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CAROLYN JACKSON
CHIEF EDITOR

editor's NOTE

While the food system in Australia and New Zealand is very productive and resilient, there are many challenges outside of the food manufacturer's control that must be managed — including climate change, economic shocks, biosecurity threats, geopolitical factors and supply chain disruptions.

Many government programs are gearing up to improve food security and decarbonise manufacturing processes, while the wonderful world of food science is being explored to help the industry solve other issues.

As we head into the warmer months, we take look at how science could help with the issue of smoke taint in wine. Laboratory experiments have shown that a bacterium that actually lives on grape plants can break down guaiacol — the unpleasant-tasting substance that ruins wines made from grapes exposed to smoke. Read more on page 14.

In another example of food science in action, engineers have turned to Mother Nature for inspiration to develop a synthesised protein that could act like a non-toxic antifreeze to prevent food from freezing. They have demonstrated in test cases how it could potentially be used in food processing applications, such as for inhibiting ice crystals from forming during the transit of ice cream through the supply chain. Read more on page 19.

In our food facility design feature, Waqas Zaheer, Head of Manufacturing ANZ at The Magnum Ice Cream Company talks about the manufacturer's recent \$35m transformation of its facility in South-West Sydney.

This issue also looks at extending the shelf life of beverages, temperature monitoring of wine, a food grading technique and much more.

I hope you enjoy the read!

Want to contribute?

We welcome submissions from the food industry across Australia and New Zealand that will be considered for possible inclusion in the bi-monthly print publication and our daily web page. If you have a story you think would be of interest, please send an email to wnift@wfmedia.com.au.

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Westwick-Farrow Media
A.B.N. 22 152 305 336

www.wfmedia.com.au

Head Office

Unit 5, 6-8 Byfield Street,
North Ryde
Locked Bag 2226,
North Ryde BC NSW 1670
Ph: +61 2 9168 2500

Editor: Carolyn Jackson
wnift@wfmedia.com.au

Publishing Director/MD:
Janice Williams

Art Director/Production Manager:
Linda Klobusiak

Art/Production: Marija Tutkovska

Circulation: Alex Dalland
circulation@wfmedia.com.au

Copy Control: Ashna Mehta
copy@wfmedia.com.au

Advertising Sales Manager:
Kerrie Robinson
Ph: 0400 886 311
krobinson@wfmedia.com.au

If you have any queries regarding
our privacy policy please email
privacy@wfmedia.com.au

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Victorian creamery doubles capacity

Goulburn Valley Creamery's production capacity has more than doubled to 100 million litres of milk per year, thanks to a \$10 million fit-out of a larger processing area and upgrades to key equipment and water infrastructure. On top of this, the company has employed 17 new operational staff at the expanded facility to support more dairy production.

Also part of this success was an upgrade to Goulburn Valley Creamery's water treatment infrastructure — made possible through an investment from the Victorian Government. The water infrastructure allows the company to treat raw channel water onsite to a standard which is safe for consumption, rather than relying on outsourcing treated water.

The company can now treat more water than it was previously able to outsource. It does so by using new technologies such as filtration equipment and dissolved air flotation systems.

Access to safe water is critical for the company's operations, and this supported its decision to deliver the broader expansion and upgrades of the facility to produce more dairy products.

The local supply chain is also benefiting, with an increased demand for frozen milk storage following processing.

From frozen milk concentrate to frozen cream, the creamery's wide range of dairy products are sourced locally and exported globally. The dairy processing facility is located in the historic Kyabram Jam Factory — home to SPC's IXL jams — and has been operating at this site since 2020.

"We're thrilled with the expansion at our Kyabram factory, which has included water treatment upgrades that have boosted our production capacity and opened up new market opportunities and enabled us to employ more people in the local area," said Goulburn Valley Creamery Chief Executive Officer Mancel Hickey.

"These improvements have helped us bring on more staff and deliver more products to market, while also providing a flow-on benefit to local suppliers."



Starting the conversation about Australia's food security future

While Australia's food system is productive and resilient, it will continue to face a range of challenges, such as: climate change, economic shocks, biosecurity threats, geopolitical factors and supply chain disruptions.

These were some of the reasons why the Australian Government committed \$3.5 million to develop Feeding Australia: A National Food Security Strategy. The strategy aims to boost the productivity, resilience and security of the country's food system, and was recently open for submissions after a discussion paper with specific questions was released in August.

The Australian Food and Grocery Council (AFGC) lodged its formal submission to the government's development of a National Food Security Strategy, saying it welcomed its commitment to safeguarding Australia's food future.

AFGC CEO Colm Maguire commended the leadership of the Minister for Agriculture, Fisheries and Forestry, the Hon Julie Collins MP, in initiating this vital national conversation, and highlighted the importance of developing a long-term, whole-of-economy approach to food security.

The AFGC is urging the government to prioritise mapping vulnerabilities in both international and domestic supply chains, including risks associated with critical inputs like packaging and ingredients, many of which are imported from concentrated global sources.

In its submission, the AFGC is calling for the National Food Security Strategy to recognise the strategic importance of domestic food and grocery production as a national asset and ensure manufacturers have the support needed to thrive in a volatile global environment.

The government is currently reviewing and considering all the submissions and survey responses — a full summary of these is expected in November 2025.





Adelaide bakery appoints new CEO

South Australian bakery Vili's Family Bakery has announced the appointment of Tom Sullivan as Chief Executive Officer.

The move marks the beginning of a new era for the family business, which was founded by the late Vili Milisits and wife Rosemary and has been led by their daughter, Alison Milisits and the family, since 2021. Alison will transition into the role of Managing Director and onto the newly established Advisory Board alongside Rosemary, which will work closely with Sullivan to drive strategic growth.

Alison said the appointment of Sullivan reflected the bakery's ambition to evolve and strengthen its position in South Australia while also unlocking opportunities across national and international markets.

Sullivan is an experienced executive with a strong track record in leading family-owned businesses, including QLM Group and Detmold Packaging.

"I'm honoured to join Vili's Family Bakery and to continue the incredible legacy that Vili and Rosemary and the family have built," Sullivan said.

"This is an exciting time for the business. With Alison's ongoing leadership as Managing Director, together with the Advisory Board, I look forward to guiding Vili's through its next phase of growth, building on the bakery's reputation for quality, innovation and community spirit."

Export success for New Zealand wines

The New Zealand Winegrowers' Annual Report has now been released, which includes details about NZ wine industry's strong reputation and international success but also some challenges noted for the industry.

With 90% of NZ wine produced now heading to global markets in 100 countries, the local wine exports have lifted to over \$2.10 billion per annum. As a result of this success, there are now 42,000 hectares of vineyards across regional New Zealand, which have local processing facilities.

This year also marks the 30th anniversary of Sustainable Winegrowing New Zealand, an industry led, independently audited, sustainability certification program.

"A strong reputation and in-market performance ahead of competitors are real positives on which to build for the future, however, producers are currently navigating their way through a complex and uncertain business environment," said Fabian Yukich, Chair New Zealand Winegrowers.

"Much of the current focus of industry activity is on the immediate challenges confronting growers and wineries. Market and economic developments are compounding industry-specific issues to create a highly uncertain environment."

The challenges outlined in the report include the imposition of higher US tariffs late in the year. While the US remains a major export market for New Zealand wine, valued at \$762 million, it is down 3% in the past year and with a further tariff increase in August, it is not yet possible to discern this effect in the current data.

The strongest growth in the past year has been from emerging export destinations. Shipments to China grew 47% to \$56 million, while exports to South Korea lifted 92% to \$44 million. Overall exports to second-tier markets (all those except the UK, US and Australia, which comprise 70% of exports) grew 17% in the past 12 months to just under \$600 million. This reflects strong trade and consumer interest as well as the ability of wineries to develop new markets with improved supply.



FMCG Industry Solutions acquires Ozflow Australia

FMCG Industry Solutions (FMCGIS), a provider of specialised solutions for the Australian fast-moving consumer goods (FMCG) sector, has announced its acquisition of Brisbane-based Ozflow Australia. This strategic move integrates German drainage technology directly into FMCGIS's portfolio, which will allow it to offer a solution to a critical hygiene challenge in food and beverage production.

The acquisition positions FMCGIS as the exclusive Australian distributor for Wiedemann Technik, a German manufacturer of hygienic stainless steel drainage systems. This directly addresses a significant vulnerability in manufacturing infrastructure: drainage as a source of bacterial contamination, such as *Listeria*.

"For 20 years, we've seen that conventional drainage is a weak link in hygienic plant design," said David Wong, General Manager of FMCGIS. "Ozflow and Wiedemann Technik provide the engineered answer. This isn't just an acquisition; it's a strategic investment to eradicate a key contamination risk for our customers. We are now uniquely equipped to provide best-in-class hygiene infrastructure from the ground up."

Unlike standard drains that are prone to cracking, the Wiedemann Technik systems are fundamentally engineered for hygiene using solid stainless steel 316L construction. The seamless, solid stainless steel housings do not crack, which prevents bacteria-harboring crevices. Hygienic by design, the deep-drawn manufacturing process creates smooth, large-radius surfaces that promote a self-cleaning water flow. All systems are WaterMark certified to ensure full compliance with Australian Standards. Using FMCGIS's established national network, local users can benefit from improved logistics and support, with reduced shipping times and improved availability for both standard and urgent orders from the company's Sydney hub.





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Fonterra invests NZ\$75 million to expand butter production at Clandeboye

Fonterra Co-operative Group has announced an NZ\$75 million investment to expand butter production at its Clandeboye site in South Canterbury.

The investment will enable construction of a new butter line at Clandeboye, expanding the site's current butter production capacity by up to 50,000 MT per annum.

CEO Miles Hurrell said the investment will be used to increase the production of a high-value product and improve the product mix by adding value to milkfat.

The new butter line will be designed to help expand the co-op's capacity to produce a range of butter formats, tailored for both global ingredients customers and professional kitchens.

The plant will be capable of producing products that meet diverse market requirements, including Halal and Kosher certifications.

Fonterra Chief Operating Officer Anna Palairot said: "This investment is part of Fonterra's broader strategic asset roadmap supporting long-term growth in high-value dairy categories. The expansion will create 16 new jobs at the site, supporting the local economy."

Construction at the Clandeboye site starts in December 2025, with commissioning scheduled for early 2027 and first product expected off the line in April 2027.

This is Fonterra's third investment in the South Island in the past year, following:

- NZ\$75 million investment in an advanced protein hub at Studholme to be sold through its Ingredients business – construction is expected to be complete in early 2026.
- NZ\$150 million investment in a new UHT cream plant at Edendale to unlock additional capacity for high value product sold through its Foodservice business – construction is expected to be complete in the second half of 2026.
- NZ\$64 million at Clandeboye for the conversion of two coal boilers to wood pellets, to meet Fonterra's commitment to exit coal by 2037 – the conversion was completed in August 2025.



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Decarbonising Australian manufacturing

The Australian Renewable Energy Agency (ARENA) has released over \$12 million in funding to trial and demonstrate low emission technologies for process heat, reducing the reliance on natural gas for large manufacturers such as three of the latest recipients – McCain Foods, Sugar Australia and Blackmores.

McCain Foods is receiving \$7.38 million in funding from ARENA's Industrial Transformation Stream (ITS) to implement two interconnected heat recovery systems at its Ballarat potato processing site. The first system will recover high-temperature heat from condensate to decrease boiler demand, while the second captures lower temperature fryer exhaust heat to produce hot water, which is then upgraded to steam using an electrically driven mechanical vapour recompression (MVR) system. Collectively, these systems are expected to lower the site's natural gas boiler load by 22% and reduce annual emissions.

Sugar Australia's project, backed by \$4.1 million in funding through ARENA's National Industrial Transformation (NIT) Program, aims to significantly reduce emissions at its Yarraville sugar refinery by replacing traditional natural gas evaporators with an electrically driven MVR system.

Both projects will demonstrate the commercial readiness of MVR for industrial heat applications, providing proof that innovations such as hot water to steam and increased efficiencies for water evaporation can be successfully retrofitted to commercial operations. If the projects are successful, they will serve as a blueprint for how Australian industries can use the technology, de-risk future investment and decarbonise key processes.

Blackmores will also receive \$723,900 through the NIT Program to undertake a project at its manufacturing facility in Braeside, Victoria to reduce emissions and energy consumption by replacing a natural gas boiler with a high-efficiency heat pump and a hot water buffer tank. The new system will use renewable electricity and the site's refrigeration condensate water as a heat source, producing hot water for various manufacturing processes.

The project is expected to cut natural gas consumption by about 25% at Blackmores' Braeside facility, lower annual emissions, and demonstrate how heat pumps can be integrated with process heating, HVAC and dehumidification in an operational facility. This facility is particularly significant, as it accounts for the majority of the company's natural gas use.

The \$40 million National Industrial Transformation (NIT) Program is now closed to new applications.

Round 3 of ARENA's Industrial Transformation Stream (ITS) program is now open.

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\$35m transformation of ice cream facility

The Magnum Ice Cream Company (TMICC) has completed a major \$35 million transformation of its Minto facility in South-West Sydney. With new automation and advanced manufacturing technology, the upgraded facility is already improving overall production output, safety and operational efficiency.

The Minto facility has been producing ice creams for over 20 years, with the upgraded facility marking a significant milestone for the manufacturer of Streets brands, which include Blue Ribbon, Golden Gaytime, Magnum, Paddle Pop and Weis. The facility is now capable of making nearly three million ice cream servings every day, which is approximately 63% of all ice creams sold by The Magnum Ice Cream Company across Australia and New Zealand each year.

Waqas Zaheer, Head of Manufacturing ANZ at The Magnum Ice Cream Company, said: "This is a proud moment for everyone here in Minto. We've worked hard to streamline this site which is now recognised as a top performer in our category for supply chain and customer service. In the past two and a half years we have doubled the factory's efficiency while also maintaining zero waste to landfill and reducing overall waste by around 72% since 2022."

The \$35 million investment into The Magnum Ice Cream Company Minto facility includes the installation of an entirely new production line, expanding the facility's footprint and boosting capacity to meet growing demand. Zaheer said the new line is set to launch later this year, so stay tuned here for more details soon.

"A major focus of the upgrade is the digitisation of the site, which is revolutionising how operations are managed. Advanced automation and live production dashboards now provide real-time insights, enabling data-driven decision-making across the factory floor. These technologies are improving day-to-day governance, enhancing efficiency, and significantly reducing waste. The result is a smarter, more agile manufacturing environment that sets a new benchmark for the industry," Zaheer said.

"The investment also includes a world-class office refurbishment, creating a facility environment unmatched in the global ice cream manufacturing landscape. Alongside





The facility is now capable of making nearly three million ice cream servings every day, which is approximately 63% of all ice creams sold by The Magnum Ice Cream Company across Australia and New Zealand each year.

this, foundational upgrades to legacy assets are improving safety and product quality, ensuring the site is future-ready.

"Sustainability is at the heart of the transformation. Minto is now home to one of Australia's first food-industry depackaging

units, which has already delivered a 72% reduction in waste compared to 2023. Ice cream waste is shredded and separated into liquid and dry streams, with liquid processed onsite and dry waste recycled into usable products. These innovations

have enabled the site to achieve zero waste to landfill, making it one of the only ice cream manufacturing facilities in the country to do so."

