layer or device is tamper-proof. Consideration should be given to unique indicators (which are to be changed regularly to avoid counterfeiting).

End users and consumers need to be educated to keep an eye open for signs of tampering, both at the primary and secondary level of packaging.

Track and trace

Processors and their suppliers are developing a variety of packaging technologies to keep food safe from such interference and to provide fast, thorough product tracking and tracing in the event of a recall.

Covert and overt packaging techniques are developing more and more and becoming substantially more sophisticated. Covert techniques require a scanner or other device for detection. Marking packages with invisible, ultraviolet-luminescent ink is an example of

covert security. Overt refers to something visible on the package, such as a batch code or tamper-evident band.

The radiofrequency identification (RFID) tags consist of a tamper-evident technology to ensure that the RFID tag has not been interfered with after initial positioning on an article. These tags, if tampered with, become disabled, thereby preventing use of the tags on counterfeit or substitute products, and ensuring that detecting a working tag also means identifying the original product to which it is attached. As food and beverage companies increasingly experiment with RFID to satisfy retailer demands, they are enjoying the side benefit of greater control of cases and pallets moving through the supply chain. The heightened control increases the security of products during distribution.

The time has come for tamper-evident packaging to be de rigueur on all products that are eaten, inhaled, absorbed into the blood stream or touch the body.



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Education Director, Australian
Institute of Packaging (AIP)
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Mobile printers for field-based applications

Zebra Technologies Corporation has launched the ZQ500 mobile printer series for field-based applications.

The 3" ZQ510 and 4" ZQ520 printers are portable, print-on-demand devices that combine a military-grade design with simple functionality for printing solutions for the transportation and logistics, manufacturing and government markets.

The lightweight ZQ500 series can be used for a variety of mobile applications including field sales and service receipts and proof of delivery. The easy-to-set-up printers feature a simple design offering an intuitive display with only three large buttons and no menus — increasing accuracy for gloved hands and fingers.



Featuring a rugged military-grade design for high durability and reliability in the toughest environments, the printer series offers: IP54 (or IP65 with optional exoskeleton case) rating for protection against dust and liquids; MIL-STD 810G military qualifications for shock, vibration and temperature exposure; and protection for the media from being ejected when the printer is dropped.

Cold-temperature compensation automatically optimises and balances print speed and quality in cold temperatures, making the device suitable for direct-store deliveries that require colder transportation.

The ZQ500 series comes standard with the latest Bluetooth Smart Ready 4.0 (low energy) connectivity, Print Touch device pairing and support for all major smartphone and tablet operating systems. The printers are also Zebra's first to support a secondary Bluetooth channel for simultaneous operations, enabling developers to create new device management solutions and helping increase worker productivity.

Zebra Technologies
www.zebra.com

Multi fruit juicer

JBT Corporation has launched the Fresh'n Squeeze Multi Fruit Juicer for its high-grade fruit juice system. The machine, which is capable of producing 100 L of juice/h, is suitable for hotels, restaurants, coffee shops, convenience stores and juice bars.

The range also includes the Fresh'n Squeeze Produce Plus Juicer, suitable for producing smoothies and fresh vegetable juices.

The juicers are designed to provide a fresh-tasting, high-quality juice by segregating the oil content, which is responsible for the bitter taste. The system is suitable for processing fruits, such as apples, grapes, pears, strawberries, pineapples, mangos, guava and kiwifruit, as well as vegetables, such as carrots, celery, tomato and beetroot.

The juicing process eliminates unwanted seeds, peel and excess fibre, and batch processes whole fruits, which saves time on labour and provides high quality and yield. Its sanitary design is easy to clean and is completely enclosed with no exposed parts, for operator safety.

JBT FoodTech
www.jbtfoodtech.com

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X-ray inspection system

Anritsu has launched the XR75 X-ray Inspection System. Available in Australia and New Zealand from Walls Machinery, the system is designed to provide good sensitivity at lower energy levels for extended life cycles.

The system features a long-life generator which enables longer component lifetime while using less energy. The low-output X-ray generator reduces heat generation, eliminating the need for a cooling system and resulting in a 30% reduction in power consumption, according to the company. Overall, the system is said to reduce lifetime operating costs by over 20% compared to other systems.

Capable of detecting metal as small as 0.4 mm in diameter and glass and stone of 1 mm in diameter, the inspection system can pinpoint product shape defects and check for product integrity. Sanitary design improvements include angled surfaces for water run-off, removable curtains for easy cleaning and tool-less belt removal.

Walls Machinery Pty Ltd
www.wallsmachinery.com.au

Food tech start-up connects food with appliances

A company that manages and connects food information has been launched at the Smart Kitchen Summit in Seattle, with initial funding of over US\$25 million.

Through its cloud-based platform, Innit combines personalised culinary and nutritional science with information technology, connecting food to appliances, devices and users in order to enhance how consumers select, prepare and cook food.

"We all want to make food tastier and healthier but, until now, we've had limited information on the food we eat," said Eugenio Minvielle, founder and president of Innit. "Innit applies culinary and nutritional science to unlock information within food, empowering people to live tastier, healthier lives." Innit is seeking to leverage technology innovations such as advanced sensors, smart appliances, machine learning and on-demand delivery models.

Based in Silicon Valley, Innit's founders bring together experience in food, technology and science and will work with industry partners to digitise food and enable the connected kitchen.

"One of the biggest areas of innovation in the smart, connected home over the next decade will be the kitchen, growing from \$694 million in 2015 to over \$10 billion by 2020," said Michael Wolf, chief analyst at NextMarket Insights and creator of the Smart Kitchen Summit. "Innit's vision to better utilise and connect food information is a sign of growing innovation within the smart kitchen marketplace."

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The Formatic range of machines will form and portion products including meats, chicken, fish, cheese and cookie dough's into a variety of shapes. If you are looking for a forming machine which is easy to operate and clean, involves minimal pressure and mixing of your product, and has low maintenance, then look no further -

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Craft beer outselling regular

as beer snobbery takes over

It seems that beer is following the same path as coffee and wine, with 'craft' and 'artisanal' options gaining consumer attention. Driven by a need for an 'experience', beer consumers are seeking variety in the beers they purchase.

