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DEC 2015/JAN 2016

VOL1 NO.2

READY MEALS

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food

How TV dinners went tray chic

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Hello 2016, and why we need magazines like this one

Well that's 2015 over and done with, just when I had finally mastered writing the correct year when I had to write the date. Everything is now all aflutter for Christmas and the holiday season. That doesn't mean an end to work in the prepared food sector though — there is now that push to prepare appropriate festive food that still meets the dietary and budgetary constraints of the consumers.

However, one thing is certain, there won't be a collapse of the ready meal sector any time soon.

I was even more intrigued by the prepared food industry as I researched the background for the TV dinners article in this issue. I love the notion of a train of excess turkey traversing the US while a group of worried people decide what to do with it. It makes you realise how far we have come with modern cold storage facilities.

From a publisher's perspective I also realised how much the advertising environment has changed. In 1951 the owner of Sara Lee, Charles Lubin, worked with Ecko Products to develop aluminium pans in which he could bake, freeze and ship his All Butter Pound Cakes and All Butter Pecan Coffee Cakes. In that year he sold \$400,000 of cakes and promptly reinvested \$100,000 in advertising. The *Mad Men* TV series brought this whole

era in advertising to light. If only it was so easy now.

While few, if any, companies are willing to invest 25% of their gross income in advertising these days, advertising still has a lot to offer consumers. How can people purchase a product if they don't know it exists? "Ah," you say, "what about the internet?" Well, it's pretty hard to search for something if you don't know it exists!

So, then you come to magazines like this one and its website (www.foodprocessing.com.au) and its eNewsletters.

Here you can see the latest products, services, trends and information about your very niche industry. Both the ads and the editorial content are specific to the needs of the ready meals, high-volume catering arenas — I hope you find something that will make your business more efficient, profitable or desirable.

If you are not receiving our eNewsletter every Wednesday you can go to our website and register — it's free.

I hope you all have a happy and safe holiday season and that we meet at Fine Food Australia, foodtech Queensland or Foodtech Packtech next year. And, a special thank you to everyone who has contributed to this second issue of *Prepared Food*.

Regards,
Janette Woodhouse



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Tray chic

Janette Woodhouse



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How the TV dinner became high fashion in the latter half of the 20th century



When TV arrived in Australia in 1956 the Americans had already consumed millions of TV dinners — much to the surprise

(and profit) of one early manufacturer.

Having overestimated demand for Thanksgiving turkey, in 1954 CA Swanson & Sons had 235 tonnes of leftover turkey, anecdotally stored in railway cars. To complicate matters even further, the refrigeration system in the rail cars only worked when the trains were in motion; so, the turkey was shipped between Nebraska and the US East Coast to keep it cold while the company worked out what to do with it.

There is some confusion over whether one of the Swanson brothers, Gilbert or Clarke, or their sales executive, Gerry Thomas, suggested packing and freezing the turkey as single-serve meals on divided trays as they had seen served on Pan Am flights.

Using a three-way divided aluminium tray, Swanson 'served' the turkey with corn-bread dressing and gravy along with peas and sweet potato — the latter two items decoratively garnished with a pat of butter. The frozen meals could be reheated in the oven at 220°C for 25 minutes and cost consumers \$0.98 each.

Cashing in on the new wave of modernity exemplified by the television in every home, Swanson called the frozen ready meals 'TV Brand Frozen Dinners' and embarked on a huge print, radio and television marketing campaign. Swanson hoped to sell 5000 of these TV dinners in its first year of production.

Estimation was obviously not one of the company's strengths — in the first place they had overestimated the amount of Thanksgiving turkey they could move and then, going in the opposite direction, grossly underestimated the number of TV dinners they could sell.





... the average American currently eats 72 frozen meals a year with the sector in the US bringing in \$9 billion each year.

Rather than their estimated 5000 meals, the company sold 10 million in their first year of production (a gross of around \$220 million in today's terms).

Sales of frozen meals grew steadily from inception until around 2008 when growth flattened out but did not decline. The American Frozen Food Institute reports that the average American currently eats 72 frozen meals a year with the sector in the US bringing in \$9 billion each year.

While sales of frozen ready meals may have slowed the consumption of them has actually accelerated as consumers have simply swapped 'frozen' for the perceived health implications and convenience of chilled meals.

The start of the frozen ready meal era

While the Swanson brothers coined the term TV dinners and were the first to invest in a large-scale TV advertising campaign, they cannot really claim to have invented the concept of frozen ready meals.

Without Clarence Birdseye's development of flash-freezing techniques back in 1923, frozen TV dinners would have been impossible. With flash freezing, liquid nitrogen or its equivalent is used to freeze the food very quickly. The intra- and extra-cellular water in the foods freezes so quickly that ice crystal size is homogeneously small and damage to the cellular structure of the foods minimised. This results in vastly superior texture, flavour and nutritional composition of the food.

The evolution of frozen ready meals began in 1941 when Maxson Food Systems Inc. produced the first ready-to-eat frozen meal. These dinners, called 'Strato-Plates', were complete meals designed to be reheated and served to both civilian and military airline passengers. The meals consisted of meat, a potato and a vegetable, served on a three-way divided plate. Strato-Plates were only ever avail-

able on planes and never made it to the supermarket shelves.

In the late 1940s, FridgiDinners started selling 'just reheat' meals to bars and taverns but also did not venture into the retail ready meal market.

By 1950, Frozen Dinners Inc. had sold more than 400,000 frozen dinners in the Pittsburgh area. The meals, in three-compartment aluminium trays, grew spectacularly in popularity and by 1954 the company



owners, Albert and Meyer Bernstein, had formed the Quaker State Food Corporation, expanded their sales area and sold more than 2.5 million frozen dinners.

The only reason they don't get the guernsey for 'inventing' TV dinners is that they didn't use the term and didn't mount a huge TV advertising campaign.

The first TV dinners/frozen ready meals consisted of simple, hearty comfort food such as meatloaf, turkey and Salisbury steak, with side dishes of potatoes and green beans or carrots or corn. The meals were reheated in domestic ovens so care had to be taken to ensure all the foods would reheat at about the same rate.

There was minimal automation in the factories where the meals were made. Serving was essentially done by an assembly line of women with spatulas and ice-cream scoops.

Swanson was the TV dinner leader through the middle of the 20th century, moving to four-way divided trays in 1960 when it added added desserts (such as apple cobbler and brownies) to the meals. The company dropped the term TV dinner in 1962.

The first TV breakfasts came to the market in 1969 with pancakes and sausages proving most popular.

Swanson, now owned by Pinnacle Foods, retains only 10% of the US frozen dinner market.

In 1987 the original TV dinner tray was placed in the Smithsonian Institution to commemorate the tray's impact on American culture, sealing TV dinners' place in American cultural history. In 1999, Swanson received a star on the Hollywood Walk of Fame.

The advent of the microwave

The introduction of microwave ovens presented a huge turning point for the TV dinner, and it rose to the challenge admirably. The former design of the metal trays, of course, by necessity had to become a thing of the past, and 'microwave meals' are now typically packaged in plastic containers with plastic covers, occasionally with a thin layer of aluminium lining to crisp things up (as with pies and other items that have a crust). The first microwave oven-safe trays were marketed in 1986.

Many different varieties of frozen and chilled ready meals are now generally available including 'gourmet' recipes, organic and vegetarian dishes, all sorts of different cuisines, smaller children's meals and larger helpings for the especially hungry. Now it would be a rare supermarket that did not offer a selection of both frozen and chilled ready meals. □



The world is in a hurry

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Catering for the elderly

The decline of smell and taste

“

For instance, the visual aspects and texture of food could be modified so that people with a diminished sense of smell could have more enjoyment eating.

In order to ensure that the elderly receive a healthy diet that is also appealing, it is important to understand the changes in their perceptions of smell and taste, which can lead to a decline in appetite and meal enjoyment and, eventually, to malnutrition. A team headed by Claire Sulmont-Rossé from the National Institute for Agricultural Research (INRA) in Dijon, France, a member of the European Sensory Network (ESN), has put the sensory abilities of the elderly under the magnifying glass, investigating the senses of smell and taste of 559 people between the ages of 65 and 99.

Large individual differences

Studies over the last 25 years have shown that the sense of smell, and to a lesser extent the sense of taste, decline in the elderly. However, there exists a large variability in the elderly population.

Do the senses of taste and smell decrease to the same extent? Which aspects of odour perception are especially affected in the elderly? Which aspects are dependent on the person's age?

The test series

To answer these questions, Claire Sulmont-Rossé and her team invited volunteers from four separate regions of France. The seniors participated in a series of tests that explored various aspects of their sense of smell and taste. They also answered questions concerning their living situation. Sulmont-Rossé explained, “We didn't just want to single out a particular olfactory capacity, such as the odour threshold; we wanted to obtain an overall picture of the sense of smell. For

this we used tests that showed how well a participant could perceive, differentiate and categorise the smells. It is quite possible that specific ageing processes govern these various olfactory abilities differently.”

Using a set of chemosensory tests, the researchers assessed the ability of the participants to detect odours at a small concentration, to discriminate between different odour qualities (for instance, discriminate between a beef odour and a fish odour) and to determine whether an odour is a food odour (strawberry, caramel) or a non-food odour (rose, perfume). Finally, the researchers used rising concentrations of salt solutions to determine the participants' thresholds in perceiving and identifying the taste of salt, which is acknowledged to be more affected by ageing than the other tastes.

Four groups discovered

“We were somewhat surprised by the results,” said Claire Sulmont-Rossé. “With 40% of the seniors, the sense of smell and taste was only very slightly impaired.”

In their analysis, the researchers detected four different sensory clusters:

Cluster 1: Good sense of smell and taste (well-preserved chemosensory abilities)

43% of the seniors had a well-preserved sense of smell and taste. However, with the exception of salt detection, they did not do as well as a parallel group of 63 participants with a mean age of 28.

Cluster 2: Good sense of smell but heavily impaired sense of taste (strong gustatory impairment)

33% of the participants had a well-preserved sense of smell but had lost a high degree of their sense of taste.



Cluster 3: Impaired sense of smell and taste (chemosensory impaired)

21% of the participants showed moderate impairment to both smell and taste. However, their sense of taste was still better than that of group 2.

Cluster 4: Strongly impaired sense of smell

Only 3% of the test subjects had lost most of their sense of smell and were unable to differentiate and categorise the various smells. Nevertheless, their sense of taste was less impaired than in cluster 2.

In general, the participants in cluster 1 were younger, did not take medication that would affect their sense of smell and taste, and were able to take care of their daily needs without help. Participants in clusters 3 and 4 were older as a rule, took medication that affected their sense of smell and taste, and needed help, either in their own homes or as residents of a facility for the aged. In terms of measured variables, cluster 2 did not stand out from the other clusters.

Smell and taste age independently

As expected, the research team found a correlation between the results of the

various smell tests as well as a correlation between the results of the taste tests. However, the scientists did not find a correlation between the scores of the smell and taste tests. This suggests that the two sensory systems are affected by the ageing process independently from one another.

Why do the senses of smell and taste function separately from one another? Possibly each system reacts independently to the ageing process and such environmental influences as pollution. Claire Sulmont explained, "The olfactory neurons are in direct contact with the external environment. Thus they are more likely to be influenced by aggressive environmental factors than are gustatory cells."

