

WHAT'S NEW IN

FOOD

TECHNOLOGY & MANUFACTURING

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INSIDE

Brewing up pet food | Two-step yoghurt making method | Sweet automation handling



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CAROLYN JACKSON
CHIEF EDITOR

editor's NOTE

This spring issue of What's New in Food Technology & Manufacturing magazine features details on the latest processing, bulk handling and packaging techniques being developed and actioned for fruit and nuts, vegetables and salads.

Wastage is still a significant issue in the fruit and vegetable industry, with nearly a third of some types of produce ending up in the bin along the supply chain.

Now, an interesting processing method has been developed by Edith Cowan University to help extend the life of tropical fruit in the cold chain. This is promising news as most of us like to indulge in a juicy mango or two as the weather warms up.

The ECU solution was tested using mangoes which were dipped into ozonated water for 10 min before cold storage. The reported results have indicated that this method extended the cold storage life by up to two weeks, and also lowered the occurrence of chilling injury to the fruit. Read more on page 16.

In our packaging section, we take a look at a series of collaborative trials with Australian mushroom producers to phase out traditional PVC film in favour of a polyolefin alternative. The trial also compared perforated versus non-perforated films, which is important for mushrooms given their sensitivity to gas exchange and moisture levels. Read more on page 60.

We've also included all our regular features which highlight food facility design, new food product developments and much more.

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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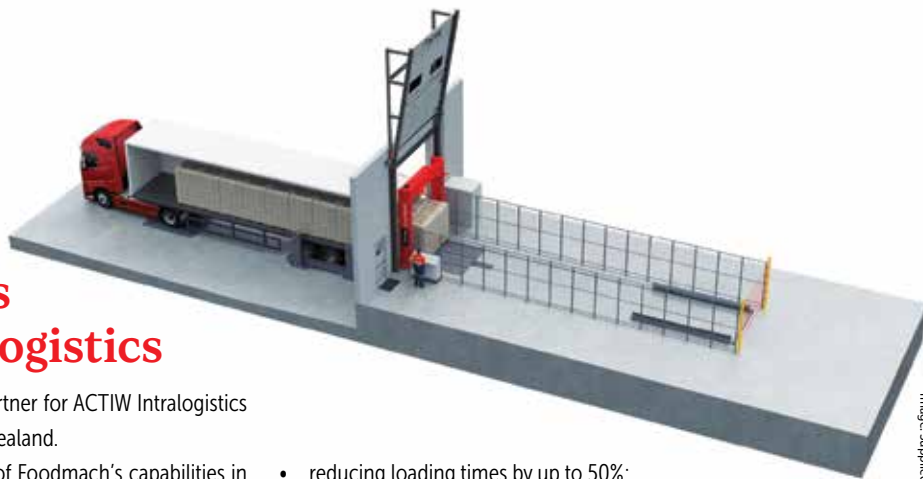


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Foodmach partners with ACTIW Intralogistics

Foodmach has been appointed as an official partner for ACTIW Intralogistics and Joloda Hydraroll across Australia and New Zealand.

This appointment marks a major expansion of Foodmach's capabilities in factory-to-freight automation, with the addition of ACTIW and Joloda's One Shot Loading systems — designed to improve the safety and efficiency of truck, trailer and container loading.

ACTIW was recently acquired by UK-based Joloda Hydraroll. Together, they provide high-speed loading systems capable of:

- reducing loading times by up to 50%;
- cutting labour and forklift use by up to 80%;
- minimising loading dock congestion and workplace injury;
- seamlessly integrating into ERP and warehouse systems.

The partnership with Foodmach provides these capabilities to Australian and New Zealand manufacturers.

Lactalis acquires Fonterra businesses for NZ\$3.845bn

Fonterra Co-operative Group Ltd (Fonterra) has agreed to the sale of its global consumer and associated businesses to Lactalis for NZ\$3.845 billion.

The sale comprises Fonterra's global Consumer business (excluding Greater China) and Consumer brands; the integrated Foodservice and Ingredients businesses in Oceania and Sri Lanka; and the Middle East and Africa Foodservice business.

In addition to the base enterprise value of NZ\$3.845 billion, there is potential for a further NZ\$375 million increase from the inclusion of the Bega licences held by Fonterra's Australian business, which if progressed would take the headline enterprise value of the transaction up to NZ\$4.22 billion.

As part of the sale agreement, Fonterra will continue to supply milk and other products to the divested businesses, meaning New Zealand farmers' milk will still be found in dairy brands including Anchor and Mainland.

Fonterra CEO Miles Hurrell said the sale agreement represents a great outcome for the Co-op.

"As the world's largest dairy company, Lactalis has the scale required to take these brands and businesses to the next level. Fonterra farmers will continue to benefit from their success, with Lactalis to become one of our most significant Ingredients customers," Hurrell said.

"At the same time, a divestment of these businesses will allow Fonterra to deliver further value for farmer shareholders and New Zealand by focusing on our world-leading Ingredients and Foodservice businesses, through which we sell innovative products to more than 100 countries around the world from our home base here in New Zealand."

Lactalis CEO Emmanuel Besnier said, "With this acquisition, we significantly strengthen our strategy across Oceania, Southeast Asia and the Middle East. Combining the Fonterra consumer business operations and market-leading brands with our existing footprint in Australia and Asia will allow Lactalis to further grow its position in key markets. I'm delighted to become a key partner to Fonterra over the long term as well as I'm looking forward to welcoming new teams to the Lactalis family."

The divestment comprises the sale of shares in Mainland Group Holdings Limited, a New Zealand incorporated holding company that is currently owned by Fonterra.

The inclusion of the Bega licences held by Fonterra's Australian business would be confirmed once a dispute with Bega Cheese is resolved. If for some reason the Bega licences are not included in the sale, Fonterra expects to receive a fair value payment from Bega for the licences which would need to be determined at the time.

Under the terms relating to the sale, Fonterra will continue to supply raw milk, dairy ingredients and products to the divested businesses under long-term supply agreements.

Alongside shareholder approval, the divestment is conditional on final regulatory approvals being received from the Overseas Investment Office in New Zealand, the Foreign Investment Review Board in Australia, and relevant competition regulators and foreign direct investment regulators in certain countries including Kuwait, New Caledonia and Saudi Arabia.

In July 2025, the ACCC announced it would not oppose the proposed acquisition by Lactalis in Australia.

The divestment is also conditional on separation of the businesses from Fonterra and no material adverse change arising before completion.

Subject to satisfaction of all conditions, the transaction is expected to complete in the first half of the 2026 calendar year.



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Bega Group to close its peanut processing business in Qld

Following a strategic review, Australian-owned food manufacturer Bega Group has announced its plans to wind down and close its Peanut Company of Australia (PCA). The PCA facilities at Kingaroy and Tolga in Queensland will be closed in a phased shutdown which is expected to take 18 months.

Purchased by Bega Group in 2017, PCA had been under sustained financial pressure for several years prior to this acquisition. Despite ongoing investments, including significant upgrades to site safety and initiatives aimed at supporting local growers to boost production, Bega Group has not been able to establish a sustainable business model for PCA.

Bega Group Chief Executive Officer Pete Findlay said: "We announced the strategic review over 12 months ago and we have explored several options to sell the business. Unfortunately, we've been unable to find a buyer that could sustain a long-term future for employees and growers."

Bega Group continues to have a strong presence in Queensland, retaining two processing facilities in Crestmead and Malanda, as well as its distribution network.

Haigh's CEO announces retirement

In July, Chief Executive Officer Alister Haigh has announced his retirement after 30 years at the helm of Haigh's Chocolates.

As of 4 August, he was succeeded by Chief Operating Officer Peter Millard, marking the first time in the business's 110-year history someone outside the Haigh family has been appointed as Chief Executive Officer of Haigh's.

Haigh's Chocolates continues to be family owned and Alister will remain on the Board alongside his fourth-generation family members Simon Haigh and Sara Fitzgerald. In addition to his board role, Alister plans to champion the rich history and legacy of Haigh's.

Alister started working at Haigh's in 1973 and was appointed CEO in 1995; during this time Haigh's has expanded its operations, tripling in size and producing over 1000 tonnes of chocolate annually.

"Reflecting on my time, it's incredible to think how far we have come over the years with more than 300 chocolate varieties, 900 employees, 21 stores and grown tenfold, all while remaining true to the heritage and quality Haigh's is known for," Alister said.

Haigh's Chocolates Board Chair Carolyn Mitchell said this is an exciting time for the business and for Alister, who is looking forward to spending more time with his family, on his farm in the Adelaide Hills and on his other interests.



Kraft Heinz announces split

The Kraft Heinz Company (Kraft Heinz) has announced a plan to separate the company into two independent, publicly traded companies.

The separation is designed to maximise Kraft Heinz's capabilities and brands while reducing complexity, allowing both new companies to more effectively deploy resources towards their distinct strategic priorities. This focus is intended to enable stronger performance while preserving the scale to compete.

The two resulting companies, whose names will be determined at a later date, will be:

1. 'Global Taste Elevation Co.' This company will include a roster of brands – including Heinz, Philadelphia and Kraft Mac & Cheese – with approximately 75% of net sales coming from sauces, spreads and seasonings. Approximately 20% of 2024 net sales are in Emerging Markets and approximately 20% are in Away From Home.
2. 'North American Grocery Co.' This company, which will be led by Carlos Abrams-Rivera, will include a portfolio of brands – including Oscar Mayer, Kraft Singles and Lunchables. Approximately 75% of net sales come from brands that are #1 or #2 in their respective categories.

"Kraft Heinz's brands are iconic and beloved, but the complexity of our current structure makes it challenging to allocate capital effectively, prioritise initiatives and drive scale in our most promising areas," said Miguel Patricio, Executive Chair of the Board for Kraft Heinz.

"By separating into two companies, we can allocate the right level of attention and resources to unlock the potential of each brand to drive better performance and the creation of long-term shareholder value. I look forward to working closely with Carlos and the Kraft Heinz team in the months ahead to prepare the organisation for the separation."

The company will continue to operate as 'one Kraft Heinz' throughout the separation process.





Micro-abattoirs get green light in Victoria

Victorian Minister for Planning Sonya Kilkenny and Minister for Agriculture Ros Spence have announced an amendment to the Victorian Planning Provisions to make it easier to establish micro-abattoirs.

Under the amendment, micro-abattoirs will be classified as a Section 1 use in the Farming Zone, Rural Activity Zone and Green Wedge Zone, which means they will no longer require a permit.

The state government said this will ensure farmers and producers have better access to abattoir facilities closer to the farm gate.

Micro-abattoirs will be required to remain small, operationally contained, located on the same land as the animal production, and away from neighbouring homes and other sensitive uses.

A responsible authority, such as the local council, will continue to manage abattoirs through planning and building permit approvals and enforcement, and environmental health officers will continue to manage public health matters under the *Public Health and Wellbeing Act 2008*.



Suntory Oceania's \$3bn beverage business launched

On 7 July 2025, Suntory officially launched its new \$3 billion multi-beverage business in the Australian marketplace — Suntory Oceania — at its \$400m+ carbon-neutral facility in Ipswich, Queensland. Now claimed as the region's fourth largest multi-beverage group, the business launch allowed a first look at alcohol production at the new facility which began production of energy drinks back in September 2024.

Announced back in August 2023, the establishment of Suntory Oceania responds to the growth potential across Australia and New Zealand. The catalyst for that growth will be its new Ipswich facility, which will produce a portfolio of beverages including premium spirits, RTD (ready-to-drink) alcohol beverages, juice, water, soft drinks, coffee, energy and sports drinks. Initially capable of producing 20 million cases per annum, the facility has the capacity to expand to 50 million cases in the future.

Dai Minato, CEO — Suntory Beverage & Food Oceania, said, "Our team has delivered incredible results in just over two years – the transformation of a greenfield site to a \$400M state-of-the-art, carbon-neutral facility and the establishment of a new supply chain and commercial model. We have grown our Oceania family to 1500 people, including new Licensed RTM and Advocacy teams."

Suntory will launch its new multi-beverage business offering in the New Zealand market in January 2026.



Ferrero to acquire WK Kellogg Co for US\$3.1bn

On 10 July in Luxembourg and Battle Creek, Michigan, Italian sweet maker Ferrero Group announced it has reached an agreement to purchase breakfast cereal maker WK Kellogg Co for around US\$3.1 billion (AU\$4.7bn).

The acquisition includes the manufacturing, marketing and distribution of WK Kellogg Co's portfolio of breakfast cereals across the United States, Canada and the Caribbean.

Ferrero said it has plans to invest in and grow Kellogg's well-known brands, including Frosted Flakes, Froot Loops, Frosted Mini Wheats, Special K, Rice Krispies, Raisin Bran, Kashi, Bear Naked and more.

A leader in the breakfast cereal sector, WK Kellogg Co began operation in 1894 (nearly 120 years ago) when founder W.K. Kellogg reimaged breakfast food by creating Corn Flakes.

Ferrero also had humble beginnings in the small town of Alba in Piedmont, Italy, back in 1946, and has since grown into one of the largest sweet-packaged food companies.

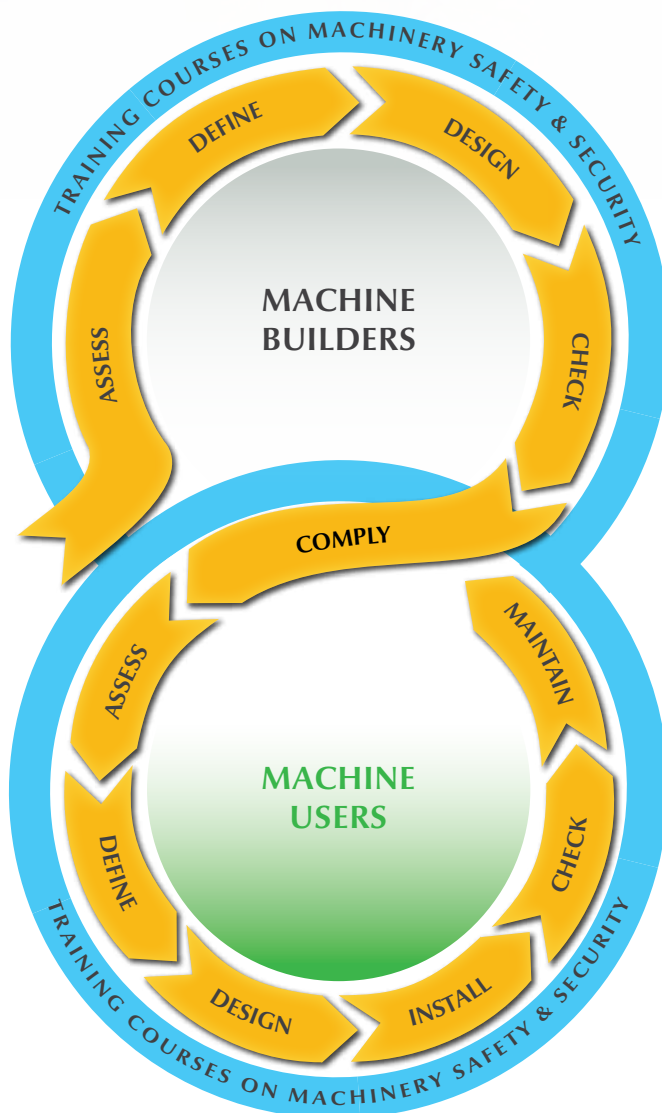
Upon the successful completion of the transaction, shares of WK Kellogg Co's common stock will no longer trade on the New York Stock Exchange, and the company will become a wholly owned subsidiary of Ferrero.

After the transaction closes, Battle Creek, Michigan, will remain a core location for the company and will be Ferrero's headquarters for North America cereal.

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DESIGN	Safe Design (SD)
CHECK	- Post-Measures Risk Assessment (PMRA) - Safety Validation / Safety Verification (SV)
COMPLY	Compliance with Local and International Legislations & Regulations (e.g. CE Marking, AS/NZS 4024)

► Machine Safety Lifecycle for Machine Users

ASSESS	- Site Audit (MSE) - Machine Risk Assessment (RA) - Security Risk Assessment (SRA) - LOTO Assessment (LA)
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DESIGN	Safe Design (SD)
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CHECK	- Post-Measures Risk Assessment (PMRA) - Safety Validation / Safety Verification (SV)
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COMPLY	Compliance with Local Legislations & Regulations (e.g. AS/NZS 4024)



Solar and battery project for biscuit factory

The Arnott's Group, in partnership with CleanPeak Energy, has announced a large-scale solar and battery storage system at its Huntingwood biscuit factory.

The \$12 million project, funded through the CleanPeak-Igneo joint venture CPERI, features a rooftop installation of 9000 solar panels expected to generate 6–7 GWh of clean energy annually.

The Huntingwood facility spans 44,000 m² and operates 24/7, producing around 53% of The Arnott's Group's total biscuit volume. It employs over 400 people and bakes approximately 56 million kilograms of biscuits annually — including iconic Australian favourites such as Tim Tam, Shapes and Jatz.

Designed to operate fully behind the meter, the installed system enhances site efficiency and energy resilience.

Complementing the solar array is an 11 MWh DC battery, which further reduces reliance on the electricity grid, mitigates peak energy charges and delivers lower overall energy costs for Arnott's.