Clipp, the provider of a mobile payment and deals app for bars, pubs and restaurants, collected beer purchase data in five beer categories — craft*, regular, cider, low-alcohol and special-diet — from its 55,000-strong customer base across more than 600 establishments Australia during September and October.

Analysis of this data revealed that more urbanites are consuming craft beer — beer made traditionally by small breweries in limited quantities — rather than the regular beer Australians have traditionally known and loved.

With urban areas leading the charge, craft beer accounted for 45% of all purchases nationally, with regular beer coming in second at 40%. Melbourne takes the craft beer crown, with the highest percentage of craft beer purchases (55%) against just 34% of regular beer purchases. Perth comes in second, with 48% of craft purchases and regular beer at 35%. Sydney is third, with 46% of craft beer purchases and regular beer at 39%.

In contrast, Brisbane and the Gold Coast, Adelaide and Darwin are holding onto their love of regular beer, with this category accounting for 59%, 63% and 65% of all beer purchases respectively.

Greg Taylor, the CEO and co-founder of Clipp, says: "With the variety of beers on offer at Australian establishments, urban beer lovers now regard beer as an experience — much like they do wine and coffee.

People seek to be more adventurous and it's common now to be offered 'beer tastings' at pubs to enable you to choose your preferred beer.

"Beer drinkers also like the idea of supporting a small craft brewery and its story, and they like the personality of the craft brand. As a consequence, their craft beer of choice becomes a talking point among their friends and better enables them to show their own personality. Additionally, I believe people are now eating better and are seeking to drink better."

When it comes to spend volume, the number one craft beer Aussies purchased most — and are expected to purchase over Christmas — is James Squire, followed by Stone & Wood, Little Creatures, Feral and then Young Henrys.

"Smaller breweries are catching up to the big players and showing their prevalence in the industry. The craft beer company Young Henrys, from Sydney's Newtown, made it into the 'top five' list nationally, which is a great achievement for a relatively newcomer on the scene," said Taylor.

Interestingly, craft beer consumption is driven mostly by those in their 20s and 30s, with consumption consistently higher the lower the age bracket: 54% of those in their 20s purchased craft beer, compared with 51% of those in their 30s, 42% of 40-somethings, 31% of 50-somethings and just 15% of those over 60.

A city-by-city analysis by Clipp reveals Aussies in each city share similar tastes in craft beer. In regular beer, Aussies have different favourites depending on where they are from, with Carlton Draught the only beer to make it into the top five rankings across all cities.



**National — craft beer (45%)**

1. James Squire
2. Stone & Wood
3. Little Creatures
4. Feral
5. Young Henrys

National — regular beer (40%)

1. Carlton Draught
2. Hahn
3. Coopers
4. Victoria Bitter
5. Peroni (imported)

Sydney — craft beer (46%)

1. James Squire
2. Stone & Wood
3. Young Henrys
4. Little Creatures
5. Fat Yak

Sydney — regular beer (39%)

1. Coopers
2. Hahn
3. Carlton Draught
4. Pure Blonde
5. Peroni (imported)

Melbourne — craft beer (55%)

1. Little Creatures
2. Feral
3. James Squire
4. Holgate
5. Stone & Wood

Melbourne — regular beer (34%)

1. Carlton Draught
2. Victoria Bitter
3. James Boags
4. Peroni (imported)
5. Coopers

Brisbane & Gold Coast — craft beer (27%)

1. James Squire
2. Stone & Wood
3. Little Creatures
4. Fat Yak
5. 4 Pines

Brisbane & Gold Coast — regular beer (59%)

1. XXXX
2. Hahn
3. Corona (imported)
4. Carlton Draught
5. Tooheys

Adelaide — craft beer (29%)

1. Little Creatures
2. James Squire
3. Pike
4. Stone & Wood
5. Feral

Adelaide — regular beer (63%)

1. Coopers
2. Hahn
3. XXXX
4. Carlton Draught
5. Peroni (imported)

Perth — craft beer (48%)

1. James Squire
2. Feral
3. Little Creatures
4. Stone & Wood
5. Mountain Goat]

Perth — regular beer (35%)

1. Hahn
2. Carlton Draught
3. Heineken
4. Guinness (imported)
5. Stella Artois (imported)

Darwin — craft beer (16%)

1. Little Creatures
2. James Squire
3. Gage Roads
4. Feral

Darwin — regular beer (65%)

1. Coopers
2. Carlton Draught
3. XXXX
4. Guinness (imported)
5. Hahn

**Clipp's craft beer data includes craft beers produced by the major beer manufacturers, such as James Squire.*

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Nutrition labelling study uses smartphone app

A study on nutrition labelling using smartphones is underway in New Zealand.

The Starlight trial uses smartphone technology to deliver the study intervention (nutrition labels) to participants and to record participant information.

"New front-of-pack labels deliver simple, 'at-a-glance' nutrition information to buyers. Our aim is to see if these labels have an effect on the healthiness of foods bought by New Zealand shoppers," says lead researcher Cliona Ni Mhurchu, professor of nutrition at National Institute for Health Innovation (NIHI) at the University of Auckland.

Eligible participants download a free study-specific interactive smartphone app which guides them through all stages of the study, from registration to final data collection.

The app enables completion of study questionnaires, delivery of the allocated nutrition labels (participants scan bar codes of food products to view the nutrition labels on their smartphone screen), collection and transmission of food purchasing data, and the delivery of regular reminder messages.

"Poor diets and obesity are leading risk factors for ill-health in New Zealand," says Professor Ni Mhurchu.

"The New Zealand Government recently announced initiatives to prevent and manage obesity in children and young people. One of these initiatives was related to food labelling," she says. "Nutrition labels inform consumers about the composition of foods and can support healthier choices, but many people find current nutrition labels hard to understand."