Food products conform to the target groups

Several physiological processes, such as drying of the olfactory mucosa, decrease in saliva flow and reduction in the number of sensory receptors, have been reported to play a role in the decline of sensory perception. However, results of the study strengthen the hypothesis that

the diminishing of chemosensory abilities is not only caused by classic processes of physical ageing; rather, the events that usually accompany ageing play a major role. Health problems, dental disease and the use of particular types of medication can be contributing factors. Claire Sulmont-Rossé stated, "It appears that age per se influences the perception of low-intensity odour and taste stimuli. However, factors associated with a senior's health status seem to have a negative influence on their ability to perceive even high-intensity chemosensory stimuli."

How might the food industry and the institutions that care for the elderly benefit from these findings? "To be sure that people of every age group will enjoy their food, the key drivers for food choices should be ascertained in conjunction with the chemosensory abilities of the consumer," Clair Sulmont-Rossé emphasised. "For instance, the visual aspects and texture of food could be modified so that people with a diminished sense of smell could have more enjoyment eating." □



Frozen bread range

Tip Top Foodservice has extended its range of frozen sliced breads to include Abbott's Village Bakery and Burgen sliced breads as well as Golden Pancakes.

The additions allow foodservice outlets to cater for the rise in demand for gourmet breakfasts and lunchtime sandwiches using rustic and health breads.

The frozen bread range thaws quickly, meaning minimal impact on preparation time, and can be stored in the freezer for up to four months. This allows foodservice outlets to keep sufficient bakery product on hand to meet demand, while minimising waste.

The product range, which is frozen soon after baking to maximise freshness, has

no artificial colours or flavours, is halal certified, and vegetarian and HACCP certified. The full range includes: Abbott's Rustic White Sliced, Farmhouse Wholemeal Sliced, Country Grains Sliced and Light Rye Sliced; Burgen Soy Linseed Sliced and Rye Sliced; Golden Pancakes; White Sliced, Wholemeal Sliced, Multigrain Sliced, Super Thick White Sliced, Super Thick Raisin Bread and Traditional English Muffins.

Foodservice outlets that are unable to receive daily fresh bread deliveries, such as smaller outlets or those in remote regions, can always have fresh bread on hand.

Tip Top Foodservice
www.tiptop-foodservice.com.au

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UNOX Australia Pty Ltd
www.unoxaustralia.com.au



Antibacterial soap no better than regular soap

They dominate our supermarket shelves and encourage our germophobe tendencies. But scientists in Korea have now discovered that using antibacterial soap when hand-washing is no more effective than using plain soap.

The study, published in the *Journal of Antimicrobial Chemotherapy*, examined the effect of triclosan (the most commonly used active antiseptic ingredient used in soap) on bacteria in two ways. The first was to examine the bactericidal effects of triclosan in soaps against all 20 strains, and the second compared the ability of antibacterial and non-antibacterial soap to remove bacteria from human hands. The results of the study indicate that there is no significant difference between the effects of plain soap and antibacterial soap when used under 'real life' conditions.

The scientists recreated the conditions of human hand-washing by exposing the bacteria for 20 seconds at 22°C (room temperature) and 40°C (warm temperature) to triclosan with a concentration of 0.3%. They discovered that more than nine hours of exposure was required before the antibacterial soap had a significantly greater effect on bacteria than the regular soap. The lead author of the paper, Dr Min-Suk Rhee, believes the research findings indicate that changes are needed to the way that antibacterial soaps are advertised to consumers.

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Making it happen

Fifteen-million-dollar vans: Tasty Fresh Food Co sets the standard for charitable giving

Tasty Fresh Food Co is a lunch van service that produces and serves fresh sandwiches, salads, cakes and hot pastries to more than 25,000 workers daily across Melbourne, Sydney, Newcastle and Perth.

Beginning as Tasty Trucks in 1979, the company started out as the quintessential Australian cottage family business. Colin Lear, who started the business as a one-man band, delivered sandwiches from his corner shop kitchen with the original 'Foodmobile' to workers in the eastern suburbs of Melbourne.

The need for fresh food and an ethical dilemma

Tasty Fresh food Co has a long-standing belief in (and commitment to) the fact that customers at the last lunch van stop should receive the same variety and quality of food as those at the first stop.

This commitment led to a higher level of food being prepared than was expected to be sold, resulting in around 16% of food

for every Tasty Fresh Food Co lunch van being left over at the end of each day.

Philanthropy for growth

The company was very conscious of the environmental and ethical implications of throwing out the leftover food, so they offered to donate all excess stock to the Vinnies Soup Van program on each working day. Instead of throwing away 16% of food produced, it was instead given to the homeless and marginalised across Melbourne.

As the business grew from one van in 1979 to two in 1981, and now over 130 across Australia, the scope for leftover food donations has also grown dramatically.

Tasty Fresh Food Co is planning to double its total business size over the next five years, with a total of four new depots in Sydney, which will result in further growth in donations to soup vans in the Sydney area. Colin Lear, CEO of Tasty Fresh Food Co, attributes this growth to the high morale among employees and franchisees.



Colin Lear, CEO of Tasty Fresh Food Co



"The donations are driving sales and good rapport amongst customers. Van drivers, who sell the food to workers in industrial areas around Melbourne, Sydney, Newcastle and Perth, have commented on the goodwill it creates with customers, increasing repeat sales and customer satisfaction," said Lear.

Extending a helping hand

Following the partnership to donate leftover food to St Vincent de Paul Society, it became apparent that the Vinnies Soup Vans didn't have the capacity to take on hot food and cold food while maintaining food health and safety standards.

This led Tasty Fresh Food Co to additionally donate a fully fitted out, brand new food distribution van, with facilities to keep hot food warm and cold food refrigerated. The van, valued at approximately \$80,000, was introduced to transport the donated food from Tasty Truck's depot in Tullamarine to the Vinnies depot for distribution to the homeless and marginalised around Melbourne. This van, which was joined by two other new ones in recent years, meant that in addition to sandwiches and slices, Tasty Fresh Food Co was able to donate popular offerings of hot pies, sausage rolls and chicken wings.

"Without Tasty Fresh Food Co, Vinnies simply wouldn't have enough food to go around. In my time in the industry, dealing with corporate donations, it has been extremely rare to see such a high level of support for such a long period of time. Tasty Fresh Food Co is truly a stalwart of the industry and its support, both in the form of quality and quantity of donations, is invaluable," said Shannon Anderson, general manager marketing and fundraising, St Vincent de Paul Society Victoria Inc.

A long-term commitment

Today, the company donates over 250,000 meals each year. Over its 20-year relationship with the Vinnies Soup Van program, Tasty Fresh Food Co has donated over \$15 million worth of food to the homeless and marginalised.

To encourage staff engagement with the Vinnies Soup Van program, Tasty Fresh Food Co implements a 'Vinnies Volunteer Roster' for staff to be able to donate their time to work on the soup vans, and is usually represented by three staff members a week. Feedback from employees and a very low staff turnover rate of less than 5% annually indicates that 'Team Tasty' love and are proud of what they do.

As well as supplying food for the weekday Vinnies Soup Vans, Tasty Fresh Food Co assists with the design and fit-out of the specially designed soup vans used by Vinnies. Tasty Fresh Food Co also maintains the Vinnies Soup Vans to keep them in running order and they are also looking to donate further vans as the business and its charitable program expands.

"Australian foodservice operators should not be throwing away excess stock at the end of every day when there are community organisations that can help distribute goods to people in need. What foodservice business operators should realise as well is that there are important operational benefits from establishing a giving program for excess stock which centre on greater employee engagement and profile-raising in the community. Tasty Fresh Food Co could not be prouder of our ongoing relationship with the Vinnies Soup Van program. We look forward to being a key supporter of the business now and for the long term," said Colin Lear, CEO of Tasty Fresh Food Co. □

Tasty Fresh Food Co.

www.tastyfreshfoodco.com.au

Automatic tray sealer

The I.DEA PACK Panther Automatic Tray Sealer is designed to ensure product freshness.

The tray sealer is easy to clean and has simplified operating programs and die set changeover. With compliance to CE1935/2004/EC, the sealer is suitable for any business looking to automate its tray sealing option.



Main features include robust construction, an AISI 304 stainless steel frame, protection class IP65, PLC control with a working pressure of 6 bar, vacuum pump 100 m³/h and 5 kW electric power. Options include a double-sealing station, an automatic weigher, a photocell for printed film and a filter for dust or liquids.

International Packaging Machinery Pty Ltd
internationalpackagingmachinery.com.au

High-protein snack cake

Arla Foods Ingredients has developed a high-protein Snack Cake.

The product is designed to enable bakery companies to capitalise on the growing popularity of snacks as meal replacements.

The snack cake offers an on-the-go alternative to a sit-down meal, containing up to 10% whey protein and 200 mg of calcium in a 21 g serving with only 418 kilojoules.

The recipe is completely egg-free — helping bakers to control costs and overcome the supply chain difficulties sometimes associated with eggs — and resulting in a product that is lower in saturated fat and cholesterol than other cakes. The company says the snack cake is straightforward to manufacture and scores highly on moistness, structure, stability and shelf life.

Arla Foods Ingredients
arlafoodsingredients.com

Shredder for vegetables and fruits

Summit Machinery has released the FAM Centris 315, a compact centrifugal slicer/shredder which delivers high volumes from a very small footprint. Capable of flat slices, crinkle-cut slices, V-cut slices, v-cut shreds, julienne shreds and oval-cut shreds, the machine is suitable for produce such as carrots, potatoes, onions, beetroot, mushrooms, beans and oranges.



The cutting head ensures a consistent slice and shred thickness throughout the slicing process. Manufactured from 100% stainless steel, the head weighs 8 kg and has a reduced number of parts, which improves cleanability and simplifies the assembly. The large infeed provides uniform product flow to the cutting heads and avoids overloading problems. The rigid, seamlessly welded frame has no flat surfaces, a limited number of bolts and no exposed threads. A trapped key interlocking safety system prevents access to the cutting area during machine operation.

The machine is delivered with its own specially built stand and is designed according to CE FDA and HACCP regulations. The drive, product and electronics zones are completely separated.

Summit Machinery Services
www.summitms.com.au



Bringing restaurant quality to catering

West Australian catering company Ultimo Catering & Events is looking to bring Michelin Star quality to catering, with the appointment of executive chef Matt Leahy and senior sous chefs 'Max' Ling Yu Mau and Johnathan Pace. With 40 years' combined experience in some of the world's most famous restaurants, including Noma in Copenhagen, the trio is cooking up fresh ideas with a European influence and bringing a restaurant quality approach to catering.

"It is extremely rare to see chefs of this quality working for catering companies in WA and this is a reflection of where Ultimo is heading," said Juan Otero, Ultimo's CEO.

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Efficient packaging solution for food service dairy products

Bulla Family Dairy has launched Bulla Gastronorm, a food service packaging solution designed to create more efficiency and ease, and less waste in commercial kitchens.

Featuring form cut bain-marie style packaging, Bulla Gastronorm provides a convenient, stackable and fit-for-service sized solution to make chefs lives and prep simpler, by delivering the product the way it will be used in service.