Together, the solar and battery system will supply approximately 25% of the site's electricity needs.

The remainder will be sourced from a mix of renewable and non-renewable energy, with a growing share coming from CleanPeak's NSW solar farm portfolio.

"This integrated solar and battery initiative marks a major milestone in our partnership with CleanPeak Energy to transform our energy usage," said Tom Vicars, Chief Procurement Officer at The Arnott's Group. "By generating nearly one-quarter of our energy needs onsite and progressively sourcing the remainder from CleanPeak's solar farms, we're making meaningful progress toward our goal of 100% renewable energy by 2029, for the largest site in our network."

Philip Graham, CEO of CleanPeak Energy, added, "We are delighted to have delivered for Arnott's one of the largest C&I Solar and Battery Energy Storage Systems in the country. This installation is proof of what is possible in building renewables where they are directly used in the manufacturing process, and should be a blueprint for industrial players serious about

implementing 100% renewable electricity solutions to lower cost."

CleanPeak led the design and delivery of the project, selecting Longi and Sungrow as panel and battery suppliers through a rigorous procurement and due diligence process.

Environmental considerations were also front of mind, with landscaping and tree planting undertaken to preserve local biodiversity.

The milestone was marked with a plaque unveiled by Minister for Climate Change and Energy Chris Bowen.

Unveiling the solar and battery initiative at Huntingwood biscuit factory





Together, the solar and battery system will supply approximately 25% of the site's electricity needs.



Images: Supplied

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\$75m CCEP canning line to boost production in Brisbane

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Coca-Cola Europacific Partners Australia (CCEP) has completed construction of a new \$75m canning line at its Queensland manufacturing facility, located in Richlands, Brisbane. The company said this is the largest and most efficient canning line in the CCEP network, capable of processing up to 120,000 cans per hour.

The new canning line is designed to increase production capacity for its Monster Energy Company products, including Monster and Mother brands. It will also support production of its other drinks such as Coca-Cola, Sprite and Fanta. The canning line investment is the latest part of a wider investment at the Richlands site.

"We have a long history of manufacturing in Australia — nearly 90 years — and we continue to invest heavily in our operations," said CCEP Managing Director Orlando Rodriguez. "Richlands is our largest manufacturing site in our Australian network and now it is home to our most efficient and largest canning line to date in our global network, bolstering Queensland's thriving manufacturing industry and supporting Aussie jobs."

"By leveraging cutting-edge technology and world-class equipment, the new line will increase production efficiency, enabling faster and more sustainable delivery of our beverages for Australians to enjoy."

Equipped with the latest advancements in manufacturing technology, the line is designed to ensure durability and efficiency. Space and workflow are optimised, with the layout carefully designed across five mezzanine levels.

Water and energy savings have also been unlocked by the investment and the new canning line. The reverse osmosis system is engineered to boost water treatment capacity by 67%, while the line's ability to fill cans at room temperature eliminates the need for energy-intensive cooling processes — a feature that is expected to reduce energy consumption by approximately 23% annually compared to other lines within CCEP's network.

"Our manufacturing philosophy is centred on making it where we sell it, limiting the distance our product travels and minimising the emissions tied to it where possible. Investments like this allow us to make more of our most popular products even closer to the end consumer. This approach not only reduces our environmental impact by minimising transportation but boosts overall efficiency, helping to keep shelves stocked," Rodriguez said.

With more than 3000 employees in Australia, CCEP has operations in every state and territory. The company employs more than 700 Queenslanders and more than 18 new full-time positions have been established to support the ongoing operation of the new line.



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Tubular cable conveyor system increases production 70% for leading almond processor

Established in 1944, Almondco Australia is a supplier of high-quality almonds for processors of almond-based products. In late 2020, the company unveiled Project Optimise, a new 10,000 m² structure situated adjacent to its existing processing facility in Renmark, South Australia. This expansion increased the company's storage capacity for the annual almond crops of its grower members, while also streamlining operations by consolidating multiple processing operations in one spot.

During the planning process for the expansion, Almondco foresaw the need for an effective transportation and storage system for handling high volumes of the fragile, raw and blanched almonds.

The almond supplier had previously partnered with local designer and manufacturer of bulk material handling equipment, Flexicon Australia, as all of its systems are manufactured in Australia, which appealed to Almondco's Craig Haskard, Group Engineering Project Manager.

"We were looking for a local supplier that can provide ongoing support," Haskard said. "Flexicon immediately came to mind due to our existing relationship with them, and the success of previous projects. It was a no-brainer to select Flexicon as a partner."

Rob Wallis, Application Engineering Manager, Flexicon Australia, said Almondco asked for a quote on a new bulk bag filling system, identical to one it had previously

purchased. "In the process of quoting him for the filler, it came to light that there was a very large project at Almondco, and they would have a need for some of the other systems that we offer."

Wallis therefore proposed a comprehensive solution featuring a series of tubular cable conveyors, a bulk bag filler and a pair of large storage hoppers. The processor's need for a large scale and complex project was met by Flexicon's development of a seamless custom-build aligned with Almondco's operational needs.

Gentle handling of fragile almonds

To address the critical need for gentle almond handling — essential to prevent breakage or damage that would render the product unsalable — Flexicon specified a six-conveyor system composed entirely of its FLEXI-DISC Tubular Cable Conveyors (TCC).

These conveyors gently transport almonds through smooth stainless steel tubing using low-friction polymer discs attached to a stainless steel cable. The system is powered by a drive wheel at one end of the circuit and maintained under tension by a wheel at the opposite end.

With each of the six conveyor lines manufactured to specific operational requirements, including custom horizontal and vertical lengths, multiple angles and distinct material sources and destinations, the versatile system's features were crucial to the success of Almondco's operations.

High-capacity storage hoppers enable continuous production

Almondco's pasteurisation and blanching activities produce almonds at a faster rate than the downstream equipment can process them. To safely store the almonds until they can be handled, Flexicon also designed and fabricated a pair of 12,500 kg capacity custom-engineered, sanitary-construction storage hoppers.



Flexicon provided a spiral 'let down' chute mounted below the conveyor discharge outlets. Almonds slide down this chute in a helical motion, which slows their descent, preventing them from being damaged as they flow into one of the large storage bins. A vibratory feeder at the base of each hopper feeds the almonds into a TCC that gently feeds them toward the almond cutter line.

Local benefits and impressive results

All six conveyor systems are integrated into a plant-wide control system, creating a seamless connection between upstream and downstream processes. To facilitate this, Flexicon collaborated closely with a local controls integrator, ensuring the systems were synchronised and that the integration was executed smoothly, to enhance overall system performance and reliability.

An additional benefit was Flexicon Australia's large inventory of replacement components, which alleviated Haskard's concerns about extended downtimes. With readily available parts stored locally, the risk of delays due to waiting for replacement components to arrive from outside Australia was reduced, ensuring minimal disruption to Almondco's operations.

Project Optimise delivered impressive results, boosting processing output by nearly 70%. The entire project spanned seven months from start to completion and has been in operation since 2021.

"Flexicon's design and drafting were spot on," Haskard said. "All components — from the conveying runs to the frame footplates — were as drawn, enabling installation and commissioning to be completed without any issues or setbacks."



Flexicon's TWIN-CENTREPOST bulk bag fillers is further showcased through a modification that allows them to fill rigid totes.



Images source: Almondco



In-line valves allow three TCC systems to intersect and route almonds from a single source to multiple destinations, depending upon need. The valves open to discharge almonds into a predetermined destination or remain closed to allow transport toward other processing functions.

Keeping mangoes sweet

Processing method to extend the life of tropical fruit in the cold chain

A significant proportion (around 20%) of mangoes is lost or wasted along the supply chain due to rapid ripening and excessive perishability. Edith Cowan University (ECU) has now identified a solution to help minimise these post-harvest losses by extending the cold storage life of the tropical fruit.

The study, led by ECU School of Science Lecturer Dr Mekhala Vithana, found that dipping mangoes in ozonated water (aqueous ozonation) for 10 min before cold storage extended the cold storage life by up to two weeks, and it also lowered the occurrence of chilling injury to the fruit.

Increasing storage life of mangoes is an important issue that needs to be tackled in order to reduce wastage and improve the market window of the fruit. Typically, mangoes are picked at the mature green stage and stored at 13°C for up to 14 days; however, this is not cold enough for extended storage.

"Being a tropical fruit, unripe mangoes should not be stored below 12.5°C due to their high sensitivity to cold temperatures," Vithana said. "Prolonged storage of

mango below this temperature causes a physiological disorder known as chilling injury, which damages the fruit skin and leads to decreased marketability and significant food waste.

"Therefore, susceptibility to chilling injury is the key limitation for exploiting cold storage technology to its maximum capacity for lengthening the storage life of mangoes."

Ripe for a solution

The study — carried out on Australia's most widely produced variety of mango, Kensington Pride — tested aqueous ozonation technology to improve chilling tolerance during cold storage.

By dipping the mango in the ozonated water for 10 min prior to cold storage at 5°C, researchers found that they could keep the mangoes for longer with much less chilling injury.

"Generally, Kensington Pride mango can only be stored for about two weeks without ripening at 13°C. However, aqueous ozonation extends the storage and shelf life of these mangoes up to 28 days, with 40%

less chilling injury than untreated mangoes," Vithana said.

"The aqueous ozonation seems to be highly feasible technology for improving chilling tolerance and quality of Kensington Pride mango fruit."

Vithana said ozonation can be controlled on site, is cost-effective and considered safe for workers at a threshold level due to its faster breakdown into oxygen.

"Aqueous ozonation is bubbling ozone into water through an ozone generator," she said. "Ozone is a compound widely used to sanitise fruits and vegetables on a commercial scale."

"The ozonation can be combined with the hydrocooling step after quarantine heat treatment in export mangoes or separately as a sanitisation step just after harvesting, depending upon the convenience of the grower, but this needs further optimisation under commercial settings."

Vithana said ECU researchers are hoping to do further research on other varieties of mangoes to test their responsiveness and to achieve further reduction in chilling injury for extended cold storage.

VERTICAL CENTRIFUGE FOR FRESH-CUT VEGETABLES

The Sormac FC-540 is a redesigned automated vertical centrifuge for removing excess surface water from washed produce. It is designed to efficiently handle products such as cut iceberg lettuce, cabbage, carrots and other fresh-cut vegetables.

The machine operates as part of a continuous processing line, using a buffering belt system to guide product smoothly into the centrifuge. After each cycle, integrated air knives clean any remaining product from the drum, supporting hygienic operation and consistent performance.

Spin speed, acceleration and cycle duration are programmable via the control panel, and the centrifuge has multiple recipe settings which are designed to optimise performance for different product types. A gradual start and stop reduces stress on delicate leaves, while optimal airflow is designed to ensure efficient dewatering.

The machine features automatic discharge and a compact footprint, making it easy to integrate into fully automated fresh-cut processing lines. Its hygienic, easy-to-clean design meets strict food safety standards.

Sormac also offers a wide range of drying solutions for fresh-cut vegetables.

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MARKET Byte

Fruits, Vegetables & Salads

1.93 million tonnes of fruit and vegetables are lost in the cold chain each year in Australia – this amounts to roughly 25% of total production.

(Source: <https://www.agriculture.gov.au/sites/default/files/documents/study-of-waste-in-cold-food-chain-and-opportunities-improvement.pdf?>)

Prices stabilising

Fruit and vegetable prices rose **4.6%** in the 12 months to the June quarter.

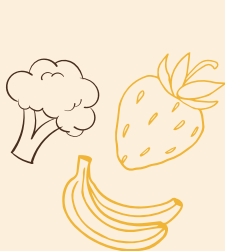


This was down from a **6.6% annual rise** in the March quarter, signalling more stable seasonal growing conditions.

(Source: Rabobank.)

An apple a day...

The Australian Dietary Guidelines recommend that adults eat at least **five serves of vegetables and two serves of fruit each day**.



These serves should be from a variety of **vegetables and fruits**, with juices limited.

Salad in a bag

The global packaged salad market is forecast to reach **\$31.14 billion by 2030**, with packaged green salads currently holding the largest share of the market.

(Source: Grand View Research.)



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news



Image supplied by Montague Farms.

JAZZ apples undergo compostable sticker trial

Montague Farms is implementing sustainable innovations in its 2025 JAZZ apples harvest.

JAZZ apples will undergo a compostable sticker trial, reaffirming a commitment to reducing environmental impact and paving the way for an eco-friendly future.

In Australia, the majority of apples sold must have a sticker, which is important for traceability and quality purposes. These stickers are typically manufactured with single-use plastic, which means they cannot be recycled or be used for home or industrial composting.

Over the past 18 months, Montague Farms has been working with its sticker supplier, J-Tech, to launch a home-compostable fruit sticker onto the Australian market. The chosen sticker, Sinclair – T55 is officially certified safe for home composting by the Australasian Bioplastics Association (ABA) and is compliant with global composting standards.

In February 2025, Montague Farms conducted an initial trial on a range of plums sold through Coles and Woolworths, which proved successful.

"The Sinclair – T55 sticker is [a product of] over 17 years of research and development. It has only been recently possible with the advancement of technologies and environmentally conscious materials," said Duncan Jones, Senior Marketing Manager, Sinclair. Jones added that, as well as ensuring the compostable end-of-life performance of the sticker, it was key to ensure the application performance was equivalent to conventional fruit stickers and worked on existing labelling systems.

The new sticker for JAZZ apples will have a green border, which indicates it is a compostable sticker.

The trial is taking place at Montague Farms' packing facility in Narre Warren North, which has capacity to pack over 350 million pieces of fruit a year.

Australia's packaging reform began with the National Waste Action Plan (2019) and National Plastics Plan (2021), which set goals for recyclable, compostable and reusable packaging.

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Dehydrating fruit without heat

The water removal process of dried fruit often requires heat and energy. Now, researchers at Utah State University have developed a method to dry food at room temperature by adjusting air pressure conditions and using food-safe calcium chloride.

In a proof of concept, the system, published in *ACS Food Science & Technology*, successfully dried mango and apple slices to commercial levels.

Most tabletop and industrial-scale food dehydrators use circulated hot air to remove moisture, which is simple and effective but requires a lot of energy. Sun-drying foods uses mostly solar energy but is slow and darkens the final products.

In this recent study, the moisture-adsorbing salt calcium chloride, an ingredient used in cheese and molecular gastronomy applications, was incorporated into a room-temperature dehydration method and tested to see if it would impact the drying fruit's colour.

The researchers built a no-heat dehydrating chamber with three sets of screens above a container of calcium chloride solution. They placed mango and apple slices on the screens and then compared two room-temperature drying methods: one with the chamber at standard air pressure and the other under a slight vacuum.

After four days under standard air pressure, the calcium chloride solutions drew out and adsorbed less moisture from the fruits than those placed under vacuum.

The fruit slices at standard air pressure also dried inconsistently. Slices on the top screen contained 50–70% water (by weight) and those on the bottom had 20–30% water after the dehydration process.

In contrast, the vacuum-assisted method produced consistently dried mango and apple pieces made up of about 30% moisture, which is similar to the amount in commercially available dried fruit, and represented a removal of approximately 95% of the initial water mass.

Vacuum-dried mango pieces kept the raw fruit's attractive bright yellow colour; however, the two dehydration methods darkened the apples by similar amounts. In addition, scanning electron microscopy images showed breakdown of starch granules in all the samples, but more of them broke down under standard pressure, suggesting that the vacuum-assisted method slows down deterioration mechanisms and retains freshness. And the water pulled out of the fruit could potentially be reused.

Researcher Luis Bastarrachea said that "the collected water in the calcium chloride solution can be removed by evaporation, and the reconcentrated calcium chloride solution can be reutilised in more dehydration cycles". Ultimately, the recovered water could be used in industrial applications or further treated for human consumption.



istock.com/Mizina

MULTI-PURPOSE STRETCH WRAPPER

Scan Wrap is a multi-purpose stretch wrapper that wraps, weighs, measures the dimension, records, transmits data to a user's freight management system and prints a label.

The solution is designed to avoid problems such as a freight company advising that a shipped load is either heavier or larger, or both, and then sending a bill for this two weeks after shipping.

With this solution, users can relay all the information from the Scan Wrap to their computer, along with a picture, so that every load has a history recorded.

The system takes up minimal space and can integrate all functionality at the same time.

There are two versions available: Model SW-PS is a semi-auto stretch wrapper with inbuilt non-trade weigh scale, height measure and printer; and Model SW-BA is a semi-auto stretch wrapper with inbuilt non trade weigh scale, three dimension measuring, label printer and data transmission capability to the user's freight management system.

Pack King

www.packking.com.au



In-house ginger processing for beverage maker

Australian, family-owned business Bundaberg Brewed Drinks reduced its supply risk by investing in pack-house technology to process its own ginger. The ginger beer's unique flavour is a result of a brewing process that uses real home-grown ingredients, such as dried ginger.

Previously, the manufacturer purchased raw ginger from local suppliers and outsourced its drying process. However, over a decade ago, the company decided to vertically integrate and take control of the supply of its key ingredient to reduce quality uncertainties. Richard Cowdroy-Ling, General Manager of Business Technologies, said: "It was very hard to keep making premium ginger beer without a reliable supply of quality ginger. We knew we needed access to Australian-grown high-quality ginger, handled and processed to our specifications."