The Magnum Ice Cream Company employs more than 400 people across the Minto factory, office and broader operations. More than half of raw materials used in the factory are locally sourced.

In 2024, the company launched 10 new ice creams into the Australian market, made possible by the local team. This year, the business has released other new products, including Magnum Boysenberry and Golden Gaytime Lamington.

Scott Mingl, General Manager ANZ at The Magnum Ice Cream Company, said the investment reflects the company's long-term commitment to local manufacturing and innovation. "This is a major step forward for our business. We're proud to be backed by a local factory, a passionate R&D team and an agile end-to-end supply chain. This investment positions us to disrupt the ice cream market and deliver new innovations at speed. Our focus is to grow the business to become the best ice cream company in Australia and New Zealand and a key manufacturer of ice creams loved across the country."



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Haigh's Chocolates opens new SA facility



Australian chocolate maker Haigh's Chocolates opened its new \$120 million production, warehouse and online fulfilment facility in South Australia on 16 September.

The 18,000 m², state-of-the-art facility located in Salisbury South has been built to support the business's ongoing expansion and plans for wider distribution.

While Haigh's currently produces 1100 tonnes of chocolate per year to fulfil the needs of its 22 retail and online stores, the new facility will allow for future growth including increasing production to 2000 tonnes per year.

"The Salisbury South complex is a significant physical manifestation of a company-wide investment in people, systems and capabilities over the last four years. Today's opening recognises the completion of our chocolate capacity building phase, the continuing growth of our retail network in the eastern states and the meeting of increasing demand of our chocolate," said CEO Peter Millard.

With its Broadway store officially opening in Sydney recently, the South Australian-owned and -operated business remains steadfast in its commitment and ambitions to delight chocolate lovers across the country.

"In the last five months alone, we celebrated our 110-year anniversary, opened our seventh store in Sydney and appointed a new CEO. It's been an exciting time for the business and I am so proud to see the love for our chocolates continue to span all generations," said owner and Brand Ambassador Alister Haigh.

Powered by 1180 solar panels featuring 1.7 km of chocolate delivery pipes and over 5 km of linear storage space, the new facility will accommodate up to 400 employees, including the creation of approximately 100

new jobs across production, warehousing and fulfilment in the next five years.

As part of the development, Haigh's invested \$30 million in the installation of advanced equipment which includes the introduction of specialised panning, enrobing and moulding lines as well as kitchen and packing equipment that complements its artisan chocolate-making capabilities.

Haigh's has grown substantially over its 110-year history, now employing more than 900 people with 22 stores across Adelaide, Sydney, Melbourne, Canberra and online.



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MARKET Byte

Drinking culture

The drinking culture in Australia and New Zealand has shifted to one of moderation, with binge drinking on the decline, driven mainly by health and economic factors.

(Source: drinkwise.org.au)

Drop of choice

Beer still remains the **most-consumed beverage** by volume in Australia, but **no- and low-alcohol alternatives** to beer, wine and spirits are gaining traction and this growth is expected to continue.

(Source: www.theiwsr.com)



Vodka was the most **popular alcoholic beverage** ordered online in **NZ in 2024**, with wine coming in second, followed by beer.

(Source: www.statista.com)

Aussie and Kiwi wine

In 2024, Australia ranked as the **12th largest** wine market by volume and **fifth largest** wine exporter in the world, with its **65 wine regions**.



Shiraz is Australia's **best-selling variety**, with **'Sav Blanc'** second and the good old **'Chardy'** coming in a close third.

(Source: www.wineaustralia.com)

Dominated by the **Sav Blanc variety**, the **New Zealand wine industry** has an export-oriented focus, with almost **90%** of its wine distributed worldwide.

(Source: www.statista.com)



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news

Flavour-rescue tool for smoke-tainted wines



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Previous bushfires in Australia and recent wildfires in the Pacific United States have resulted in unpleasant-tasting wines made from smoke-tainted grapes at nearby vineyards. But now instead of wasting all these tainted grapes, bacteria could help fix the taste.

Laboratory experiments have shown that a bacterium that lives on grape plants can break down guaiacol — the unpleasant-tasting substance which ruins wines made from grapes exposed to smoke. Claudia Castro of the U.S. Department of Agriculture's Agricultural Research Service and colleagues have published their findings in *PLOS One*.

When wine grapes are exposed to bushfire smoke, the berries can absorb volatile phenols which can be released during the winemaking process, resulting in a smoke-tainted wine. Prior research has shown that one such substance, guaiacol, can be broken down by certain species of bacteria living in soil, raising the possibility that bacterial metabolic processes could be harnessed to help fix the taste of smoke-tainted wines.

However, few studies have explored whether the ability to degrade guaiacol is also possessed by bacteria found naturally on grapevines as part of the plants' microbiome. To explore that possibility, Castro and colleagues collected leaves from two varieties of grape plants, chardonnay and cabernet sauvignon, and tested them in a lab for the presence of guaiacol-eating bacteria.

"In this study, we identified two members of the grape microbiome capable of degrading guaiacol, a volatile phenol that contributes to smoke taint of wine. We also identified changes in the grape microbiome caused by simulated wildfire smoke with the goal of providing genetic tools to help combat smoke taint," Castro said.

The study found that the leaves harboured two strains of the same bacterial species, *Gordonia alkanivorans*, that can break down guaiacol in the lab. Analysis of their genomes revealed specific genes involved in this metabolic process, including a gene called *guaA*. When this gene was experimentally deleted in *G. alkanivorans* cells, the bacterium was unable to break down guaiacol, confirming that *guaA* is required for guaiacol degradation.

The researchers also exposed living merlot plants to smoke produced by a culinary smoker — simulating exposure to wildfire smoke — and tested which bacterial species were present on the plants before and after. They found that the microbiome on both leaves and berries (grapes) changed significantly in the days following smoke exposure, with a notable increase of bacteria in the Bacilli class, which are known to survive in extreme environments.

In recent years, smoke-tainted wine has cost industry stakeholders millions of dollars. These new findings could help pave the way for the development of biotechnological strategies that translate natural bacterial degradation of unpalatable substances into flavour-rescuing tools.



Geisenheim University

More than just making a drink

Preserving juice through flash pasteurisation at Geisenheim University means more than making a drink – it teaches students how to think in processes. Michael Ludwig (second from left) heads the Beverage Technology Center for non-alcoholic applications.

GEA is supporting hands-on training at Geisenheim University with process technology specifically designed for research and teaching. For the newly opened Beverage Technology Center (GTZ), the engineering group supplied a multipurpose plant that replicates industrial beverage processes on a small scale.

The pilot-scale solution combines industrial process standards with accessibility for teaching purposes. It consists of a flash pasteuriser, a cleaning-in-place (CIP) and sterilisation-in-place (SIP) system, a carbonator, an automated interconnection matrix, and a separator suitable for fruit juice, beer and wine applications. All components are skid-mounted, with an integrated maintenance walkway for optimal access – a set-up specifically adapted to the demands of university-based operations.

"Students should learn how processes work – and how to design them," said



Image source: GEA

The GEA line includes a flash pasteuriser, CIP/SIP system, carbonator, separator and automated interconnection matrix.

Astrid Heller, project manager at GEA and expert for non-alcoholic beverage processing. "With this set-up, they can modify process sequences, understand control points, and at the same time gain insights into the hygiene and efficiency standards of industrial production."

The automated interconnection matrix allows specific process steps to be switched on or off, enabling students and faculty to construct, modify and analyse entire process chains. This flexibility enables a

learning experience that goes far beyond conventional training models.

"Our students not only experience real industrial automation here, but also develop a deep understanding of the logic and structure of modern beverage production – from pasteurisation to filling," said Michael Ludwig, head of the GTZ at Geisenheim University.

"We aim to train the people who will move the industry forward – in production, innovation and product development."



Case Study: Bringing the benefits of PCR and automation to high-throughput beverage testing, with the SureTect Automation Platform



The Coca Cola Europacific Partners team on the right, with the Thermo Fisher Scientific R&D team, alongside the SureTect PCR System and SureTect Automation Platform

Raul Mesa is the Quality and Food Safety Manager for Coca Cola Europacific Partners. With a technical background in microbiology, he is responsible for finding, selecting, and implementing workflows for the organisation's microbiology labs across 31 countries.

After working with Thermo Fisher Scientific in 2023 to develop a PCR assay for the rapid detection of spoilage contamination in the production environment, the team required a scalable workflow solution to match their throughput.

Speaking to SuperMicrobiologists, Raul discussed the process of integrating the Thermo Scientific™ SureTect™ Automation Workflow:

Raul: When we first implemented the SureTect PCR Workflow we started with the manual protocol. Our previous experience with PCR was quite laborious, but the SureTect PCR protocol is straightforward.

While our routine analysis could be done manually, the number of samples increases substantially during contamination events, making manual handling challenging. Automation allows us to smoothly handle a sudden increase in tests.



Additionally, we're working with Thermo Fisher to implement other PCR assays, so the use of automation greatly reduces our workload in the long run.

The team introduced the Thermo Scientific SureTect Automation Workflow using the CyBio™ FeliX, to reduce the hands-on demand of the upfront sample preparation:

Raul: The instrument is really easy to use. We prepare our samples, reagents, and consumables the same way as for the manual protocol. We load them onto the instrument and start the run. The instrument uses a robotic head and dual platform to prepare the samples just like a lab technician would, following the same sequence and volumes. At the end of the run, we simply take the samples from the instrument and place them in the thermocycler for PCR.

I would like to add that it has a small footprint, which could be an important criteria of choice since some of our labs have limited space.

Introducing the new Platform to the lab and providing training were also key considerations to ensure a seamless workflow transition:

Raul: One of the most challenging steps is getting lab technicians on board with the project. They need to be involved in selecting the technology. Then, give them time and confidence in the technology. It's never a plug-and-play solution; it takes time to become confident. Allow people to make mistakes, experience cross-contaminations, and have false-positives. Like any technology, there's a learning curve, so training is key. Our collaboration with Thermo Fisher was great in this regard.

After the initial training, we had weekly calls and refresher training sessions. This type of collaboration is crucial for the success of such a project.

After implementing the Platform, Raul and the team subjected the workflow to rigorous testing:

Raul: Our main concern was cross-contamination between samples, so we really challenged the system in that perspective. It passed all our tests successfully.

We also ran accuracy tests comparing the automated process to manual handling, and the results were better with automation, which wasn't surprising. Reducing human error leads to more consistent results when testing.

About the SureTect Automation Platform

With the SureTect Automation Workflow, you can take your testing to the next level with automated lysis and PCR setup.

Utilising the CyBio FeliX instrument, the automated workflow allows you to reduce hands-on time and the risk of human error whilst increasing the accuracy and repeatability of your testing.

Fully validated by AFNOR (according to ISO 16140-2:2016) and the AOAC for use with all SureTect Pathogen PCR assays, the Instrument's flexible programs and rapid yet precise setup ensure maximum efficiency and reproducibility in your workflow.

Whether your laboratory is looking to introduce PCR technology for the first time, or you want to expand the PCR testing services you offer, we can help you find the right solution.

Learn more at thermofisher.com/suretect.



Thermo Fisher Scientific
thermofisher.com

METAL DETECTOR

Eriez has launched its PrecisionGuard X8 Metal Detector, which uses high-quality contaminant detection with operator-friendly controls to improve purity and productivity across demanding processing environments. Features include advanced sensing technology, auto-learning capabilities and a large intuitive touchscreen interface.

The system is engineered for the accurate detection of ferrous, nonferrous and stainless-steel contaminants across food, packaging, plastics and other light industrial applications.

Available in a wide range of configurations, including tunnel, tunnel with conveyor, liquid line, vertical drop, vertical form fill seal (VFFS), pharmaceutical and webline models, the system is designed to integrate into new or existing production lines. It also features heavy-duty stainless-steel construction and IP69 washdown rating.

Built-in connectivity, including USB, Ethernet and optional Wi-Fi, provides users with access to event and reject logs, creating a detailed audit trail that supports compliance with HACCP, GFSI, SQF, FSMA and other global safety standards. IoT-ready features are designed to boost traceability, streamline recordkeeping, reduce false rejects, save time and help minimise product waste.

Eriez Magnetics Pty Ltd
www.eriez.com



MOTOR CONTROL WITH CERTIFIED PROFINET

igus increases the flexibility of its D1 motor control, which designers use for electric linear drives, handling systems and robot axes.

It is now possible to integrate the D1 seamlessly and quickly into higher-level control systems from Siemens, Beckhoff, Wago and other manufacturers using Siemens-certified PROFINET – without time-consuming and complicated adaptations.

This extended connectivity is designed to increase the performance and efficiency of automation processes.

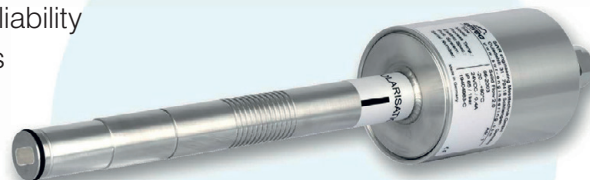
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Engineers at the University of Utah's John and Marcia Price College of Engineering have turned to nature for inspiration to develop a synthesised protein that could be used to prevent food and drugs from freezing.

Fish that inhabit polar waters have proteins in their blood that prevent it from freezing. The stripped-down version of glycoproteins in polar-region fish is simple enough to be manufactured at scale, but powerful enough to inhibit formation of ice crystals at sub-zero temperatures without toxicity of chemical antifreeze.

The researchers demonstrated the effectiveness of their mimic polypeptides on several real-world test cases, including ice cream and an anti-cancer drug. The former was successfully chilled down to -20°C (-4°F), while the latter survived temperatures as low as -197°C (-323°F).

The study, funded by the National Science Foundation, was published in the journal *Advanced Materials*. It was led by Jessica Kramer, an associate professor in the Department of Biomedical Engineering, and Thomas McParlton, a graduate student in her lab.

For decades, researchers have eyed the naturally occurring antifreeze proteins found in certain polar fish, as well as some insects and plants. However, extracting meaningful quantities of these proteins from living organisms is impractical for commercial use. They are also susceptible to contamination with allergens.

Kramer and her colleagues therefore set out to determine the exact physical and chemical properties of these proteins that were responsible for their antifreeze capabilities. A pair of earlier studies, published in *Chemistry of Materials* and *Biomacromolecules*, demonstrated the structural features that were most critical in the naturally occurring proteins.

"Ultimately, we simplified the structure to only the parts we thought were required for antifreeze activity, which makes production less complicated and expensive," Kramer said. "Despite those changes, this study showed that our mimics bind to the surface of ice crystals and inhibit crystal growth, just like natural antifreeze proteins."

"Best of all," McParlton said, "we make these mimics entirely using chemistry — no fish or cells required."