More than 1400 people have taken part since the study started in September 2014.

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Smart wireless temperature monitoring via internet

HLP Controls' Model G7 monitors temperatures and humidity remotely via PC, tablet or mobile phone (iPhone or android). Users can check on their storage or production area temperature and humidity from anywhere they have access to the internet.

The monitor is suitable for food storage facilities, processing plants, hospitals, catering and laboratories — anywhere where the temperature or humidity is critical and where a failure of a storage area could result in loss.

Wireless temperature sensors are installed in critical areas and a base station placed in a central location connected to the router. Up to 27 locations can be monitored from the one station. Installation and set-up is straightforward.

When users log-in to check the temperature/humidity they can also change set points. The screen will show real-time graphs of each sensor. Should there be any outside of the set value it will flash and audibly show as an alarm on the screen to draw the user's attention. Any alarm situation can also be sent automatically via email so that users can log in from their location and check on what's happening in real time. Data is stored on a safe and convenient cloud server so it is accessible at any time. Reports can be printed from history when needed, eg, for food inspectors.

HLP Controls Pty Ltd
www.hlpcontrols.com.au

Granola baking oven

Baker Perkins has developed a process for the production of baked granola cereal and baked granola bars. Granola can be formed into a range of products, enhanced with inclusions such as dried fruit, nuts, seeds, honey or chocolate chips.

Baking, rather than conventional drying, is the key feature of these lines, as baking is said to impart improved taste, appearance and texture compared to the drying process.

Crunchy granola is made from oats by mixing a blend of dry ingredients with oil and sugar to form a mass. This is formed into a loosely compacted sheet of constant thickness that is laid onto the oven band for baking; the texture can be lightened by including small pieces formed from other grains.

The TruBake oven is suitable for granola baking, with convection air circulating to give an even bake. Assisted cooling at the oven discharge binds the mass together to give the characteristic baked granola crunch.

After baking it is kibbled to produce a smooth, bagged cereal of free-flowing consistency; final piece size can be adjusted to suit customer requirements.

Bars are slit and guillotined before packaging.

Baker Perkins
www.bakerperkins.com



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Fresh pathways for Australia's fresh produce

A report by Rabobank has identified 'disruptive forces' that are at work in Australia's fresh fruit and vegetable retail market, with a combination of new market trends presenting both challenges and opportunities for the horticulture industry.

The report, titled 'Fresh pathways to market', says recent developments — including the rise of 'hard discounter' retailers, the growth in online shopping and the 'premiumisation' of fresh produce consumption — are seeing Australia's fruit and vegetable suppliers face greater complexity as retailers look for more customised and differentiated supply solutions.

Report author Marc Soccio says produce has become the key strategic battleground for retailers looking to compete — in both the physical and digital marketplaces.

"It is well proven that the fresh produce section in the grocery store is the key driver of store traffic, average spend and store loyalty," Soccio says.

"So in today's market, with consumers becoming increasingly promiscuous and piecemeal in their shopping behaviour, retailers need to get them in the door with a compelling fresh fruit and vegetable proposition.

"This is having far-reaching consequences for fresh produce suppliers, as they need to continually deliver product and market-

ing solutions that resonate with changing shoppers' needs and behaviours," he says.

The future of grocery retail channels

The report says that with growth in per-capita fresh fruit and vegetable consumption remaining fairly stagnant, there is growing opportunity for suppliers to tap into the 'premiumisation' trend, with shoppers increasingly willing to pay more for convenient, interesting and healthy products.

For suppliers, this may mean giving up some production yield in favour of a more value-oriented strategy that provides the consumer with products that they're willing to spend up for.

The report says it is just as important to find the right retail partner to bring the products to market. In an increasingly diverse retail market, suppliers are faced with a wider array of business models — from hard discounters taking market share from the full-service supermarket chain model, to the evolution of independent non-supermarkets and high-street produce retailers, which aim to provide meaningful points of difference to compensate for a relative lack of convenience.

Soccio says understanding this complex and changing market requires a tailored approach according to the type of produce in question, with the retail route to market varying considerably for different fresh fruit and vegetable categories.

The rise of online grocery shopping

While Australian consumers have been somewhat hesitant to adopt the online grocery shopping phenomena — currently only around 3% of the population buy their groceries online — there seems to be little question that its appeal will continue to grow strongly.

Retailers are increasing their investment in online shopping channels, and suppliers should also be thinking about how their products, marketing communications and supply chains could adapt to this online model.

While the perishable nature of fruit and vegetables create more 'last-mile logistical challenges', this can be overcome with customised products that incorporate packaging and logistics solutions to minimise the impacts of product handling.

"However, one of the biggest opportunities that the digital world brings to fruit and vegetable suppliers is in opening up more direct communication channels with their consumers," Soccio says.

"For example, suppliers can provide fun, easy and enjoyable serving suggestions — all with the view to translate this into purchasing decisions, whether the consumers are commuting, out shopping or transacting in the comfort of their own home." □

Rabobank Australia
www.rabobank.com.au

Pack-and-seal systems

Comprising custom packaging, lidding and machinery solutions, Confoil's Pack and Seal systems can be tailored specifically for kitchen layouts, staff ratios, cooking methods and packaging requirements.

Meals are packed using paperboard or pulp trays which act as a natural insulator, meaning the packaged meals are pleasant to handle after heating.

The trays are not brittle and can withstand temperatures of -40°C to 210°C.

The transparent, heat-sealable lids allow the meal to be viewed, and a generous film overhang allows for simple removal of the lidding.

Packaging options range from large and smaller portion single-serve meal sizes to pulp containers with two or three separate compartments. Dessert- and soup-specific packaging is also available. Many of the trays can also be custom-printed with a company logo, corporate colours or message.

To complete the system, a choice of heat-sealing machinery is available, from ergonomic benchtop sealers to inline automatic models.

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Kronen provides gentle processing for delicate salads



Kanes Foods is one of the largest food manufacturers in England, producing a large range of washed and ready-to-eat salads and prepared vegetables.