This strategic decision meant the company moved to growing its own ginger along with selecting Australian contract growers that met its strict quality criteria. It also meant investing in a facility to wash, peel and dry the ginger prior to further processing.

"The objective was to have a turn-key washing and peeling line supplied and installed by one company that is an expert in processing root vegetables similar to ginger," Cowdroy-Ling said. "Because ginger is a difficult shape to wash and clean, we needed a company that was prepared and capable to work with



us to develop and test the newly designed equipment. We chose Wyma, and it has been an excellent choice. We could not ask for better people to work with from initial consultation right through to the line installation and commissioning."

Australian ginger is grown in heavy soil, which brings a high amount of dirt and clods at harvest time. Consequently, Wyma recommended a solid pre-wash system with Wet Hopper and Flume Destoner to remove dirt, stones, clods and debris.

"The Flume Destoner is such an elegant engineering solution for separating sand, rocks and soil from the ginger," Cowdroy-Ling said.

The next part of the line comprises a Vege-Peeler designed to meet Bundaberg's specific requirements.

"We are happy with the output of this machine and the Wyma team worked hard to reach our specifications."

A specialised food dehydration company completed the drying stage of the line.

The fact that a family-owned company in a small town of 80,000 people in the South Pacific exports its products to over 30 countries is testament to the hard work put into delivering a premium quality product.

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Non-alcoholic beer yeasts evaluated

Researchers have explored nearly a dozen non-traditional yeast strains to find out which ones could brew the best non-alcoholic beers for a rapidly growing market.

The Center for Beverage Innovation and Lafontaine Lab — including researchers with the Dale Bumpers College of Agricultural, Food and Life Sciences at the University of Arkansas and the Arkansas Agricultural Experiment Station — evaluated 11 commercially available yeasts to identify their strengths based on chemical analysis and sensory panel opinions.

"These findings provide brewers with actionable insights to select yeasts that align with desired non-alcoholic beer characteristics and enable them to produce style-specific, high-quality non-alcoholic beers," said Scott Lafontaine, assistant professor of food chemistry in the food science department, co-director of the Center for Beverage Innovation and corresponding author of the study.

Most of the yeasts that were tested in the study are strains that have been developed or screened to not ferment maltose, the primary sugar created from malted barley in the beer-making process. While physically extracting and removing alcohol from ordinarily fermented beverages requires costly equipment, biologically limiting alcohol from forming during the

fermentation process opens the non-alcoholic beer space to a wider group of small-scale brewers, Lafontaine noted.

While these "maltose-negative" yeasts still ferment simpler sugars like glucose, fructose and sometimes sucrose, not fermenting maltose results in low- or non-alcoholic beer, said Andrew Maust, a Bumpers College graduate student working in the Lafontaine Lab/Center for Beverage Innovation, and lead author of the study.

"Typically, when people think of the role of yeast in brewing, they only think of the creation of ethanol and carbon dioxide from the consumption of sugars," Maust said. "That reaction occurs, but the beauty of yeast is that they also produce a wide range of compounds that become the soul of beer."

Classic yeast-driven flavours include fruity, spicy and floral notes, as well as the ability to biologically transform the rest of the raw materials in the brewing process, Maust added.

"Over several hundreds of years, we've domesticated and evolved these organisms to act exactly how we want them, often leading to yeast choice as a driver of regional beer flavours and styles," Maust explained.

The timing of this study and its findings are critical, Lafontaine said, as non-alcoholic beer remains one of the few bright spots in the craft beer segment amid the category's rapid expansion.

According to a 2024 Statista forecast, non-alcoholic beer production in the US has grown for 10 consecutive years and is projected to increase another 13.5% by 2029. In Germany, non-alcoholic beer makes up roughly 5% of the beer market and is even marketed as a post-workout beverage.

In the US, non-alcoholic beers are defined as containing 0.5% alcohol by volume or less, while international definitions typically range from 0.05 to 1.2%.

Despite this momentum and although brands are getting much better, Maust said, flavour remains a key hurdle. "A common barrier to adoption in the US is the perception that non-alcoholic beers lack flavour and depth compared to their full-strength counterparts."

This new study marks a significant evolution, Lafontaine said, by moving from analysing finished beers to actively developing and evaluating non-alcoholic beer formulations in the lab. Up to this point, Lafontaine said, most beverage design work in the non-alcoholic beer category has been to develop them as "lager-like", but the Lafontaine Lab team wanted to see what maltose-negative yeasts might be suitable to replicate other



istock.com/Andrew Coleman



While physically extracting and removing alcohol from ordinarily fermented beverages requires costly equipment, biologically limiting alcohol from forming during the fermentation process opens the non-alcoholic beer space to a wider group of small-scale brewers.

"Characterising these flavour profiles created by non-traditional yeasts gives brewers a more precise palette to work with as they craft distinct beer styles," Lafontaine said. "It opens the door to new flavour possibilities and more intentional product design."

One of the study's production-level takeaways was the variation in fermentation onset. Some yeasts began fermenting almost immediately and were finished in about 12 to 24 hours. Others took a bit longer to finish fermentation around the 48- to 72-hour mark.

"Faster fermentation can help brewers turn over tanks quicker, increasing throughput," Maust said. "That's a key operational advantage."

While full-strength beer production often involves reusing yeast, Maust noted that this practice is discouraged in non-alcoholic beer brewing due to concerns about unwanted maltose fermentation and spoilage organisms.

"It's a trade-off — you lose adaptive potential, but gain consistency and safety," he said.

By systematically analysing yeast performance across alcohol content, fermentation speed and sensory outcomes, Lafontaine said the study delivers a practical resource for brewers navigating the non-alcoholic beer space.

"This work bridges academic research and real-world brewing needs," Lafontaine said. "We're providing a roadmap for brewers to select the best yeast for the style, flavour profile and production process they're targeting."

Considering the lack of alcohol to kill foodborne pathogens in non-alcoholic beer, Lafontaine and Maust will be examining food safety aspects of non-alcoholic beer in their next experiments.

"Alcohol is a powerful preservative, and without it there are some questions about how best to safely process these products," Maust said. "Upcoming experiments will focus on quantifying the anti-microbial activity of ingredients and processing decisions, providing further clarity on how to design these beverages to be both safe and flavourful."

The study was published in the *ACS Food Science and Technology* journal.

full-strength commercial styles, including pale ale, lager and wheat beers.

To match up their experimental maltose-negative beers with these commercial styles, the researchers used sensomics, a combination of chemical and sensory analyses. Two Berkeley Yeast strains — NA Cabana and NA Classic — shared tropical fruit and citrus-floral characteristics akin to pale ales.



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The Interworld Electronics PhanTAM-921C is a 21.5" (1920 x 1080) sealed IP66/69K stainless steel Panel PC solution, which has been engineered for harsh, hygiene-critical environments. It combines a rugged design with good computing performance suitable for food and beverage manufacturing applications.

Housed in a fully sealed 304 stainless steel chassis – with an optional upgrade to 316 stainless for enhanced corrosion resistance – the PhanTAM-921C is built to withstand high-pressure washdowns, resist bacterial growth, and maintain durability in demanding environments. Its sealed, ultra-slim, true flat design with hygienic blue silicone O-ring bolts is designed to ensure easy cleaning and prevent water or dust ingress. The fanless, fully enclosed IP66/69K design also reduces maintenance and eliminates internal airflow contamination risks.

The panel PC is powered by an 11th Gen Intel Core i3 (Dual Core) or i5 (Quad Core) processor and supports up to 64GB DDR4 memory for long-lasting performance. The 21.5" projected capacitive touch screen with a 7H anti-scratch surface offers responsive, glove-friendly operation with enhanced durability.

Designed for flexibility, the panel PC features a range of I/O with M12 connectors and supports a wide operating temperature range (0~50°C/-20~60°C optional) and 9–36 VDC wide range power input. It also includes a waterproof antenna cover for safe integration of wireless options (Wi-Fi, Bluetooth, 4G/5G), and offers both landscape and portrait mounting, with a range of mounting options.

The panel PC is suitable for hygienic automation in food production, packaging and processing environments.

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Brewing up a novel pet food

There has been a growing interest in sustainable alternative protein sources for both humans and pets in recent years.

In a collaborative project, scientists at the University of Illinois (UI) and Bond Pet Foods created a novel protein source through precision fermentation. The study is believed to be the first to use precision fermentation to produce a protein composed of both yeast and chicken protein and assess its safety in pet food.

Bond's research and development team began by identifying proteins that were highly abundant in the muscle tissue of chickens and then cross-referencing their DNA sequence. The DNA was inserted into a specific site in the *Saccharomyces cerevisiae* (brewer's yeast) genome to express the chicken protein, which was cultivated in large stainless steel tanks similar to those used in breweries or other industrial fermentation operations.

After the culture medium was removed, the biomass was harvested, heat-treated and spray-dried to produce the inactivated *S. cerevisiae*-containing chicken protein, which was formulated into the dog kibble.

The findings from the six-month feeding study, published in the journal *Frontiers in Veterinary Science*, indicated that the brewed chicken protein was safe and nutritious at proportions of up to 40% of the dogs' food. Dogs that consumed it showed no differences in body weight, physical condition, blood chemistry or other markers compared with those in the control group.

"It was highly digestible and there were some beneficial changes to the dogs' gut microbes and metabolites," said Professor Kelly Swanson, Director of the Division of Nutritional Sciences at UI. Swanson was a corresponding author on the study along with Tomas Belloso, Vice President of Regulatory Affairs at Bond Pet Foods, which funded the work.

"The main goal was to provide foundational protein for pet health, but it looks like there could be a secondary benefit from the soluble, fermentable fibres in the whole cell product for the dogs' large intestines as well," Belloso said.

S. cerevisiae yeast products have long been used in commercial pet food, oftentimes serving as palatants — ingredients that enhance the aroma and taste of the food, making it more appetising for pets. In addition to being a rich source of protein, brewer's dried yeast also provides complex B vitamins, amino acids and minerals, Swanson said.

Yeast products in pet foods have other positive effects as well, such as elevating concentrations of beneficial faecal bacteria and immunoglobulin A, an antibody in the mucosal secretions of the intestines that plays a crucial role in immune functions by neutralising pathogens and other substances, Swanson and his colleagues found in prior research.

"When we were formulating these diets, we knew there was a lot of soluble fibre in them, and that was one thing I was a little nervous about — if it would cause loose stools or constipation, which is not a nice outcome for pets or their owners. And I was happy to see that the stool quality was not affected," Swanson said.

The study has shown promising results for potential use of brewed chicken protein as a sustainable pet food option.

SURFACE TEST FOR HYGIENE MONITORING

In the realm of hygiene monitoring, the LuciPac A3 Surface Test by Kikkoman is designed to detect not only ATP but also its breakdown products, ADP and AMP. This comprehensive detection is crucial, as ATP can degrade during food processing, which could render some traditional ATP-only tests less effective.

The system employs proprietary enzymatic reactions to convert ADP and AMP back into ATP, allowing for the measurement of total adenosine phosphates. This results in higher sensitivity, enabling the detection of residues that some conventional tests might miss.

Designed for ease of use, the device can deliver results in just 10 s, making it an efficient tool for onsite hygiene assessments. Its advanced chemistry is designed to ensure more accurate readings, enhancing sanitation verification processes.

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



Controlling the flavour of fermented sausages

A microbial view

Fermented sausages are valued not just for preservation but for their rich taste and texture. These qualities arise from complex microbial interactions that break down meat into flavourful compounds.

Microorganisms like lactic acid bacteria (LAB), yeasts and moulds perform metabolic transformations that create the sour, fruity, smoky and savoury notes we associate with regional varieties.

However, the variability in ingredients, fermentation conditions and microbial sources often makes flavour control a challenge. Due to these uncertainties, further investigation into microbial succession and flavour development was done by researchers from Shenyang Agricultural University and Beijing Guomao Dongfu Engineering Technology Co. Ltd.

The new review published in *Food Science of Animal Products* compares the microbial communities and fermentation strategies in Eastern and Western sausage styles, revealing how microbial succession — from lactic acid bacteria to yeasts and moulds — plays a pivotal role in shaping characteristic flavours and textures. The findings provide a scientific roadmap for modernising traditional techniques while preserving cultural identity.

The review covers the flavour-forming mechanisms of fermented sausages by tracing the progression of microbial communities throughout the fermentation process. Western sausages like salami and chorizo benefit from industrial fermentation, where LAB such as *Lactobacillus sakei* and *Lactobacillus curvatus* initiate acidification and protein breakdown.

These steps lay the foundation for flavour compounds like ethyl acetate and phenylacetic acid that create fruity and floral notes. Later,

moulds such as *Penicillium* and yeasts like *Debaryomyces hansenii* enrich the profile with smoky, woody and creamy aromas.

In contrast, Eastern varieties like Sichuan-style, Nham and kimchi sausages are shaped by natural fermentation, often involving local microbial flora and culturally specific ingredients like glutinous rice or kimchi. This results in broader microbial diversity and flavour variability, with strains like *Lactiplantibacillus plantarum* and *Weissella* producing unique sourness, umami and herbal notes.

The researchers highlight that the succession from LAB to staphylococci, yeasts and moulds is essential to the final taste, texture and safety of these products. Understanding these transitions opens up possibilities for optimising fermentation tailored to both traditional and industrial needs.

"Fermentation isn't just about preservation — it's about craftsmanship at the microbial level," explained Dr Mohan Li, lead author of the study. "By mapping how microbial communities evolve during sausage production, we can better control flavour outcomes and elevate both safety and consistency. This knowledge is especially valuable as traditional techniques meet modern expectations. We're essentially unlocking nature's flavour code — one microbe at a time."

Understanding microbial succession provides a tool for producers. It allows fine-tuning of flavours, standardisation of production and assurance of safety. It may also inspire advances in other fermented foods like cheeses, kimchi and cured meats.

Rethinking meat and proteins



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Could AI prevent food contamination?

An international team of researchers has demonstrated how artificial intelligence (AI) can now detect contaminated food in fields and factories before it reaches consumers.



Led by the University of South Australia (UniSA), the team's study published in the journal *Toxins* describes how advanced hyperspectral imaging (HSI) integrated with machine learning (ML) can identify mycotoxins — dangerous compounds produced by fungi that can contaminate food during growth, harvest and storage.

Mycotoxins cause a range of serious health issues, such as cancer, compromised immunity and hormone-related disorders. According to the World Health Organization, foodborne contamination, including from mycotoxins, results in 600 million illnesses and 4.2 million deaths each year.

The UN-based Food and Agricultural Organization estimates that about 25% of the world's crops are contaminated by mycotoxin-producing fungi, highlighting the economic and health imperatives to address this threat. Lead author and UniSA PhD candidate Ahasan Kabir meanwhile noted that traditional mycotoxin detection methods are time-consuming, expensive and destructive, making them unsuitable for large-scale, real-time food processing.

"In contrast, hyperspectral imaging — a technique that captures images with detailed spectral information — allows us to quickly detect and quantify contamination across entire food samples without destroying them," Kabir said.

Kabir and his co-authors in Australia, Canada and India evaluated the effectiveness of HSI in detecting toxic compounds in cereal grains and nuts. Both are highly susceptible to fungi and mycotoxin contamination in warm, humid environments, from cultivation to storage.

"HSI captures an optical footprint of mycotoxins and when paired with machine learning algorithms it rapidly classifies contaminated grains and nuts based on subtle spectral variations," Kabir said.

The researchers reviewed more than 80 recent studies across wheat, corn, barley, oats, almonds, peanuts and pistachios. Their findings showed that ML-integrated HSI systems consistently outperformed conventional techniques in detecting key mycotoxins.

"This technology is particularly effective at identifying aflatoxin B1, one of the most carcinogenic substances found in food," said project lead UniSA Professor Sang-Heon Lee. "It offers a scalable, non-invasive solution for industrial food safety, from sorting almonds to inspecting wheat and maize shipments."

The researchers say that, with further development, HSI and ML could be deployed on processing lines or handheld devices, reducing health risks and trade losses by ensuring that only safe, uncontaminated produce reaches consumers. The team is now working on refining the technique to improve its accuracy and reliability, using deep learning and AI.



BELT-FED OPTICAL SORTERS

Key Technology has introduced its COMPASS belt-fed optical sorter. Similar to the chute-fed version introduced in 2023, the belt-fed system is designed to provide removal of foreign material and defects while being easier to use, with simplified controls, sanitation and maintenance.

Designed for wet, sticky and delicate products, the belt-fed sorter is suitable for a variety of produce, snack foods and other products that cannot be handled by chute-fed sorters.

Features include: recipe-driven operation for consistent sorting performance; and a user interface that mimics smartphone app navigation for ease of learning. Processors can create new recipes in under 10 min and switch between products in less than a minute. Complete changeovers, including washdown, take 15 min.

Powered by Key's NEXT sort engine, the sorter finds and rejects plastic, glass, paper, wood and other organic and inorganic foreign material, as well as processor-specified product defects. Equipped with customisable camera options and up to eight channels of multispectral sensor data, the sorter can detect the colour, size, shape and structural properties of every object to identify more, smaller defects than systems with conventional three-channel cameras.