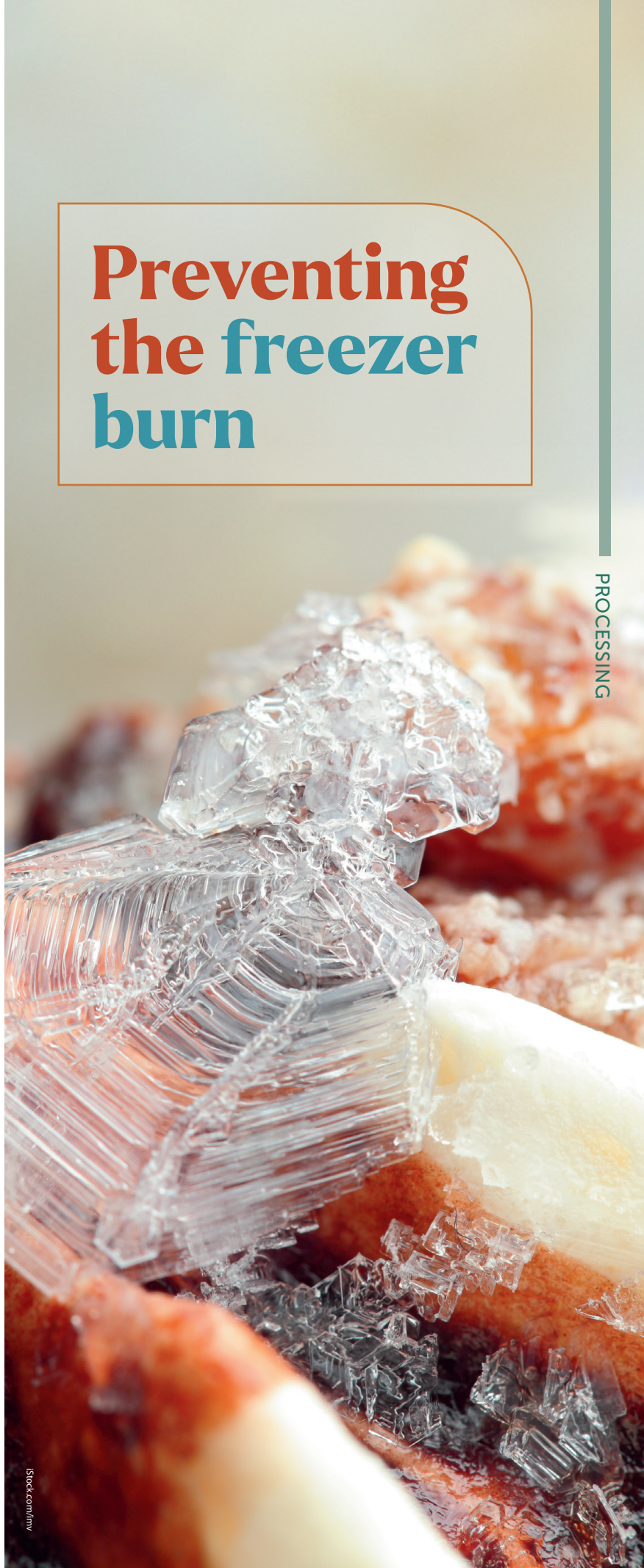
As proof of concept, the researchers demonstrated that the mimic molecules are non-toxic to human cells, are digestible by enzymes of the human gut, and can survive heating, a critical factor for its potential for food production. They also ran tests on sensitive enzymes and antibodies, showing that the mimics protected them from damage associated with freeze/thaw cycles.

"We also showed that we can inhibit ice crystals in ice cream, which often happens during shipping or when people take the carton in and out of the freezer," Kramer said.

The researchers envision their mimic molecules enabling a wide variety of applications, from extending the shelf life of frozen foods to improving the storage and transport of life-saving biologics. The technology is currently patent pending, and the team is working to bring their innovation to market through a new startup company, Lontra Bio LLC, which aims to commercialise these synthetic antifreeze proteins.

Preventing the freezer burn

PROCESSING



Extending the shelf life of sugarcane juice — naturally



Sugarcane juice is one of the world's most popular beverages — but it's highly perishable.

Now, food scientists from Australia and Pakistan have revealed a natural way to significantly extend its shelf life.

In their recent study, published in the journal *Food Safety and Health*, the researchers discuss how the addition of microwave-dried extracts of mint and coriander to the juice in the production process can extend shelf life from three days up to 14 days.

Sugarcane juice is widely consumed in South-East Asia, Africa and Brazil. More recently, it's also become popular in North America and parts of Europe, driven by a growing consumer interest in natural, unprocessed beverages with perceived health benefits.

Its short shelf life is due to its high sugar and water content, with fermentation occurring rapidly once it is exposed to air. Normally, synthetic preservatives are added to slow this process, but they are falling out of favour due to their carcinogenic links.

Lead researcher Zarnab Asif, a University of South Australia PhD candidate who undertook this research as part of a Masters degree at the University of Agriculture Faisalabad (UAF), said that mint and coriander are safe, natural alternatives.

"Not only are they natural antioxidants; they also extend the shelf life of sugarcane juice for up to a fortnight. This has huge implications for the global juice industry, particularly in tropical regions where sugarcane juice is often produced and sold fresh on the street," Asif said.

"We have shown that natural antioxidants from mint and coriander, extracted using microwave drying, can slow microbial growth and prevent the juice from turning dark or developing off-flavours. This is a simple, low-cost solution for the juice and beverage industry."

The research team tested both traditional methods of methanol extraction and a new microwave-assisted drying extraction method. By heating the leaves, microwaves release extracts containing

antioxidants such as polyphenols, flavonoids and vitamin C more efficiently, while avoiding damage to heat-sensitive compounds.

Co-author Dr Tayyaba Alvi from Green International University in Lahore said that the microwave-derived mint extracts displayed antioxidant activity of 74% — higher than both methanol extracts and fresh leaves. Coriander extracts also performed strongly, though slightly less effectively than mint.

"When added to sugarcane juice and refrigerated, the microwave extracts kept the juice fresh for two weeks, with minimal changes to colour or flavour," Alvi said. "By contrast, juice treated with methanol extracts deteriorated within a few days."

The research supports a growing consumer desire for natural products.

"People are becoming more cautious about synthetic additives, some of which are linked to health risks," said principal investigator Dr Kashif Khan, from UAF.

"Herbal extracts provide a safer, plant-based option that not only preserves juice, but may also add nutritional benefits."

Microwave-assisted drying also has the advantage of being more sustainable than methanol extraction, as it requires less time, solvent and energy than conventional methods, making it suitable for large-scale applications.

"Because this technology is simple and low-cost, it could be adopted by small and medium-sized juice producers in developing countries," Khan said.

As a next step, the researchers intend to explore combining herbal extracts with other preservation methods, such as pasteurisation or innovative packaging, to further extend shelf life.

The study, 'Shelf-Life Enhancement of Sugarcane Juice with Herbal Extracts: Extracted Through Novel Microwave-Assisted Technique,' is authored by Zarnab Asif, Tayyaba Alvi, Muhammad Kashif Iqbal Khan and Arslan Kareem. It can be read at DOI: 10.1002/fsh3.70038.

► Repackaging delicate items simply and safely

Hybrid safety solution for high cycle rates

A + F Automation und Fördertechnik faced the challenge of finding a safety solution for its complex Sortpacker packaging system, a solution that would both protect the operator and guarantee efficiency.

Key issue: the solution was to have a hybrid structure, so that plant manufacturers and operators can change the process parameters of the higher-level controller at any time, without affecting the safety controller. The focus was also on the productivity of the different process steps. With the modular hybrid safety solution, consisting of the safety controller PNOZmulti 2, the decentralised field distributor PDP67 and the safety locking device PSENslock 2 from long-standing partner Pilz, A + F has found a complete solution that's economical and functionally coherent.

Modular solution secures the Sortpacker

Protective devices secure feed and removal apertures, cardboard and cutting magazines, as well as gates and covers on the 25-metre-long Sortpacker.

The PNOZmulti 2, in conjunction with intelligent sensor technology PSEN, ensures the protection of the individual process steps as well as operating personnel: the safety locking device PSENslock 2 secures twelve gates on the A+F machine with a locking force of 1000 N each.

The operator requests access when required. Because the Sortpacker's grippers automatically move to the home position, the system does not have to be laboriously moved back to the start position. That makes the process more efficient.

What's more: the safety locking device is connected to the decentralised input modules PDP67 via plug & play. The safety controller PNOZmulti 2 evaluates which gate is "open/locked", for example. This allows faults to be rectified quickly via plain text diagnostic messages on the PNOZmulti 2 display – for more productive processes!



“ Customer Statement

With a strong reputation in the packaging industry and worldwide support, Pilz is our customers' preferred supplier for Safety and Security.

Actually, Pilz is the only place we have found such a convincing, complete solution, which perfectly combines safety, configuration and usability, as well as diagnostics and cabling!

*– Michael von Zmuda, Head of Engineering
at A+F Automation + Fördertechnik GmbH*



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A top-down photograph of various breads arranged on a dark, textured wooden surface. The breads include a long baguette with wheat stalks at its base, a rectangular loaf topped with seeds, a braided loaf, a stack of white bread slices, several round rolls, and other smaller loaves. The lighting is warm, highlighting the golden-brown crusts of the breads.

How to optimise fibre inclusion in bakery formulations

Jack Helm*

In the race to reformulate food and products for a 'healthier' image, fibre is emerging as a powerful ingredient. In this article, Jack Helm*, Account Manager – Beverage, Bakery & Functional Foods at ACI Group, unpacks some of the compelling ways fibre solutions can help manufacturers reformulate existing ranges.

Despite strong links to gut health, satiety and overall wellness, fibre often takes a back seat to protein in product claims, particularly when it comes to baked goods or confectionery items. But change is happening.

To investigate the popularity of fibre versus protein, ACI Group partnered with its supplier partner, GoodMills Innovation, conducting an extensive audit of hundreds of products launched in the bakery and desserts category between January 2021 and April 2025 in the UK.

The results revealed that while protein continues to dominate on pack claims, fibre has marginally outpaced it in product launches, with 194 "sources of fibre" or "high fibre" launches compared to 183 "high protein" launches in the last five years.

However, it is also clear that budget retailers and their baked goods suppliers have not kept pace with this wider industry trend, even though many budget bakery items already contain enough natural or added fibre to meet certain claim thresholds.



iStock.com/pennines

This means that just a few smart tweaks and reformulations using functional fibres could unlock significant health messaging for these brands, without the need to develop new products — an onerous and expensive exercise, no matter the size of the bakery.

Why fibre?

The benefits of fibre-rich products, particularly in gut health, are backed by decades of nutritional science, ever since Hipsley first identified the concept of dietary fibre in 1953. Digestive health is certainly a priority, with an estimated two-thirds of global consumers now prioritising the gut in their wellness goals. This requirement is attested to by a recent meta-analysis in *The Lancet*, which links high-fibre dietary intake with a 15 to 30% reduction in risk of mortality and chronic disease.

Moving to 2025, it is clear that fibre is cementing its rightful place as both a formulation tool, enabling great texture, taste, sensory appeal

and shelf life, and as a contributor to digestive health. Why then do many brands miss out on highlighting fibre function on-pack?

According to the ACI survey, a considerable number of products, particularly in the bread and morning goods category, exceed the legal threshold for “source of” or “high in” fibre claims but are failing to make them. Brands can and should capitalise on this strategic opportunity of listing a fibre claim on their labelling according to appropriate regulations. (In Australia, a food is considered a ‘source of fibre’ if it contains 2 g of dietary fibre per serving; a ‘good source’ contains 4 g; and an ‘excellent source’ contains 7 g, according to Food Standards Australia New Zealand.)

For products not yet in this range, targeted reformulations using ingredients such as ACI Group’s chicory root fibre, oat beta-glucan or resistant dextrin, and small tweaks can result in marketing and wellness benefits across the baked goods value chain.

Baking in fibre’s benefits

Adding fibre to baked goods can be a subtle move. Unlike protein or sugar reformulation that can alter the taste or texture of a product (which could lead to having to re-educate consumers), fibre can be added without too much fanfare and fuss. An addition benefit is that high-impact fibres can even act as a flavour replacement for expensive ingredients such as chocolate, by simply using cocoa fibre.

The high sensory threshold of many fibres in ACI’s portfolio means that while they may go unnoticed in taste tests, they can be beneficial for labelling. With the right fibre system in place, a simple 1 to 2 g increase in fibre content per 100 g can mean the difference between a standard product and a ‘source of fibre’ claim.

One of fibre’s greatest strengths lies in its multifunctionality. ACI’s fibre ingredients are designed to not only boost nutritional value but can also enhance texture, extend shelf life and offer support in reduced sugar and fat formulation while improving water retention and moisture control.

Science tells us that soluble fibres such as inulin and fructooligosaccharides (FOS) can act as natural humectants and sweetness modulators, making these ingredients suitable for reduced sugar applications. Select fibres can also support the Maillard reaction, giving products that lovely brown and caramelised appearance in addition to positively impacting the structure, crumb and mouthfeel of baked goods.

On the flipside, insoluble fibres and cellulose can play a vital role in maintaining sensory integrity, particularly in gluten-free and plant-based formulations. Additionally, ACI’s portfolio of fibre ingredients derived from chicory, citrus, barley and upcycled sources means that brands can meet clean label and sustainability goals simultaneously.

Reformulation allows brands a more simplified way of easing pressure from retailers, regulatory bodies and health-conscious consumers, offering bakers the solution they need for functional, nutritional and sensory smart products.

ACI’s fibre solutions help address common reformulation challenges such as:

1. Assist in improving moisture retention. Resistant starches and inulin can preserve softness over the shelf life of a product, enabling a great and sensory-pleasing bite.
2. Enhance dough handling. Soluble fibre assists with the consistency and elasticity of dough.
3. Reduce sugar and fat but maintain texture and taste. Inulin can offer up to 10% of the sweetness of sugar.
4. Support digestive health. Resistant dextrin can support both digestive health and sugar replacement goals, creating fibre-fortified products that still deliver indulgent eating experiences.



BURNER MANAGEMENT SYSTEM

In the food processing industry, where thermal systems are central to production, ensuring the safe operation of burners and furnaces is not just best practice – it's a regulatory necessity. With increasingly stringent safety standards such as EN 298, EN 50156 and NFPA 85/86, manufacturers must rely on certified solutions to maintain compliance and protect both personnel and equipment.

The PNOZ m B1 Burner, a specialised base unit within the PNOZmulti 2 family of modular safety controllers from Pilz, is designed precisely for this purpose. Though not a new product, it remains a relevant solution for Australian food manufacturers seeking to modernise or reinforce their burner safety systems.

This compact controller is supported from version 10.12 of the PNOZmulti Configurator software and includes a dedicated burner function block. This software element replicates the functionality of a configurable electronic automatic burner control, enabling users to implement a wide range of burner applications with ease. Whether managing master or slave burners, direct or indirect ignition, or low and high-temperature operations, the PNOZ m B1 Burner offers the flexibility to adapt to diverse system requirements.

The burner function block has been tested and certified in accordance with key European safety standards, and further international certifications are underway. This is designed to ensure that the system not only performs reliably but also meets the compliance needs of global operations.

One of the key advantages of the PNOZmulti 2 system is its modularity. The PNOZ m B1 Burner can be expanded with modules such as the PNOZ m EF 4DI4DORD, which provides four safe inputs and four diverse, positively guided relay outputs – suitable for controlling safety valves in burner systems. Additional modules, including safe analog input units, allow for comprehensive monitoring and control of the entire furnace set-up.