The range is available in six varieties: Premium Sour Cream, Light Sour Cream, Crème Fraiche and Dollop Thick Cream in 1.5 L tubs while Natural Pot Set Yoghurt and Greek Style Yoghurt come in 1.4 L tubs.

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www.bulla.com.au



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The Vitalite Canola 10 kg catering pack is Halal approved and made in Australia.

Peerless Holdings
www.peerlessfoods.com.au

Rodent- and cockroach-repellent garbage bags

Mint-X repellent garbage bags feature a patented blend of natural oils that are effective in repelling rodents and cockroaches.

Suitable for restaurants, cafes and other food businesses, the bags reduce the sight of cockroaches and fruit flies in kitchens and reduce the smell of garbage in bin rooms and loading docks. Using the 240 L bags as bin liners can save money on bin washing costs.

Approved for use by APVMA, the bags are safe for humans and pets, and chemical-free.

Tailored Packaging
www.tailoredpackaging.com.au

Continuous cutting for fruit and vegetables

Barnco Sales has introduced ShreddR Compact 90 and Comfort 170 from Foodlogistik. The solution for continuous vegetable and fruit cutting is designed to fulfil the highest cutting requirements. The food processing machines are mobile on wheels and cut vegetable and fruits into strips, slices and cubes as small as 3 mm in size.

Speed on the machine can be adjusted to suit desired size requirements with a production capacity of 850–2000 kg/h. The Foodlogistik ShreddR is made from stainless steel. The machines include a water connection for rinsing during the cutting process and meet high safety standards.

For more information, click [here](#).

Barnco Sales Pty Ltd
www.barncosales.com.au



Food supplier admits to cheating US military

The admission by a multinational food company that it defrauded the US military, by drastically increasing the cost of basic items shipped into a war zone, has sparked concerns that Australia may also have been a victim. *The Sydney Morning Herald* has reported that Supreme Foodservice and related entities held multimillion-dollar contracts to supply Australia and other International Security Assistance Force nations in Afghanistan from the mid-2000s until 2013.

The long-running fraud, which involved price hikes for food, water and other goods purchased from Supreme, resulted in Supreme and related entities having to pay US authorities \$US96 million (\$135 million) in fines, \$US48 million in restitution and \$US10 million in criminal forfeiture.

The operation was conducted using a 'middleman' company established in the United Arab Emirates. Jamal Ahli Foods Co was used to mark up prices for fresh fruit and vegetables and other locally produced foods sold to the US.

The scheme, which the FBI says ran from 2005 to 2009, was also used to obscure the inflated price that Supreme was charging the US for water.

The FBI says Supreme's clients were not aware that Supreme controlled Jamal Ahli Foods Co while it was acting as a so-called independent company lifting the prices of goods purchased in Dubai.

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WITH SPICES



After 5 minutes

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Are your ingredients what you think they are?

Janette Woodhouse

Super-ingredients' that come with health and well-being claims are often added to ready meals to make them more attractive to consumers. Manufacturers promote the ingredient on their packaging and in their advertising and hope this will be the deal breaker in promoting sales. But, what happens when the super-ingredient isn't what you thought it was? Can you even tell?

I remember watching a *CSI*-type TV show where they put the goop from a cadaver's stomach through a gas chromatograph to see what the victim's last meal was. The resultant graph had a peak labelled as chicken soup! If only it was this easy.

Last February, following an investigation by the New York Attorney General's office, four major US dietary supplement retailers were ordered to remove products from sale based on results of DNA barcoding testing. The investigation concluded that a majority of the products tested lacked the target botanical and/or contained unlabelled species.

Was this a fair and reasonable action? As the investigation was based on DNA barcoding tests, the answer is probably no.

Mainstream media presents DNA testing as the acme of reliability to establish authenticity and most of us blindly accept this. After all, DNA testing has provided incontrovertible evidence for forensic investigations, medical diagnostics and paternity testing in humans for more than two decades. But DNA barcoding is not a silver bullet.

DNA barcoding

DNA barcoding was first introduced as a means to identify animal species. The FDA-validated method can be used to distinguish distinct species, such as if the minced meat is beef or pork or whether the fish is barramundi or ling. It was widely used in the 'horse meat scandal' that rocked Europe a couple of years ago and works well with fresh or living tissue.

DNA barcoding can be used to identify major plant groups such as grasses and pine trees but falls short when information about specific species is required or when the product has been processed or the DNA has been removed or degraded.

DNA barcoding usually involves:

- sample materials being homogenised;
- extraction of genomic DNA;
- amplification of specific gene regions;
- gene sequencing;
- comparison of result sequence against a known reference material to identify the sample.

Plants are particularly problematic as they are extremely complex and cannot be successfully identified to the species level from just a couple of standard regions, as is possible with animals.

While DNA barcoding using a single gene or standard set of genes may be appropriate for animals, it is not so for plants due to their dramatically different life history characteristics, evolutionary histories and hybridisation.

At one end of the plant spectrum is *Ginkgo biloba*; these slow-growing trees have no close relatives. This means that their genes are unique and can be easily differentiated from those of other plants.



“

Sadly, it is you, not the supplier, whose reputation will suffer if it is established that what you claim on your packaging isn't delivered.

However, dynamic lineages of closely related species, such as *Echinacea*, are difficult to distinguish genetically due to widespread hybridisation.

The most critical step in using DNA for plant species identification is to locate the genes that contain the appropriate level of variation to allow for differentiation of species. This is not an exercise for the uninitiated and usually requires extensive research into the evolutionary history and

biology of the plants being tested. Only after specific genes that distinguish particular species reliably are identified can true identification be achieved.

In fact, the limiting step is not the method underlying DNA barcoding but rather the identification of DNA sequences that can be used to reliably isolate and differentiate between species.

Meanwhile, you are relying on your supplier to deliver what you have ordered

and have written onto your packaging. Sadly, it is you, not the supplier, whose reputation will suffer if it is established that what you claim on your packaging isn't delivered. □



©iStockphoto.com/Angelika Schwarz



Meal kit delivery service

Thomas Foods International has launched a direct-to-consumer meal kit delivery service that brings local, farm-fresh produce and chef-created recipes to customers' doorsteps.

The venture uses the farm connections and distribution network of Thomas Foods International to ensure that produce is locally sourced, portioned and packaged at state-based points closest to the consumer. Fewer food miles between paddock and plate ensures all ingredients arrive fresh and the venture is environmentally sustainable.

With 11 original recipes each week, the meals vary from Summery Swordfish with Heirloom Carrot Salad to Roast Harissa Chicken with Cous Cous Salad to Warm Spiced Pumpkin with Goat's Chèvre to Gnocchi Al Verde.

Recipe cards included in each pack are easy to follow, and typically, dishes take approximately 30 minutes to prepare from fridge to table. A large range of gluten-free, dairy-free and vegetarian options is available, along with flexibility to tailor how many portions are needed.

Thomas Foods International
www.thomasfoods.com

Canned chicken

Davies Foods Limited produces Chop Chop! canned chicken, produced from chicken breast which is sustainably farmed with no added hormones.

The chicken is fully cooked, sealed in the can and then heat-sterilised at 112–118°C for at least 60 min. There are no preservatives used in the process, and the product is Halal-certified and gluten-free.

Suitable for use as a snack on crackers, mixed through salad or rice or on a sandwich, the chicken is available in a range of flavours, including sweet chilli; sun-dried tomato with lite mayo; lite mayo; Italian tomato; cracked pepper with lite mayo; spring water with sea salt; wholegrain mustard with lite mayo; chilli with lite mayo; teriyaki; and smoked flavour. Suitable as a tuna substitute, it is low in saturated fat and high in protein.

Davies Foods Limited
www.daviesfoods.co.nz

Frozen fruit and vegetables

Simped Foods processes and packs over 50 fruits and purees, 20 frozen specialty vegetables, fruit concentrates, aseptically packed fruits plus a range of freshly made salads and prepared vegetables for the manufacturing, foodservice and bakery trades.

The company has facilities to dice, slice, shred, pulp and puree to cater for a range of client requests. Raw materials and ingredients are imported or locally sourced according to requirements.

Simped Foods
www.simpedfoods.com.au

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Tricking the brain into healthy food choices

If you've ever found yourself unable to take a bite of a particular food, then you've experienced one of the outcomes of 'neurogastronomy' — a newly evolving science that examines the connections between our brains and our eating behaviours.

A group of internationally acclaimed chefs, bench neuroscientists, food scientists and clinical neurologists is exploring whether this brain/tastebud/stomach connection can be exploited to 'trick' people into making healthier eating choices.

According to Dan Han, PsyD, a co-founder of the International Society of Neurogastronomy, this isn't about re-engineering food, but rather re-engineering the brain into perceiving food differently.

"The potential applications for this are extensive," said Han. "Just about everybody knows someone who's had cancer, Parkinson's disease, stroke, Alzheimer's disease, epilepsy or some other neurological impairment, and these patients usually have altered sense of smell or taste as a result. To be able to help these people have continued quality of life, despite their condition, should be an important part of our clinical practice."

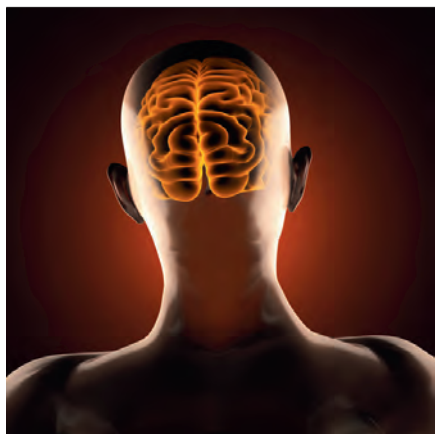
Research into olfactory function is providing the first steps towards success. A group of scientists led by Tim McClintock, PhD, has developed a new test, called The Kentucky Assay, which can identify individual receptors and nerve cells in the nose that respond to specific odours — the beginnings

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this isn't about re-engineering food, but rather re-engineering the brain into perceiving food differently.

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of a roadmap of human olfactory capability, which directly affects taste. It's a sliver of proof that neurogastronomy could prove to be a real proposition with some scientific muscle behind it.

Han says only recently has quality of life been considered a clinical outcome, yet huge numbers of patients can't enjoy food as a result of their illness and never think to describe it to their doctors.

The concept of neurogastronomy wasn't on Han's radar until 2012, when he had a chance meeting in Montreal with chef Fred Morin at his internationally acclaimed restaurant Joe Beef.

"Fred was going from table to table chatting with guests, and when he found out we were neuroscientists he sat right down," recalled Han. "It turns out he's a bioengineer by training and a big neuroscience fan. When we started talking about the need to bring

disparate industries together to discuss neurogastronomy, he said, 'If you get the neuroscientists there, I'll bring the chefs'."

And the International Society of Neurogastronomy was born.

The inaugural ISN Symposium will be held on 7 November 2015 in Lexington, Kentucky. This is the first time the 'four pillars' of neurogastronomy — chefs, bench neuroscientists, agriculture and food technologists and clinical neuroscientists — will meet to share their knowledge and begin a dialogue that, they hope, will ultimately lead to real changes in brain behaviour as it relates to food.