Designed for maximum sanitation with open architecture, the belt can be quickly removed for thorough cleaning, while the open design facilitates easy access for workers and minimises cleaning and maintenance requirements.

Every unit is equipped with Key Discovery, a data analytics and reporting software that turns the sorter into an IIoT-connected device and information centre.

Available in a range of configurations and sizes to meet users' application and capacity requirements, each belt-fed sorter is engineered with a compact footprint that simplifies installation and minimises floor space requirements in existing facilities. The system can be installed at a variety of points in the processing line, from upstream near raw receiving to final inspection just prior to packaging, depending on the application.

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CASE STUDY

Olive oil mill upgrade quadruples processing capacity

The installation of Alfa Laval's Foodec Sigma decanter at a Portuguese cooperative group's olive mill has quadrupled its extra virgin olive oil processing capacity, increasing from 1500 to 6000 kg/h.

As the last remaining olive mill in Montemor-o-Novo, Portugal, the cooperative group, called Caminhos do Futuro, recognised the need to evolve in order to continue serving a growing community of farmers seeking to process olives from their groves. "We either modernised the process or lost competitiveness," said José Ferreira, the retired operator who dedicated over two decades to the olive oil mill.

Alfa Laval's new two-phase decanter centrifuges are suitable for small, medium and large-sized mills. Built on the Sigma design, the equipment provides improved oil extraction and consistent performance with a simplified, user-friendly interface.

The installed model at Caminhos do Futuro features Sigma's latest conveyor design, a key innovation that boosts extraction efficiency in every production cycle.

"The new conveyor, being longer, increases yield by extending the product flow distance inside the unit, while the patented Active Baffle Disc ensures uninterrupted performance, even under varying feed or process conditions," said Rafael Ayuso, olive oil expert at Alfa Laval. "Its simplified set-up also reduces



In the olive groves of southern Portugal, an Alfa Laval expert walks alongside Caminhos do Futuro's general manager and a local farmer.

downtime and minimises the need for manual adjustments."

The latest Sigma series decanters are manufactured using high-grade materials and protective components intended to withstand high mechanical wear, extend machinery lifespan and maximise performance.

The mill has repurposed the original line for secondary processing and the old decanter is now being used to process pomace, making use of previously discarded material.

Alfa Laval Pty Ltd
www.alfalaval.com.au

CASE STUDY

Vegetable oil manufacturer uses digital logistics software



Image credit: Thanakorn Vegetable Oil Products Co Ltd

Thanakorn Vegetable Oil Products (TVOP) has implemented Siemens' AX4-based Transportation Management System, a cloud-based software designed to optimise and monitor transport logistics processes across all modes of transportation and geographies. This deployment aims to enhance the reliability of transport status information for goods and materials, helping to ensure synchronisation with complex inbound receiving operations and improving outbound customer satisfaction.

"We are excited to collaborate with Siemens to drive our digital transformation in supply chain logistics," said Adul Premprasert, Chief Executive Officer, Thanakorn Vegetable Oil Products. "The AX4 platform will provide us with the tools we need to deliver

better service to our customers, improving our operational efficiency, and achieve greater supply chain resilience."

The AX4 platform provides end-to-end visibility across the entire transportation network, real-time shipment tracking and exception management. This will allow TVOP to streamline collaboration with internal stakeholders and third-party logistics providers to enhance operational efficiency and reduce manual processing and data entry.

In its first deployment in Southeast Asia, Siemens Digital Industries Software will provide consulting and implementation services, with localised support for Thailand. The AX4 platform will be delivered as a cloud-based SaaS solution, hosted and maintained by Siemens Digital Logistics with secure data processing and availability commitments.

"TVOP's decision to adopt our digital logistics platform marks a pivotal moment for Siemens Digital Industries Software in Southeast Asia," said Alex Teo, Managing Director and Vice President, Southeast Asia, Siemens Digital Industries Software. "This deployment not only showcases the tangible value of our AX4 solution in enhancing visibility, efficiency and resilience across complex transportation networks, it also signals the beginning of a new chapter as we bring our trusted digital logistics capabilities to one of the most dynamic supply chain regions in the world."

Siemens Digital Industries Software
www.siemens.com.sg/en

Two-step yoghurt manufacturing method

reduces use of bacterial cultures while extending shelf life

With global consumption of yoghurt estimated to be nearly 12 kg per person annually, researchers in Denmark have now developed a simple method that requires no new technology and could transform how the food industry manufactures dairy-based yoghurt.

Traditional yoghurt production involves adding a relatively large amount of yoghurt starter culture to milk, which is then fermented at 42°C for 4–6 hours. The desired acidity is then reached, and the yoghurt is cooled. However, the process is known to present several challenges, including high costs for starter culture; limited shelf life; and so-called ‘post-acidification’, where the yoghurt continues to acidify during storage, affecting both quality and longevity.

Now researchers have developed a simple yet powerful method that has the potential to reduce the use of expensive bacterial cultures by up to 80%, while also extending shelf life. The new yoghurt manufacturing method was developed after a straightforward question was posed by the research team at the DTU National Food Institute — what if we let the bacteria acidify without allowing them to grow?

“It was something of a eureka moment,” said Associate Professor Christian Solem, who has researched lactic acid bacteria for more than 25 years and is one of the authors of the article about the new yoghurt production method, which is published in the scientific journal *Food Bioscience*.

With the new method, researchers use just 20% of the usual amount of starter culture. The milk is first fermented at 42°C, as per standard procedure, and then the temperature is raised to 51°C for a few hours. At this elevated temperature, the bacteria cease to divide, but continue to produce lactic acid.

The method has been tested on a smaller scale in the laboratory at the DTU National Food Institute, and the researchers see no reason why it cannot be immediately implemented by dairies. It requires no new technology — only an adjustment of the temperature control during production.

“In principle, dairies could adopt the method as early as tomorrow. We have not observed any drawbacks, apart from the process taking an hour or two longer — and you will have a more stable and sustainable product,” Solem said.

The new two-step fermentation technique is described by Solem as “like putting the bacteria on a treadmill — they’re not going anywhere, but they’re still working”.

“This allows us to control the acidification while avoiding undesirable post-acidification,” Solem said.

The 51°C step also acts almost like a mild pasteurisation phase.

“We eliminate up to 99.9% of yeast cells and mould spores, which would otherwise significantly shorten the yoghurt’s shelf life,” Solem said.

Goodbye post-acidification, hello extended shelf life

Post-acidification is among the most serious quality concerns in yoghurt production. It causes the product to become overly sour, bitter and prone to phase separation — characteristics often associated with spoiled yoghurt.

“We’ve tested the method on three different starter cultures, including some particularly prone to post-acidification. In all cases, the issue was resolved,” said postdoctoral researcher Shuangqing Zhao, corresponding author on the study.

The exact extension of shelf life has not yet been determined, but according to the researchers, it is expected to far exceed the current 3–4 weeks.

At present, dairies use up to 0.18 g of starter culture per litre of milk. Given the scale of production, the cost of bacterial cultures can be considerable.

“We reduce the use of starter culture by a factor of five. That’s a substantial saving, and it matters in an industry where profit margins are tight,” Solem said.

The extended shelf life also improves planning and logistics: “Yoghurt is typically produced in large batches, and each production run requires cleaning and reconfiguration. With longer shelf life, larger and perhaps even more continuous production becomes feasible,” Solem said.

Beverage maker boosts productivity using compact bottling line

Coca-Cola FEMSA has chosen Sidel's Super Combi for its carbonated soft drinks (CSD) line in Jundiá, Brazil, increasing overall line productivity and operating at 39,000 bottles per hour. It can also handle up to 10 bottle formats from 0.2 to 2 L, while reducing the overall footprint of the line with a more efficient use of space within the facility.

One of the largest Coca-Cola franchises in the world, Coca-Cola FEMSA serves more than 270 million people with a portfolio of 134 beverage brands, including carbonated soft drinks, water, juices, teas and energy drinks. It operates 56 manufacturing plants and has 249 distribution centres across Latin America.

With demand for CSD growing across the region, the drinks maker opted for Sidel's Super Combi for its CSD operations following the successful installation of the solution at the company's water line at the Bauru plant.

The Sidel Super Combi is an all-in-one solution that integrates five key units — preform feeder, blower, labeller, filler/capper and cap feeder — into a compact smart system. The design provided a 30% reduction in footprint compared to standalone equipment, which made it suitable for the site. The solution was able to replace the existing wet block equipment and seamlessly



integrated with the remaining production set-up.

Engineered as a closed and compact system, the solution is designed to minimise contamination risks by reducing the number of transfer points and potential exposure to contaminants. It also helps make lightweight PET bottles by reducing transfer distances and minimising mechanical stress, allowing for thinner bottles.

The drinks maker also uses Sidel's BlendFILL system which integrates the mixer and filler tanks into a single unit, streamlining operations.

Sidel also installed the Evo-ON Care and Performance apps, allowing the drinks maker to optimise line performance with actionable recommendations to solve efficiency losses. This app is designed to help increase overall equipment effectiveness (OEE) by making it easy to track, understand and address machine inefficiencies, ensuring that production units meet their performance targets.

Coca-Cola FEMSA uses 100% recycled PET (rPET) preforms in its bottle production, and the Sidel Super Combi is fully compatible with rPET.

Sidel Oceania Pty Ltd
www.sidel.com





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SLICING AND PACKAGING LINES

GEA's One-Line-Concept for slicing and packaging food integrates new technology features and machines: from pre-scanning meat, cheese and alternative products to converging the slices. It is designed to help users save raw materials (both product and packaging), increase production capacities and improve sustainability.

The One-Line-Concept brings together all relevant GEA technology and is harmonised to work efficiently as a single production line. Within that, GEA has introduced a range of key advances.

The OptiSlicer 7000 with single or dual drive allows simultaneous slicing of two natural products, with the possibility to adjust each line to the target weight per pack. Depending on the product and application, the single drive can be used for high-volume production of calibrated products up to 2000 kg/h, while the dual drive option allows for high yield and high output processing of natural products. The machine is accessible from both sides.

The R505 blade has a long cutting edge that allows wide cuts with good portion control. These, combined with the OptiScanner 5000, scan the contours of the product before slicing to establish the optimum slice thickness and check the weight of the products. This reduces giveaway, improves throughput and avoids unnecessary waste.

GEA's innovations continue further downstream in the production process. The GEA OptiLoader 6000 offers a new feature with the retract belt. This extra loading belt drops high stacks or multi-layer portions into the package with a retract of the belt, independently from the cycle of the GEA PowerPak. This option increases flexibility and improves process security.

The PowerPak 9000 thermoformer provides innovations in heating, evacuation and gassing technologies (Modified Atmosphere Packaging) while providing greater automation, improved data collection, faster tool change and the opportunity to use mono materials for easier recycling.

The PowerLabel 7000 is a new modular labelling concept suitable for cross-web labelling. It provides top and bottom film labelling, fast changeover with improved accessibility (from just one side of the machine), and provides high-line Overall Equipment Effectiveness (OEE). At the end of the line, the PowerGuide 5000 converging system, which brings up to six lines into one, has benefited from continuous improvement for easier operation and higher performance.

Additionally, all GEA PLC-controlled machines are IoT-ready and seamlessly connected to the GEA Cloud, enabling smart data integration for real-time performance optimisation.

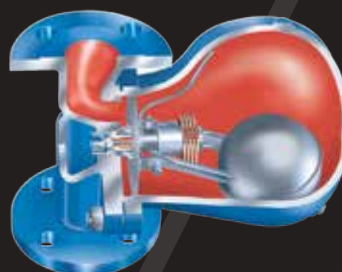
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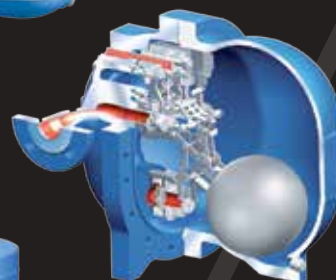
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Why the right hose reel system matters in modern food-grade facilities

Australia's food and beverage sector is undergoing a transformation, with cutting-edge facilities designed for higher output, improved sustainability and the strictest hygiene standards.

In operations like these, every piece of equipment must contribute to safety, cleanliness and streamlined workflow, including the humble hose reel.

Food-grade hose reels may seem like a small detail, but they play a critical role in maintaining hygiene and operational uptime. Stainless steel construction ensures corrosion resistance and compliance with food safety regulations. Spring-retracting mechanisms prevent hoses from becoming tripping hazards or gathering floor contaminants, making daily washdowns faster, safer and more effective.

Just as important as the reel itself is how it's mounted. Floor-mounted or wall-mounted configurations — often customised to suit the facility layout — can make a significant difference to accessibility and efficiency. In tight spaces or high-traffic zones, thoughtful mounting helps avoid clutter and ensures safe, ergonomic use.

Tecpro understands these nuances and said it was proud to supply 18 hygienic stainless steel hose reel packages for a new beverage manufacturing plant, including both wall-mounted and custom floor-mounted systems. "It's a small but meaningful example of how tailored solutions help support world-class operations," the company spokesperson said.



In high-spec environments, the right hose system isn't an afterthought — it's part of the foundation.

Tecpro Australia
www.tecpro.com.au



SURFACE TREATMENT FOR DRIVE SOLUTIONS

The NXD tupH surface treatment has been developed by NORD to make aluminium as resistant as stainless steel, thus making it suitable for drive technology in hygiene-sensitive production areas such as food and beverage.

While stainless steel is the preferred material in wash-down areas, NORD said it can have disadvantages when applied to drive technology.

The new surface treatment is designed to strengthen the surfaces of drive components such as gear units, smooth motors and frequency inverters, making them resistant to harsh environmental conditions. In the NXD tupH version, it also provides protection against aggressive cleaning agents, chemicals, acids and alkalis. Drives made of aluminium are furthermore lighter and operate at lower temperatures.

Using the two-step treatment process, the treated surfaces are free from PFAS, and food-safe according to the FDA, the EU Regulation 1935/2004 and the respective regulations in Switzerland and the MERCOSUR states. They are therefore designed to be used in hygienically critical areas in the food, beverage, packaging, pharmaceutical or chemical industries.

For hygiene-sensitive environments, NORD has a selection of fanless smooth motors that can be cleaned easily, quickly and thoroughly. With the optional NXD tupH treatment, the drives are engineered to be wash-down capable, corrosion-resistant and sustainable.

NORD Drivesystems (Aust) Pty Ltd
www.nord.com



Dutch dairy company Vepo Cheese has streamlined safety and future-proofed its efficiency using Fortress Technology metal detectors. The company recently installed seven identical incline Interceptor metal detectors to overcome product effect on its grated cheese lines, all equipped with data reporting to enhance traceability.

Producing and packing millions of kilos of hard cheese annually, Vepo Cheese is well versed with automation efficiency. However, growing production demands prompted the company to examine further upgrades to its inspection technology, including the introduction of independent reject systems.

The increased sensitivity of the Fortress Technology Interceptor metal detectors was one of the primary reasons why the dairy processor selected seven to integrate with its vertical packing machines. The cheese maker specifically requested "inspection equipment that could deal with variations in density and product effect".

The ability to isolate rejected packs without interrupting the production flow was equally crucial to Vepo Cheese.

On previous inspection lines, the company did not have an automated reject system. If a contaminated pack was identified, the belt would stop. An operative would then have to intervene to remove the pack and restart the inspection process, which impacted productivity.

"The automated reject system gives us 100% control over production. There is less human involvement, therefore less risk of human error. This also lowers the risk of a metal contaminant slipping through the safety net. From an efficiency perspective, continuous production is one of the main benefits," said Vepo's Technical Operations Manager Hugo van Put.

Solving the conductivity challenge

Conductivity in cheeses generates product effect, impacting metal detection sensitivity. Previously, manufacturers of 'wet' products often had little choice but to tune their metal detection in a way that reduced margins of error. This tended to trigger excessive numbers of false positive rejects.

Tim Whyte, general manager of Fortress Technology New Zealand said: "Inspecting wet products has for many years presented dairy processors with several challenges. Due to the

high moisture content, combined with minerals and salt, cheese like metal can be very conductive resulting in high levels of product effect."

The Fortress Technology Interceptor software algorithms make it possible to adapt to these changing characteristics by distinguishing between indicators specific to the product and those that flag anomalies. It means that any genuine contamination from metal is not masked by product effect. AutoPhase is another useful tool from the company that can help to counteract product effect.

"These metal detectors are really sensitive," van Put said. "This helps us to feel confident that the risks of contaminants are minimal, with less chance of a food safety issue. Having the double readings within the Interceptor system also lowers the risk of false-positive rejects, which saves on food waste."

Digital data reporting

Processing transparency is another advantage of the fully integrated packing system. Each metal detector features Contact Reporter Software. Data from each packaging line is collated in a universal collection system, enabling quality assurance and production leaders to monitor processing and inspection performance from a centralised location.

The automated record keeper developed by Fortress Technology helps the dairy processor to keep track of and record data for rejects, tests and process settings. This has also helped to reduce maintenance and spare parts costs, according to van Put.