From a safety performance perspective, the system supports applications up to Performance Level PL e / Category 4 according to EN ISO 13849-1, and Safety Integrity Level SIL CL 3 in line with EN/IEC 61508. The base unit is certified by internationally recognised bodies including cULus, CE, TÜV, EAC and KOSHA, making it suitable for deployment across a wide range of markets.

Beyond its technical capabilities, the PNOZ m B1 Burner offers practical benefits for engineers and plant managers. It simplifies the design and implementation of complex safety applications, reduces engineering time, and integrates smoothly with existing automation environments and communication systems. With the ability to control and monitor up to 12 burners from a single unit, it provides a scalable and cost-effective solution for both new installations and system upgrades.

Pilz Australia Industrial Automation LP
www.pilz.com.au



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COMPACT BOX PC WITH INTEL PROCESSOR

Interworld Electronics has released the ACS-330, a rugged fanless embedded box PC designed for performance, reliability and flexibility in demanding food and beverage production environments. Suitable for automation, control and edge computing applications, the ACS-330 combines computing performance with a compact, industrial-grade form factor.

Powered by an efficient Intel Processor N97 (Alder Lake-N) and supporting up to 32GB of DDR5 memory, the PC delivers responsive performance for real-time processing and control workloads. It also features an M.2 2242 slot for high-speed storage and supports both Windows 11 and Ubuntu Linux, offering flexibility across software platforms.

It provides comprehensive connectivity options including 2 x 2.5GbE LAN ports, 4 x USB 2.0, 8 x DIO, 1 x HDMI, 1 x DisplayPort, and 2 x RS-232/422/485 serial ports. For I/O expansion, it features a Mini PCIe and an M.2 B-Key slot, allowing for wireless connectivity (Wi-Fi/4G/5G). It also features optional I/O configurations such as 4 x additional COM ports + 8 x DIO or 2 x USB 2.0 + 2 x LAN.

Engineered for harsh environments, the PC features shock and vibration protection, a wide operating temperature range (-20~60°C) and a 9~36 VDC wide-range power input. Its fanless, solid-state design is designed to reduce maintenance and improve reliability in dusty or vibration-prone settings.

Compact, durable and DIN rail or wall-mountable, the ACS-330 is a scalable solution for process control, SCADA, packaging automation and production monitoring in food and beverage manufacturing.

Interworld Electronics and Computer Industries

www.ieci.com.au



Gain food safety + quality control confidence with high performance metal detection

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HEAT AND CONTROL



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CASE STUDY

Making popcorn in dual flavours with no changeovers

A leading popcorn manufacturer in the UK wanted to scale production and elevate product quality — without adding complexity.

The manufacturer had specific requirements of fast throughput for small bags and the flexibility to run both sweet and salted popcorn simultaneously. Ultra-low flour salt dosing with consistent coverage was a key requirement and it also wanted to keep waste to a minimum.

TNA delivered a fully integrated distribution, seasoning and packaging line that runs: 140 bags/min on 11 g bags; under 1% waste; and sweet and salted production at the same time with no changeovers.

With innovations like automatic kernel and sugar clump removal, ultra-low flour salt dosing, and dual-line seasoning, the system has raised product quality and throughput to a new level.

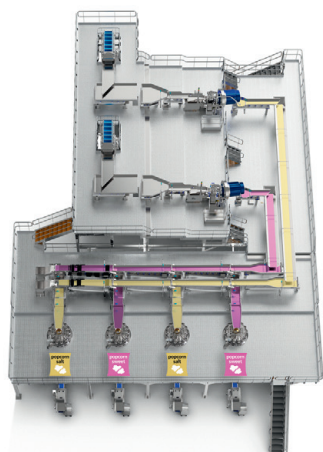
A suite of innovations was integrated to enhance both product quality and line productivity. An airbridge system was installed to automatically eject unpopped kernels and sugar clumps before seasoning — ensuring only safe, quality product reaches the flavouring stage.

With dual in-line seasoning, the system can handle sweet and salted profiles simultaneously, without the need for changeovers. An antistatic drum prevents ultra-fine flour salt from sticking, preserving precise seasoning accuracy, while a flow control auger enables ultra-low salt dosing with good consistency — no auger swaps required. The open platform design also improves operator access and line visibility, making cleaning and daily operation faster, simpler and more ergonomic.

TNA Solutions Pty Ltd
www.tnasolutions.com



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PROCESSING

CASE STUDY

Water content in butter production

In modern dairy processing, precision is no longer just a mark of quality but a key economic factor. This is especially evident in butter production, where the moisture content must be carefully balanced.

Depending on production conditions and process parameters, the moisture content can vary between 15 and 17%. However, the legal limit in the European Union is 16%. If the moisture content exceeds this threshold, the product cannot be sold.

To avoid exceeding the legal limit, many manufacturers intentionally set a lower target moisture content, typically between 15 and 15.5%. However, this precautionary buffer reduces profitability as even a slight decrease in water content increases the fat proportion in the product. Moreover, insufficient moisture can negatively impact butter quality, compromising spreadability and leading to an undesirable texture.

Continuous moisture measurement directly within the production line is therefore essential for butter production. Only with real-time monitoring can water addition be automatically regulated, enabling butter to be optimised for consistent quality and maximum efficiency.

Berthold Technologies has released a new white paper which examines the practical application of the MicroPolar LB 566, a microwave measurement system designed to determine moisture content in butter. The system is designed to deliver non-destructive measurements using microwave technology and is engineered for seamless inline integration into dairy production processes. The goal

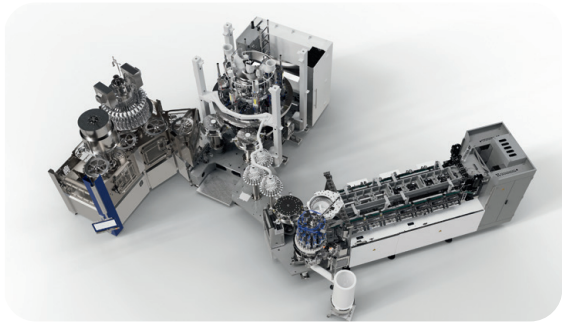


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is to provide manufacturers with a solution to increase yield, ensure product quality and comply with legal requirements.

The measurement system generates microwaves that interact with the water molecules due to their high dielectric constant. This interaction causes an attenuation of the microwave energy, which can be detected as phase shift and attenuation. Since the phase shift and attenuation change are directly proportional to the water content in the product, the concentration or solids content in the medium can be determined with accuracy. The multi-frequency technology from Berthold is designed to be unaffected by interfering reflections or resonances from the measuring environment.

Berthold Australia Pty Ltd
www.berthold.com/en/



SPACE-SAVING SOLUTION FOR ASEPTIC FILLING

The compact version of the Contipure AseptBloc by Krones provides a space-saving solution for aseptic filling. At just 100 m², it is designed for manufacturers with limited floor space, smaller batch sizes or innovative product lines.

Like the bigger aseptic block solutions, this compact version brings together three core processes — preform sterilisation, an aseptic stretch blow-moulder and an aseptic filler with a capper — into one integrated unit. Key features include integrated CIP, automated change-overs and inspection systems.

The versatile solution is suitable for all still beverages, with outputs from 8000 to 27,500 bottles per hour and sustainable sterilisation using gaseous H₂O₂.

Krones (Thailand) Co Ltd
www.krones.co.th

FOOD FRAUD DETECTION

Australia's Nuclear Science and Technology Organisation

(ANSTO) uses nuclear science and technology in projects designed to develop and deliver real-world benefits to Australia. One such example is its food origin project lead by Dr Debashish Mazumder, which is designed to target food fraud — a global food industry issue costing an estimated AU\$60–75 billion each year.

Using nuclear technology and machine learning, the ANSTO-developed technique can verify the geographic origin of food with a claimed accuracy of over 85%.

It works by analysing the unique 'environmental fingerprint' — a geochemical and isotope signature — that plants and animals absorb from their surrounding environment. An environmental fingerprint database is then created using authentic samples and machine learning techniques are used to identify the true geographical origin of the products.

Suitable for a range of natural products — including seafood, meat, fruit, bushfood, vegetables, grains and even coral — the food origin technology can be deployed in the field via a portable handheld XRF scanner.

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Temperature monitoring reduces waste for Jansz Tasmania winery



The Jansz Pontos Hills Winery.

When establishing Jansz Pontos Hills Winery in Tasmania's Coal River Valley, Hill-Smith Family Estates looked to a temperature monitoring solution that was simple to use and future-ready – without the need to rely on specialist engineering and maintenance expertise. ifm efector responded with its user-friendly IO-Link enabled temperature monitoring devices.

According to Luke Wilson, Manager – Engineering, Services & Cellar Operations, Hill-Smith Family Estates, this solution has since been adopted as the new instrumentation standard for the Hill-Smith Family Estates.

"We selected the ifm IO Link solution for our temperature control management system because of its ease of installation," Wilson said.

Building the system on the IO-link network has enabled the winery team to be able to quickly and cost-effectively replace faulted probes, valves and hardware with only minimal electrical knowledge required. This suited the winery's requirement for remote support – especially as there was no technical or engineering support on-site at the Pontos Hills Vineyard.

Instead of relying on time-consuming manual checks, the Jansz Tasmania winemaking team (and their engineering specialists at the other locations) could access the system remotely, receiving real-time data and early alarms that enabled them to make immediate adjustments.

This approach gave the team greater confidence during the vintage season, enabling faster, more precise winemaking with less downtime.

"A lot of wineries have temperature control in the form of a probe and a valve on a tank," Wilson said. "But what inevitably



happens is that the valve will fail or something happens so that the tank is no longer under control, but the winemaker's not aware of it. The ifm solution comprises smart sensors that have given us the ability to react before there's any impact on the quality of the product."

The continuous monitoring enables precise temperature control, reducing wastage. The winemakers could optimise operations to power down equipment during peak energy demand periods, easing pressure on the grid and reducing costs. This will result in a more efficient use of resources, lower energy consumption and a clear

reduction in the winery's carbon footprint.

"Empowered with the system's smart, proactive monitoring and maintenance functions, the facility reduced the risk of downtime and costly faults," said Darryl Blackeby, Regional Sales Manager (SA/WA) of ifm efector.

"This installation showcases how ifm adapts its advanced technologies to new contexts, extending beyond traditional automation into the specialised world of winemaking," Blackeby said. "Our solution is simple, affordable, non-invasive and easy to adopt, enabling producers to introduce digital monitoring without disrupting their craft. It delivers measurable performance gains and environmental benefits, empowering industries to innovate with confidence."

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Quality Food Processing Equipment

AI-ENABLED GUIDANCE SOFTWARE

Emerson has introduced Guardian Virtual Advisor, an AI-powered software solution designed to support end-to-end lifecycle management. The solution combines AI with deep domain expertise to help users evaluate and enhance the performance of their automation systems.

Lifecycle services are designed to help users with an approach to support and maintain operations throughout the entire lifecycle of a plant — helping to maximise uptime, address operational inefficiencies and protect their automation investments.

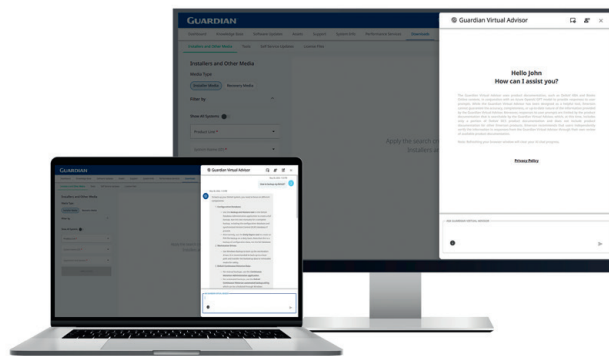
For over two decades, Emerson's Guardian Digital Platform has accumulated a repository of troubleshooting information — but searching articles and reference documents is a manual approach that slows down quick responses to developing issues like performing system maintenance or managing security updates or new software releases. With the Guardian Virtual Advisor, users can enter natural language questions and receive an easy-to-understand answer and a link to the appropriate reference documents.

Currently available to manage DeltaV distributed control systems, Guardian Virtual Advisor will be extended to include Emerson's other automation platforms, such as AMS and Ovation.

The software solution is available to subscribers of Emerson's product support through the Guardian Digital Platform.

Emerson

www.emerson.com/au/automation



HIGH-TEMPERATURE THREADED LINE VAC

Exair's 3/8 NPT High Temperature Threaded Line Vac converts hose, tube or pipe into a powerful in-line conveying system suitable for use with high-temperature materials or in areas of high heat up to 482°C. Fitted with NPT threaded ends, it's easily mounted onto threaded pipe and offers an efficient solution for fine material conveyance, sampling hot flue gases, exhausting fumes, and conveying soot, ashes, salts and other hot debris.

The device uses a small amount of compressed air to produce strong vacuum and flow. This model offers a durable construction from either Type 303 or Type 316 stainless steel to resist high temperature, corrosion and contamination while maintaining a compact design for fitting into tight areas. Regulating the compressed air pressure provides infinite control of the conveyance rate and allows for precision when planning applications. The line vacs have no moving parts.

Available from Compressed Air Australia, High Temperature Line Vacs are CE compliant and available in nine sizes from 3/8 to 3". Other larger models for hopper loading, scrap trim removal, small part transfer and packaging are available in both smooth 'clamp-type' options or NPT threaded versions.

Compressed Air Australia Pty Ltd

www.caasafety.com.au

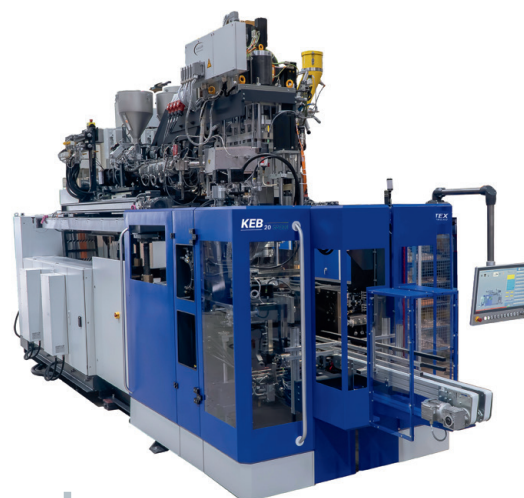
BLOW MOULDING MACHINE

The Kautex Maschinenbau KEB20 GREEN is a fully electric, compact and energy-efficient blow moulding machine.

Features include: all-electric design to reduce energy consumption; compact design for quick mould changes and modular set-up; digital upgrades, including DataCap and Ewon Box for process optimisation and remote support; and integrated automation from cooling to quality control.

Kautex Maschinenbau

www.kautex-group.com/en





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FLUID CONTROL SYSTEMS

Hyperspectral imaging for food grading

Anthony Quinn, Director at Quark Photonics

Food manufacturers are under increasing pressure to deliver high-quality products with full traceability, zero defects and minimal waste. With tight margins and growing consumer scrutiny, the industry is looking for smarter, more versatile inspection systems that go beyond surface appearance.