The company approached Kronen to develop an optimised manufacturing process incorporating a thorough and careful wash and treatment, both to prevent damage to the product and to improve its quality and durability.

The new Kronen lines are an extension of four existing salad washing lines.

Weighing belts and sorting systems transport the salad products to be washed to a water flume (for immersion or prewatering) in a GEWA 5000B PLUS washing machine. The machine is equipped with an insect drum, WMS (water management) system, automatic filling and emptying system and lateral fines removal drum. The specially developed stainless steel cover over the entire washing unit can be raised pneumatically.

Control of the entire production line takes place in one control box via a touchpad.

After the washing process, the salad products are transported over the outfeed belt and then gently flushed via a flume into the large bore piping system for posttreatment. The piping system is built in a compact and modular design and the dwell time is flexibly adjustable across the full range. At two viewing windows, the product flow can be checked visually.

The washed, treated salad products are gently carried by an innovative outfeed belt system (equipped with a suction fan below the conveyor belt and two tapping units) for further processing and drying.

There, the products will be dewatered to remove excess water. In combination with the air knife system which is placed on top and below the conveyor belt discharge, swept water can be reduced by more than half.

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The Alfa Laval Hybrid Powder Mixer can mix and pump wet and dry ingredients into a homogenous blend using only a single motor drive, including efficient mixing in the associated production vessel, when used in combination with the Alfa Laval Rotary Jet Mixer.

The powder mixer combines pump and powder-dissolving technologies in a single unit. It is capable of drawing powder into the unit while simultaneously pumping the resulting process liquid at pressures up to 4 bar, with no need for a separate discharge pump. It pre-blends the powder and liquid before the mixture enters the high-shear stage, which contributes to faster and more effective dissolution.

The mixer creates high dynamic shear in several different steps, which require less energy to ensure complete dissolution of the powder. The mixer can also be used as part of a cleaning-in-place (CIP) system.

As the unit uses only one electric motor for powder mixing, pumping and CIP, it offers users reductions in installation costs, lower power consumption (up to 50% energy savings), simplified maintenance due to fewer components and a reduction in processing time from the fast and homogenous powder mixing at high dry matter concentration.

Alfa Laval Pty Ltd

www.alfalaval.com.au

Microwaveable packaging

Coveris has launched the Ready-Fresh range of microwaveable packaging in Europe.

Suitable for hot or cold food, the range has black PP bases and clear PP lids. Both base and lid can be safely used in the microwave or hot cabinet, allowing convenience foods to be enjoyed at their ideal temperature.

The range is currently available in various sizes, including 700 mL, 1 L, two compartments, and a pack for a whole cooked food such as chicken.

The range is designed for both ready meals and public catering.

Coveris Holdings
www.coveris.com



Hands-free hand washing

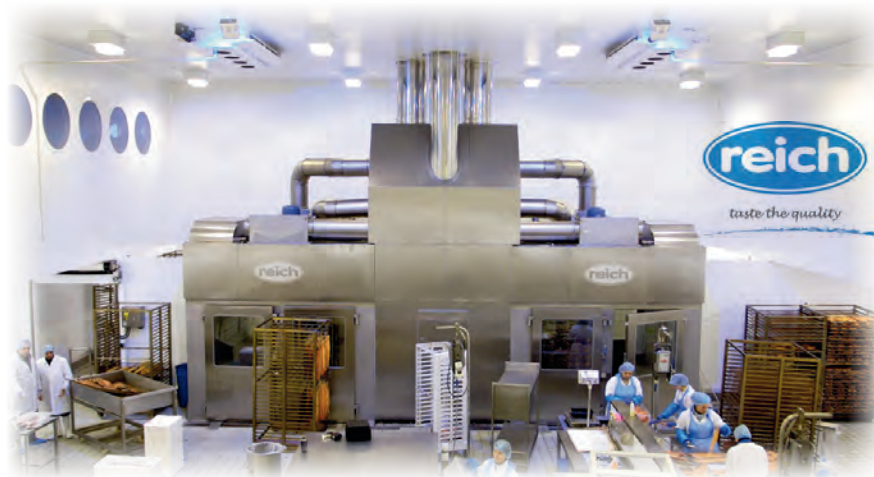
Enware's Enmatic range of hands-free electronic tapware has been designed for public amenities, as well as commercial food and healthcare facilities.

The mixers are activated via an infrared sensor with triangulation technology to provide reliable operation with less interference from nearby reflective surfaces. The automatic shut-off feature allows for significant water savings, as well as reducing the risk of hand cross contamination.

Optional temperature adjustment allows users to adjust the water temperature by rotating the knob on the side of the tap, making the tapware suitable for home and care environments where both cold and warm water are required. The tapware is available in a variety of models suitable for different applications: Cubista is a designer model for luxury hotels, bars and restaurants; Vega is an easy-clean, robust design for office buildings, shopping centres, licensed clubs and childcare centres; and Viva is a basic model for budget-conscious applications.

Enware Australia Pty Ltd
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High-tech wine labels find the perfect temperature

Family winery Taylors Wines is on a mission to educate Australians about the impact of temperature on the taste of wine.

The company's media campaign 'Live Better by Degrees' aims to help everyday wine drinkers enjoy what's in the glass a bit more and appreciate wine the way the winemaker intended.

"Our warm temperatures are perfect for cultivating vineyards, but as the vast majority of us drink red wines at 'room temperature', most red wine is being drunk far too warm — and anyone who has drunk a warm beer knows that temperature affects flavour," said Tony Singleton, managing partner/head of planning for Mr Wolf, the creative agency responsible for the campaign.

Taylors' consumer research found that eight out of 10 Australians drink their reds at room temperature, meaning that every week, 2.5 million bottles of red wine are inadvertently being drunk in a way that strips them of their character and subtlety.