Han and his co-founders have structured the day to be very different to the typical scientific symposium. Instead of long lectures, there are several presentations in a TED-talk format. The speakers will include:

- Chefs: *The Next Iron Chef* runner-up Jehangir Mehta; James Beard finalist and *Mind of a Chef* host Ed Lee; Leah Sarris, program director for the Goldring Center for Culinary Medicine at Tulane University; and Fred Morin of Joe Beef Montreal.
- Scientists: Physiologist Tim McClintock; prize-winning experimental psychologist Charles Spence; and Gordon Shepherd, MD, Dphil, who coined the term 'neurogastronomy' — first in 2006 in an

article in *Nature* and six years later in an eponymous book.

The symposium will be a true culinary experience as well, with tasting breaks to help participants grasp the fundamentals of flavour perception (sweet, salty, umami, etc) as well as chef-quality breakfast and lunch breaks.

The high point of the day will be the 'Applied Neurogastronomy Challenge', where teams of chefs and scientists will prepare dishes judged by actual patients with neurologically related taste impairments.

Han is anxious to begin the dialogue that might ultimately provide tangible improvement to quality of life for people with neurologically related taste impairments. "When the concept of neurogastronomy was introduced, people realised it was a need that had been there for a long time — ever since mammals started eating," he said. "If we could get together and simply provide ways to help these patients enjoy a meal, break bread with family and friends and enjoy that process again, then I would be very proud of that contribution to clinical sciences."

For more information about the ISN Symposium, visit www.isneurogastronomy.org/. □

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Metos Manufacturing's Proveno 2G series of combi kettles offers a cooking and cook-chill solution for commercial kitchens and food production facilities. It is suitable for the production of soups, sauces, casseroles,

curries, mashed potato, chutneys and jams, while removing the physical labour and potential associated injuries that are commonly seen when staff are required to cook such foods in large volumes. With models ranging from 40 to 400 L, there is a model to suit most applications.

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

Metos Proveno kettles are distributed in Australia and New Zealand by Moffat.

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www.moffat.com.au



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www.sunnyqueenmealsolutions.com.au

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Tomatoes will be tastier after a nice warm bath



It's an oft-heard complaint that tomatoes aren't as tasty as they used to be. But take heart, tastier tomatoes could soon be on their way, and the secret could be as simple as a nice warm bath.

The best-tasting tomatoes are eaten when ripe, straight from the farm gate or home vegetable patch. However, commercially sold tomatoes must be picked while still green, stored and transported to packers who use a gas called ethylene to trigger fruit ripening.

The tomatoes are then stored and shipped at low temperatures, but chilling tomatoes also degrades their flavour.

In an effort to improve the flavour quality, Jinhe Bai, PhD, and his team from the US Department of Agriculture, Agricultural Research Service, and the University of Florida developed a slightly different method. "To produce a better tasting tomato, we added a hot water pre-treatment step to the usual protocol that growers follow," he explains. "We found that this pretreatment step prevents flavour loss due to chilling."

Bai and his colleagues dipped Florida-grown green tomatoes in hot water (about 55°C) for five minutes and then let them cool at room temperature. Next they chilled the fruit to between 5 and 13°C, the temperatures commercial producers use for shipping. After the tomatoes fully ripened, the researchers tested them for flavour and aroma.

They found that tomatoes heated before chilling had higher levels of flavour compounds (6-methyl-5-hepten-2-one, 2-methylbutanal and 2-phenylethanol) than non-heated fruit, and they tasted better.

"Chilling suppresses production of oxygen, nitrogen and sulfur-containing heterocyclic compounds, ketones, alcohols and aldehydes,

including 13 important aroma components of tomato flavour. But hot water-treated fruit actually produced higher concentrations of these important aroma contributors, even with subsequent chilling," explained Bai.

Currently, they are monitoring flavour compounds at additional time points — when the tomatoes are green, soon after the process is performed and when they are partially ripened. This information will be combined with data on fully ripened tomatoes to help the team develop a better commercial process.

Bai said that his team's approach is an easy, inexpensive fix to the flavour problem. Many post-harvest technologies sacrifice flavour to prevent bruising or spoiling, he pointed out, but the new methods can easily be implemented in the current commercial system without risking fruit decay.

The team has also tried alternative methods to hot water, such as incubating green tomatoes with methyl salicylate and picking the tomatoes at a later stage than growers usually do. Instead of picking them when they were all green, the researchers waited and collected them when the fruits were half-green and half-pink. Then they treated them with 1-methylcyclopropene to make the fruit more tolerant to cell death and deterioration at higher storage temperatures. Thus the chilling step was avoided and the flavour maintained.

The researchers plan to closely compare the flavour-saving qualities of all techniques, before approaching food processing firms to determine their interest.

The researchers presented the new flavour-saving methods at the 250th National Meeting & Exposition of the American Chemical Society (ACS). □



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Hungry children for lunch

Children's eating practices are being set for life in the preschool years, so providing meals at this time is a wonderful opportunity to influence good habits and lifelong health. Most states have guidelines, mandatory or recommended, for meals in child care. While guidelines can look quite challenging, they are a great help with portion sizing and in building the framework for a healthy menu.

Meals are generally served by the staff of the centre and they are your customers as well as the children — their impressions of appearance and aroma when the covers are taken off is as important as the children's views to the 'success' of the meal.

Early days

It is suggested that children start solids from around six months, beginning with small portions of pureed or finely mashed single foods. There is no special sequence for introducing foods but centres may have their own preferences. Some centres will ask parents to bring the food for beginning eaters, but otherwise a useful tip is to provide small frozen portions of single food items that staff can use as they need them.

The menu

From around 12 months, children can share family food and can enjoy the children's menu at child care. Include plenty of the popular and familiar items — pasta, noodles, roast chicken — but also use the opportunity to offer new foods. Australian kids (and their parents) are often not strong on lentils or beans but they are extra healthy (and economical) so try a few on the menu. Fish is healthy and recommended; tuna casserole and patties are popular, but plain fish not so popular.

At child care, children will be hungry and will often eat with relish foods that

they refuse to even try at home. Research recommends that the best advice about kids' eating is to offer the foods you are happy for them to eat, and let them decide whether and how much to eat. This is sometimes called 'parents provide, child decides'; in this case it is 'centre provides, child decides', so plan with this in mind.

Children often love 'all in one' dishes and they are easy to serve, but it can be useful to have several parts to the meal so that fussier children can choose at least one item. For example, offer a vegetable or salad along with the main, bread on the side or sauce and pasta served separately. Some littlies are still learning to use cutlery, and finger foods are always very popular so include them often — patties, croquettes, slices and finger-size vegetable pieces.

Tricky stuff

Almost certainly there will be one or more children with special diet needs in every centre and consequences can be serious if there is an error. Go through your menu and work out which items are suitable for which children. Make sure that where allergy is concerned items are prepared separately, served separately and labelled accurately; do not expect busy staff to work out which items to serve. Every service should be able to manage something like 'gluten-free' meals but if you believe your service cannot provide accurately for complicated needs, suggest the parents bring the meals from home. Better to do this than make an error.

A highlight in the day

Menus must be displayed for families ahead of time. Parents are delighted and relieved that their children are having a healthy meal during the day; it takes the pressure off the evening mealtime when everyone is tired. Be ready to offer up recipes when parents say 'he loved it', or even offer meals for sale at the centre.

Check out: <http://www.health.gov.au/internet/main/publishing.nsf/Content/phd-gug-child-cookbook> (information and recipes for child care) and <http://www.allergy.org.au> (accurate allergy information).



Kay Gibbons is a dietitian with interests and extensive experience in children's nutrition and in food service management. As a former manager of nutrition services at The Royal Children's Hospital Melbourne, she has provided meals for many childcare services and taught certificate and university students in nutrition and food services. Kay now consults through 'foodwithkids'. A Fellow of the Dietitians Association of Australia (FDAA), Kay is Board Chair of Early Childhood Management Services. Kay is a member of the Dietitians Association of Australia's Food Service Interest Group. To find an Accredited Practising Dietitian, visit the 'Find an Accredited Practising Dietitian' section of the DAA website at www.daa.asn.au.



Slim-profile refuse container

Rubbermaid Commercial has introduced the Slim Jim Step-On refuse container, designed to maximise space efficiency with a 20% smaller footprint compared with other step-on containers and a slim profile to fit into the tightest spaces.

The container features a built-in lid dampener, ensuring a quiet and controlled lid close that minimises noise. The lid's hinge is located inside the container, which prevents wall damage compared to traditional receptacles.

The container is available in five sizes and in front-step or end-step styles to meet a variety of space requirements and applications.

Rubbermaid Commercial Products
www.rcpworksmarter.com



Continuous inkjet printer

Designed for washdown environments, Domino's A520i continuous inkjet printer uses marine-grade stainless steel (316) with IP66-rated fully sealed electronics from the company's plenum airflow cooling system. This technology keeps the printer cool and the electronics sealed, which keeps the production line running. With energy-saving software, the printer can automatically shut down when the production line stops.

Domino's service-free i-Tech ink system delivers low makeup usage, driving down the solvent footprint — which reduces costs and operator intervention. The CleanFill cartridges can be

changed while the printer is still operating, and the larger volume makeup cartridges provide extended runtime between changes. This means the printer is online for longer, with fewer interruptions and less waste.

The flexible design of the product allows the user to site the user interface and printer separately to suit their working environment. Multiple coders can be controlled from a single interface panel for increased operational efficiency. Hot, wet, cold or dry — the A520i ink jet printer is suitable for the harshest of environments.

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Nutrient density

key to healthier ageing



We are living longer, but not necessarily healthier, lives and our diet plays a significant role. That was the focus of a recent workshop in The Netherlands where academics and nutrition experts discussed the nutritional situation of the general population, and the role that diet plays during critical periods of life, when the body is most susceptible to changes that increase the risk of developing non-communicable diseases (NCDs). The goal of the session was to present evidence for the benefits of healthy nutrition throughout life, and to discuss how nutrient density can be used as a tool to help break the intergenerational cycle of malnutrition and obesity. A paper by DSM Nutritional Products, discussing the outcomes of the workshop, held at the University Medical Center in Groningen, has been published in the human nutrition journal *Nutrients*.

Nutrient density refers to the content of micronutrients relative to energy in foods or diets. Micronutrient intake is known to play an important role in determining the

risk and the time of the onset of many common NCDs. It is estimated that 80% of premature deaths due to heart disease, stroke and diabetes could be prevented via modifiable factors such as improved nutrition and physical activity.^[1] However, inadequate micronutrient intake is widespread, even in affluent Western societies where a variety of food is readily available.

“Modern lifestyles and economic constraints lead people to consume diets high in energy and low in micronutrients, resulting in increased obesity and suboptimal nutritional status. Information about nutrient density can help identify foods that have a low cost to nutrient ratio and can therefore help compile affordable diets that cover nutritional needs without increasing the risk of becoming obese,” said co-author of the paper Manfred Eggersdorfer, senior vice president, Nutrition Science & Advocacy at DSM and Professor for Healthy Ageing at Groningen University.