Hyperspectral imaging (HSI) has emerged as a suitable technology in this space, providing a good depth of information from every pixel in a product image. By combining spectroscopy with machine vision, HSI enables producers to see both what's on the surface and what is invisible to the human eye and conventional machine vision inspection tools. It is designed to assess quality grades, detect contaminants, inspect seals and integrate seamlessly into existing production lines. Inspection is non-contact and non-destructive, and it can deliver real-time, actionable data in a repeatable fashion.

This article explores how HSI is being used in three aspects of food manufacturing: product performance grading, food safety assurance and industrial adaptability.

1. Measuring product performance and quality

HSI is a powerful tool for grading food products based on performance-linked quality parameters. It works by capturing reflectance spectra across hundreds of narrow wavelength bands, far beyond the visible spectrum, revealing structural and chemical features invisible to the human eye or traditional RGB cameras.

This enables non-destructive, real-time measurement of, for example:

- Moisture, fat and sugar content
- Protein levels and pH
- Ripeness, texture and firmness

- Bruising, chilling injury and internal defects
- Product homogeneity and composition

In fruit and vegetable processing, for example, HSI systems can automatically grade apples by sugar content (Brix), firmness and bruising, all while they move on a conveyor belt at high speed.

In meat and seafood, HSI can be used for assessing marbling, fat distribution, tenderness and colour, all of which affect flavour, shelf life and price.

Beyond raw materials, HSI is also being used to validate formulation in processed foods, ensuring that blended ingredients or emulsions meet quality expectations. By analysing the 'spectral fingerprint' of each pixel, manufacturers can detect whether a product is uniform throughout or if layers, concentrations or segregation has occurred.

Because HSI systems acquire spatial and spectral data simultaneously, they allow food processors to visualise not only the constituent ingredients of a product, but also how these are distributed, helping to ensure consistency and performance across standardised product lines, ultimately increasing consumer satisfaction.

2. Ensuring food safety with spectral vision

Food safety is an area where hyperspectral imaging can add value. HSI systems are capable of detecting a wide range of foreign bodies, contaminants and chemical adulterants that traditional



By analysing the 'spectral fingerprint' of each pixel, manufacturers can detect whether a product is uniform throughout or if layers, concentrations or segregation has occurred.

vision systems or X-ray machines may miss, especially those that mimic the colour or shape of real food.

Applications include:

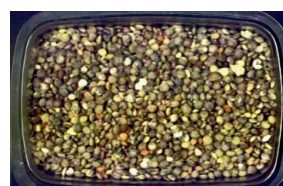
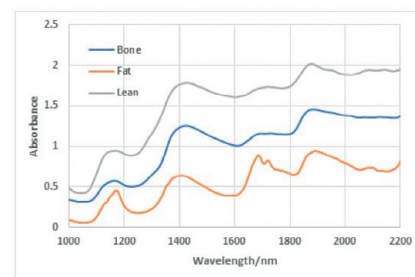
- Plastic fragments in grains, cheese or baked goods
- Bone or shell fragments in meat and seafood
- Detection of stones, wood and other contaminants in harvested goods
- Fungal contamination (eg, aflatoxins or fusarium)
- Melamine in powdered dairy products
- Faecal or ingesta contamination on poultry

HSI systems are also finding applications in non-food object detection, such as identifying insects or packaging debris that may have entered the product stream during processing. Because the detection is based on spectral characteristics rather than contrast or density, even translucent or colour-matched materials can be flagged reliably.

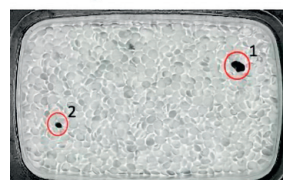
Moreover, HSI has the potential to inspect package integrity: identifying seal defects, product stuck in seal, leaks or residues that compromise product safety. Recalls can cause reputational and financial damage, so having a high-speed, chemical-sensitive inspection system on the line can be game changing.

3. Built for industry: speed, adaptability and ROI

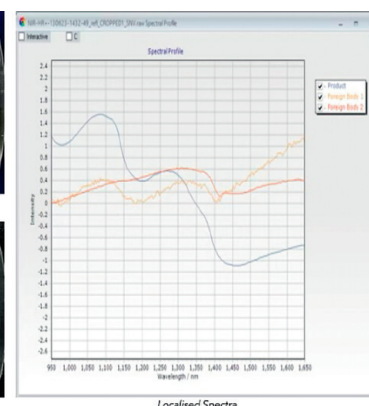
HSI has historically been seen as a research or lab-based tool, but is now evolving into a more adaptable and agile solution. New-



RGB image Generated from VNIR Data



NIR SNV PC1 image



Localised Spectra

generation push-broom HSI systems are engineered for industrial readiness, offering robust performance in demanding environments.

Key features include:

- High-speed line-scanning suitable for conveyor lines
- Integration with PLCs and automation frameworks
- Real-time data acquisition and spectral classification
- Hygienic, steam-cleanable stainless steel enclosures for demanding environments
- User-friendly software with calibration model management

The key strength of HSI in food quality and security lies in its lab-to-line workflow. Typically, a product is first analysed in the lab, where spectral models are built and optimised to predict a specified quality or detect a specific contamination. Once optimised and tested, these models are uploaded to the inline HSI system, which performs live inspections and flags products outside the accepted tolerance: 'the good, the bad and the ugly'.

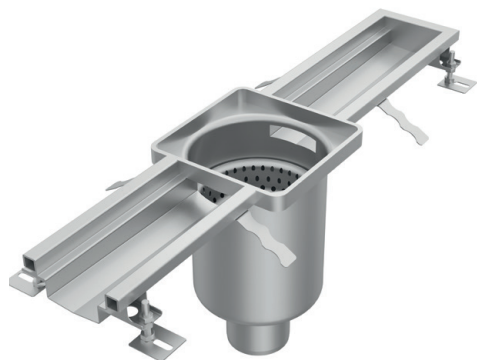
If production reveals further new or unexpected defects, the system can pull those examples back to the lab, engineers can update the model and close the loop, hereby creating an iterative, learning-based quality assurance process.

Rather than relying on sampling and averages, HSI enables 100% inspection of products at production line speeds, empowering processors to make smarter, faster decisions to reduce waste and increase profit.

Hyperspectral imaging can help to change the face of food quality and safety inspection. By moving beyond surface appearance to measure both structural and chemical properties, HSI can enable food manufacturers to deliver premium quality, ensure safety and reduce waste, all the while maintaining high throughput and product repeatability.

From grading performance-linked parameters like sugar or fat content to detecting invisible contaminants or package seal issues, HSI can provide a robust, repeatable and ever-adaptable platform. With industrial-grade systems now available for full inline deployment, this once niche lab tool is becoming a mainstream technology.

For more information, please contact Quark Photonics, the local distributors for ClydeHSI.



HYGIENIC DRAINAGE SOLUTION

Australian supplier Ozflow is introducing German-engineered floor drains that are designed to improve hygiene in the food and beverage sector.

Suitable for environments where hygiene is non-negotiable, the Wiedemann stainless steel floor drains are engineered for durability and efficient drainage to help eliminate contamination risks.

The secret lies in a seamless, deep-drawn design that creates a smooth surface with no corners for grime to hide. This, combined with large internal radii, creates a powerful hydraulic effect. Water flows with a rotational dynamic that actively flushes debris away, creating a continuous self-cleaning action.

Available in a versatile range of one- or two-piece models, and in vertical, horizontal, round or square configurations, the modular system is designed to be suitable for most operational demands.

FMCG Industry Solutions Pty Ltd
www.fmcgis.com.au

RECYCLING STEAM IN UHT PROCESSING

SPX FLOW has launched the APV Infusion UHT featuring SteamRecycle, a solution designed to recover and reuse 100% of the steam used during the infusion UHT process.

The solution is designed to eliminate the need for fresh steam after start-up, which is claimed to help dairy, nutritional beverage and plant-based producers reduce carbon dioxide emissions and cut water recirculation by up to 33 m³/h compared to traditional Infusion UHT systems.

The closed-loop system eliminates the need for continuous fresh steam input by using mechanical vapour compressors to recover excess low-pressure steam. It then converts it to high-pressure steam, making it suitable for reuse in the UHT process while still maintaining product quality.

The solution is easily integrated into existing or new APV Infusion UHT systems. SteamRecycle is rigorously tested to deliver stable performance, hygienic design and consistent high-pressure steam (up to 5 bar).

SPX FLOW, Inc.
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INDUSTRIAL DISPLAY WITH IP66/69K STAINLESS STEEL BEZEL

The Interworld Electronics FABS-110 is a compact 10.1" industrial display designed for use in harsh and hygiene-critical environments. Its flat front bezel with IP66/IP69K protection is engineered to withstand high-pressure washdowns, making it suitable for applications in food, beverage, pharmaceutical and chemical industries. A 304 or optional 316L stainless steel front bezel provides enhanced corrosion resistance, while the rugged aluminium die-cast rear housing provides long-term durability, even in harsh environments. The 10.1" TFT-LCD screen offers a 1280 x 800 resolution and supports multiple video inputs including VGA, HDMI, DisplayPort and DVI-D for compatibility with existing systems. Touch options include projected capacitive for rugged, multi-touch operation, resistive touch for use with gloves, or a glass-only version for non-interactive applications. A high-brightness panel option up to 1000 nits improves visibility in brightly lit or outdoor conditions. The rear OSD membrane controls provide users with improved usability and a more streamlined integration.

The display supports both panel and VESA mounting, enabling installation into industrial enclosures, machinery or operator stations. It also features a 9–36 VDC wide range power input and operates across a wide temperature range of 0~50°C, with an extended -20~60°C option. The unit can withstand vibrations up to 1G and peak acceleration shocks up to 15G. Certified to CE/FCC Class A standards and optionally compliant with EN 1672-2 (projected capacitive and glass models), the FABS-110 is suitable for a range of food & beverage applications requiring hygiene, durability and flexibility.

Interworld Electronics and Computer Industries
www.ieci.com.au

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Fine Food success for Australian food logistics business

CoolPac says the Fine Food exhibition in Sydney was a resounding success for its Olivo insulated containers. Visitors were able to see how the system can provide logistical benefits for the transport and storage of perishables.

Building on its initial introduction and success with Brunetti Oro, many more Australian food businesses — from large-scale manufacturers to cafes and meal delivery services — are now exploring the advantages of the 'one truck, multiple temperatures' system.

The system has the ability to maintain precise temperatures for up to 72 hours across ambient, chilled and frozen goods, using non-refrigerated transport, which can result in operational cost savings.

The innovation is said to be rooted in a longstanding pharmaceutical cold chain pedigree in Australia and already used extensively across the food industry in Europe, Asia and the US. It is designed to ensure product integrity, as well as reduce waste and operational costs. Its robust design, hygienic properties and simple multi-temperature conversion can provide the flexibility to meet the demands of many food businesses.



LINE FOR MINCED MEAT IN PILLOW BAGS

MULTIVAC flowpacker W 510 is a high-performance line for packaging minced meat in pillow bags. It has integrated systems for gas mixing, gas analysis, labelling and printing and, with a capacity of up to 120 packs per minute, delivers a high output without compromising on pack quality. The packaging machine is suitable for sustainable packaging concepts that minimise material consumption and are fully recyclable, such as packs made from mono-PP film.

In addition to the flowpacker W 510, the MULTIVAC minced meat line includes a vacuum filler, a mincer, a minced meat portioner, a checkweigher and a loading system. The fully integrated labelling and printing solution can enable smooth labelling of the pillow bag packs, as all item settings and changes are made via a single control terminal.

In addition, the line can be combined with line control, which allows uncomplicated operation of the entire line from just one control terminal. All line modules can be controlled via the HMI. Starting and stopping the line, no-load operation and product changes are simplified and standardised. This is designed to increase efficiency and user-friendliness in day-to-day operations, minimise operating errors and shorten operating paths.

All MULTIVAC flowpackers are subject to the MULTIVAC Hygienic Design. This means that all components have at least protection class IP65 and are therefore suitable for washdown cleaning processes. In addition, the transport conveyors for the line solution are self-supporting and the longitudinal sealing system of the W 510 can be tilted, making tool-free maintenance and cleaning simple and time-efficient.

MULTIVAC Australia Pty Ltd
www.multivac.com.au

Powering up a fully automated bacon line

Rockwell Automation has been selected by Middleby Food Processing to help develop what is claimed to be the food industry's first fully automated bacon production line.

Headquartered in Elgin, Illinois, Middleby Food Processing needed a scalable solution to support customers facing rising labour costs, space constraints and stricter sustainability goals.

Mark Salman, president, Middleby Food Processing, said: "We needed long-term flexibility and interoperability across machines. Rockwell delivered that, along with robust engineering support and best-in-class programming practices."

Rockwell's solution includes FactoryTalk Optix, which standardises operator interfaces and application code libraries, such as Machine Builder Library and Device Objects, to create a consistent programming structure across equipment brands. This architecture makes it easier for service technicians to troubleshoot and support systems remotely while enabling real-time data strategies and production agility.

"We are proud to support Middleby Food Processing's vision for the future of food production," said Steve Pulsifer, senior manager, partner marketing, Rockwell Automation. "This collaboration shows what's possible when innovation and automation come together. This fully automated bacon line improves throughput, reduces labour and wastewater usage and raises the bar for food manufacturing."

While the bacon line is a breakthrough, Middleby Food Processing's automation efforts extend across food segments, including bakery and protein. Its solutions, powered by Rockwell, are designed for adaptability — making it easier for users to tailor systems to unique operational needs.

Rockwell Automation Australia

www.rockwellautomation.com/en-au





www.cbsfoodtech.com.au



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Eye-catching lidding for a 'Wicked' dessert

Jet Technologies has partnered with Australian dessert brand Wicked Sister to deliver eye-catching, high-quality packaging for its latest collaboration with Universal Pictures' *Wicked: For Good*, premiering in cinemas on 20 November.

To celebrate the release, Wicked Sister launched two limited-edition desserts featuring packaging designed by creative agency Cupla and foil lidding manufactured by Jet Technologies — a key element tying the campaign together.

"We wanted packaging that captured the magic of the movie while maintaining our product's premium look and quality," said Pedro Demartini, Director of Marketing, Wicked Sister. "Jet Technologies' lidding delivered on both fronts, offering vibrant print quality, food-safe materials, and complete reliability from start to finish."

Reproducing the *Wicked: For Good* logo showcased Jet Technologies' expertise in handling complex designs. The detailed artwork included a fine green-to-pink gradient on a black background, requiring careful adjustment of the foil substrate and embossing to achieve clean lines and accurate colour.

Printed in UV Flexo, the foil delivered precision and vibrant colour for the intricate artwork. The chosen material, known as 'PP Peel', was selected for its good sealing performance, wider sealing temperature window, and improved reliability during production. For manufacturers, it provides strong seals and good weight-bearing capacity, while for consumers, it is designed to deliver a smooth, easy opening experience with less risk of tearing the foil.

"Capturing that colour transition while ensuring legibility on a reflective foil surface required close collaboration," said Tristan Ulloa-Jonsson, Business Development Manager, Jet Technologies. "Our in-house expertise in lidding materials and print calibration meant we could overcome those challenges and produce a result that truly stands out on shelf."