"As food processing plants get smarter, technology and digitalisation become even more imperative. Driven by ever-stricter safety regulations and the need for traceability across the supply chain, many processors are turning to inspection solutions with improved precision and greater digital capabilities," Whyte said.

Critically for the dairy industry, the Interceptor can also be used to detect metal contaminants in free-flowing pumped dairy liquid or powdered product, Whyte said. Other valuable benefits include the ability to more accurately inspect product packaged in metal film.

van Put said: "We remain extremely satisfied with our new standards of quality assurance."

Fortress Technology NZ Ltd
fortresstechnology.co.nz

TANK CLEANING SPRAYER

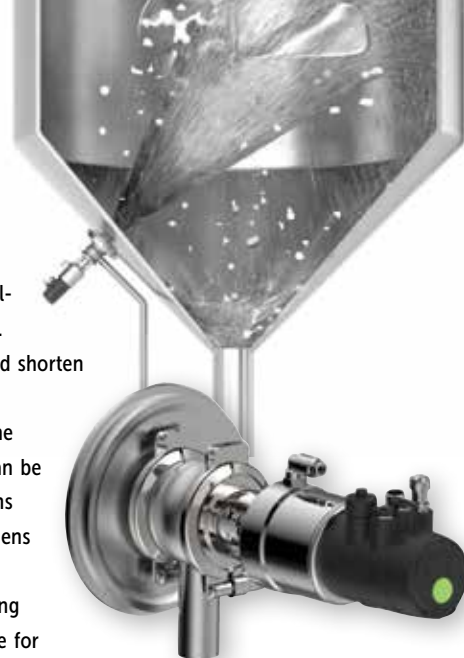
The GEA Direct Sprayer DS 25 provides an industrial tank cleaning solution for the food and beverage industry, specifically for tanks with rotating installations. The patented spray technology is designed to remove residues from the undersides of agitators, pipes and flow breakers. A case study from yoghurt production shows that this method can cut water use by 84.5% and shorten cleaning time by 87.5% compared to traditional tank flooding.

The device is designed to spray directly onto the undersides of the agitator blades while the agitator mechanics remain unaffected. The cleaner is flush-mounted into the tank wall and can be positioned flexibly to provide full coverage inside the tank. The patented valve disc only opens when activated, to provide an even distribution of the cleaning fluid. Since the valve plate opens inward, it does not interfere with the agitator.

With a spray force of up to 5 kg, the sprayer can remove even tough residues while reducing resource consumption. With a cleaning range of up to 5 m, the full-cone spray is also suitable for large tanks.

The device is suitable for use in the beverage, food, dairy, pharmaceutical, and home and personal care industries. It is particularly advantageous in production environments with frequent recipe changes, strict hygiene standards and demanding cleaning requirements.

GEA Group
www.gea.com



O₂ HEADSPACE ANALYSER

The TecSense HSA online O₂ headspace analyser is a semiautomatic device that determines the O₂, CO₂ and foreign gas in the headspace of bottles. The device is designed to be suitable for accurate measurements at the filling line.

A sample bottle or can is inserted into the HSA analyser and the measurements of O₂ and CO₂ are taken. Foreign gas is also detected when present in the bottle or can. The device further calculates the volume of the product within the bottle.

Key features include: determination of headspace in 30 s; determination of O₂ content; determination of foreign gas; determination of CO₂ content; calculation of the O₂ concentration mg/L in the bottle; display of the amount of liquid in the bottle; digital data connection; a touch screen; and easy handling.

The product is useable at the TecServiceHSA filling station for direct usage on PC. It also offers the ability to save data on USB or directly via TecServiceHSA.

AMS Instrumentation & Calibration Pty Ltd
www.ams-ic.com.au

REMOTE INPUT/OUTPUT (I/O) SYSTEM

Rockwell Automation has released PointMax I/O, a flexible remote input/output (I/O) system designed to help manufacturers tackle the growing complexity of modern industrial operations.

As manufacturing environments become increasingly dynamic and interconnected, the ability to quickly adapt system architectures is more important than ever. Traditional I/O systems, which rely on extensive wiring and large control cabinets, are becoming harder to scale and maintain as production demands grow and equipment footprints shrink. To keep pace, manufacturers need solutions that allow for design flexibility without adding unnecessary complexity.

PointMax I/O was built to address the real-world constraints manufacturers face on the plant floor. Its modular design supports scalable and easily reconfigurable I/O deployments – freeing engineers from the constraints of rigid, centralised control systems. It is designed to be suitable for both new machine builds and existing equipment.

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STAINLESS STEEL INDUSTRIAL DISPLAY

Featured by Interworld Electronics, APLEX's FABS-116 is a 15.6" stainless steel industrial display designed for demanding environments in the food and beverage manufacturing sector. Built with hygiene and durability in mind, the FABS-116 features a flat front bezel with IP66/IP69K protection, making it suitable for high-pressure washdowns and compliance with sanitation protocols.

The display's 304 stainless steel front bezel offers excellent corrosion resistance, with an optional upgrade to 316L stainless steel for environments requiring enhanced chemical durability. A rugged aluminium die-cast rear housing also helps ensure long-term reliability in harsh conditions. The unit supports a wide 9–36 VDC power input, operates in temperatures from 0~50°C (or optional -20~60°C), and withstands vibration up to 1G and shock up to 15G. Optional EN 1672-2 compliance (P/G models) further supports food-grade equipment standards.

The FABS-116 features a 15.6" TFT-LCD screen with 1366 x 768 resolution (optional 1920 x 1080). It supports a wide range of video inputs including VGA, HDMI, DisplayPort and DVI-D, providing compatibility with existing systems. Touch options include projected capacitive (multi-touch, scratch resistant), resistive (glove-compatible), or a glass-only version for non-interactive use. A high brightness option (1000 nits) is also available for improved visibility in bright environments.

It also supports panel and VESA mounting options, allowing flexible integration into machinery, operator stations or enclosures. An OSD panel on the rear of the unit provides quick access to display settings, helping to streamline adjustments during setup or maintenance.

Interworld Electronics and Computer Industries

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METAL DETECTOR AND CHECKWEIGHING COMBINATION SYSTEM

Supported locally in New Zealand, Fortress Technology has introduced its waste-reducing, space-saving Raptor Combination metal detector and checkweighing system.

Processing at 150 ppm, the system is a fully integrated metal detector and checkweigher providing food safety and weight compliance for packers and food processors. Prioritising food safety, it features advanced metal detection infeed, outfeed, reject, bin full and bin door lock sensors, covering every phase of the inspection process.

Available through the company's manufacturing centre in Cambridge New Zealand, the combination unit includes every inspection Grocery Supply Code of Practice (COP) specification pre-programmed into the machine. It also includes a walk-through COP guide and easy-to-follow animated metal detection test screens.

The system is designed to prioritise metal detection performance and automatically address application-specific product effect.

The checkweigher element gathers live and historical batch statistics to offer valuable insights into upstream efficiencies, for example, product giveaway. Optional communication adapters allow for customised data collection, with a choice of communication protocols to suit data collection systems already in place.

Designed for continuous functionality, the metal detector, conveyor and reject device operate independently of the checkweigher status. Said to be a unique industry feature, this helps to provide uninterrupted operation and reliable performance.

Accurately inspecting and weight checking products and pack formats ranging from 50 g up to 8 kg and measuring up to 400 mm in length, the system is available in four belt widths – 100, 200, 300 and 400 mm. Modular and flexible I/O electronics enable easy integration with upstream and downstream equipment, including automated filling, portioning and packing equipment.

Each system is equipped with 500 product settings, which can be expanded if required. Optional Contact 4.0 instantly records real-time GFSI, HACCP production and QC audit results. Pulling into customer-compatible reports, all this data is collated from information captured by the machine COP sensors.

Fortress Technology also has a Raptor BBK Combination in the series to inspect heavier, large bag or case applications, for example, milk powder, ingredients or pet foods.

Fortress Technology NZ Ltd
fortresstechnology.co.nz

RADIAL INSERT BEARINGS AND HOUSING UNIT

The latest generation of radial insert ball bearing and housing units from Schaeffler is engineered for easy mounting and optimum durability in some of the toughest applications and harsh environments found in Australia and New Zealand.

The FAG Black Series was developed to minimise downtime with smooth running and high reliability in applications with moderate to high axial and radial loads.

The radial insert ball bearing and housing unit combinations are designed to optimise whole-of-lifecycle costs, with increased service life and reduced maintenance in food applications such as food container filling and packaging machinery, as well as conveyors and screens in the food and beverage industry. Other applications include construction and mining machinery, power transmission and conveyor drives, and across agricultural and primary processing equipment operating in demanding conditions.

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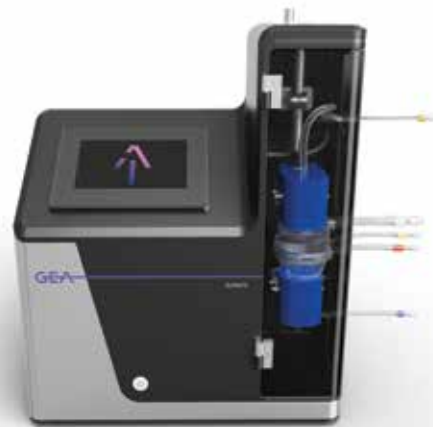
SINGLE-USE DISK STACK CENTRIFUGE

The GEA kytero 10 is claimed to be the smallest single-use disk stack centrifuge. The mini centrifuge is used in the biopharmaceutical, food and new food industries for product development, which can often only provide small bioreactor sizes. Its task is the separation of bacteria, cell cultures and yeasts as well as applications in cell and gene therapy.

Suitable for volumes from 1–10 L, this is the smallest model in the GEA range for cell separation and recirculation. As a result of the low-shear design, high cell viability with continuous cell harvesting and perfusion processes, by use of centrifugal separation, is possible from laboratory scale up to production size. The separator is suitable for the smallest batch and perfusion fermenters.

The separators offer the same advantages as classic disk stack separators, but without the need for CIP (cleaning in place) and SIP (sterilisation in place). They are ready for the next process run in just a few minutes and require no media other than electricity and air. The compact design and the easy and self-explanatory operability enable simple operation in any system. The non-contact drive system, breeze Drive, is designed to ensure safe operation under high biocontainment requirements.

GEA Group
www.gea.com



DIGITAL PRESSURE CALIBRATOR

The Huber Instrumente Pressure-Calibrator TM40 is built completely modular, with four slide-in slots that are freely configurable. This allows the calibrator to be equipped to suit the end user's individual requirements.

There are two different types of modules available, including Measuring Module (MM40) and Generator Module (GM40).

The Measurement Module needs one slot in the TM40, so it's possible to cover four different measurement ranges with the TM40. Features include: accuracy classes up to 0.05% F.S. selectable; symmetrical measuring ranges available; and -1 up to 250 bar.

The Generator Module needs two slots in the TM40, so it's possible to operate two GM40s in the device, or one GM40 and two MM40s. Features include: measure pressure; generate pressure and automatically regulate it; control accuracy of pressure generation is 0.1 Pa; accuracy classes up to 0.05% F.S. selectable; symmetrical measuring ranges available; automatic pressure regulation up to ± 10000 Pa; and built-in step generator.

The GM40 is able to build up and regulate the pressure of a given set-point autonomously. Other features include: maximum of 20 measurements per second; graphical display of the pressure measurements in real time; touchscreen; USB com-port; SD card; temperature-compensated sensors; long-term stability; and Li-ion rechargeable battery.

AMS Instrumentation & Calibration Pty Ltd
www.ams-ic.com.au



HOSE SAFETY DEVICE FOR COMPRESSED AIR SYSTEMS

Designed to prevent hazardous hose whip incidents in compressed air systems, Protect-Air's HoseGuard provides a layer of protection across a wide range of industrial applications. The compact device is designed to enhance workplace safety and provide compliance with international standards by automatically responding to air line failures.

In the event of a sudden increase in airflow — such as a ruptured or disconnected hose — the device instantly shuts off the air supply. This rapid response helps prevent hoses from turning into uncontrolled projectiles, a common cause of injuries in environments using pneumatic tools.

Key features include: automatic activation, factory preset to detect excessive airflow, without the need for manual intervention; a tamper-proof design, with no adjustments necessary post-installation, for consistent protection; and a maintenance-friendly, integral bleed hole that allows some air to flow through, which enables the line pressure to automatically reset the device once the main break is repaired.

Suitable for various applications, including manufacturing, mining, automotive workshops and cleanroom environments, the device is compliant with EN ISO 4414:2010 and the Machinery Directive 2006/42/EC.

Compressed Air Australia Pty Ltd
www.caasafety.com.au



COLD CHAIN SOLUTION

According to a 2020 government- and industry-sponsored study in Australia, it is estimated that approximately 1.93 million tonnes of fruit and vegetables are lost in the cold chain each year – this amounts to roughly 25% of total production. With an estimated 526 million tonnes of food lost globally each year and an estimated 7.6 million tonnes of food lost in Australia each year due to ineffective refrigeration, improving visibility and control across temperature-controlled supply chains is more critical than ever.

Geotab, a specialist in connected vehicle and asset solutions, has upgraded its cold chain solution, introducing new hardware and enhanced software capabilities that are designed to provide businesses with greater visibility, control and compliance assurance for temperature-sensitive shipments. These enhancements aim to support local industries, such as food producers and logistics operators, in maintaining product integrity and reducing waste across the supply chain.

The enhanced cold chain solution is designed to provide more comprehensive, user-friendly and granular temperature monitoring. The relaunch includes the advanced IOX-COLD (in-cabin) and IOX-COLD RUGGED (IP67-rated for external mounting) devices. These units provide deeper, direct integration with major OEM refrigeration systems, simplifying installation, improving data accuracy, and reducing potential points of failure compared to multi-sensor set-ups.

Accompanying the new hardware are several upgrades within the MyGeotab platform that help streamline operations, including: near real-time monitoring to gain an up-to-the-minute view of cargo conditions for proactive decision-making; multi-zone temperature support designed to ensure the integrity of multi-temperature loads with monitoring for each zone directly from the refrigeration unit – often eliminating the need for extra sensors; advanced alerts and remote commands to set custom temperature alerts and use remote command capabilities (for supported units) to take immediate corrective action; dynamic historical data to analyse past shipment performance through interactive graphs, grids and maps to identify trends and optimise logistics; and improved installation process with an updated MyInstall tool to streamline the configuration and verification process.

The integrated hardware and software solution is designed to support a range of industries.

Geotab

www.geotab.com



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Fresh, Cooked, Strips

SA winery opts for bulk bag discharging

In 1849, Australia's oldest family-owned winery, Yalumba Family Winemakers, was founded in Angaston, South Australia, forging a reputation for products and a multigenerational knack for business.

Today's wine business is global and highly competitive, requiring successful wineries to respond not only to consumer preferences but also to unforeseeable fluctuations in the supply and market price of key ingredients. Such was the case in 2018, when Yalumba's managers learned that tartaric acid would double in price.

In response, they switched from purchasing tartaric acid as a liquid to purchasing it in granular form supplied in 1 tonne bulk bags, requiring the installation of a bulk bag discharger with an integral flexible screw conveyor.



Switching from bulk liquid to bulk solids

Tartaric acid enables vintners to adjust and maintain the pH of grape juice as it is transformed into wine. At the correct pH, bacteria cease to grow, allowing the yeast to ferment the sugars while keeping the wine fresh, lively and colourful. "It's a matter of getting that balance just right," said Luke Wilson, Yalumba's Senior Process Engineer. But at twice the price, tartaric acid threatened to significantly impact the production budget.

Yalumba's supplier of tartaric acid also offered a granular product in 15 kg bags, but manual dumping posed occupational health and safety concerns. "It's labour-intensive to mix into the wine," Wilson said. "You've got an operator cutting open and emptying bags of 15 kilos. We purchase in the order of 100 tonne of tartaric acid, and that makes a lot of bags to carry and mix by hand."

However, tartaric acid in granular form was less costly, especially when purchased in 1 tonne bulk bags, prompting Wilson to research a bulk bag discharger to handle the material.

Among his prime concerns was the equipment manufacturer's experience at handling tartaric acid and the ability of the equipment to operate with minimal human intervention.

Speed of delivery was also paramount, as the equipment needed to be operational prior to the harvest and crushing of grapes. "We need





Images: Supplied

it when we crush the grapes because we want to make all our pH adjustments early to give maximum protection to the wine," Wilson explained.

Yalumba specified a BULK-OUT bulk bag discharger with an integral flexible screw conveyor from Flexicon Corporation Australia. The system was delivered and installed within eight weeks of order confirmation, allowing the winery to mix tartaric acid granules with water prior to the grape-crushing phase of the process.

Transferring contents of an entire bag to the mixing tank

The BULK-OUT discharger is a BFF model equipped with a removable bag-lifting frame used to forklift full bags from the plant floor into the discharger frame.

The flexible screw conveyor, Model 1450, is able to transfer tartaric acid 3 m at a 48° incline at rates to 4.25 m³/h. All product-contact surfaces of the discharger and the conveyor are of 304 stainless steel with the exception of the polymer conveyor tube.