“Given the positive impact that a nutrient-dense, low-energy diet can have on health, stakeholders such as the food industry, academia and governments should join

efforts to develop options for affordable and appealing nutrient-rich food products, which, in combination with physical activity, allow for optimal health throughout the life-course,” he added.

A shift towards nutrient-dense diets could have a significant effect on the risk of developing NCDs and help to maintain not only life expectancy, but also a higher quality of life. Learning more about nutrient density can be a valuable tool in nutrition education and dietary guidance.

The paper concludes that enabling food, beverage and condiment producers to make their products healthier through nutrient fortification and reducing energy content by lowering fat or sugar would be a major step forward along the road to good nutrition. This approach, which could hold the key to tackle both over- and under-nutrition problems, will be the topic of a follow-up workshop planned by the team. □

^[1] World Health Organization, *Global status report on noncommunicable diseases 2010*; Geneva, Switzerland, 2010.

DSM Nutritional Products
www.dsm-foodspecialties.com

Printed vertical form filling film

Pac Food has available vertical form filling film with a white strip which enables the machine to print on it so it is visible in all situations.

Suitable for both dry goods and hot fill, vertical form filling is an automated assembly-line process for product packaging systems. The machines construct plastic bags out of a flat-roll vertical form-filling film while simultaneously filling the bags with product and then sealing the filled bags. Both solids and liquids can be bagged using this packaging system.

Pac Food Pty Ltd
www.pacfood.com.au

Electric forklift truck

Mitsubishi's series of 3-wheel electric forklift trucks is suitable for the busy food and retail industries, providing clean and robust power with nearly maintenance-free operation.

With its compact design and manoeuvrability, the FB13-20TCB series is suitable for confined working areas such as narrow warehouse aisles and containers. Features include a 48 V battery, efficient AC power traction and hydraulic motors and regenerative systems.

While the trucks are suitable for indoor applications where noise, pollutants or particulate contamination is undesirable, they also come with a higher IPX4 rating, which means the forklift and its systems are protected against water spray from all directions and angles, making them safe to operate in rain.

The forklift creates safe working conditions for its operators, offering electric power steering, good visibility, ergonomic controls, comfortable seat and good leg room.

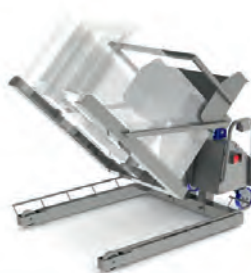
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www.mlaholdings.com.au



BACKSAVER

Tel no: +61 (02) 9969 0370

Mike Jackson: jacko@globalms.com.au



See the VIDEO @

www.backsaver.com.au



Blast chillers/freezers

When blast chilling or blast freezing food products, it is critical to have control of the process, taking into consideration the product being chilled. The Friginox TS range provides flexibility in operation, with soft chilling, hard chilling, soft freezing, hard freezing and self-adaptive I-Chilling as standard on all models.

Replicating a blast chilling program on the refrigeration equipment is as simple as pressing a button. With 99 user programs available, users are assured that food products will be chilled the right way every time. Popular programs used on a regular basis can be easily found utilising the favourites key — ensuring speed and efficiency in use. Friginox offers a complete line of blast chilling and freezing solutions (reach-in and roll-in) for restaurants, caterers, bakeries, pastry shops and food production facilities, distributed in Australia and New Zealand by Moffat Pty Ltd.

Moffat Pty Limited
www.moffat.com.au

Alcohol-free hand sanitiser

Jasol has announced that Safe T Guard, an innovative instant hand sanitiser, will join the company's personal care range.

In industries such as hospitality and food and beverage, there is a constant need for hygienically clean hands. Where washing of hands is not practical, the use of sanitisers is a quick, reliable sanitation method to eradicate and stop the spreading of harmful bacteria.

In the past, most traditional hand sanitisers contained up to 60% alcohol, which can be a very efficient ingredient to reduce germs but leaves the skin dry and sticky, can cause skin irritation problems and has a poor aroma.

Jasol's Safe T Guard is an alcohol-free, non-perfumed, instant hand sanitiser that is delivered via a touchless dispensing system as a foam directly onto the surface of the skin, and quickly evaporates when hands are rubbed together. Its unique moisturising formula leaves hands soft and smooth, with no lasting stickiness, odour or residue.

Jasol Australia
www.jasol.com.au



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Knives and graters spread bacteria

Bacteria can be spread from contaminated produce to other foodstuffs via common kitchen utensils such as knives and graters, a study has found.

In a study funded by the US Food and Drug Administration, University of Georgia researchers found that bacteria would latch on to the utensils and spread to the next item.

Many consumers are unaware that utensils and other surfaces at home can contribute to the spread of bacteria, said the study's lead author, Marilyn Erickson, an associate professor in the College of Agricultural and Environmental Sciences' department of food science and technology.

"Just knowing that utensils may lead to cross-contamination is important," Erickson said. "With that knowledge, consumers are then more likely to make sure they wash them in between uses."

The study, published in *Food Microbiology*, considers what standard kitchen practices are more likely to lead to contamination.

Erickson contaminated many types of fruits and vegetables in her lab — adding certain pathogens that often can be found on these foods, such as *Salmonella* and *E. coli*.

Using a knife, she would cut into produce such as tomatoes or rockmelon to see how easily the bacteria could spread when the knife was continuously used without being cleaned.

Researchers also grated produce, like carrots, to see how easily the pathogens spread to graters. They found that both knives and graters can cause additional cross-contamination in the kitchen and that the pathogens were spread from produce to produce if they hadn't washed the utensils.

"A lot of the broken up material and particles from the contaminated produce remained on the graters," said Erickson.



"Then if you were to shred another carrot or something else immediately after that, it gets contaminated, too."

The study also found that certain fruits and vegetables spread pathogens to knives to different degrees.

"For items like tomatoes, we tended to have a higher contamination of the knives than when we cut strawberries," Erickson said. "We don't have a specific answer as to why there are differences between the different produce groups. But we do know that once a pathogen gets on the food, it's difficult to remove."

Knives and graters aren't the only utensils in the kitchen consumers should be worried about. Erickson has also helped study the role brushes and peelers have on the transfer of dangerous kitchen bacteria.

In concurrent studies, Erickson found that scrubbing or peeling produce items — like melons, carrots and celery — did not eliminate contamination on the produce item but led to contamination of the brush or peeler. Even when placed under running water, the utensils still became contaminated; however, the ability to cross-contaminate later produce items depended on the brush type and the pathogenic agent.

These studies combined give researchers a better idea as to how common cross-contamination is in the kitchen — even when just using standard practices.

Erickson explained there is a small chance of buying fruits and vegetables contaminated with bacteria, but the problem can occur whether the product is store bought or locally grown. □



Busting the myth of 'eating for two'

It may soon be officially confirmed that women don't need to 'eat for two' during pregnancy — and for that you can blame the fruit flies! Researchers from Imperial College London have shown that the body adapts to absorb more energy from the same amount of food, with a hormone released during pregnancy triggering the intestine to grow dramatically and stimulating the mother's body to store more fat.

"Previous studies have shown that eating for two during early pregnancy is unnecessary. Our research suggests that this is because the digestive system is already anticipating the demands that the growing baby will place upon our body," says lead researcher Irene Miguel-Aliaga.

"We normally think of our internal organs as being a fixed size, but the fact is that they are not. They can grow and change, and we show that this is important for making babies," she adds.

The findings may also help to explain why some women struggle to lose weight after giving birth. The research suggests that if hormone levels fail return to normal after birth, a mother's intestine may remain abnormally large, so she will continue to extract extra energy from her food. "Some women find it difficult to lose weight after pregnancy," says study co-author Jake Jacobson. "We may now have found a biological reason for this."

The experiments were performed in fruit flies, and the team is hopeful that the results will translate to humans.

"Many of the fly genes that we studied exist in humans, so our results are absolutely relevant," says Jacobson. "Flies also utilise and store fat like we do, and their metabolism is controlled by similar hormones."

Previous studies show that the intestines of many mammals — such as mice, rats and cows — grow during pregnancy, but it has not been clear exactly why this happens. The new research, which was published in *eLife*, has shown that a fly hormone, called 'juvenile hormone', triggers the changes to the intestine and fat metabolism. Juvenile hormone acts in a similar way to human thyroid hormones, which regulate the body's energy demands.

"We know that in humans the levels of several hormones change during pregnancy, and that these changes can affect how our digestive system works," says Miguel-Aliaga. "We expect that these human hormones act in the same way that juvenile hormone does in flies; to resize the intestine and thus help the mother to extract more energy from her food."

Scientists had previously thought that a woman's appetite changed in response to the baby's increasing demands for energy. Miguel-Aliaga says her team's research shows that this is not the full story. The team has shown that levels of juvenile hormone begin to rise in female flies surprisingly

early — immediately after mating, in fact. This tells the intestine to rapidly adapt so that it is prepared to meet the energy needs of the fertilised eggs.

The researchers know that these metabolic changes do not happen because the mothers are eating extra food. They analysed a strain of sterile flies that cannot produce eggs and therefore do not become pregnant or experience a prompt, if one exists, that might increase their appetite. They found that even these flies grew visibly larger intestines after mating.

The changes in metabolism appear in part to determine the success of fly pregnancy. "If we prevent juvenile hormone from changing the intestine, the flies produce fewer eggs. This hormone is key to the fly producing as many healthy eggs as possible," says Miguel-Aliaga.

In the long term, these metabolic changes may have more sinister consequences. In flies, juvenile hormone stimulates the intestine to grow by activating stem cells in the lining of the intestine. Stem cells have the potential to replicate an infinite number of times and can cause cancer in humans. Scientists know that pregnant women are more susceptible to some cancers. If the stem cells remain activated after pregnancy, they will continue to grow — and may ultimately form a tumour.

The researchers will now use mice — whose organs are similar to our own — to find out more about the functions of pregnancy-regulated hormones in humans. □



Named-variety fruit pieces for baked goods and snacks

Taura Natural Ingredients' URC specialty range comprises concentrated fruit pieces with authentic provenance for use in baked goods and snacks.

The range includes named-variety fruit ingredients made from France's Normandie apples and apricots du Roussillon, as well as American Concord grapes.

They retain the flavour characteristics of the original fruit variety, offering a point of difference and appeal to more discerning consumers, who prefer to know the origins of the food they eat.

They retain the flavour characteristics of the original fruit variety, offering a point of difference and appeal to more discerning consumers, who prefer to know the origins of the food they eat.

URC (ultra rapid concentration) is a process of concentrating the taste, texture and natural goodness of fruit into pieces, flakes and pastes for use in applications such as baked goods, confectionery, chocolate and snack bars. The fruit pieces can also be eaten on their own as a snack.

Taura Natural Ingredients Ltd
www.tauraurc.com

Light-duty thermal transfer desktop printer

Honeywell has introduced the PC42t, a light-duty thermal transfer desktop printer suitable for retail shelf price labelling, general office packing and shipping labelling, and distribution centre barcode labelling applications.

The printer is suitable for small business owners looking to upgrade to thermal printing from inkjet or laser printers for the first time, as it is easy to set up and inexpensive to own.

The printer includes broad, industry-standard connectivity, including USB device and USB host with serial or ethernet (depending on the model). Suitable for media up to 110 mm wide, it can accommodate large ribbon sizes.