Embossing, completed as part of the print process, added subtle tactility to the finished product. To maintain colour accuracy across



the entire print run, Jet Technologies used lab colour measurement ($L^*a^*b^*$) — a universal system that defines colour using numbers rather than subjective terms. It measures lightness (L^*), red-green (a^*) and yellow-blue (b^*) values, allowing colours to be precisely monitored and reproduced across multiple runs. For brands, this means stronger quality control, packaging that consistently looks the way it should, and reliable brand colours that stand out on shelf and build consumer trust.

Food safety and creative impact in one solution

Beyond its visual appeal, Jet Technologies' lidding also met Wicked Sister's strict food safety and performance standards, ensuring product freshness, secure sealing and full compliance with international food contact regulations.

To further guarantee compliance, Jet's manufacturing partner is BRCS+ AA certified — a globally recognised standard that ensures the highest quality and hygiene levels for packaging produced for food applications. The PP Peel material used was already qualified through previous projects, giving Jet and Wicked Sister additional confidence in its performance prior to full production.

"The finished result perfectly balances product protection, compliance and brand storytelling," Ulloa-Jonsson said.

"It's a great example of how packaging can elevate a brand collaboration into a complete sensory experience, from what shoppers see on shelf to what they taste inside."

Jet Technologies' longstanding relationship with Wicked Sister and its production partner, PDP, ensured a seamless rollout across design, approvals and delivery schedules.

"Jet's reliability across service and delivery was key to the project's success," Demartini said. "They understood exactly what we needed creatively and technically to bring this campaign to life, delivering premium packaging that reflects our brand quality and complements the *Wicked: For Good* theme perfectly."

Jet Technologies
www.jet-ap.com





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PULP TRAY LABELLER

The Ravenwood Packaging Nobac 5000PT is built specifically for labelling pulp trays with full-wrap, linerless labels.

Features include: full-wrap linerless labelling for high-impact branding with no liner waste; supports pulp tray materials (250–300 gsm) in fresh produce environments; and works with various pulp tray formats making it suitable for a range of fruit and vegetables.

Other features include: weigh-price integration compatible; up to 75 packs per minute; and designed to reduce waste and overall packaging costs.

The system will be launched at Fruit Attraction 2025 in Madrid this September.

Ravenwood Packaging Ltd
www.ravenwood.co.uk



FOUR-HEAD, 5 L PNEUMATIC FILLING MACHINE

Packserv has unveiled its latest innovation — a four-head, 5 L pneumatic filling machine suitable for food, pharmaceutical, HACCP and TGA-compliant facilities, and industrial, IECEx or ATEX-rated environments.

Primarily designed to fill four containers from 500 to 5000 mL at a time, it also has the capacity to fill much larger containers, such as 200 L drums or 1000 L intermediate bulk containers (IBCs), with its multi-shot capability.

Engineered and manufactured entirely in Australia, the system is designed to provide a practical and safe solution for industries managing high-volume production or working with volatile, combustible materials.

Operating solely on compressed air, the filler eliminates the need for electrical components. This reduces ignition risk for flammable products and environments, helping to ensure compliance; being pneumatic, it is also fully washdown safe. Each of its four independent nozzles can fill up to 5 L per stroke, providing high-volume performance for a wide range of applications.

The machine's bottom-up filling function minimises foaming, spillage and splashing, making it particularly suited to products such as detergents, beverages, sauces, oils, cleaning agents and industrial liquids. Its multi-shot capability allows multiple doses to be dispensed into a single container, allowing it to fill 5, 10 and 20 L containers on the same line.

Beyond speed and output, the filler also allows manufacturers to rethink traditional production layouts. Electrical equipment often requires isolated zones for safety reasons, with separate areas for filling, capping and labelling. This can fragment production lines and increase infrastructure costs. The machine is designed so that all stages of production can coexist within the same space, reducing the facility footprint and streamlining workflow.

The filler's 316-grade stainless steel construction is engineered for durability and is compliant with food products per FSANZ Standard 3.2.3 Food Premises and Equipment. The trolley-mounted frame with lockable castors helps to provide mobility for easy repositioning within a facility. Tool-free dismantling simplifies cleaning, which is a key advantage in environments where hygiene and contamination control are critical. Quick-change components allow machine operators to transition between products or container sizes with minimal downtime.

Packserv's decision to design, engineer and manufacture the machine entirely in Australia means there is end-to-end, long-term quality control, with locally based engineers, spare parts, and service teams. The system integrates with the company's full range of machinery, including cappers, labellers, printers, conveyors and tables, to create a cohesive, synchronised and reconfigurable production line. It also handles liquids up to 95°C, making it suitable for both hot and cold filling.

Packserv Pty Ltd
www.packserv.co



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Cardboard packaging on trial for snacking tomatoes

In a joint effort to help reduce plastic packaging, Costa is partnering with Coles and Opal in a large-scale trial to change rPET plastic packaging for Perino tomatoes to recyclable cardboard packaging.



The newly packaged punnets, designed and manufactured by Opal and made from recycled paper, will replace Costa's existing 80% rPET punnet at Coles' Victorian stores.

"Costa is proud to be taking meaningful action to meet APCO's national packaging targets, while recognising that consumers are increasingly demanding environmentally sustainable solutions," said Manpreet Sidhu, Chief Operating Officer, Domestic Produce at Costa Group.



The trial has been set up to provide insights into packaging performance, product quality, consumer response and supply chain integration. If successful, the packaging alternative could be rolled out across the nation.

"Opal is excited to partner with Costa and Coles on this innovative Perino tomato punnet trial," said David Pointer, General Manager – Corporate Business, Opal.

The Opal recyclable cardboard punnet is lightweight yet robust to protect fresh produce through supply chains. It has been designed to help maintain product freshness and quality, while reducing plastic for an improved environmental footprint across the product's lifecycle.

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LIDDING FILM

KM Packaging has released the K-Peel 4G mono PET lidding film specification, which has a low seal initiation point and is capable of sealing through contamination. Clean peels are achievable from as little as 110°C and 0.3 seconds dwell time.

The low seal initiation point also makes it compatible with PET trays and it can provide a clean, strong peel for APET and rPET trays. It is also suitable for trays that present sealing challenges because of thickness or available sealing area.

The film can provide a clean peel for ambient, chilled or frozen applications and is ovenable. It also has anti-fog properties, and being compliant to OM7 migration testing makes it suitable for a range of applications in the food industry.

The material is available in two gauges: 21 microns and 25 microns. The lower gauge can be used for reducing the thickness of films in production.

KM Packaging Services Ltd
www.kmpackaging.com



HIGH-BARRIER SOLUTIONS FOR COMPOSTABLE FLEXIBLE PACKAGING

TIPA Compostable Packaging has expanded its portfolio to include four high-barrier film and laminate products for compostable flexible packaging applications.

Designed to provide compostable alternatives without compromising on performance, barrier or machine compatibility, the high-barrier laminates provide moisture and oxygen barrier properties, and include both paper and transparent print layers.

Key applications include single-serve and sachet applications, chips and other salty snacks, protein and drink powders, nutraceuticals like vitamins and gummies, ground coffee and tea, and more.

Suitable for a wide variety of foods, all the films and laminates are designed to be run on conventional packaging machinery and are printable and sealable.

TIPA Compostable Packaging
tipa-corp.com



DIGITALLY PRINTED ALUMINIUM CAN

After three years of development, New South Wales-based East Coast Canning + Printing (East Coast) has unveiled its BulletProof digitally printed can.

The can has been engineered for durability across supply chains. From enduring the intense heat of tunnel pasteurisation to withstanding scratches from transport or storage in ice buckets and eskies, the can is designed to ensure beverages look as pristine on arrival as they do at production.

While digital matte printing is possible on cans, East Coast has not previously offered it to its clients as the design scratches easily, compromising brand quality when the can arrives on-shelf or is pulled from an esky. Additional design attributes like CMYK colour palette, spot gloss, spot matte, tactile feel and metallic finishes have historically relied on wraparound or shrink-sleeve labels, complicating recycling processes.

East Coast's BulletProof cans are fully recyclable and offer matte and spot gloss finishes directly printed onto the aluminium, which is designed to ensure both aesthetic appeal and environmental responsibility.

The rollout spans a variety of beverage categories, including beer, wine, coffee, water and ready-to-drink (RTD) products. It will initially include the 375 mL Classics and select varieties of the Sleek can sizes (330 and 355 mL). The 330, 355, 440 and 500 mL Classics are expected to be available next year.

Sydney's Yulli's Brews is among the first to adopt the can, debuting its Urban Classic Cactus Ranch Water in a white-and-green can featuring the BulletProof matte finish.

East Coast Canning + Printing
www.eastcoastcanning.com.au



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CASE STUDY

Famous Soda Co is an Australian family-run business led by mother-and-son founders Julie and Michael Pillon, who are passionate about promoting healthy living and reducing sugar consumption. As former founders of a successful wine company, Two Italian Boys, the duo brought their understanding of the Australian beverage market and knowledge of building a strong brand to their new venture.

According to the Australian Institute of Health and Welfare, one in four Australian children aged 2–17 is overweight or obese as of 2022. Recognising the impact that sugary beverages, confectionery and ice creams have on health, Julie and Michael set out to create sugar-free, all-natural alternative products that do not compromise on flavour or contain harmful additives.

The company launched its Famous Kids Protein Shake in late 2024 as a nutritious and convenient functional beverage designed for children aged 1–11. Available in chocolate and strawberry flavours, the shake provides 10 grams of Australian whey protein along with essential vitamins and minerals such as calcium, magnesium, vitamin C and vitamin B6. It contains no added sugar or preservatives and uses all-natural flavours and colours, earning a 5-star health rating by Food Standards Australia and New Zealand.

Collaborating with registered dietitians and paediatricians to develop the protein shake, the company was also determined to find a packaging solution for the shake that was both kid- and environmentally-friendly.

Tetra Pak worked closely with Famous Soda Co, sharing its expert product development advice and identifying the packaging solution best suited to the protein shake. After careful consideration and refinement, the grab-and-go Tetra Brik Aseptic 250 Edge carton was selected for the shake, designed to balance convenience with the recommended nutritional portion for vitamin and mineral intake. The portable, mess-free design also allows children to enjoy the snack on the move, making it suitable for lunchboxes, snacks and active lifestyles.

Famous Soda Co was well supported throughout the design, production and packaging process, with Tetra Pak connecting

Shaking up nutritious kids' drinks



the company to co-packers to help accelerate time to market and providing insight into developing new dairy products.

The 250 mL portion sizing was deliberately chosen to align with the recommended dietary intake for young children, without overconsumption.

By using the cartons, the company can avoid the use of unnecessary plastic. With resealable caps designed for safe and easy sipping and optimal flow for on-the-go consumption, the cartons also help to reduce unnecessary waste and prevent spillage.

The company's carbon footprint can be reduced as the cartons are designed to protect the typically perishable contents, without requiring refrigeration or added preservatives. Due to its high renewable material content, the cartons score better from a climate impact perspective when compared to other packaging solutions, with a carbon footprint of only 83 g CO_{2e}/L.

With placement in major Australian supermarkets and convenience stores, Famous Soda Co is now a recommended beverage supplier for school canteens across Australia, officially endorsed by Education Australia.

The shake is now exported to 10 different international markets and the company plans to continue developing functional products for both kids and adults with Tetra Pak.

Tetra Pak

www.tetrapak.com/en-anz

HOT MELT ADHESIVE FOR PET BOTTLE LABELLING

The adhesive that holds the label to the bottle is important for the quality of the recycled material. Anything that doesn't dissolve during the recycling process leaves residue on the PET flakes. Henkel's new hot melt adhesive, Technomelt EM 335 RE, is designed to enable clean separation.

Technomelt EM 335 RE adhesive is tailored to the needs of modern recycling processes. It is alkali-dispersible and is claimed to be removed by up to 98%. The adhesive residue is separated from the material stream along with the label residue.

The hot melt adhesive is suitable for paper and plastic labels. It can bond up to 40,000 bottle labels per hour and has a low processing temperature of 110 to 140°C.

Due to its mineral oil-free formulation and compliance with food regulations, the hot melt adhesive is suitable for even the most sensitive applications. Its practical packaging in X-tra chubs is designed to ensure easy and safe handling while avoiding packaging waste.

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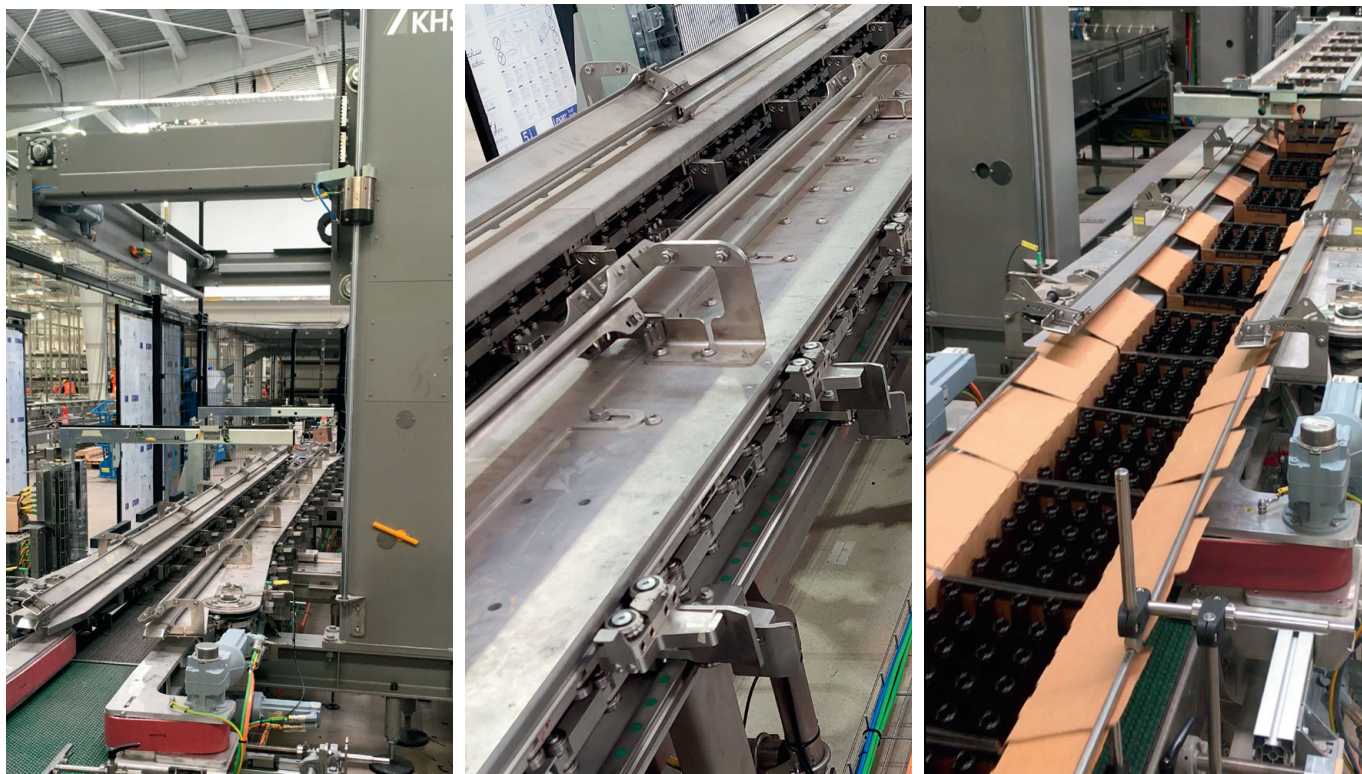
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Automation system designed to safely guide bottles



A large beverage producer in Mexico asked KHS to design an automated system for packing and unpacking bottles from its reusable cartons.