To assist quaffers to identify if their wines are at optimum temperature, a temperature sensor has been placed on the back label of all Taylors Estate and Promised Land wines. Utilising thermochromatic ink technology, the sensor changes colour depending on the temperature of the wine, turning green when white wine is just right to pour and turning fuchsia for red wines.

Temperature is a critical element in maximising a wine's flavour. Experts recommend that most red wines should be served between 12 and 18°C, while the average

“

To assist quaffers to identify if their wines are at optimum temperature, a temperature sensor has been placed on the back label of all Taylors Estate and Promised Land wines.

Australian home, particularly in summer, is at or above 22°C. And while white wine is better enjoyed on the chillier end of the thermometer (between 6 and 12°C), bringing down the temperature too low will mask the wine's unique characteristics.

Taylors Wines Chief Marketing Officer Cameron Crowley said the campaign brings attention to an issue that most Australian wine drinkers don't even realise exists.

"Taylors is passionate about helping consumers get the best experience when they enjoy our wines, and this idea gives us a true point of difference while showcasing our heritage of innovation," Crowley said.

"Once we understood the issue of temperature, we immediately jumped into testing product viability — we wouldn't accept anything but a 1°C accuracy range, and our label printers were up to the challenge to accomplish this task.

"We've received an amazing response from the new sensors from our retail partners and distributors around the world, as it gives us a new way to enhance the wine drinking experience for our consumers." □



Practical guide to reducing food waste

Each year, approximately 36 billion kg of food waste is discarded in US landfills. The issue is now receiving national attention following the announcement of USDA and EPA's first-ever national food waste reduction goals, which aim for a 50% drop by 2030. To provide assistance for corporations, The Food Waste Reduction Alliance (FWRA) has released a guide with practical steps and examples to help food manufacturers, food retailers and restaurants cut food waste.

The Best Practices and Emerging Solutions guide highlights ways companies can begin or expand their food donation or food waste diversion programs. Compiled by FWRA, a cross-sector industry initiative led by the Food Marketing Institute (FMI), the Grocery Manufacturers Association (GMA) and the National Restaurant Association (NRA), the guide focuses on strategies food manufacturers, retailers and restaurant and foodservice operators can employ to keep food out of landfills, and to reduce food waste at the source. The guide includes case studies, model practices and emerging solutions from more than 30 member companies throughout the food chain. Some examples of the success stories include:

- The Campbell Soup Company's partnership with the Food Bank of South Jersey and the NJ agricultural community in which undersized peaches headed for landfill were given new life as shelf-stable peach salsa. Just Peachy is sold at retail with proceeds benefiting the Food Bank of South Jersey.
- ConAgra Foods, Inc.'s strategy to change the way they transition from one pudding flavour to another in a manufacturing facility by creating blended flavours rather than waste product while flushing the manufacturing line. The mixed-flavour pudding is now donated, reducing manufacturing loss and getting food to those in need.
- Dramatic reductions in food waste seen by food service operators such as Aramark Corporation and Sodexo just by eliminating trays in dining halls and cafeterias.
- Darden Restaurants' and Yum! Brands' partnership with the Food Donation Connection to establish the Darden Harvest and Yum! Harvest programs which coordinate food donations to food banks and other charitable organisations as an alternative to discarding prepared foods.
- Supermarkets such as Hannaford Supermarkets and Weis Markets, Inc. are making strides in improvements to their food donation programs, enabling them to share best practices, helping others to do the same.



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Go easy on the trans fats



Trans fats — not saturated fats — are linked to greater risk of death and heart disease, with higher trans fat intake associated with a 20–30% increased risk.

Contrary to prevailing dietary advice, a recent evidence review, published in *The BMJ*, found no excess cardiovascular, stroke or type 2 diabetes risk associated with intake of saturated fat. In contrast, research suggests that industrial trans fats may increase the risk of coronary heart disease.

The study confirms previous suggestions that industrially produced trans fats might increase the risk of coronary heart disease and calls for a careful review of dietary guidelines for these nutrients.

Guidelines currently recommend that saturated fats are limited to less than 10% of energy, and trans fats to less than 1%, to reduce risk of heart disease and stroke.

Saturated fats come mainly from animal products, such as butter, cow's milk, meat, salmon and egg yolks, and some plant

products such as chocolate and palm oils. Trans unsaturated fats (trans fats) are mainly produced industrially from plant oils (a process known as hydrogenation) for use in margarine, snack foods and packaged baked goods.

To help clarify these controversies, researchers in Canada analysed the results of observational studies assessing the association between saturated and/or trans fats and health outcomes in adults.

The team found no clear association between higher intake of saturated fats and all-cause mortality, coronary heart disease (CHD), cardiovascular disease (CVD), ischemic stroke or type 2 diabetes, but could not, with confidence, rule out increased risk for CHD death. They did not find evidence that diets higher in saturated fat reduce cardiovascular risk.

However, consumption of industrial trans fats was associated with a 34% increase in all-cause mortality, a 28% increased risk of CHD mortality and a 21% increase in the risk of CHD.

Inconsistencies in the included studies meant that the researchers could not confirm an association between trans fats and type 2 diabetes. They found no clear association between trans fats and ischemic stroke.

The researchers point out that the certainty of associations between saturated fat and all outcomes was “very low”, which means that further research is very likely to have an important impact on our understanding of the association of saturated fats with disease. The certainty of associations of trans fats with CHD outcomes was “moderate” and “very low” to “low” for other associations.

The researchers also stress that their results are based on observational studies, so no definitive conclusions can be drawn about cause and effect. However, they say their analysis “confirms the findings of five previous systematic reviews of saturated and trans fats and CHD”.

They conclude that dietary guidelines for saturated and trans fatty acids “must carefully consider the effect of replacement nutrients”. □





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Vegetable spirals

Vegetable spirals can be used to create less calorific replacements for carbohydrates such as pasta, mash, rice, couscous and bread.

Kronen's S 021 Vegetable cutting machine can prepare decorative and tasty spirals of carrots, potatoes, pumpkins, radishes, celeriac, beetroot, zucchinis, etc quickly and simply.