The model's compact size, common media specifications, support for Direct Protocol and ZPLII and EPL command emulation make it suitable as an upgrade from legacy Intermec or other thermal printers.

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Fad or fact:

what drives the decision to go gluten-free?

In recent decades, fat, sodium, carbohydrates, sugar and protein have all been targeted as 'bad' dietary factors. The current diet villain is gluten: a protein found in cereal grains — wheat, rye, barley and oats.

For a small proportion of consumers, 1–2%, a diagnosis of coeliac disease or wheat allergy means the avoidance of wheat and other gluten-containing foods is essential. Symptoms for sufferers can include nausea, vomiting, cramping, bloating, abdominal pain, fatigue and even very serious conditions such as liver disease.

However, the growing number of consumer foods labelled as gluten-free, and the popularity of restrictive diets like the paleo diet, would suggest more people are making the choice to go gluten- or wheat-free — above what the coeliac and wheat allergy statistics would suggest.

To understand more about this trend, the CSIRO conducted a nationwide survey of nearly 1200 people selected at random from the Australian electoral roll. The aim of the research was not only to quantify the prevalence of wheat avoidance in Australia but also to pioneer understanding of the drivers underpinning this decision.

Wheat avoidance in Australia

The data collected revealed that as many as 1 in 10 Australian adults, or approximately 1.8 million people, were currently avoiding or limiting their consumption of wheat-based products. Women were more likely to be avoiding wheat than men.

The survey also revealed that over half (53%) of those who were avoiding wheat were also avoiding dairy-based foods.

According to current Australian Dietary Guidelines, both grain- and dairy-based foods are an important component of a balanced diet. They contribute significantly to the daily dietary fibre and calcium intake of both adults and children. They also deliver other important nutrients such as protein, vitamins and minerals, and — if eating whole grain — resistant starch.

So why are people choosing to avoid wheat?

The reasons behind this decision are complex. Some respondents reported that they were avoiding wheat due to a diagnosis of coeliac disease (1.1%) or because a family member has been diagnosed with coeliac disease. Others stated they were avoiding wheat for weight-control or taste preferences.

However, the vast majority of the survey's wheat-avoiding respondents — which equates to 7% of (non-coeliac) Australians — were avoiding wheat-containing foods to manage a range of adverse symptoms they attributed to the consumption of these products. Symptoms were mostly gastrointestinal in nature (bloating, wind and abdominal cramps) but also included fatigue/tiredness.

When asked if they had any formal diagnosis, including that of an intolerance, allergy or coeliac disease, that required them to avoid wheat, most (84%) of these symptomatic individuals said no.

So what sources are people relying on when it comes to making decisions such

as avoiding wheat? There is a great deal of information which links the consumption of specific foods to adverse symptoms. According to the CSIRO's data, those who decide to eliminate wheat tend to do so based on advice from sources such as complementary practitioners (for example, naturopaths), family, friends, the media, and to a lesser extent their GP or a medical specialist.

Is wheat really so bad?

Up until recently, it was thought that gluten was only really a problem for individuals with coeliac disease. The survey findings, plus the extraordinary rise in popularity of the gluten-free diet in Australia and elsewhere, suggest that, apart from coeliac disease and wheat allergy, other conditions associated with the ingestion of wheat are emerging as healthcare concerns. Currently, the driver of most of the research activity in this area is the concept of non-coeliac gluten sensitivity (NCGS).

NCGS is defined as adverse reactions to the consumption of gluten, where both allergic and autoimmune mechanisms have been ruled out and where gastrointestinal symptoms improve on a gluten-free diet. Many aspects of NCGS remain unclear, including prevalence, clinical spectrum, physiological mechanism and treatment. There is also considerable debate as to whether it is in fact gluten or some other component of wheat that triggers the reported symptoms.

Fructans, for example, are short-chain carbohydrates which are found in wheat-based products, as well as other foods. For a proportion of the general population, fructans, along with other short-chain carbohydrates (collectively called FODMAPS), can trigger symptoms like bloating, wind or cramps — by holding water in the gut or through the rapid production of gas by intestinal bacteria.

The finding that people may be avoiding more than one dietary component at a time

has the potential to complicate being able to know exactly which dietary components, and in what doses, are to blame for their symptoms, and the CSIRO believes further research is needed.

The risks of going gluten- or wheat-free

The CSIRO believes there is a risk that a significant proportion of Australians may be undertaking diets that are unnecessarily restrictive, with the potential danger of associated nutritional imbalances. They also express concern that the majority of symptomatic respondents appear to be bypassing conventional medical advice in their decision to go wheat-free, as such action could increase the risk of a serious clinical condition going undetected. □

CSIRO Food and Nutrition
www.csiro.au/fns

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The vomit machine!

How do scientists study the transmission of viruses from person to person? Why, with a vomit machine of course! Norovirus is a group of more than 30 related viruses that can cause vomiting and diarrhoea, with infections sometimes requiring hospitalisation and occasionally causing death in vulnerable groups such as the elderly.

About a quarter of 'noro' infections are obtained by consuming contaminated foods or water, but it is most often spread between people in close contact with each other.

A long-held theory is that norovirus can be 'aerosolised' through vomiting, meaning that small particles containing norovirus can become airborne when someone throws up, transmitting directly to a nearby person or contaminating surfaces. (Fun fact: Noro can still be detected in dried vomit after six weeks.)

But norovirus aerosolisation by vomiting had never been proven. Enter norovirus expert Lee-Ann Jaykus, a professor of food science at North Carolina State University and scientific director of NoroCORE (Noro-

virus Collaborative for Outreach, Research, and Education).

To test the theory, researchers in Jaykus's lab needed a controlled way to observe and study vomiting over and over again. They needed a vomiting machine.

Unsurprisingly, a vomiting machine is not something that can be found on eBay, so the researchers had to design and build their own. A graduate student from the civil, construction and environmental engineering department provided the construction know-how, while data on vomiting was provided by a gastroenterologist.

Working together, the researchers created a machine that is essentially a scaled-down version of the mouth, oesophagus and stomach — made of tubes and a pressure chamber that passes through a clay face to give it the correct vomiting angle. The machine is designed to let researchers control the pressure and volume of the vomit, in order to mimic a range of natural vomiting behaviours. The device is enclosed in a sealed Plexiglas box and placed under a biosafety hood.

Liquid solutions of different viscosities or thicknesses were used as 'artificial vomitus'

to reflect different stages of digestion. A bacteriophage called MS2 — a virus that infects *E. coli* but is harmless to humans — was substituted for norovirus.

After extensive testing of the machine, they began using it for formal experiments, which showed that the virus was indeed aerosolised.

And although the amount of MS2 aerosolised as a percentage of total virus 'vomited' was relatively low (less than 0.3%), vomit from infected people contains millions of particles, meaning the actual amount of virus particles aerosolised during a single vomiting event ranges from only a few into the thousands, perhaps more.

"And that is enough to be problematic because it only takes a few, perhaps less than 20, to make a susceptible person ill," Jaykus said. "This machine may seem odd, but it's helping us understand a disease that affects millions of people. This is work that can help us prevent or contain the spread of norovirus — and there's nothing odd about that."

The research was published in the *PLOS ONE* journal. □

High protein content in world's smallest vegetable



Mankai is the world's smallest vegetable — 0.5 mm. Due to its small particle size, it can be easily incorporated in its natural form into food or beverage applications. The vitamin and mineral-rich plant has a light vegetal flavour and is native to Southeast Asia. It has been part of the diets in Thailand, Laos and Vietnam for generations.

The Mankai plant boasts the closest protein profile to animal protein and the tiny, single-strain microgreen delivers health benefits to a wide range of market targets and addresses not only the race for new protein sources but also offers perfect solutions to trendy diets, such as Paleo and vegan.

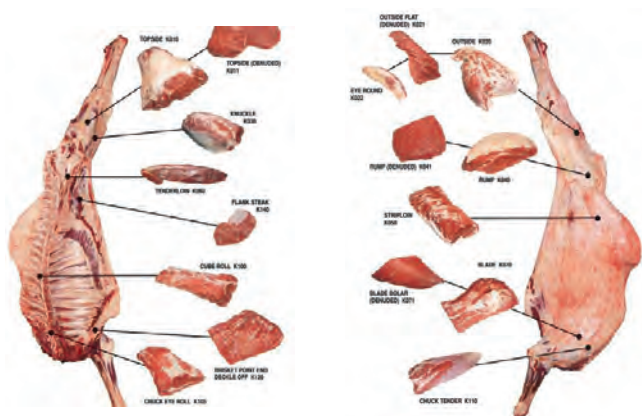
Hinoman has introduced an aquacultured source of Mankai that has particularly high nutritional value. The company's hydroponics technology enables it to grow the plant faster and in large quantities, without pesticides, while

guaranteeing a high protein content of at least 45% by dry weight.

Hinoman claims a high Protein Digestibility Corrected Amino Acid Score (PDCAAS) of 0.89, which is greater than vegetables such as spinach, spirulina and kale. Protein quality depends on digestibility, amino acid profile and content. A high-quality protein contains all the essential amino acids, with a high proportion of the branched chain amino acids (BCAA). Mankai is rich in vitamins A and E, the B vitamins, plus minerals and fatty acids.

Mankai's precision cultivation method produces reliable and consistent nutrient levels, answering all 'free-from' requirements and enabling a clean label.

Hinoman
www.hinoman.biz



Camel meat

Samex processes bone-in and boneless camel meat for export markets in the United States, Middle East, Africa, Europe and Asia.

Low in cholesterol and high in protein, camel meat is similar in taste and texture to beef. The meat is processed from free-range, chemical-free livestock and has been recognised by the National Heart Foundation as a health food.

The meat is processed in fully accredited export-registered abattoirs under Australian Government supervision. All animals undergo an ante- and post-mortem veterinary inspection to ensure food safety requirements are met.

Samex Australian Meat Company Pty Ltd
www.samex.com.au

Charity kitchen calls for food donors

FareShare has appealed to Victorian food producers and businesses for food donations to meet the growing demand for cooked, ready-to-eat meals from charities.

FareShare operates Australia's largest charity kitchen, cooking 5000 free, nutritious meals every day for the hungry, homeless and those doing it tough.

With any increase in production dependent on additional food donations, FareShare requires a constant supply of ingredients.

"We particularly need fresh vegetables, rice, pasta, pastry, dried lentils and chickpeas, and flour," said FareShare's general manager, Kellie Watson, who receives weekly requests for more food from welfare charities and enquiries from new charities.

A team of professional chefs oversees the production of all FareShare meals, which include curries, tagines, ragouts, pastas and a wide range of savoury pastries.

A FareShare quiche is designed to be a complete meal and is typically composed of up to a dozen ingredients provided by different donors, such as pastry (Boscattle, Goodman Fielder and Pastry Lounge), eggs (Kinross Farm), cheese (Fonterra), spinach and mushrooms (Woolworths) and tomatoes (D'Vine Ripe).

"We can also accept products with damaged packaging, sample or bulk produce, discontinued lines and products that fall outside manufacturing specifications," said Watson. "FareShare can deface products, issue donation-in-kind receipts and safely process food close to its use-by date.