Most beverage bottles are transported in plastic crates as reusable cartons are less stable, which can cause difficulties during tightly synchronised transport automation and lead to broken bottles.

To enable the automated packers and unpackers to remove and insert the bottles from the cartons gently and precisely, the Dortmund-based system supplier faced the challenge of finding a guide system that could travel very small radii and right/left curves due to the limited installation space.

KHS worked with PGM Motion to develop a solution using its W-Line guideways integrated with specially developed guide carriages to negotiate the tight curves without breaking bottles.

"Cardboard boxes are much more unstable than plastic crates and so are already quite worn by the time they reach our production process. The difficulty now was to 'divide' these cartons in a way that was gentle on the product so that our packing system could insert or remove the bottles," said Stefan Habermann, Head of Design – Product Centre Palletizing Technology at KHS.

"It is essential for the individual cartons to be positioned correctly on the pack conveyor so that the containers do not break and the conveyor belts rarely need readjustment."

Carriages using traditional roller guideways have to be individually adjusted to the rails using eccentric bolts, and they are not able to travel on small radii with right and left curves without movement or load resistance. The transitions at the joints of the guide rails often have to be reground with an oil

stone, which is time-consuming. These systems were therefore not feasible in this application.

PGM developed a solution that was specially designed for this application, based on a new design for the guide carriages and rail elements.

"The crucial advantage of this solution lies in the introduction of a spring package that permanently presses the carriages onto the rail using pre-tension," said Joachim Öchsner, Managing Director at PGM Motion.

In contrast to conventional systems, where the movement increases over time and the carriages start to wobble, the movement of the PGM solution is designed to remain stable in the long term. The guide carriage rollers are in permanent contact with the rail, both in straight sections and in changing curve radii. There is no need to set eccentric bolts; the carriages are immediately ready for operation and can be replaced.

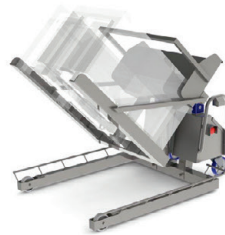
The cartons must be positioned precisely so that the packer and unpacker can lift and lower the bottles. The drive chain was therefore also adapted. A spring system enables the chain to elongate in the spring links, yet it remains robust enough not to be damaged by glass or shards.

A keyway is integrated at the ends of the guide rails to ensure good transitions between the rail elements, eliminating the need for manual reworking. Individual rail segments can be replaced as required.

Also, a permanent lubrication system is designed to prevent the carriages from wearing out over time, continuously delivering grease to the carriages.

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Whey more unified at greenfield cheese plant

A large bulk cheese manufacturer and supplier of whey ingredient has turned to Tri Tech Automation to implement automation and controls with an integrated architecture for unified process and power at its greenfield plant.

Greenfield projects present unique opportunities for innovation and exploration of new possibilities but often come with significant challenges that require knowledge and expertise in diverse areas.

The food manufacturer relied on multiple vendors to manage critical aspects of its large-scale greenfield project, including construction, project management, front-end engineering, automation and controls, and instrumentation. The company's goal was to have a world-class manufacturing facility with modern technology and standards, which would start on time and under budget.

Given that milk is an essential ingredient in cheese production, the cheese manufacturer coordinated with local dairy farmers to make sure that milk deliveries to the greenfield facility occurred on a predetermined date.

Despite supply chain issues, late changes to project scope and complex documentation, the company met its scheduled startup date.

True integrated automation

Tri Tech Automation, a platinum system integrator member of the Rockwell Automation PartnerNetwork Program, oversaw the automation and controls budgeting, implementation, and standards and methodologies aspect of the greenfield project.

During the project scope, Tri Tech Automation identified critical engineering gaps that needed to be addressed to achieve true innovation within the plant. A significant opportunity presented itself to implement an integrated architecture with unified process and power control capabilities, including CENTERLINE 2100 motor control centres (MCCs), PowerFlex variable frequency drives (VFDs) and ControlLogix controllers. This



The cheesemaker's operators and maintenance personnel benefited from this integrated architecture that combines unified process and power, providing real-time, data-driven insights to enhance performance and achieve optimised production processes across the plant.

integrated architecture solution avoids having islands of automation and unifies process control systems and devices, safety, energy management, electrical and other systems.

Faced with budget constraints, tight construction deadlines and supply chain challenges, Tri Tech Automation decided to order the equipment before the engineering phase was fully complete. To maintain the standard delivery schedule, the company purchased 45 configured-to-order (CTO) low-voltage MCCs equipped with 1200 and 800 A bus systems. These MCCs supported 643

connected loads, including VFDs, starters, feeder breakers and other components, totalling 19,500 connected HP (27,500 A).

The customisation of the CTO MCCs took place at Tri Tech Automation's St. Louis facility, where the company built out its network and integrated the MCCs. The process involved networking and modifying individual MCC units as needed, powering them on and setting device parameters, and creating custom tags for each device to include both manufacturer-specific and network information. The final step

was conducting a comprehensive factory acceptance test (FAT) to achieve optimal performance and compliance.

Ryan Williams, Managing Director – Sales and Marketing, Tri Tech Automation, said, "We felt very comfortable ordering [configured-to-order] solutions from Rockwell and getting those on order early with a percentage of spares across the board and then rolling with changes after the fact."

Tri Tech Automation's expertise covers many other areas. The company used the Rockwell Automation ControlLogix control system for the programmable logic controllers (PLCs) and worked with Rockwell Automation Technology Partner Endress+Hauser to consolidate and streamline instrumentation to improve supportability.

Tri Tech Automation also identified gaps in the manufacturer's operational technology (OT) network design, which serves as the backbone of the facility. The company implemented a comprehensive OT network design, spanning from core switches to the plant floor. According to Williams, Tri Tech Automation set up and configured every switch, backed them up on SD cards, created backup files for them, and wrote manuals on how to replace them.

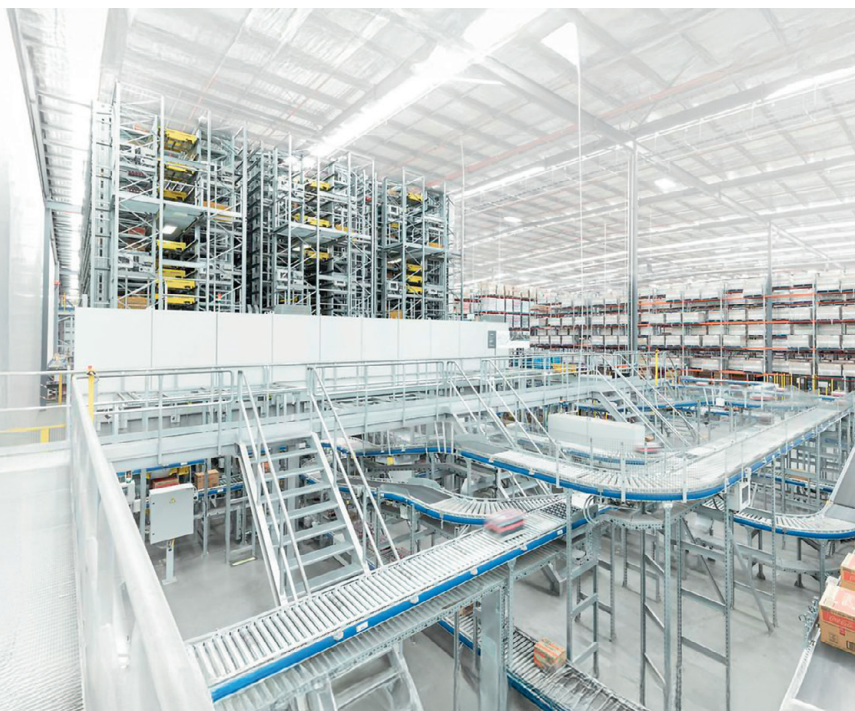
A unified, data-driven facility

All MCCs, VFDs, I/O and process gateways were on the same physical network and segmented out through virtual local area networks (VLANs) and IP schemes. The cheesemaker's operators and maintenance personnel benefited from this integrated architecture that combines unified process and power, providing real-time, data-driven insights to enhance performance and achieve optimised production processes across the plant. Additionally, the modern instrumentation and automated control systems improved sustainability by minimising water and energy consumption.

The original design had a lot of instrumentation (for example, flowmeters and Coriolis meters) that the company was familiar with and had used at other plants. Consolidating and streamlining much of this instrumentation helped improve supportability, including optimised management of spares, stock and user support.

The greenfield plant is now fully operational, producing cheese, while Tri Tech Automation is offering remote support to enhance processes, optimise the facility and address various tasks, including establishing new setpoints and implementing additional interlocks.

Safer, smarter and faster: automation delivers at Coca-Cola's Brisbane warehouse



Following an open request for tenders for an automated warehousing and palletising system for its 30,000 m² distribution centre in Brisbane, Queensland, Coca-Cola Europacific Partners Australia (CCEP) chose a solution from SSI Schaefer.

Working closely with CCEP, SSI Schaefer created a concept that matched Coca-Cola's priorities for the site of having a flexible, agile and accurate system that supported the delivery profile of the business as well as the storage capacity and necessary throughput. Providing a system that met the company's safety culture was also a priority. The concept integrated both case picking with bulk storage and delivers a flexible system, with both high utilisation and availability, picking more than 2.5 million cases annually.

"SSI Schaefer were very collaborative as we moved through the design," said Anthony Lee, Project Manager Major Works for CCEP. "They brought a lot of their expertise that they gained from around the world in helping us develop this facility."

The SSI Schaefer design features the company's SSI Lift&Run technology, which provides high storage density at the same time as high throughput. The SSI Lift&Run high bay warehouse (HBW) receives full pallets via an airbridge directly from the adjacent bottling plant. The system provides for the automatic storage and retrieval of more than 30,000 pallets over seven levels and includes 12 SSI Lift&Run cranes in four aisles, as well as an extensive pallet conveyor system with multiple pallet lifts.

Adjacent to the SSI Lift&Run high bay warehouse, SSI Schaefer installed an automatic case picking (ACP) system. The proximity and direct link to the HBW enables automatic pallet replenishment direct from the HBW. Full pallets are conveyed to the ACP from the automated storage and retrieval system (ASRS) where they are automatically delayed by a depalletising robot, case wheeler and Intralox case singulation. The individual cases are then stored directly in a 3-aisle SSI Cuby trayless shuttle case buffer system.

Required cases are sequenced out of the SSI Cuby case buffer to one of three robots for automatic palletising. The robot palletises the fastest moving top 30 SKUs for the CCEP's route trade, and is designed to pick over 2.5 million cases annually.

All components are controlled by SSI Schaefer's WAMAS warehouse control system, which interfaces directly to the on-site SAP host EWM system. This includes SSI SCHAEFER's Schaefer Pack Pattern Generator (SPPG) module, which is responsible for building stable and dense pallets.



A key aspect to ensuring the best performance of the system is the SSI Resident Maintenance team, which not only maintains the equipment in direct consultation with CCEP, but also continues to optimise and improve reliability and throughput. Through SSI Schaefer's computerised maintenance management system (CMMS), all actions by the maintenance team are captured and logged using handheld terminals, building up a database of root causes for all stoppages that then feeds into collaborative continuous improvement actions for the maintenance and operations teams.

The design provided CCEP with a compact yet resilient automated storage solution that allowed it to meet its goal of implementing a new warehouse on the production site, with an airbridge conveyor link directly from production. The solution met all of Coca-Cola's requirements in terms of storage, throughput, expandability and redundancy.

Complete automation also means greater safety for workers, according to Emily Smeed, Inventory Manager for CCEP.

"It removes the need for a lot of forklift interaction, as well as the need for any manual handling. The more we are putting into the automation the less we are having to expose to our employees on the floor," she said.

"SSI Schaefer was really committed to making sure the facility worked, and ultimately we have produced a facility that has some of the highest utilisation and availability that I have seen anywhere," Lee added.



TRANSPORTATION ROBOT

The Swisslog IntraMove series of autonomous mobile robots (AMRs) is designed to provide horizontal transportation for payloads up to 3000 kg.

The AMRs are connected to AI-based fleet management software via the VDA 5050 standard communication interface. The software enables the mapping of numerous industrial scenarios, to ensure optimised route planning and assignment of transport orders to the robots, which travel independently and autonomously on all routes.

The series can be directly linked to a WCS or WMS system like Swisslog's SynQ software that manages the transport orders. External equipment, such as doors and elevators, can communicate with the fleet management software via various standard protocols such as MQTT, Modbus and OPC UA.

The robot's Simultaneous Localisation and Mapping (SLAM) navigation, which utilises two laser scanners, uses AI algorithms to calculate the most efficient path to a destination while avoiding physical obstacles and traffic without needing cables, strips or tapes.

The AMRs feature a fully integrated lifting device that rises in smooth steps to transport goods. It is a scalable solution, adapting the number of mobile robots to suit each business without modifying the warehouse during operation. A wide range of different top modules, such as platforms and conveyors, are available.

A variety of different payload versions are available, including: compact AMR 600 for a payload of 600 kg; pallet transporter AMR 1500 suitable for 1500 kg; and heavy-duty omnidrive AMR 3000 designed for payloads of 3000 kg.

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Professor Ian O'Hara inside the QUT Pioneer BioPilot.

Fermentation facility

helps fast-track new food developments

Located in the heart of Australia's sugarcane region in Mackay, QUT has completed an \$18 million upgrade to its Pioneer BioPilot, which was formerly called the Mackay Renewable Biocommodities Pilot Plant (MRBPP).

The upgrade has transformed the plant into a pilot-scale food-grade fermentation facility which has the potential to advance many biomanufacturing opportunities — including creating new types of food ingredients and other bioproducts, in addition to further biofuel developments.

QUT Centre for Agriculture and the Bioeconomy researcher Professor Ian O'Hara said the QUT Pioneer BioPilot had played a crucial role for industry for the past 15 years in the real-world translation of research, converting biomass such as sugarcane biogases into biofuels, green chemicals and bioproducts.

O'Hara, who is also Deputy Dean of the QUT Faculty of Engineering, said a key feature of the facility is its fermentation bioreactors, which allow companies to fast-track product development in the food and beverage sector — taking ideas beyond the lab and into commercial reality.

"Precision fermentation is a technology that allows us to convert sugars into a range of other food ingredients and products in brewery-style fermentation tanks," O'Hara said.

"The advantages of precision fermentation are that it can lead to new food products and ingredients that supplement production through traditional methods, providing sustainability benefits and increasing consumer choice."

Funding for the upgraded facility has been provided by the Australian and Queensland Governments in association with Australia's Food and Beverage Accelerator (FaBA).

"The QUT Pioneer BioPilot provides key infrastructure, allowing companies to take new innovations from the lab to pilot-scale," said FaBA Director Dr Chris Downs.