By means of variable tools, a multitude of spiral thicknesses (including 2 x 2 mm, 2 x 8 mm, 2 x 10 mm — other versions on request) can be produced with a maximum product length of 250 mm.

The equipment can add a new touch to conventional product presentation with attractive, fine, springy strands similar to cooked spaghetti or tagliatelle.

Reactive Engineering Pty Ltd
www.reactive-eng.com.au



Antibacterial expanding foam packaging

Erze Ambalaj, Turkish producer of expanding foam packaging for food, has collaborated with biochemistry developer Parx Plastics to develop antimicrobial packaging.

The technology, which derived from bio-mimicry and free-from biocides, can reduce the growth of *Salmonella*, *Listeria*, *E.coli* and *Staphylococcus aureus* on the packaging.

The antibacterial performance, measured according to ISO 221 9 6 by the University of Ferrara in Italy, is 92.5% against *Listeria*, 96% against *Salmonella* and up to 96.5% against *S. aureus*. According to the company, this results in 93–97% less bacteria on the surface of the material after 24 hours, when compared to normal packaging of the same kind.

The technology, which has been applied to the company's entire packaging range, uses a trace element to bring forth a change in the materials' mechanical/physical property characteristics, which impacts bacterial growth. The trace element used is compliant to the European regulations for plastics that come in contact with food and does not migrate from the packaging.

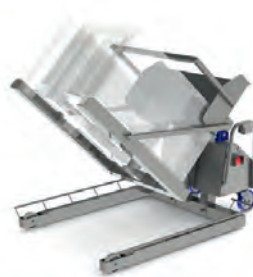
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Cool kitchens:

the next generation of must-haves

The next generation of home cooks will cook in kitchens of interconnected smart appliances, 3D printers and touchscreen controls that will simplify food preparation, create customised meal solutions and produce far less waste. That's the prediction from the Institute of Food Technologists (IFT).

Some of the high-tech features we can expect to see in home kitchens include:

1. Appliances that are wired to actively monitor their contents and reorder when it senses supplies are running low. Products that are near their expiration dates would be moved closer to the front.

2. Individual family members could print their choice of dinner when they want it, using a benchtop 3D printer that takes into

account likes and dislikes, food allergies and nutritional needs.

3. Induction cooktops using magnetic energy and compatible pans will heat up only when a pan is placed on it; the rest of the surface can be safely used for other tasks.

4. Benches, sinks and cooking surfaces can move up or down at the touch of a button, appealing to the height of people sharing a kitchen as well those with disabilities. Stoves can be moved up so children don't hurt themselves, while the sink can be lowered so they can easily wash their hands.

5. Integration facial recognition technology will enable the kitchen to automatically set itself to a combination of desired settings — from bench height to ambient lighting to background music — as soon as the user is home.

6. Virtual chefs will be projected di-

rectly into consumers' kitchens to guide their cooking.

7. Integrated systems will read data from fitness-monitoring devices and suggest meals appropriate to certain situations, such as muscle recovery after a strenuous workout.

8. Sinks would come equipped with a finger sensor that could read users' hydration levels, dispensing water when it's needed.

9. Video monitoring will help consumers see exactly what they have and systems that are linked to ovens and stoves will create recipes that use the meal preparation ingredients that are expiring.

10. Fridges will use ultraviolet light to sterilise food within them, keeping it safe from spoilage. A blast chiller will instantly take leftovers out of the danger zone where bacteria thrive. □

Hospitality search engine

Global hospitality search engine Find My Rice lists over 400,000 companies and 1 million products. It utilises intuitive technology and a series of algorithms to analyse every search criteria, ensuring customers find the specific product they want but are also introduced to a full list of complementary products and companies that potentially fit their business needs.

Searches are grouped by key words, which assists users who may not know the specific name of a product, and presents more related options.

Find My Rice is free for users and companies have the choice to create a complimentary profile and list products, or they can use advanced profile capabilities that enable special reporting, search preferences, key word selection and advertising.

The company aims to reach over 600,000 companies on the site by the end of 2015.

Find My Rice Pty Ltd
www.findmyrice.com

Lightweight washdown gun

Tecpro Australia has released the RB35 lightweight ergonomic washdown gun. Made almost entirely from tough industrial-grade plastic, the gun is robust and shock resistant.

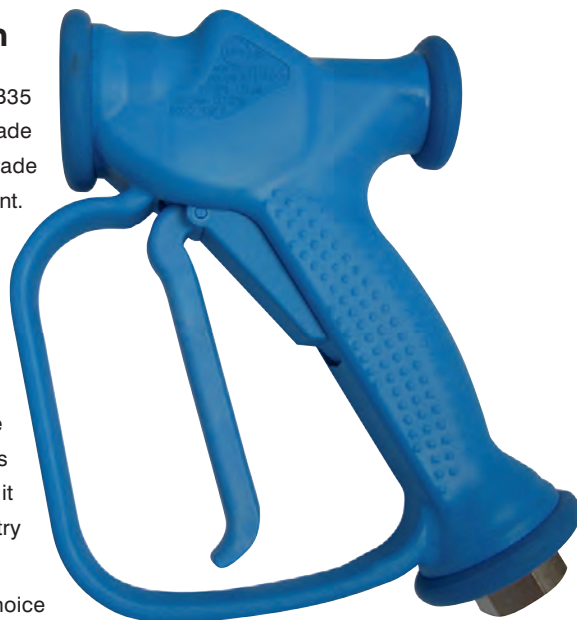
Its ergonomic design and swivel inlet means the gun is easier for cleaning staff to operate for longer periods without fatigue or muscle strain.

Weighing only 440 g, less than half the weight of existing washdown guns, the gun is completely sealed, which prevents dirt penetration and stagnation, making it hygienic for use in all types of food industry applications.

Three versions are available offering a choice of 50 or 80°C maximum temperature rating as well as a version with ½" BSP threaded outlet for attaching washdown or foaming lances. It is suitable for use with hot water as it has no exposed metal parts and the trigger is constructed of heavy-duty plastic, improving workplace safety.