"By donating to FareShare, businesses reduce costs associated with dumping, transport and administration and save waste going to landfill. They may also involve employees in corporate social responsibility by participating in FareShare's volunteer program and undertaking half-day kitchen shifts in our custom-built facilities in Melbourne."



Packaging for ready meal shelf-life extension

If you can extend the shelf life of your ready meals you will simultaneously reduce your costs and increase your appeal to retailers and distributors.

Modern packaging materials and methods are enabling foods to remain fresh and wholesome throughout the distribution process. Intelligent packaging functions which include sensing, detecting, recording, tracing, communicating and applying scientific logic in order to extend shelf life enhance safety, improve quality, provide information and warn about possible issues.

There is a commercial benefit to ensuring products stay fresh on a retailer's shelf for longer. The extension of shelf life is based on slowing the deterioration of the product using a range of processes together with effective packaging to preserve the product in a suspended state.

The principal mechanisms involved in the deterioration of processed foods are:

- microbiological spoilage sometimes accompanied by pathogen or germ development;
- chemical and enzymatic activity causing the breakdown of colour, odour and flavour and texture changes;
- moisture or other vapour migration which produces changes in texture, water activity and flavour.

Therefore, to enhance shelf life, the focus should be on:

- reducing microbial activity;
- increasing the acidity;
- the addition of additives;
- reducing water activity;
- modifying the immediate environment.

Initially, extending the shelf life of products was a supply chain issue, but it has now become a consumer concern, due to freshness coupled with sustainable packaging.

Consumer demands for convenience have created new innovations in the food product development and packaging industries. The

widespread desire for products which can be heated in the microwave has also contributed to such developments.

In the supply chain, more work is being done on oxygen scavengers, moisture absorbers and barrier films that will enhance the shelf life of products. Consumers want packaging that keeps products clean, ready for eating, with longer shelf life, product security and value for money. This remains a big ask, but if success is to be achieved, packaging technologists need to rise to these demands.

The terms active packaging and smart packaging refer to packaging systems used with foods, pharmaceuticals and several other types of products. They help extend shelf life, monitor freshness, display information on quality, improve safety and improve convenience.

Active packaging

There is a range of active packaging techniques available. The broad categories are:

- Absorbers/removers
- Release systems
- Self heating/cooling
- Selective permeation

Each of the above is a topic on its own.

Smart packaging

In conjunction with the developments in packaging materials which help to extend and protect shelf life, there is also a complementary group of devices that monitor the products in the packs. These include time and temperature indicators, as well as leak and gas indicators, which provide an indication to the consumer of the state or freshness of the product.

Nanotechnology

One of the fastest growing areas in food manufacturing is the application of nanotechnology in packaging materials. As the food market has expanded into a worldwide marketplace, it is requiring a longer shelf life. New materials incorporating nanoparticles have been able to reduce, and in some cases eliminate,

the transmission of oxygen, and in addition have blocked the transmission of moisture from the product.

With the daily challenges of preserving product and minimising losses, growers, packers, shippers and retailers of produce now have new packaging options that allow them to dramatically increase shelf life.

Various packaging technologies can help food handlers remain competitive by reducing spoilage and delivering consistent quality products on every shipment. Innovations in packaging for extending shelf life will be a key driver over the next few years for manufacturers. Enhanced technical knowledge and input by packaging technologists and packaging engineers through improved performance qualities of materials will be required to fuel market growth.



*Pierre Pienaar MSc, FAIP, CPP
Past President of the Australian
Institute of Packaging (AIP).
www.aipack.com.au*



**AUSTRALIAN INSTITUTE
OF PACKAGING**

Paperless HACCP inspection app

Techs4Biz has developed the Pervidi paperless app for food safety inspectors to make sure their inspection meets safety and HACCP requirements. The mobile app removes the need to carry packets of papers, clipboards and cameras.

The app works on a variety of mobile devices, including iOS and Android tablets and smartphones. The app addresses the limitations of conventional paper-based HACCP inspection methods, including the paperwork that needs to be manually filled in at every stage of the inspection, which can be time-consuming and error-prone, especially when the inspection is being conducted in new site environments.

The app enables food inspectors to use their mobile devices to: enter data using pick lists or speech to text; take photos using the mobile device's in-built camera; capture electronic signatures; get real-time access to reference material such as instructions, previous inspection history and relevant standards (eg, ISO 22000); send completed report and images back to the office in real time; automatically generate reports on the spot and send to clients; and follow up on required corrective actions.

The app has been configured to suit the inspection requirements of all food safety programs, including pest control, food handling, sanitation checks, equipment calibration and personal hygiene.

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You can lead a child to veggies, but you can't make her eat them

Mandating healthier food options does not necessarily mean that healthier options are actually consumed — especially by children.

In the US, the *Healthy, Hunger-Free Kids Act of 2010* set new nutrition standards for schools and allocated \$4.5 billion for their implementation. It funded child nutrition programs and free/subsidised lunch programs in schools for five years. As a result, the 2012–13 school year saw 21.5 million US children receive a free or reduced-price lunch at school.

In the next month, Congress is due to vote on whether to re-authorise the program mandating healthier school lunches into the future.

However, a recent study shows that simply providing healthier food options does not necessarily mean that healthier options are actually consumed.

The study confirms the suspicions of school officials — many students are taking the fruits and vegetables they are now required to receive and putting them straight into the bin. The students are consuming fewer fruits and vegetables than they did before the law took effect. Students put more fruits and vegetables on their trays, as required, but consume fewer of them. Waste has increased by about 35%.

Published online in *Public Health Reports*, the study used digital imaging to capture students' lunch trays before and after they exited the lunch line. It is also one of the first to compare fruit and vegetable consumption before and after the controversial

legislation — the *Healthy, Hunger-Free Kids Act of 2010* — was passed.

"The basic question we wanted to explore was: does requiring a child to select a fruit or vegetable actually correspond with consumption?" explained Sarah Amin, PhD, a researcher in Nutrition and Food Sciences at the University of Vermont and lead author on the study.

"The answer was clearly 'no'," she said. "It was heartbreaking to see so many students toss fruits like apples into the trash right after exiting the lunch line."

Digital imaging produces fast, accurate data

The research team used a digital imaging method to measure consumption. The new methodology, which involved visual estimations and calculations based on digital photographs of trays as students reached the cashier and again after they passed the food disposal area, was faster and more accurate than conventional methodologies that simply weighed food waste.

Amin and her co-authors documented almost 500 tray observations over 10 visits to two elementary schools before implementation of the USDA guideline and almost twice as many observations afterwards. Forty to 60% of the students at the schools qualified for a free or reduced lunch, a marker for low socioeconomic status.

"The beauty of this method is that you have the data to store and code to indicate what was selected, what was consumed and what was wasted, as opposed to weighed plate waste, where everything needs to be done on site," said Amin, who hopes to



develop an online training tutorial that could be used by schools across the country to measure consumption and waste.

Revisiting past practices part of answer to increasing consumption

In an earlier study published in the *Journal of Child Nutrition and Management*, Amin and colleagues looked at what types of fruits and vegetables children selected prior to the new guideline.

They found that children preferred processed fruits and vegetables, such as tomato paste on pizza or 100% fruit juice, rather than whole varieties.

In addition to making sure those options

are available, Amin and her colleagues offer these additional strategies in the paper for increasing fruit and vegetable consumption in school lunch programs:

- Cutting up vegetables and serving them with dip or mixing them in with other parts of the meal;
- Slicing fruits like oranges or apples, rather than serving them whole;
- Adopting promising strategies targeting school settings, such as Farm-to-School programs and school gardens, which can encourage fruit and vegetable consumption in addition to what the cafeteria is providing;
- Putting public health programs in place that encourage fruit and vegetable consumption

in the home, which could carry over to school.

Once schools have fully acclimatised to the guidelines, Amin thinks consumption will increase, especially for students who entered as kindergarteners under the new guidelines in 2012 and know no other way.

"An important message is that guidelines need to be supplemented with other strategies to enrich fruit and vegetable consumption. We can't give up hope yet."

Amin's co-authors include research associate Bethany Yon; Rachel Johnson, the Robert L Bickford Jr Green and Gold Professor of Nutrition and Food Sciences; and Jennifer Taylor, a graduate student at UC-Davis. □



French pastry company opts for JBT's versatile spiral freezer



Founded in 1952, Vitacuire — a French producer of specialist frozen snacks and pastries — is now a major player in a seasonal industry where 50% of production takes place between September and December, providing retail, home service, food service and catering industries across Europe with a range of themed cocktail bites, petit fours and individual savoury pastries.

The company has a longstanding relationship with JBT FoodTech, having purchased its first Frigoscandia spiral freezer from JBT in 1989. Following a recent strategy review, Jean-Yves Krief, son of founder Emile Krief, approached JBT once again to help him maximise and simplify production.

"Our first Frigoscandia spiral freezer allowed us to move to a continuous production line," said Jean-Yves. "At the time it simplified the whole process as there was less handling and much higher levels of hygiene. It was also quite a challenge for us, as it represented a real revolution in working methods, but we've never looked back."

Vitacuire has now added the latest Frigoscandia GYRoCOMPACT 60 Spiral Freezer to its manufacturing base in Meyzieu near Lyon.

The freezer has enabled Vitacuire to reorganise its entire production line, increasing versatility and maximising space in the production room.

"We were able to configure the freezer, which meant we saved a lot of space, reduced energy usage and optimised cleaning times, which were all significant achievements for us," said Jean-Yves.

"Versatility is a key word at Vitacuire because we produce a wide variety of products and need to change from one product to another very quickly in order to meet many different customer orders. The self-stacking structure has also enabled us to put maximum tiers in the allotted space. We can now treat 2.5 tons per hour of mini cocktail bites and savoury pastries."

Another important aim for Vitacuire was to optimise cleaning and drying. With a wide variety of production changes and the presence of some potentially allergenic products, frequent cleaning is required. With the new freezer the cleaning time has decreased significantly.

Due to its redesigned outfeed system and automatic lubrication system, the drive power on the GYRoCOMPACT 60 Spiral Freezer has been reduced by 60% compared to previous generations, resulting in low energy consumption and a reduced risk of problems in the freezer's components.

JBT FoodTech
www.jbtfoodtech.com

Antimicrobial floors

Flowcrete has secured International HACCP Certification for its Flowfresh range of antimicrobial enhanced polyurethane floors.

This certification means that food and beverage producers operating a Hazard Analysis and Critical Control Point (HACCP)-based food safety program can specify flooring materials that will meet the relevant regulatory authority's standards for safe procurement, production and processing.

The floors have been created in partnership with antimicrobials manufacturer Polygiene. A silver-ion-based bactericidal additive is added into the flooring material, which eliminates up to 99.9% of bacteria that comes into contact with the coating.

The floors also meet the ISO 22196 standard, which measures a surface's antibacterial effectiveness.

The Polygiene agent is homogeneously distributed throughout the floor's finish. This formulation means that should the coating ever chip, any contaminants that fall into that space will still be exposed to the antimicrobial ingredient.