A forklift positions the lifting frame above a full bulk bag on the plant floor, allowing an operator to connect four bag straps to corresponding Z-CLIP bag strap holders. The frame with suspended bag is then forklifted onto spring-loaded POP-TOP bag extension devices atop the frame posts. A full bag compresses the springs, designed to progressively stretch the bag upwards as it lightens to compensate for elongation, promoting material flow through the bag spout.

To unload a bag, an operator pulls the bag spout into a hopper intake chute equipped with a side access door, sealing ring and filter sock to contain dust. Untying the spout's drawstring allows material to fill a 110 L capacity floor hopper with side wall angles engineered to promote flow into the charging adapter of the flexible screw conveyor.

"From an operations point of view, loading the discharger is quite simple," Wilson said, and the steady feed of tartaric acid mixes quickly and easily in the 2000 L tank aided by an agitator. "We don't require anything fancy and can mix a bulk bag in under an hour, which for us was important. We were able to exceed our production requirements."

At the conveyor's inlet is a capacitive proximity level switch with a food-grade Teflon shield, connected via a touchscreen PLC to a delay-off evacuation timer. Once the conveyor is started, it runs until the bulk bag is empty, stopping automatically after the level of tartaric acid falls below the low-level switch and the delay-off time period has elapsed. This ensures that the full contents of the bulk bag are loaded into the mixing tank to achieve the desired 50:50 ratio of tartaric acid and water.

Flow promotion is achieved by the combined actions of the spring-loaded bag extension posts, and by FLOW-FLEXER bag activators that raise and lower opposite bottom edges of the bag with increasingly longer strokes as the bag lightens, raising the bag bottom into a steep 'V' shape free of dead spots. "There's not really anything left in the bags at the end," Wilson noted.

The acid remains stable in the tank once it's mixed with water: "It's not going to fall out of solution or become microbially unstable," Wilson said. The vintner then transfers the solution to crushed grapes as needed in the same manner as with tartaric acid previously purchased in liquid form.

"Our business is making wine," Wilson noted. "We're not experts in powder handling and conveying, and because we were on a really tight timeframe, we relied on the expertise of the guys from Flexicon. The system is quite simple. It just works."

Flexicon Corporation (Aust) Pty Ltd
www.flexicon.com.au



Managing the heat

Post-harvest storage systems for legumes

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Poor storage conditions are causing avoidable quality decline across the legume supply chain – costing growers and processors, according to researchers at Monash University.

Australia is one of the world's top producers and exporters of legumes. Yet, postharvest handling remains relatively overlooked. After harvesting, legumes are often stored in bulk silos or on-farm sheds where they can be exposed to hot Australian summers with little or no temperature or humidity control.

The research focused on two widely grown legume varieties in Australia, faba and adzuki beans. Despite differences in size and colour, both displayed similar postharvest deterioration under these harsh storage conditions, which closely resemble typical Australian summers.

Across three linked investigations, the research team led by PhD candidate Dilini Perera found that:

- beans stored in hot, humid conditions couldn't hydrate or soften properly;
- internal starch became more crystalline, limiting water absorption and slowing cooking time;
- protein solubility and digestibility declined, making the beans less suitable for protein extraction;
- cotyledon (bean interior) cell walls failed to separate properly during cooking;

- seed coat colour darkened, reflecting deeper biochemical changes and perceived quality loss.

The research found that high temperatures and humidity during storage trigger internal damage in faba and adzuki beans, making them harder to cook, less nutritious and less suitable for processing (eg, canning or protein extraction).

According to lead author Associate Professor Sushil Dhital, how beans are stored after harvest can make or break their final quality, even if they were grown and harvested perfectly.

"There's a perception that once beans are harvested, the job is done. But we found that poor storage conditions can quietly ruin bean quality and undo months of good work in the paddock," Dhital said. "We saw that even perfectly bred and harvested beans can develop serious quality issues if not stored correctly. Beans stored at 40°C and 80% humidity became structurally resistant to water absorption and much harder to cook. Their protein and starch are different to those of freshly harvested."

"The problem is known as the 'hard-to-cook' (HTC) defect. It means beans

take longer to soften, are harder to digest, and can develop off-flavours. This has real implications for food manufacturers, canning companies and exporters who rely on consistent, high-quality product."

The major problem of variation of plant protein functionality with batches is linked to the HTC defect.

The research team highlighted the need for investment in temperature and humidity-controlled storage systems, along with policy support to ensure the preservation of postharvest quality.

"Postharvest conditions are just as important as genetics and farming practices. If we don't control temperature and humidity, we risk losing the gains made on-farm," Perera said.

The researchers are calling for greater industry awareness — particularly from The Grains Research and Development Corporation — regarding the impact of storage on bean quality.

"Millions are invested in breeding better beans and improving agronomy. But without proper storage, much of that value is lost. We need a shift in focus from paddock to postharvest," Dhital said. "Postharvest quality preservation is the missing piece in the value chain. If we want to deliver consistent legume-based products and support farmer profitability, this is where we need to act."



DELIVERY ROBOT FOR SMART LOGISTICS IN FOOD MANUFACTURING

The Pudu T300 Delivery Robot is the latest innovation from Pudu Robotics, designed to redefine efficiency and intelligence in indoor delivery. Engineered for use in industrial environments such as food manufacturing factories, the robot combines cutting-edge navigation, high payload capacity and seamless human-robot interaction to deliver items swiftly, safely and autonomously.

With its sleek, futuristic design and modular storage compartments, the robot is built to handle a wide range of delivery tasks – from raw materials to finished goods. Its advanced LiDAR and 3D vision systems enable precise navigation through complex indoor environments, allowing it to avoid obstacles, use elevators and navigate busy corridors with ease.

One of the standout features is its voice interaction and customisable display, which is designed to enhance user engagement and make the delivery experience both efficient and personable. Its support of scheduled deliveries and real-time route adjustments is designed to ensure punctual service throughout its operation.

The robot operates on a powerful battery system that supports extended working hours, while its cloud-based management platform offers real-time monitoring, remote task assignment and performance analytics. This makes it suitable for businesses aiming to streamline internal logistics while reducing labour costs.

The smart, scalable system is built to meet the evolving needs of modern food industries.

Optima Robotics
www.optima-robotics.com

CONDITION MONITORING KIT FOR SMART FACTORIES

Unexpected downtime can cost thousands per hour, making early fault detection essential for any modern maintenance plan. The Advantech Condition Monitoring Starter Kit, powered by WISE-IoTSuite, gives users the tools to optimise maintenance now without the complexity of traditional monitoring systems.

WISE-IoTSuite turns raw sensor data into clear, actionable insights. From a simple, programmable dashboard, users can track vibration and temperature data in real time, analyse performance trends, and get instant alerts when anomalies are detected. Whether onsite or working remotely, teams have the information they need to act quickly, plan ahead and prevent costly downtime.

The kit includes the WISE-2410 Smart Vibration Sensor, which wirelessly captures vibration and temperature data; and the WISE-6610 LoRaWAN Gateway, which helps enable secure connectivity.

Set-up is fast, with the system scaling easily as needs grow, and all devices managed through the same WISE-IoTSuite interface.

With multi-device access and industrial-grade hardware, the Advantech Condition Monitoring Starter Kit is designed to keep downtime off the schedule and deliver a fast return on investment.

The Pacific Automation team can assist facility managers in finding the right configuration for their site.

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Lotte Chilsung opens fully automated beverage DC



Images supplied by Dematic.

Dematic has successfully deployed an advanced integrated logistics solution at Lotte Chilsung Beverage's Bupyeong Logistics Centre.

Lotte Chilsung, a Korean beverage producer, consolidated four existing distribution facilities into a single logistics hub in Bupyeong.

The site covers approximately 8300 m² with a height of 42 m and a capacity of 9000 pallets. It services more than 1.2 million cases of beverages annually across convenience stores, ecommerce platforms, general retailers, and food and beverage providers.

Facing challenges including rising labour costs, worker fatigue and growing demand for small-batch, multi-product orders, the company selected Dematic to design a solution that could address these pressures while also enabling precise, high-speed fulfilment within a limited urban footprint.

Dematic delivered a fully integrated system incorporating a high-density 40 m automated storage and retrieval system (AS/RS) for space-efficient pallet storage, a Dematic Multishuttle system for carton buffering and sequencing, robotic layer picking for automated layer handling, and RapidPall palletising cells that build optimised mixed-case pallets.

Additionally, an automated dispatch buffer equipped with pallet shuttle technology reduces staging space requirements and enables rapid truck loading. All components are centrally managed by the Dematic warehouse control system (WCS) that is integrated with Lotte Chilsung's enterprise systems.

Since go-live, the solution has reduced manual processes and has improved picking accuracy and delivery responsiveness while providing real-time inventory visibility and traceability.

"In a market where small, mixed orders are the new norm, Dematic's automated system has transformed our logistics operations," said Shim Kyung-seop, Director of Lotte Chilsung's



Bupyeong Logistics Centre. "It has dramatically improved order accuracy, reduced delivery times and enhanced overall customer satisfaction, while also relieving the strain on our workforce."

By implementing Dematic's automated system, Lotte Chilsung has improved logistics efficiency within a compact footprint, reducing its reliance on manual labour and lowering operational costs. The new system also provides real-time visibility into inventory and product movement.

Michael Bradshaw, Vice President of Solution Development for Dematic Asia Pacific, said, "This is more than a technology deployment; it's a landmark project that sets a new standard for beverage logistics in Asia. Our team designed a solution tailored to addressing Lotte Chilsung's operational challenges, delivering measurable and sustainable business outcomes."

The new facility represents a major step in Lotte Chilsung's digital transformation and sustainability roadmap. With automation playing a growing role in its logistics strategy, the company plans to continue working with Dematic to develop future-ready supply chain solutions across Korea.

Dematic Pty Ltd
www.dematic.com.au



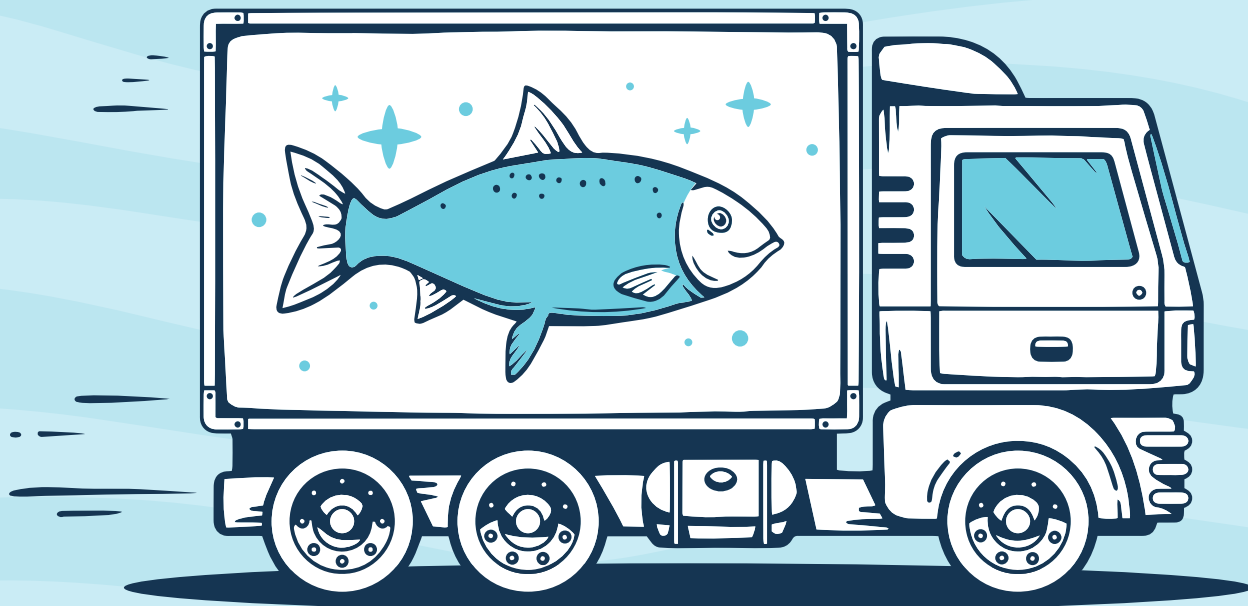
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Running hot in the cold chain

Walter Scremin, CEO, Ontime Delivery Solutions

In the high-stakes world of last-mile delivery for food manufacturers and distributors, refrigerated deliveries have the greatest potential to make or break a reputation.

Temperature-sensitive items must arrive on time, intact and uncompromised. Aside from the obvious health and safety implications, it's critical there is no compromise on the quality of the refrigerated products.

Five keys to getting refrigerated transport right

1. Create flexible fleets

There's much we can do to optimise delivery transport fleets, but an unpredictable element always remains. Things can and do go wrong: drivers may be absent; vehicles might break down. Or things go right: suddenly you have more demand for your product and need to add more resources quickly.

A successful last mile fleet is a flexible fleet. It adapts quickly, with access to additional resources at short notice. This can be a challenge for food manufacturers who manage their own fleet. Consider the additional complexities at play when a refrigerated vehicle breaks down — are there other vehicles available? Can other people step in quickly?

There also need to be contingency plans for when refrigerated vehicles are getting serviced, as refrigerated vehicles can be prone to regular maintenance and upkeep.

Sourcing the right specialists is a challenge — refrigerated transport is populated by either smaller operators or huge trucking groups, with little in between. Yet partnering with the right refrigerated transport suppliers brings many long-lasting benefits, including greater flexibility if done properly.

2. Fleet management nous

The higher costs of refrigerated transport mean an optimised fleet can enhance your reliability and profitability.

Optimised fleets also enhance compliance and safety. The longer the delivery window, the greater the risk of temperature drift and spoilage. Congestion, detours and delays only add to the complexity.

Use route optimisation software that accounts for traffic, time windows, vehicle constraints and refrigeration priority. Last mile

efficiency benefits may seem small day-to-day, but over the months and years they compound significantly.

3. Having the right drivers

Compliance with food hygiene regulations adds another layer of complexity — often drivers don't just deliver cold food products, they might also be responsible for removing yesterday's stock.

Poor handling at the point of delivery, such as poor hygiene practices, leaving doors open too long and being lax with packaging, can undo everything that came before.

Drivers need to be trained in safe vehicle operation, and in product-specific cold-chain handling.

4. Being vigilant on temperature control and compliance

It's important not to let standards slip on issues like maintaining the correct temperature range. Food is often chilled at zero to 5°C, or frozen at -18°C, and a slight deviation can spoil food and breach compliance standards.

Remote monitoring systems and IoT temperature sensors can be employed for real-time data, with automated alerts for temperature variation. Vehicles with quick-recovery refrigeration units may also help for stabilising temperature faster after doors are opened during multiple deliveries.

The correct packaging and load management also plays a big role — an overloaded vehicle might compromise temperature. Fleet maintenance is critical. In addition, training and communication across the fleet strengthens any weak links.

It's important to have the correct accreditation with state regulators — for example, PrimeSafe in Victoria — to ensure drivers meet their legal requirements.

5. Tracking and measuring as part of continuous improvement

It's best practice to track, measure and benchmark performance for your delivery fleet. Even better — bring your customers into the loop, and be open with them, so they can see how you are performing.

Find the key benchmarks that have the most impact for you and your customers. There are a million things we can track with technology, but often focusing on just a few key metrics has a higher impact.

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Automating confectionery handling for Mondelēz

Intralogs company Swisslog has installed a new warehouse automation solution in Victoria for global snack food business Mondelēz, as part of a major \$130m warehouse upgrade to handle multiple ranges of chocolate and confectionery products, including household names such as Cadbury, The Natural Confectionery Company, Pascall, OB Finest and Olina's.

The new automated storage and retrieval system (ASRS) in Truganina (about 25 km west of the Melbourne CBD) serves 56,100 of 85,000 total pallet locations, and is the first national DC for Mondelēz in Australia.

"This project is a significant win for Swisslog, in a highly competitive tender," said Swisslog Australia and New Zealand Managing Director Dan Ulmamei.

"Mondelēz required a solution that could handle seasonal and non-seasonal goods simultaneously, while boosting storage capacity and distribution efficiency across Victoria," he said.

"It's also significant because this is the biggest in-house operational automated warehouse that will be run by Mondelēz, and not through a 3PL."

The Swisslog ASRS will allow Mondelēz to consolidate its Victorian distribution centres and off-site storage into one facility.

"This consolidation eliminates double-handling inefficiencies, and has the flexibility for future growth. The new facility is designed to handle 56,000 pallets initially in the high bay, with room to expand the ASRS up to 62,000 in the future as the business grows," Ulmamei said.

Flexibility and space utilisation

The automation solution uses the latest generation of ASRS cranes, including 11 Vectura vertical stacker cranes, each 32 m tall, with double-deep load handling forks, and an inverted monorail circuit equipped with 22 dual-load trollies. It also features 16 dual pallet flow lanes, 490 m of pallet conveyor, 56,100 pallet locations in the high bay, and Swisslog's SynQ software, which will be used as the warehouse execution system (WES).

The system's designed throughput includes 218 total inbound pallets per hour, and 255 total outbound pallets per hour.

"Mondelēz International is investing in the future of our supply chain capabilities and strengthening our operations through the opening of a national distribution centre, creating efficiencies to offset rising costs, while increasing our network storage capacity and overall productivity. Swisslog was able to present the best solution for the long-term benefit of our operations," said Wayne Angus, Mondelēz Supply Chain Vice President, Australia, New Zealand and Japan.