The plastic housing is non-stainable and includes three silicone protection rings to render it shockproof. It offers chemical compatibility, made possible by the use of special-purpose materials in the manufacturing of seals and other internal components.

Its inlet swivel and adjustable spray pattern — from powerful jet to a hollow cone spray — makes it suitable for all types of cleaning tasks.



Tecpro Australia
www.tecpro.com.au

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Back to basics

The rise of the paleo diet

The so-called paleo diet has been around for some years but has grown to achieve almost cult status since its revival in the early 2000s.

The diet exploits rising interest in returning to the supposedly simpler and more natural eating habits of our ancestors.

Interpretations and definitions of the paleo diet vary considerably but the basic idea is to take us back to eating the way our Stone Age ancestors would have eaten 10,000 years ago, prior to agriculture and farming, with a diet of lean meat, nuts, fruits and vegetables, with limited access to grains, legumes and dairy products and no foods that are high in refined sugar and salt.

"Natural ingredients are increasingly in demand," according to Lu Ann Williams, director of innovation at Innova Market Insights, "and this has resulted in the arrival of new options in some instances and the revival and updating of some established products in others.

"Interest in naturally nutritious ingredients and a return to basics has led to increasing consumption of ingredients such as ancient grains and green foods," she contends. "It has also led to a surge in interest in alternative diets and eating habits, bringing awareness of the paleo diet to a much wider range of consumers."

When looking at use of the word "paleo" in launch activity tracked by Innova Market Insights, a huge surge has been seen over the past five years, from single figures in 2010 to over 300 in the 12 months to the end of September 2015. Although this remains very small in terms of global launch activity totals, it is nearly three times the number recorded in the previous 12-month period.

Significantly, activity is also spreading out globally from the USA where the current rise in interest started. The share of the USA in paleo launch activity fell from over 80% of the tracked launch total in the 12 months to the end of September 2014 to less than two-thirds in the same period in

2015, despite strong growth in total introductions. This indicated the emergence of activity in other parts of the world, perhaps most notably Australia, where activity came from virtually zero in 2014 to account for nearly 16% of the 2015 total, putting it ahead of Europe with 10%.

Launch activity has been fairly fragmented in terms of product categories, although cereals, bakery products and snacks account for a combined 56% share. Sports nutrition products take fourth place, ahead of dairy and soft drinks.

Products are increasingly being marketed as paleo-friendly and some high-profile lines now also feature "paleo" in the product name or brand. Examples include products such as Paleo Cookies and Paleo Protein Bars from Julian Bakery, Paleopure Trail Mix from Paleopure and Steve's Paleocrunch Granola and Paleogoods Paleobars, all in the USA. □

Innova Market Insights
www.innovadatabase.com

Individually wrapped cooking bags

Sirane has introduced Folded, Packed and Sealed cooking bags which are individually wrapped for use with trays or as part of 'meal kits' along with packs of sauces or spices.

Steam-cooking bags for oven or microwave, or BBQ/oven bags, are suitable for many ready meals or 'cooking meal kits'.

The end user simply removes the cooking bag from the packet, adds the meat or fish and the sauce/spices and follows the cooking instructions.

The steam-cooking bags allow flavours to be sealed in for simple, tasty, portion-controlled cooking in either the oven at up to 200°C or in the microwave. They are suitable for use with fish/seafood, poultry and vegetables.

The bags are made from very high temperature-resistant film. The meal is sealed in using a fold-over flap and the bag becomes odour- and leak-proof. They are available in a range of sizes and colours, either printed or non-printed.

The Sira-Cook Supreme bag is a foil bag capable of withstanding significant direct heat, which can be used in many cooking environments, from ovens to BBQs, griddles to hot plates.

The bag is available in a number of sizes and in a standard and non-stick version (suitable for seafood). It comes with a clear top panel so users can see what's being cooked.

Using the bag removes the need to cook separately for meat eaters and vegetarians as the bags can cook side by side.

Sirane Ltd
www.sirane.com

Refrigerator bag a game changer for fresh food delivery

A carrier bag with in-built chilling and freezing functions is set to create new opportunities for companies delivering fresh and frozen foods. Developed by a Swedish start-up company, the iFoodbag is a water-resistant paper bag made from a composite material that can protect chilled and frozen food for up to 24 hours as a passive packaging solution.

Designed for e-commerce companies selling foods online and for food retailers, the technology will offer easier and more eco-friendly transportation of frozen and chilled goods, enhanced food quality and reduced need for additives. The company hopes that iFoodbag will also lead to reduced food waste by saving food that would previously have been spoiled in hot climates.

After recently signing an agreement with global packaging company Mondi, iFoodbag has now partnered with Swedish food delivery business Mat.se to deliver foods together with a major car manufacturer. Mat.se and the car manufacturer will enable flexible ordering of foods and recipes directly from the car for next-day delivery, using iFoodbags to deliver frozen and chilled foods to the customer's home.

"iFoodbag enables us to take our concept a step further by increasing flexibility for our customers and giving us additional delivery alternatives. Ensuring that the food remains chilled even after leaving our delivery vans opens up a whole new world of opportunities," says Måns Danielsson, CEO at Mat.se.

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Spicing up food safety

An ancient Indian spice might hold the key to the development of countertops, cutting boards and knives that prevent cross-contamination by killing bacteria on contact.

Researchers at a US university have been investigating applications of the spice turmeric to make food-safe, antibacterial surfaces for food processing, preparation and packaging.

Curcumin, the main ingredient in turmeric, forms a phenolic compound — a plant-based chemical compound — with powerful antioxidant and anti-inflammatory properties. This is not news in India, where curcumin is widely used as a medicinal herb. However, science has now confirmed that the phenolic compounds known as curcuminoids have both health benefits and antimicrobial qualities.