HACCP guidelines state that a seamless and impervious finish must be maintained at all times, and floors also need to allow for adequate drainage and cleaning. The coating can be laid to falls and incorporate stainless steel drainage to channel contaminants and excess liquid out of the area. Coving can also be incorporated to create a seamless, easily cleanable transition to the wall, and the floor's texture can be tailored to best suit the on-site cleaning regime.

The polyurethane finish also prevents common food industry by-products like fats, acids, blood and oils from seeping into the underlying concrete and damaging the substrate.

Flowcrete Australia
www.flowcrete.com

Washdown gun with ½" BSP outlet

Tecpro Australia's RB65 washdown gun, with a ½" BSP outlet, features a female pipe fitting to which stainless steel lances of varying lengths can be fitted, enabling spray cleaning of hard-to-reach areas.

A flat fan or circular pattern nozzle is fitted to the front of the lance, which enables the operator to select a nozzle that gives the spray width and flow rate that best suits their requirements.

The washdown gun is suitable for applications such as cleaning out deep bins or reaching awkward and hard-to-access spaces, particularly where machinery or conveyors may be in use. Because it focuses the spray jet, it can also be more effective in cleaning surfaces that need a more aggressive clean.

The spray gun also includes a swivel inlet that makes it easy to twist to direct the flow where needed, easing the strain on the user's wrists.

The spray gun has a chromed brass body fully encased in plastic and features an air gap between the inner brass body and the outer plastic casing, which prevents the transfer of heat, even when working with very hot water. It is rated to work with fluids up to a temperature of 90°C.

Lances are constructed in stainless steel and are available in lengths of 400, 450, 700, 800, 900 and 1250 mm, and in diameters of ¼ and ½". The ¼" diameter model has a moulded rubber grip to hold on to and the ½" version has an adjustable handle that slides along the length of the tube.

Tecpro Australia
www.tecpro.com.au



Egg-based canapés

Two canapés from Sunny Queen Meal Solutions have been launched, offering a convenient, cost-effective option for catering managers.

Mini Fritters and Egg Bites offer a balance of convenience and elegance, suitable for parties, festivities, corporate functions and commercial kitchens.

The canapés can be prepared in a microwave, grill, hotplate,

combi or conventional oven. The Mini Fritters have a rustic, home-made appearance and are available in Corn & Cheese, and Spanish with Chorizo. The Egg Bites are available in Smoked Ham & Cheese, Creamy Fetta & Garden Spinach and Goats Cheese & Caramelised Onion.

The products have a shelf life of 12 months from the date of production.

Sunny Queen Meal Solutions
www.sunnyqueenmealsolutions.com.au

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The convenient truth about ready meals

Paul McGuire, Market Manager – Ready Meals & Darfresh, ANZ, Sealed Air



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One of the biggest trends, however, revolves around convenient fresh food options. It seems freshness is now a widespread customer expectation and a rallying cry that signifies greater quality, flavour and healthiness.

Convenient fresh food options are powering the booming growth in the ready meals market.

Do you feel like there are never enough hours in the day? Don't worry, you're not alone. According to a recent OECD Better Life Index, Australia rates in the bottom 20% when it comes to work-life balance. We are officially spending more time than ever at our desks, in our cars or on public transport. As we struggle to make time for the things we cherish, it's unsurprising the traditional approach of planning and eating three square meals a day is quickly changing.

Our time-poor lifestyles have led to people spending less time cooking. Instead, we are becoming increasingly focused on the pursuit of convenience that tastes great. To put it in celebrity chef terms — we're becoming less 'Ready, Steady, Cook' and more 'Ready, Steady, Reheat'.

Industry analysis by IBIS World backs this premise by showing the world's prepared meals production market has grown steadily over the past five years at an annual rate of about 3.6%.

Over the years, foods considered convenient and competitively priced have become widely embraced. Today we're seeing a growing uptake and increasing popularity for fresh, high-end ready meals, especially low in fat. One of the biggest trends, however, revolves around convenient fresh food options. It seems freshness is now a widespread customer expectation and a rallying cry that signifies greater quality, flavour and healthiness.

Research shows how meaningful and pervasive the trend is. When Technomic recently asked American consumers to choose from a list of descriptors they looked for when purchasing food or beverages, a large majority — 80% in retail — chose "fresh" to a far greater extent than they did terms such as "housemade", "scratch", "seasonal" or "artisan".

To take advantage of this trend, producers must embrace packaging technology that gives them the edge in the fresh and convenient space.

A prime example of this is the great Australian avocado. It's notorious for its short shelf life and low yield when used from scratch in sandwiches, salads and guacamole.

Packaging innovations, such as flexible pouches made with barrier and oxygen-scavenging films, are helping to overcome this short-shelf-life conundrum.

This type of packaging contains active packaging material that removes oxygen from products and can protect avocados and other delicate food products — such as proteins, fresh pasta, tomatoes and fruit purees — from discolouring while also extending shelf life. This combination also leads to less food waste, which can only be a positive.

The result is a batch of guacamole made from fresh avocado pulp and packaged in a pouch that significantly extends product flavour and colour, such as Cryovac Freshness Plus. This packaging process also saves a lot of labour in the process. Greater yield, less spoilage and lower labour costs add up to higher profits.

Similarly, being able to capture fresh spring asparagus or summer berries in active barrier film pouches that protect them from oxygen and extend their shelf life can make the difference between a profitable limited time offering (LTO) and a disappointing one. As a result, operators can integrate these products into their product range or menu without elevating back-of-house costs.

Another trend emerging from our love of convenience is the way we're buying our food. While it would be premature to say the traditional shopping list is dead, it does seem many shoppers plan meals just hours in advance.

The 2014 Power of Meat Report found 27% of American consumers are undecided





**Consumers want fast, fresh and healthy.
And they want it now.**



Paul McGuire, Market Manager — Ready Meals & Darfresh, ANZ, Sealed Air

at least half the time whether they will cook or eat out as close to two hours before dinnertime. The report is an annual consumer survey commissioned by the American Meat Institute (AMI) and the Food Marketing Institute (FMI), with sponsorship from Sealed Air's Cryovac food packaging brand.

The Power of Meat Report found in 2015 that 38% of customers are putting "a lot" of effort into choosing healthy and nutritious meals. This trend of healthy choices is further supported by the growing interest towards organic meat: 39% of shoppers have bought natural and organic meat/poultry in the past three months.

These changes to consumers' eating preferences are prominent in Australia as well. They, along with the changing demographics associated with the ageing baby boomer population and the move towards smaller and dual-income house-

holds, lend themselves to a consumer base that demands everything simplified: from purchasing to storage, preparation, serving and clean-up for the foods they choose.

Packaging that minimises steps for consumers, such as grab-and-go packaged produce or fresh meat products that can go straight from the retailer's chiller case to the oven or microwave, are becoming very popular.

Easy-open packages that consumers can access without using a knife or scissors are also gaining momentum, as is reclosable packaging.

Another convenient solution of note is one that enables a product to be marinated inside the package, which streamlines the process of marinating meat or poultry. This technology packages protein and marinade together, separated by a seal, which is broken when the consumer squeezes the package. The protein can then marinate

without ever leaving the package, which maintains product safety and freshness and also eliminates mess.

All of this underscores the fact that convenience is a powerful and growing force in the marketplace. Operators leveraging packaging innovations to provide convenient, yet fresh and healthy, meals are grasping an opportunity that will pay dividends in customer satisfaction and bottom-line success.

Consumers want fast, fresh and healthy. And they want it now. Undoubtedly this poses both an opportunity and a threat to food manufacturers and processors. But by listening to what consumers want, these businesses can do more than provide their customers with a tasty meal — they can also satisfy their growing hunger for freshness and convenience. ☐

*Cryovac Australia Pty Ltd
www.sealedair.com/cryovac_home.htm*



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Hygienic stainless steel enclosures

Particularly suited to the dairy, beverage and food industries, the Kraus & Naimer 6S Enclosure Series stainless steel IP66 enclosures can withstand even the most aggressive environments. The enclosures provide rigorous protection for vital switchgear.

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Kraus & Naimer Pty Ltd
www.krausnaimer.com

Colour label and tag printer

Label Power's Primera LX2000 colour label and tag printer runs at print speeds of up to 152 mm/s and can print 60 large shipping labels (100 x 150 mm) every minute. The LX2000 prints about 25% faster than its predecessor the LX900.

The label printer features large separate ink tanks, which provide more prints between cartridge changes, and USB and Ethernet connectivity and wireless connection.

Print width is 203 mm and a built-in pizza wheel cutter enables users to cross cut after every label or after every job as required.

The LX2000 includes Bartender Ultralite labelling software. Inks have been changed from dye based to pigment based, giving labels stronger UV, chemical and water resistance.

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Implementing a food safety culture in your business



food safety faux pas can kill hundreds more than a workplace accident so why is food safety not as ingrained as OHS in businesses? Ben Bowering, the director of rulethirteen, has been working with food businesses and auditing and certification for over 30 years. Here is his take on implementing a food safety culture and food safety leadership.

Why did you choose the topic of food safety leadership and culture?

I've been either auditing, consulting or around the food industry for up to 30 years now but I've also had some other roles which relate to OHS and environmental management. I noticed that certain elements of an OHS culture are ingrained into business — but the same thing is not always true for food safety.

When you arrive at a construction site that you haven't been to before there is going to be an induction period where somebody is going to run you through things like where the exits are, evacuation points, things you need to know in the unlikely event of an emergency. This is because there is huge personal risk — people can die on a worksite.

But the contrast is that if something goes wrong in a food safety setting, you could kill hundreds or even thousands of people — so why isn't food safety culture as ingrained as OHS? There needs to be the same visible culture that you get with people safety.

How far are we from this point?

We are making some inroads but it is still very inconsistent. We are probably 10 years away from an established culture. We are

5 years away from most places where you could see this starting to permeate.

What is in the way of food culture being established?

Let's have a look at how we got there for OHS culture — directors and boards were made responsible for people's safety. They needed to be proactive and have systems in place to provide a safe place at work.

There are some of these kind of provisions in food safety, but it is only when there is an extremely bad case like Garibaldi, where 150 people were sick, 23 were seriously ill and one little girl died, that people take note and the ramifications are still there 20 years later. Imagine if something of a similar scale happened on a worksite due to OHS failures.

It's not just the job of the quality manager in a food facility but the managing director, board and leadership in an organisation.

What should an organisation look like when implementing food safety?

For many years there has been a focus on HACCP plans which are a risk assessment

and identification of controls chart. We focused on the HACCP Plan as the thing to drive food safety in a factory.

That would be like saying that in a workplace a risk assessment of personnel risks is the thing that controls personnel safety, but that's just the first part.

There needs to be a focus on going beyond a HACCP Plan. The Plan is just the start.

Goals for the future of food safety?

When I first started, we were first looking at the change toward a regulated environment, with fairly minimal regulation in things like you must have a handwashing basin etc. Then in late '90s they put in food legislation and that was quite a change for the market. People like me went through this whole change and I think we did pretty good but not it's time to prepare the next generation (next 15 years) we need to move that into the next wave of food safety which I think is food safety leadership. □



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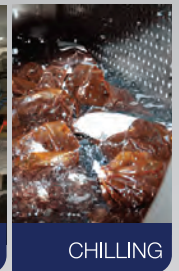


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