The double-deep ASRS solution provides a high level of flexibility in operation for both storage utilisation and selectivity. A double-deep rack design is also economical due to simpler, safer and quicker lead time to delivery and installation procedure. The system has been designed with additional throughput capability in cranes, monorails and conveyors for operational redundancy, creating a future-ready solution.

"The Swisslog ASRS also gave us a high degree of flexibility, which is important when we are working with so many product lines and responding to changes in consumer demand, as well as seasonal variations and peak periods," Angus said.



"The automation solution also increases the safety of our operational personnel, removes our error handling, upskills our team in automation and improves our truck turnaround times, thereby further enhancing our operational efficiency.

"Aligned with our net zero carbon goals, our facility will use 100% renewable electricity and will generate approximately 1 MW of solar power, covering 30% of the overall estimated power demand. The facility also has been designed to achieve a 5 Green Star Design Rating from the Green Building Council Australia."

SynQ software

SynQ — Swisslog's modular warehouse management system (WMS) — is a service-oriented software platform for warehouse management that provides functionality to optimise warehouse operations. It can also provide the functionality of a WES, WCS (warehouse control system), MFS (material flow system) or



Picture below, Wayne Angus, Mondelēz Supply Chain Vice President, Australia, New Zealand and Japan; Jens Schmale, Swisslog CEO; Dan Ulmamei, Swisslog Managing Director, Australia and New Zealand; and Anna Reid, Mondelēz Director Customer Service and Logistics, ANZ.

ACS (automation control system), and it can interact with ERP (enterprise resource planning) and e-shop systems.

Ulmamei said Swisslog's SynQ Independent Business Intelligence tools suite adds value by enabling warehouse operations to work smarter, not harder.

"SynQ is a single platform that uses proven industry-specific processes that optimise warehouse automation processes, backed by more than 100 years of experience, with more than 500 software experts worldwide," he said.

"SynQ looks after both the automated and manual operations for Mondelēz, and we are delighted that such a major household name chose Swisslog for the excellent value and return on investment of their warehouse automation."

Swisslog Australia

www.swisslog.com.au



Olivo and Brunetti Oro: cool partnership for fine food



Brunetti Oro, a name synonymous with premium quality in cakes, pastries and coffee, is using Olivo insulated food containers for its multi-temperature food transport and storage applications.

For a business with extensive distribution and delicate products like Brunetti Oro, an unbroken cold chain is paramount. Olivo insulated food containers are designed to provide precise temperature control essential for ambient, chilled and frozen items — all within a single, non-refrigerated vehicle. This not only streamlines Brunetti Oro's logistics but also ensures its products arrive in perfect condition.

Olivo's advanced design, featuring robust construction and good insulation, has been used in other demanding sectors like pharmaceuticals. Now, the same technology that protects temperature-sensitive medicines is safeguarding Australia's finest foods.

Suitable for food manufacturers, caterers, meal delivery services and retailers, the Olivo solution can help users achieve up to 72 hours of stable temperature control and effortless transport of ambient, chilled and frozen perishables in the one truck.

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ROBOTIC AUTOMATION SYSTEMS

IAI's Modular Cartesian Robot Systems can provide an automation solution for various industrial applications. Due to their modularity and tailored functionality, the systems require less space than traditional articulated robots, making them suitable for operations where space is at a premium. Each robot is configured with only the necessary axes and functions, resulting in streamlined, space-conscious designs without compromising performance.

IAI has a range of Cartesian robot systems that can be configured with two to six axes, using either servo motors for high-performance operations or more economical stepper motors. These servo motor options are available in standard and high-precision configurations, offering flexibility for different application demands — from simple pick-and-place tasks to more complex automation needs.

For cost-sensitive projects, the company has an economical alternative in the form of its RoboCylinder series of stepper motor-driven Cartesian robots. The latest addition to this line is the RoboCylinder IK Series, which now comes equipped with a battery-less absolute encoder. This innovation is designed to reduce the complexity of the assembly process and eliminate the need for battery replacement, simplifying long-term maintenance.

Performance has also been enhanced with the RCP6 Series of RoboCylinders, which can achieve higher speeds than previous models, making them suitable for high-throughput environments where cycle time is critical.

Another feature of the modular Cartesian systems is their extensive configurability. With up to 516 available combinations, users can select from a range of set-ups to precisely match their operational requirements. Recent innovations include a table-type model (TA) featuring a Z-axis and a variant with a ZR unit that incorporates vertical and rotational movement. These additions further broaden the system's versatility, making designing compact, efficient and purpose-built automation solutions easy.

Typical applications of Cartesian robots include: carton folding, filling and closing; camera inspection of workpieces; fast pick and place; stacking heavy workpieces; drip-free pipetting system; screwing; loader/unloader systems; and unfolding and folding boxes.

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New-wave system for picking fruit



istock.com/aeogordo

Traditional manual harvesting is inefficient and labour intensive, so it can be costly, while fully automated robots often struggle with inaccurate and clumsy operation in complex environments. Now, a new robot has been designed to make harvesting more efficient by lowering the technical barrier associated with automation through a 'human-robot collaboration' model.

A research team led by Associate Professor Pei Wang from Southwest University has developed a gesture-controlled human-robot collaborative harvesting robot that can precisely locate and pick fruit with a simple wave. The technology is designed to not only improve efficiency but also provide a new approach for small-scale orchards to transition towards intelligent operations.

The core innovation of the robot lies in its human-machine division of labour. Researchers found that humans excel at identifying fruit locations and determining picking paths, while robotic arms outperform in repetitive motions and force control. Based on this insight, they designed a motion-sensing interaction system: the operator uses a Leap Motion sensor to capture hand movements in real time, directing the robotic arm to the target position, and then triggers the automated picking process with a double-tap gesture. This design combines human 'eyes' with machine 'arms', retaining human flexibility while leveraging mechanical stability.

To ensure precise execution by the robotic arm, the team overcame multiple technical hurdles. For instance, inverse kinematics calculations for robotic arms often yield multiple solutions, which can cause sudden jerks or freezes. To address this, researchers proposed a four-step screening

method, evaluating mechanical interference, verifying solution correctness, assessing motion rationality, and optimising trajectory smoothness to select the safest joint angle combination. Simulation tests showed that the optimised robotic arm exhibited reduced movement paths and joint rotation ranges, resulting in smoother motions.

Unlike traditional robots reliant on camera recognition, this device achieves intuitive control through motion-sensing technology. The Leap Motion controller captures hand movements at a 0.01-millimetre resolution, maintaining stable performance even under uneven lighting or foliage occlusion. Researchers also implemented intelligent filtering algorithms to eliminate 'jittery data' caused by hand tremors or environmental interference, ensuring smooth robotic arm movement. The team dynamically mapped Leap Motion's cubic interaction space to the robotic arm's fan-shaped working area, allowing operators to move their hands within a virtual 'box' while the robotic arm responds synchronously in the real orchard — as intuitive as playing a motion-sensing game.

Tests revealed an average system response time of 74.4 milliseconds and a 96.7% accuracy rate in gesture recognition. After brief training, operators reduced single-fruit picking time from 8.3 seconds to 6.5 seconds. The tests also confirmed the system excels in complex terrains and small-scale orchards, adapting well to challenges like foliage occlusion and uneven lighting.

The study has been published in *Frontiers of Agricultural Science and Engineering*.



Lightweight Wines Group.

Glass packaging initiative reduces carbon emissions

The Margaret River Wine Association (MRWA) has launched its Lightweight Glass Packaging Charter – an initiative aimed at tackling a significant source of carbon emissions: glass packaging.

According to industry body Wine Australia, wine packaging accounts for 44% of emissions associated with wine production from grape to end-of-life packaging. The MRWA said switching to lightweight glass can help reduce these emissions by over 20%.

The charter already includes seven wineries as full signatories using lightweight bottles across their production, including Pierro Wines (which has used lightweight glass since 2012), Evans & Tate (since 2019) and La Kooki (since 2021).

An additional 10 wineries have provided a 'statement of intent' to become full signatories by the end of the 2025–2026 financial year.

To become a full signatory, members must commit to an average bottle weight of less than 420 g for all 750 ml still wines.

MRWA CEO Amanda Whiteland said, "We are committed to continuous improvement, and one part of that is driving the adoption of lightweight glass for Margaret River wines. Supporting our members in this

transition is a key step in our broader sustainability efforts and lowering emissions in the wine industry."

Wine Australia identified reducing glass weight as one of three key strategies in its 2023 Emissions Reduction Roadmap, which outlines a projected 42% reduction in carbon emissions by 2030, with lightweight glass playing a central role in achieving that goal.

Although Margaret River accounts for only 2% of Australia's wine grapes, the region's 175 wineries collectively produce around 30 million bottles of wine each year. MRWA estimates that switching the entire region to lightweight glass could save approximately 3000 tonnes of glass annually.

"Even small changes can have a big impact," said MRWA Sustainability Officer Kate Morgan. "Just by making wine bottles lighter, we could save enough glass to equal the weight of the Sydney Opera House roof."

Jilyara Wines is one of 10 producers to sign a statement of intent and is well on its way to achieving the charter's targets. The winery plans to reduce the bottle weight by 30%, saving 175 g per bottle, or eight tonnes of glass per year. Some of its new packaging will be up to 44% lighter.

Michael Peterkin, winemaker and founder of Pierro, has been using

lightweight glass bottles across the majority of his wines since 2012.

"It made sense," Peterkin said. "If you're trying to reduce your greenhouse gas emissions, the big kahuna is glass. You can do everything else, but you're really not achieving all that much unless you take care of that one."

As retailers and consumers become more informed, perceptions are shifting away from the idea that heavier bottles are an indicator of the wine's quality.

"We've found that when we tell customers we use lightweight bottles, they're genuinely interested, sometimes surprised, but it creates meaningful conversations about sustainability beyond the vineyard and winery. In recent vintages, to raise awareness, we've even added a message to our labels: 'Committed to sustainability, we use lightweight bottles to reduce our carbon footprint. It's what's inside the bottle that matters'," said Eloise Jarvis, winemaker at La Kooki.

The Lightweight Glass Packaging Charter is one of several sustainability measures being led by the MRWA, which also supports its members in achieving Sustainable Wine Growing Australia certification across vineyards, wineries and wine businesses.



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Colour recognition in smart packaging

A study conducted at Finland's University of Vaasa could lead to smart packaging that indicates product condition through colour-changing printing inks.

Doctoral researcher Jari Isohanni has investigated how machine learning can most effectively be utilised in creating smart packaging that recognises colours. Combined with machine-based recognition of subtle colour changes, printed packages with colour-changing inks could offer a cost-effective solution for industries such as food and beverage, health care, logistics and electronics.

According to Isohanni, up to this point there has been a lack of research on which colour recognition method should be used and when. His research fills this gap by comparing the applicability of machine learning and colour difference methodologies to different situations.

"My research showed that traditional, simple computational methods work well for recognising significant colour differences. However, for subtle changes and varying conditions, the most effective methods were convolutional neural networks that are based on artificial intelligence," Isohanni explained.

The right method for the right purpose

Functional printing inks change colour according to conditions — for example, when temperature rises or humidity increases. The colour change in printing ink is so subtle or rapid that it cannot be

recognised effectively enough with current machine vision methods, Isohanni said. By the time the ink's colour change is mechanically detectable, the process may already have progressed too far or damage may have occurred.

This is why research focused on detecting small colour changes opens up new possibilities for industry compared to current electronic sensors.

AI enables automatic colour recognition in industry with nearly human-eye accuracy, providing new tools for quality control, among other applications. Based on the research, solutions can also be developed for consumers to indicate the condition of food products or other goods. The ink indicator used in the doctoral research can be printed on packaging alongside regular labels, with minimal additional cost compared to electronic smart packaging solutions, according to Isohanni.

Expensive electronic measuring devices cannot be placed on, for example, a lettuce package, as this would constitute a large portion of the product's price or could cause additional challenges for recycling. Printed indicators solve this problem, Isohanni said.

Though it's still at the dissertation stage (with examination happening in early September), Isohanni's research could pave the way for an environmentally friendly alternative that can improve processes and enhance consumer information — for example, by monitoring shelf life in the food industry.



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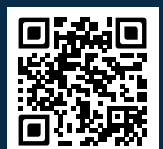
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Fill quantity control in food supplement production



A contract manufacturer of nutritional supplements in Germany, Vital Products GmbH, was looking for an efficient solution to check the weight and ensure the completeness of its products. The main objective was to ensure the company's quality standards were maintained.

The production at Vital Products GmbH includes food supplements in the form of tablets and capsules, which are mainly filled in plastic bottles. Technologies from Minebea Intec were used to support the company's production and meet its quality fill requirements.

Minebea Intec supplied the Flexus WS 1 kg checkweigher including the SPC@Enterprise software solution. This combination is designed to not only enable precise weight control, but also provide comprehensive process monitoring and analysis.

The Flexus checkweigher checks the weight of the plastic bottles to ensure that each product meets the defined specifications. At the same time, the check scale performs a completeness check to ensure that all containers are filled

correctly. The integration of the SPC@Enterprise software allows Vital Products to evaluate the required production data in detail, identify weak points and optimise processes.

Thanks to the detailed data analysis, quality standards can be easily met and audits facilitated. This strengthens internal process reliability and end customers' confidence in the products of Vital Products.

The manufacturer was so satisfied with the solution supplied it led to the purchase of two additional checkweighers, which are to be added to the production lines to ensure that the entire production is equipped with Minebea Intec's technology.

"The solutions of Minebea Intec, especially the Flexus checkweigher, have significantly improved our product quality and processes. Precision, reliability and excellent service are convincing across the board," said Rainer Skotnik, Managing Director at Vital Products GmbH.

NWI Group
nwigroup.com.au

CASE STUDY



Recyclable packaging solution for root vegetables

Parkside has used its packaging technology to develop a recyclable packaging solution for Riverford, a vegetable box delivery company in the UK.

The new bags are made from vertical form fill seal, kerbside recyclable paper-based material, and incorporate advanced

water-based coatings that provide good moisture and grease resistance. This helps to ensure that Riverford's root vegetables remain fresh throughout the journey from farm to doorstep. The material is engineered for durability, offering high tensile strength and resistance to tearing and bursting.

A key feature of the pack is its printed design that imitates the look of kraft paper, which, together with Parkside's flexo printing and reprographics capability, provides the desired rustic appearance.

This combination of durability, recyclability and operational efficiency makes this packaging solution unique for high-strength packaging applications. The shift from pre-made 100 gsm paper sacks to a 90 gsm VFFS-compatible paper represents a material saving. The change has also improved packing line performance, with packing speeds increasing from 25 to around 35 packs per minute, supporting greater operational efficiency and reduced energy consumption.

Parkside
www.parksideflex.com

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Mushroom packaging trials for sustainable film solution

Perfect Automation has launched a series of collaborative trials with Australian mushroom producers to phase out traditional PVC film in favour of a Japanese-manufactured polyolefin alternative.

This initiative, aligned with the APCO targets, signals a step forward in the fresh produce industry's environmental responsibility.

At the core of the trial were customers using the Omori STN-8500 Tray Stretch Wrapper, which is designed for produce packaging. The transition required only minor machine modifications — carried out under the guidance of Perfect Automation's technicians — ensuring production continuity while testing the alternative film.

To futureproof operations, line operators and maintenance staff were trained onsite, equipping them with the knowledge to manage further adjustments independently.

The polyolefin film was tested across multiple product formats, including 250 and 500 g mushroom cups and sliced mushroom trays, to evaluate performance across variable pack styles and weights. Each batch underwent comprehensive quality testing, including colour monitoring, weight retention and lab-controlled storage simulations to assess freshness across shelf life benchmarks.

In addition, trials compared perforated versus non-perforated films, a crucial test for mushrooms given their sensitivity to gas exchange and moisture levels. Perforated films supported breathability by allowing ethylene and CO₂ to escape, while non-perforated films demonstrated good moisture retention, helping maintain visual and textural quality.

Two storage methods tested

The film performance underwent both standard refrigeration and

chillvac (vacuum cooling) conditions to mirror real-world supply chain scenarios.

Standard refrigeration (16 days)

Polyolefin-wrapped mushrooms were stored under traditional cold chain conditions. By day 9, minor condensation appeared outside the tray, but there was no condensation inside or on the mushrooms. By day 16, condensation levels remained consistent, and there was only slight discolouration, but firmness

preserved, meeting key texture and freshness criteria. The product still met retailer standards for both appearance and freshness, demonstrating the film's strong baseline performance.

Chillvac cooling

For longer shelf life and interstate distribution, the chillvac process provided rapid cooling through vacuum technology. Over the same 16-day period, mushrooms

packaged in polyolefin film showed no condensation, retained firmness, and exhibited minimal to no discolouration — surpassing expectations.

What's next?

So far, the initial trials have demonstrated that the Asahi polyolefin film can be an effective replacement for PVC film in the produce sector. Importantly, the transition didn't require extensive machinery upgrades, minimising investment.