"FaBA is investing in precision fermentation so that companies of all sizes can develop

new products and ingredients, in turn helping grow Australia's food and beverage manufacturing sector."

Using the Pioneer BioPilot, QUT researchers are partnering with Eclipse Ingredients and other institutions in a \$5.5 million project to commercialise human lactoferrin.

Eclipse Ingredients CEO Siobhan Coster said she was thrilled to be working with QUT and FaBA on the project, which has the potential to transform health outcomes.

"The partnership with QUT is crucial because it bridges the gap between breakthrough science and real-world impact," Coster said.

"It allows us to scale our product and process from lab to commercial readiness right here in Queensland, Australia."



Sugarcane bagasse ready for processing, inside the QUT Pioneer BioPilot.

Rethinking meat and proteins



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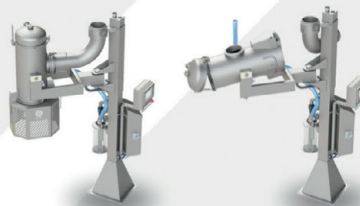
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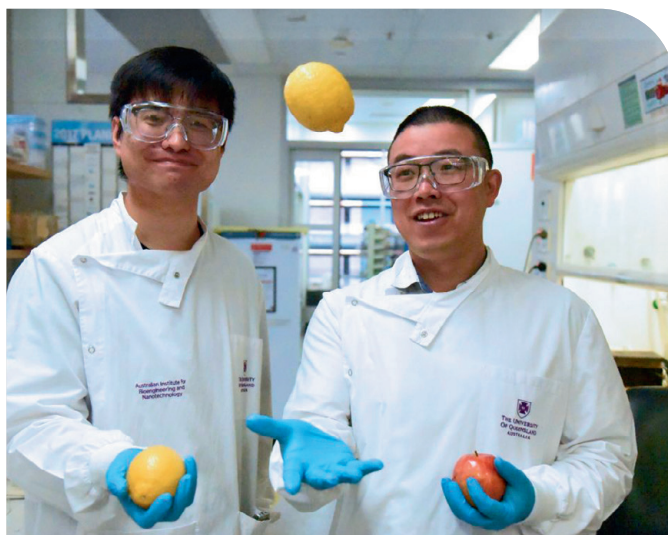
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Freshness check for fruit & veg

University of Queensland researchers have developed a nanoprobe that changes colour to indicate how much vitamin C is in fresh produce and juice.

Dr Run Zhang from UQ's Australian Institute for Bioengineering and Nanotechnology (AIBN) said the technology could be added directly to food and juice samples or applied to paper testing strips that, when touched to cut or intact produce, change colour to indicate the concentration of vitamin C.

Vitamin C — also known as ascorbic acid — is a critical antioxidant in most fruits and vegetables and can vary significantly depending on the length of journey from the farm to fridge.

"Things like exposure to heat, oxygen and light all accelerate vitamin C degradation, as does the quality of the soil or pesticide use during the growing process," Zhang said.

"Measuring vitamin C is therefore an essential step for producers, regulatory agencies, and consumers who want to simply evaluate food freshness and nutritional content."

The particle-sized probes designed by Zhang's team consist of a metallic core coated with a fluorescent dye.

The coating is designed to break away in the presence of ascorbic acid and the remaining materials change colour to match the strength of vitamin C in a sample of food or juice.

PhD scholar Dihua Tian said the probes coloured yellow to brown when exposed to different fruits, vegetables and juices, providing a rudimentary indication of freshness and nutrition.

The simplicity and portability of the technology means a more accurate reading could be possible using a smartphone app.

"We see great potential for more user-friendly analysis," Tian said.

"Ultimately this is technology that could be used in tandem with colour visualiser phone applications that can scan a testing strip coated in our nanoprobe and tell you exactly how fresh and healthy the food is."

Zhang said the nanoprobe also had potential applications in agriculture.

By testing plant leaves for vitamin C content, he said producers could gain insights into plant nutrition, stress responses and optimal agricultural practices.

The research is published in *Food Chemistry*.

Not so beany



iStock.com/BongkarnThanyakij

The soy-based foods market has been experiencing rapid growth in recent years, driven by increasing health consciousness and rising demand for plant-based alternatives for milk, meat and other products. However, while a beany flavour might be acceptable in foods like tofu or soy milk, it's less welcome in products such as plant-based burgers or protein shakes.

Researchers at the University of Missouri have been recently working on developing novel ways to overcome the flavour challenges associated with soy-based food to create wider interest for the products and also potentially improving the nutritional value of the foods in the process.

In the study, Bongkosh "Jeab" Vardhanabhuti, an associate professor of food science at University of Missouri, and her team at the College of Agriculture, Food and Natural Resources compared the taste and aroma of four soybean varieties — three of them being specially bred by the university's plant scientists. All the varieties were grown under identical conditions and processed into a raw soy slurry, similar to uncooked soymilk.

The researchers found that a variety called "Super" yielded the best results, delivering the most pleasant flavour and aroma, making it more appealing to Western consumers.

Specially bred soybeans

"People in Asian culture have been using soybean products for centuries. Now, more and more Western consumers are interested

in soy products, and we are looking to offer options for everyone," Vardhanabhuti said.

The specially bred Super soybean used by researchers was designed with a healthier fat profile. Plant scientists also reduced certain sugars that don't offer nutritional value and removed an enzyme called lipoxygenase, a key culprit in creating off-flavour compounds.

"Overall, this research shows that smart plant breeding can make soy-based foods taste better, which could help more people accept and enjoy them," Vardhanabhuti said.

For this study, researchers prepared the raw soy slurry by washing the soybeans, soaking them in water overnight and then grinding them with fresh water. The mixture was strained and refrigerated. They measured protein, fat, moisture, fibre and ash content using standard laboratory methods. Additionally, gas chromatography was used to analyse the types of fats in the soy oil, while ion chromatography and enzyme tests measured sugars such as sucrose. Finally, several tests were conducted to assess aroma compounds.

Nine trained panellists — all experienced in sensory testing — evaluated the slurries based on 12 traits: colour, five aroma characteristics and six flavour characteristics.

"There's a clear need for soybeans with a milder or even neutral flavour profile — beans that can be added to a variety of products without announcing themselves on the palate," Vardhanabhuti said.

This research is the first in a series of studies that Vardhanabhuti's research team is conducting to improve the taste of soybeans. Next, the team will examine improving the taste in products such as tofu, soy milk and soy protein.

The findings have been published in *Food Chemistry*.

CASE STUDY

Concept for protein bar innovation

Arla Foods Ingredients has launched a new concept demonstrating how protein bar manufacturers can improve nutritional profile without compromising on taste or texture.

Making its debut at SupplySide Global (29–30 October in Las Vegas), Easy Bite is a bite-size protein snack which has been created using customised whey protein solution Lacprodan EasyBar. The snack is designed to deliver up to 40% protein in an 18 g serving, which contains just eight ingredients and is high in fibre, with no added sugar or fat, and no maltitol.

Additionally, the concept is designed to avoid the textural deterioration that can affect protein bars. It is designed to maintain stable softness over a two-year shelf life without the need for additional fat or water-binding ingredients like collagen.

Peter Schouw Andersen, Senior Director, Performance Nutrition at Arla Foods Ingredients, said: "We've created this concept to respond to the biggest trends in the protein bar market. Taste and texture are still king but health considerations are increasingly important – for younger consumers in particular. Easy Bite meets all these needs, offering a high-protein, low-fat, fibre-rich option that retains its softness without the need for a long ingredients list. We hope it will create exciting new opportunities for protein bar innovation."

The company also showcased two other concepts at SupplySide Global:

- A protein soda that responds to the 'better for you' soft drinks trend. Featuring specialty whey protein ingredient Lacprodan BLG-100, it contains 10 g of protein and no sugar.
- 'Refreshed in Seconds', a concept that demonstrates the benefits of Lacprodan ISO.RefreshShake – the latest addition to the company's portfolio of whey protein isolates for clear shakes. It delivers 20 g of protein per 300 mL serving.

Alchemy Agencies

alchemyagencies.com



COUNT PLATE

The Neogen Petrifilm *Bacillus cereus* Count Plate is validated, efficient, and designed to be easy to use for food safety applications.

Bacillus cereus is one of the most common causes of foodborne illness, linked to a wide range of products including dairy, rice, ready-to-eat meals and spices. With its ability to survive harsh processing conditions and form heat-resistant spores, it presents a persistent challenge for food manufacturers. Detecting and monitoring this organism quickly and accurately is essential to protecting consumers and maintaining brand reputation.

The Neogen Petrifilm *Bacillus cereus* Count Plate is the latest addition to the Petrifilm portfolio, building on more than 40 years of innovation in microbiological testing. Designed to replace traditional cumbersome agar methods, this ready-to-use plate incorporates chromogenic technology and a selective medium that delivers clear, easy-to-interpret results. By eliminating the need for manual media preparation, it is designed to reduce variability, labour and storage demands while ensuring reproducible outcomes.

Validated by leading international bodies, the count plate is designed to support laboratories in meeting regulatory requirements with accuracy and efficiency. Its streamlined workflow is especially suited for high-throughput environments where time and consistency are paramount.

This latest innovation from Neogen is suitable for food safety professionals.

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MOBILE FLOW CYTOMETER

Romer Labs is a global leader in food and feed safety, offering solutions for allergen testing, microbiological diagnostics, mycotoxin detection and environmental hygiene monitoring.

The CytoQuant Mobile Flow Cytometer is designed to deliver precise total viable and particulate residue counts directly at the production site within 30 s of the swab being taken. There is no need for pre-treatment, incubation or chemical reagents, and the product is unaffected by trace detergents or disinfectants, enabling swift, on-the-spot microbial assessments for good process control.

Cell BioSciences has been appointed as an official distributor of Romer Labs' diagnostic solutions across Australia.

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www.cellbiosciences.com.au

Fermenting technique to **perfect chocolate flavour**



Cacao pod. Credit: Mimi Chu Leung

Researchers have identified key factors that influence the flavour of chocolate during the cocoa bean fermentation process, a discovery that could provide a tool for chocolate producers to craft consistently high-quality, flavour-rich chocolate.

Scientists from the University of Nottingham's School of Biosciences examined how cacao bean temperature, pH and microbial communities interact during fermentation and how these factors shape chocolate flavour.

The team identified key microbial species and metabolic traits associated with fine-flavour chocolate and found that both abiotic factors (such as temperature and pH) and biotic factors (the microbial communities) are consistent indicators of flavour development. The study has been published in *Nature Microbiology*.

The quality and flavour of chocolate begin with the cacao bean, which is profoundly influenced by both pre- and post-harvest factors. Among these, fermentation is the first, and one of the most critical steps after harvest. It lays the foundation for aroma development, flavour complexity and the reduction of bitterness in the final chocolate product.

Dr David Gopaulchan, the first author of the paper, said "Fermentation is a natural, microbe-driven process that typically takes

place directly on cocoa farms, where harvested beans are piled in boxes, heaps or baskets. In these settings, naturally occurring bacteria and fungi from the surrounding environment break down the beans, producing key chemical compounds that underpin chocolate's final taste and aroma.

"However, this spontaneous fermentation is largely uncontrolled. Farmers have little influence over which microbes dominate or how the fermentation process unfolds. As a result, fermentation, and thus the flavour and quality of the beans, varies widely between harvests, farms, regions and countries."

The researchers wanted to find out whether this unstable, natural process could be replicated and controlled in the lab. Working with Colombian farmers during the fermentation process, they identified the factors that influence flavour. They were then able to use this knowledge to create a lab fermentation process and developed a defined microbial community – a curated mix of bacteria and fungi – capable of replicating the key chemical and sensory outcomes of traditional fermentations.

This synthetic community successfully mimicked the dynamics of on-farm fermentations and produced chocolate with the same fine-flavour characteristics.

"The discoveries we have made are really important for helping chocolate producers to be able to consistently maximise their cocoa crops as we have shown they can rely on measurable markers such as specific pH, temperature and microbial dynamics, to reliably predict and achieve consistent flavour outcomes," Gopaulchan said.

"This research signals a shift from spontaneous, uncontrolled fermentations to a standardised, science-driven process. Just as starter cultures revolutionised beer and cheese production, cocoa fermentation is poised for its own transformation, powered by microbes, guided by data and tailored for flavour excellence. By effectively domesticating the fermentation process, this work lays the foundation for a new era in chocolate production, where defined starter cultures can standardise fermentation, unlock novel flavour possibilities and elevate chocolate quality on a global scale."



Flavours to go... in a cone

Drumstick's Road Trippers range has been released in time for summer with two new flavours. Rocky Road has layers of marshmallow and chocolate with diced nuts throughout, combined with raspberry syrup, and Banana Caramel which combines banana and toffee with caramel syrup and blondie brownie pieces.

www.peters.com.au/brands/drumstick



Protein shake-up for breakfast cereals

Organised by Asembl, Kellanova has collaborated with Macro Mike to launch a limited-edition collection of protein powders inspired by three Kellogg's breakfast cereals: Coco Pops, Nutri-Grain and Froot Loops for the Australian and New Zealand markets. Available in 400 and 800 g bags, bundle packs and limited-edition collector boxes, the cereals include dairy-free and gluten-free plant protein blends with over 23 g of protein per serve.

www.kellanova.com | www.asembl-brands.com | macromike.com.au



'Fakeaway' Korean chicken

Korea's street food has been taken into the home kitchen with the launch of bibigo Korean Style Fried Chicken. Made in Australia from 100% whole chicken breast cuts, the chicken is available in two flavours and is designed for easy preparation in the oven or air fryer.

www.cjfoods.com.au



Summer treats include truffles by the block, ice creams for road trips and gingerbread-inspired designs for the festive season. While street food goes mainstream at home, Champagne lifts with 007 tribute and breakfast cereals are given a protein shake-up.



You can't catch me... festive season treats

Haigh's Chocolates has released its 2025 Christmas Collection, which includes gift tins, baubles and bon bon packaging with new flavours, such as Milk Spiced Marshmallow, Milk Gingerbread Block and 70% Chocolate Maraschino Cherry Truffle. The world of gingerbread embellishes this year's range, including a gingerbread house design for its advent calendar.

haighschocolates.com.au



007 tribute Bollinger

Champagne Bollinger has unveiled a Special Cuvée 007 Limited Edition, marking over 45 years as the Official Champagne of James Bond which began in 1979 with Moonraker, though Champagne Bollinger was first mentioned in the book *Diamonds Are Forever* in 1956. The Special Cuvée 007 Limited Edition is housed in a sleek, black collector's box.

champagne-bollinger.com



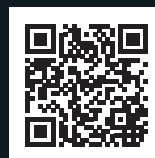
Truffles by the block

Lindt LINDOR Truffles are now available in a block on Aussie supermarket shelves. From truffle to block, there is a trio-of-classic flavours in the Lindt LINDOR Blocks — milk, salted caramel and white — as well as the new Tiramisu flavour.

www.lindt.com.au

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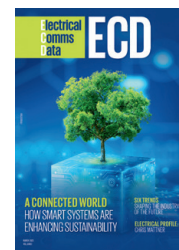
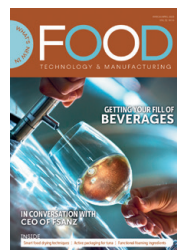
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