Ruplal Choudhary, a food and bioprocess engineer and associate professor in the

Department of Plant, Soil and Agricultural Systems at Southern Illinois University Carbondale, is part of a research team looking at ways to use the phenolic compound to create a food-safe, antibacterial surface. The team has published its early results in the *Journal of Agriculture and Food Chemistry*.

Their initial tests included other compounds, such as resveratrol found in grapes and hydroxytyrosol found in olives, but curcumin turned out to be the most effective antimicrobial compound. In particular, the researchers tested the compound against *E. coli*, and found curcumin to be highly effective.

The team then set out to use the curcumin compound to develop an antimicrobial surface by employing nanotechnology. The researchers built nanovesicles for the curcumin compound that adhere to and enclose the compound and bind it to glass and other surfaces. These nanocoated surfaces,

when used in food processing, preparation and storage, naturally kill microbes and prevent spoilage. Despite the spicy origin of the compound, the nanotreated surface does not flavour the food that comes in contact with it.

Next, Choudhary wants to use the curcumin compound in active food packaging — nanocoated packaging that extends the shelf life of fresh produce and other foods with natural antimicrobials and preservatives.

“Where I grew up, our house was surrounded by gardens,” Choudhary said. “My father never liked to eat produce that came from the store, especially if it was harvested early and ripened in transit or at the store — he said it had no taste. We know now fresher foods are also higher in antioxidants and nutritive value. My goal is to find practical ways to use this technology to preserve food freshness as well as to create antimicrobial surfaces.” □



Multilingual menu-translator app available in Australia

Japan-based Xware has released its menu-translating app SmartMenu in Australia.

First released in Japan in 2013, SmartMenu is a digital menu for iPad that allows restaurants, cafes, bars and other foodservice outlets to translate and display their menus from English or Japanese into 12 different languages.

Users register their menu on the SmartMenu website; the translated menu is available in both digital and printed forms, and can also be viewed online. Users can assign multiple photos and videos to specific menu items, giving their customers a greater understanding of the food being prepared for them.

SmartMenu features an online control screen where users can add, edit and delete registered menus. These menus are then viewable from the SmartMenu iPad app in any of the 12 target languages.

SmartMenu is free to use.

Sanitiser

Viral or bacterial contamination is an ongoing problem during food production processes. *Salmonella*, *Listeria*, *E.coli* and other pathogens and spoilage bacteria can cause serious contamination.

Spray Nozzle Engineering supplies the Lafferty 517 Sanitiser to provide food manufacturers with the dilution ratios required for no-rinse applications in food plants. Having a long spraying distance, enhanced flow, wide spray pattern and the ability to work with a range of water pressures (from 35 to 125 psi) the sanitiser saves water, time and money.

As the sanitiser is constructed of machined polypropylene (injector body) and stainless steel (ball valves), it is chemically resistant, thereby reducing maintenance downtime and the need for replacement parts.

The 'venturi' action of the sanitiser is non-electric, involves no moving parts and requires no pre-mixing of chemicals, which leads to faster application of the cleaning chemical and a saving in labour costs. The 517 sanitiser comes with colour-coded metering tips for up to 21 dilution ratios, to ensure accurate dilution rates and control of chemical use.

Wall-mount models are available with heavy-duty stainless steel enclosures and portable models feature all stainless steel carts that hold a 5-gallon chemical container.

The Lafferty sanitiser is also available as a 'two-way' system, allowing for alternation between two different chemicals or two different ratios of the same chemical. This model is also available in either wall-mount or portable versions.

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Why farts are a good sign

Children find them hilarious, but farts are not generally considered the best way to make friends and influence people. However, there is an upside to the noxious fumes: the production of gas means that your body is hosting the right kinds of bacteria.

Key to creating a welcoming home for these 'good' bugs — known as our microbiome — is dietary fibre.

"Fermentable components of dietary fibre have a critical role in feeding the gut microbiome," said Dr Trevor Lockett, head of the Gut Health and Nutrition Group at CSIRO Food and Nutrition.

"This part of fibre is fermented mostly to short chain fatty acids, a process which creates gas."

Fermentation is a chemical process that breaks down carbohydrates in fibre: bacteria do it in our bowels to create food for them-

selves. This process also creates molecules that improve the health of their host (ie, you).

Dr Lockett presented an update on his group's latest research at 'Bugs, Bowels and Beyond', the 2015 National Scientific Conference of the Australian Society for Medical Research held in Adelaide.

He focused in particular on recent findings describing how different dietary components influence the microbiome and determine their production of both gas and beneficial molecules.

"For example, we know now that bacteria living in the large intestine produce a short chain fatty acid known as butyrate, which can reduce inflammation by stimulating regulatory immune cells," he said. "We're now seeking to expand some of this work to see if we can improve inflammatory bowel disease."

The component in food that manages to make it through digestive processes in

the stomach and small intestine to feed the microbiome in the large intestine is known as resistant starch. Good sources of resistant starch include unrefined whole grains, pulses and legumes, unripe bananas and cooked and cooled foods such as potatoes, pasta and rice.

Dr Lockett explained that in addition to conducting fundamental research, scientists at the CSIRO work across the fields of nutrition and agriculture for product development.

"As our understanding of the beneficial components of dietary fibre has improved, we've been able to inform colleagues who are growing grains for cereal purposes," he explained.

"If we can include and enrich resistant starch in marketable grains, perhaps we can drive health benefits."

Dr Lockett's CSIRO colleague Dr Bianca Benassi-Evans has recently trialled two non-genetically modified barley grains to determine their impact on bowel health. Comparing the two candidate barley grains against regular barley and puffed rice as breakfast meals in a sample of 20 adults, she found both to have desirable features.

"Our grains increased the acidity in stool samples and increased bowel production of butyrate," she said. "Both of these outcomes are biomarkers of good bowel health."

Additional studies are currently taking place, through which Dr Benassi-Evans hopes these grains may end up in your cereal aisle.

"What you choose in that supermarket can have dramatic effects on gut health," she said.

Which breakfast products make you fart is a matter for you — and perhaps your loved ones — to decide. ☐

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