With foundational testing complete, the focus now shifts to distribution-level trials, evaluating the film's performance across the full logistics chain — from farm to retail shelf. While the film has been tested in Japanese conditions, Australia's diverse climate will provide further insights as the trials expand.

Perfect Automation

www.perfectautomation.com.au



iStock.com/Francois-Edmond



ADHESIVE TECHNOLOGY FOR RETORT PACKAGING APPLICATIONS

Henkel Adhesive Technologies is launching Loctite Liofol LA 7837/LA 6265, a solvent-free, aliphatic adhesive system that is tailored for applications involving high thermal stresses — in particular retort packaging for pet food, for example. The technology is suitable for PET/Alu/CPP packaging as well as modern polyolefin structures.

Features include ultralow monomer content (<0.1%), the complete absence of epoxy silane, high temperature resistance of up to 134°C, and a low application weight enabling high production efficiency. In addition, the energy-intensive drying step is rendered obsolete due to the system being solvent-free. The product enables curing at room temperature, which helps to reduce material and energy consumption.

The system is focused on safe processing even at high machine speeds and under varying conditions. In addition to retort packaging in the pet food industry, other applications include ready meals, microwave products and pharmaceutical packaging.

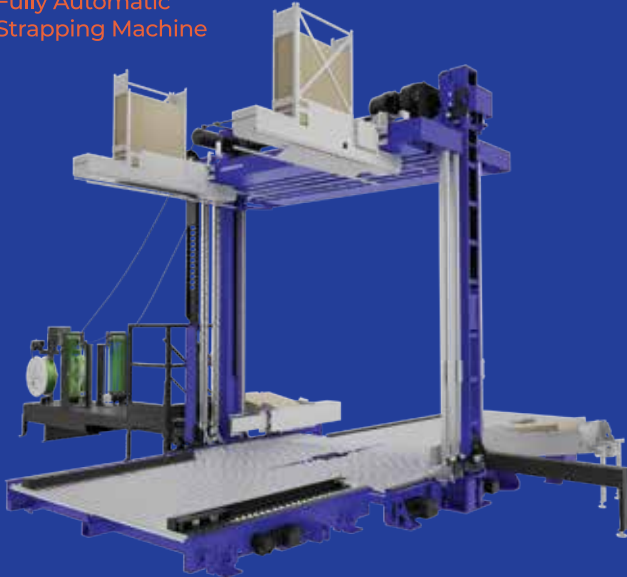
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MODIFIED ATMOSPHERE PACKAGING TRAY

Klößner Pentaplast (kp) has launched the kp Elite Nova – a next-generation modified atmosphere packaging (MAP) tray that is claimed to be the lightest in its class.

The tray uses a ribbed design to add strength in critical areas while keeping weight and material use to a minimum. It is claimed to be around 10% lighter than other trays in its category – without compromising on barrier performance, sealing integrity or mechanical strength. Developed using finite element analysis, the tray is suitable for high-speed automated protein packing lines.

The design is endorsed for recyclability by the Tray Circularity Evaluation Platform (TCEP) and is aligned with European Design for Recycling (D4R) guidelines, according to the company.

The tray is made with up to 100% recycled PET, including material from kp's Tray2Tray initiative, which creates a closed recycling loop for food trays. It is available in a variety of sizes and depths.

Klößner Pentaplast (Australia) Pty Ltd
www.kpfilms.com

LINERLESS FLASH LABEL SOLUTION

Ravenwood is now offering the promotional flash labeller as a standalone applicator or as an integrated option with any linerless applicator in the Nobac 5000 range. The machine's design is intentionally simple and cost-effective, yet it incorporates high-precision parts.

Unlike conventional labels, linerless labels don't require backing paper on the reel. Instead, they adhere to themselves using matching strips of adhesive and silicone applied to the underside and face of the label. This is designed to reduce material usage and waste associated with the liner, which is typically discarded in landfill.

Generally, the Nobac 40 applies flash labels to MAP packs to the top, side, or base of the product. Line speeds reach 30 m/min which equates to around 130 labelled packs. The linerless labeller is designed for high-output operations and its control systems are designed to ensure accurate label placement. Various mounting options are available to suit user requirements.

Ravenwood Packaging Ltd
www.ravenwood.co.uk



RECYCLE-READY, BAG-IN-BOX PACKAGING FOR WINE

SIG has partnered with Australian wine producers to develop a recycle-ready bag-in-box for wine.

The bag is made of SIG Terra RecShield, a mono-material film with a polymer structure which replaces the conventional multi-layer film that contains aluminium. This means that every component of the bag-in-box, including the bag, tap and carton, is now recycle-ready.

This development supports the Australian 2025 National Packaging Targets and meets the Sustainable Packaging Guidelines of the Australian Packaging Covenant Organisation (APCO).

The wine tap is made from light-grey polymers that allow it to be easily detected by optical sorters at Australian recycling facilities, improving plastic separation and supporting higher-quality recycled output.

When assessed through APCO's Packaging Recyclability Evaluation Portal (PREP), the complete pack receives a 'Check Locally' classification from the Australian Recycling Label, guiding consumers to kerbside recycling where facilities exist or alternative drop-off points, such as supermarkets or council collection centres.

The integrity and performance of the bag-in-box wine packaging has been validated through extensive shelf-life tests and transport trials with SIG's development partners, the company says.

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REFILLABLE BOTTLE

Koor has designed an easy-to-refill packaging solution as an alternative to single-use food pouches. Suitable for smoothies, fruit or veg purees, food powders, honey, sauces, jam, mustard, icing, pancake batter, concentrates and pet food, it can also be used for non-food products such as paint.

The system functions like a syringe to suck in product from bulk food products ready for an on-the-go snack in school lunches and on hikes, for example. Once loaded with food product, it can then be easily opened and the product can be easily consumed when required. When ready for cleaning, it can be easily dismantled and is dishwasher-safe for convenience.

The product has been tested by an Occupational Therapist and a Speech Therapist and is currently being evaluating for people facing eating challenges such as dysphagia.

It was a gold winner at the PIDA (Australasian Packaging Innovation & Design) Awards 2024.

The company's founder, Jean-Francois (Jeff) Roiron, has future plans to develop and install refill stations in bulk shops and supermarkets.

Koor
koor.life



rPET BOTTLE PERFECTING SYSTEMS

BMT (Blow Moulding Technologies) has developed Blowscan and Thermoscan, which are designed to help manufacturers improve PET bottle performance, reduce waste and accelerate development cycles.

Blowscan is a lab-based, single-cavity stretch blow moulding platform, which is designed to deliver deep, data-driven insight into material performance, preform quality and bottle development, without disrupting production. Its modular design allows easy switching between free-blow and mould-blow modes. In free-blow mode, materials such as recycled PET (rPET) or bio-polymers are stretched without mould constraints, making it suitable for benchmarking material behaviour. Mould-blow mode is designed to support rapid prototyping and validation of new geometries, enabling fast iteration during early-stage design.

The system uses a batch-fed preform system with no conveyors or hoppers, and uses infrared to replicate industrial conditions. It captures key data, including preform temperature, inflation pressure and blow geometry, enabling comparison across materials and machine set-ups. From resin producers and preform manufacturers to brand owners, the system is designed to accelerate innovation, improve decision-making and build confidence in scaling sustainable packaging.

Thermoscan is a lab-based thermal imaging system designed to provide temperature data insights for sustainable production of preforms and bottles. It provides a data-driven way to manage material changeovers, narrowing process windows and reducing reliance on guesswork. By capturing the temperature profile of a successful vPET run, teams can set informed starting points for rPET and use the system to compare and fine-tune heated preforms to help ensure more consistent processing and performance.

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Practical Innovation: How Packserv is Redefining Packaging Machinery for Australian Manufacturers



At Packserv, innovation is about designing equipment that solves real-world production challenges for Australian manufacturers. From the smallest detail in design to the integration of the latest digital technology, each development reflects a deep understanding of the needs of local businesses.

Two new additions to Packserv's equipment range reflect this philosophy. Packserv's Australian-made **Square Infeed Conveyor** and **PLC Twin Head Filling Machine** offer a more adaptable approach to automation and are purpose-built for space efficiency, productivity, and ease of use.

Efficiency from the start: Packserv's New Square Infeed Conveyor

Rectangular or non-cylindrical-shaped containers, such as 5-litre jerry cans, can create alignment issues on production lines. Without exact positioning and alignment, fillers, cappers, and labellers risk misfeeds, resulting in downtime and product waste. Packserv's new Infeed Conveyor is designed and engineered to address exactly this challenge.

Sized to match a 1.2 x 1.2 m pallet, the infeed table can be loaded manually or integrated with a depalletiser for higher throughput. Its sensor-controlled stop-start system ensures smooth indexing, preventing bottlenecks, while keeping containers correctly aligned. While designed for non-cylindrical containers, it also handles cylindrical containers, eliminating the need for multiple machines.

The result is reduced manual handling, improved safety, and lower operating costs. This time-saving equipment, which enables the loading of multiple containers at one time, ensures consistent, reliable container positioning and orientation, optimising production line efficiency and maximising output.

Smart, Scalable and Space Efficient: Packserv's New PLC Twin-Head Filling Machine

While the Infeed Conveyor streamlines the loading of containers, the new PLC Twin-Head Filling Machine delivers efficiency with container filling. Compact yet powerful, it's built for small and medium-sized businesses (SMEs), providing the benefits of Industry 4.0 without the footprint or price tag of large-scale systems.

Designed and manufactured at Packserv's Sydney facility, the filling machine offers a practical, modular approach to automation. Its intuitive HMI touchscreen allows operators to set, store, and recall parameters like fill volume and nozzle configuration, enabling rapid changeovers between products and container types. Full setting adjustability helps in maintaining fill accuracy and reducing waste.

Real-time data collection helps businesses monitor cycle times, identify inefficiencies, and make informed improvements, putting actionable insights into the hands of operators and managers alike.

With compatibility across capping, labelling and conveying systems, the filler can integrate easily into semi- or fully automated lines as production needs evolve.

Designed and Supported Locally

For Managing Director Nathan Wardell, the local design and manufacture of these machines remains integral to their value. "Keeping development in-house means we can respond quickly to customer feedback and continuously improve our equipment. Clients aren't left stranded when they need service, parts, or upgrades. It also



keeps jobs and expertise onshore, which is a win for everyone."

This local-first approach means shorter lead times, readily available spare parts, and a direct line to the engineers who built the machinery. These are critical advantages for SMEs when downtime can mean missed deadlines and lost revenue.

Accessible Innovation

Industry 4.0 technology has often been viewed as a distant, costly goal for smaller manufacturers. Packserv's approach flips that narrative, offering equipment that's accessible, adaptable, and ready to scale with its clients. From the alignment accuracy of the square infeed conveyor to the data-driven efficiency of the twin-head filler, these innovations prove that advanced automation doesn't have to come with an all-or-nothing investment.

"Innovation shouldn't be out of reach," says Wardell. "We believe Australian-made machinery should lead the way by being reliable, accessible and built to meet the needs of our local manufacturing sector. That's what this is all about."

With a focus on performance, simplicity, and scalability, Packserv's latest machinery enables Australian manufacturers to adopt automation in a way that fits their space, budget, and production goals, without losing sight of practicality.



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Packserv Pty Ltd
www.packserv.com.au

Sobering wine trends

While still remaining a small portion of the overall wine market in Australia, no- and low-alcohol (NoLo) wines have expanded significantly in the past decade. This growth is expected to continue as the category now incorporates mid-alcohol wines (~7–10% alcohol by volume), with IWSR forecasts indicating an expected growth of around 6% from 2023–2027.



istock.com/Daria Cherenko

In order to find out more about what's driving consumer growth in this market, researchers from Adelaide Business School at The University of Adelaide conducted a scoping review of no-, low- and mid-alcohol (NLM) wines — and their findings indicate a range of factors, including the wine businesses themselves playing a pivotal role.

"The global wine industry is evolving rapidly in response to growing health-conscious and moderation-driven drinking trends," said Dr Hannah Ford, who authored the review in the *Journal of Marketing Management*. "The review proposes that appeal to NLM wines is influenced by social factors, habits, self-identity, emotional responses and product tangibility. This mirrors the elements of a 'SHIFT' behavioural framework [Social, Habit, Individual, Feelings and cognition, Tangibility] where future research can look deeper into the effect of these key psychological factors in messaging."

The study also emphasises the crucial role wine businesses — particularly retailers and marketers — play in shaping consumer perceptions. Findings highlighted the importance of market acceptance, positive affirmations and customer engagement to drive sustainable consumption, which

aligns with the 'MAPED' framework (Market acceptance, Appreciation and rewards, Positive affirmation, Empathy in communication, Dematerialisation) of understanding behaviours by considering motivation, action and prompts.

The review, which analysed 38 peer-reviewed research articles, underlines that although research in this space has expanded over the past decade, deeper, theory-driven insights remain limited.

"The majority of studies reviewed low- or reduced-alcohol wines. Meanwhile, few focused on no-alcohol wine, and even fewer compared both no- and low-alcohol products," Ford said.

"Early literature on no- and low-alcohol wines, from 1990 to 2000, identified the need for research in response to the increasing alcohol strength of wines; but more recently, research has been driven by the rise of the 'sober-curious consumer' and broader 'moderation' trends."

The first publication in the field of consumer behaviour and NoLo wines dates back to 1994, yet the first study focused specifically on consumer perceptions of no-alcohol wine was not conducted until 2012, nearly 20 years later. Since then, publications have more than doubled in the past decade, highlighting growing interest in the topic.

"The review identifies key gaps in current literature, including the need for more research across different wine styles; for example, sparkling, rosé, white and red as well as various alcohol strengths," Ford said.

"It also stresses the importance of exploring cross-cultural and psychographic differences in understanding consumer behaviour. The review calls for more realistic study designs, including sensory tastings and choice-based tasks, to better predict purchasing behaviour."

Ford said the research is important in helping to shape the future of the wine industry.

"Adelaide Business School is proud to be at the forefront of advancing research in the emerging NLM wine category," she said, with The University of Adelaide being home to a NoLo wine research facility.

"This research provides essential insights for academics, marketers and wine producers aiming to support the global shift towards more sustainable and health-conscious wine consumption."

Ford suggests future research should focus on emotional responses, cross-cultural influences, implicit decision-making, and the application of behavioural theories such as the Cognitive Dissonance and Behavioural Reasoning Theories.

CRYOSCOPE FOR QUALITY CONTROL IN MILK PRODUCTION

Water ingress occurs during milk production. The rinsing of milking systems, milk tanks and tankers leads to an unavoidable admixture of water. Therefore, the measurement of water additives plays an important role in the quality control of milk.

Freezing point determination (cryoscopy) is used to determine the extraneous water content of milk. Ideally, the devices used for this should work quickly and precisely without being affected by external influences such as high ambient temperatures or fluctuations in air pressure. For these reasons, Funke-Gerber has made improvements to its CryoStar automatic.

The device now works quickly even at 40°C room temperature. The newly added pressure sensor warns promptly of pressure fluctuations so that undesirable deviations in the measurement process can be avoided. All settings and measurement curves can be viewed via the touch display.

A rotary magazine provides space for 12 samples, which are measured automatically in sequence. Depending on the setting, the first measurement result is available after 90 s, resulting in a maximum sample throughput of 40 samples per hour. The cooling unit has also been redesigned and the newly developed control electronics reduce the waste heat generated. With improved heat dissipation, measurements can be carried out at room temperatures of up to 40°C.

The device exhibits strict linearity in the defined measuring range. This is advantageous if, for example, the measurement is used to check that milk is lactose-free. Automatic calibration helps to save time and minimise sources of error by saving all settings and calibration values.

The device can be connected to printers and PCs in accordance with laboratory standards due to suitable connection options. All parameters on the device can be freely programmed so it can be adjusted to current and future national and international standards.

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Rapid test finds next Aussie premium honey

The Honey Lab, Centre of Bioinnovation.

University of the Sunshine Coast researchers have developed a rapid, affordable test that can help identify the next premium Australian honeys.

Brush box, grey ironbark, macadamia and spotted gum are among seven native honeys already tested with the new extraction method at UniSC's Honey Lab, which is renowned for authenticating highly prized manuka honey.

The findings, published in *Food Chemistry*, have excited the research team after helping beekeepers and honey producers across Australia measure the quality of their manuka products for 10 years.

"We used the new method to test for 109 phenolics — also known as aromatics — and more than half of these valuable compounds were found in the Australian honey samples," said lead author Georgia Moore.

"That's exciting because phenolics are a major determinant of honey quality, contributing to anti-inflammatory, antimicrobial, antioxidant, anti-diabetic and anti-carcinogenic properties, as well as flavour.

"Honeys with these nutritional and medicinal properties generate great interest and consumer demand for their products.

"Phenolic compounds can also serve as markers of floral origin, helping to confirm honey authenticity."

The other three plant species tested were coolibah, mugga ironbark and yapunyah. The team said previous extraction methods were more expensive, time-consuming and complicated.

Research co-supervisor Dr Peter Brooks, who helped pioneer manuka authentication in Australia, said the validation of the new extraction method in all seven mono-floral honey types is significant.

"It's an important step in authenticating Australian mono-floral honeys, which have one identifiable plant of origin," he said.

"Substantiating the floral and even regional origin of honey varieties is important for Australia's reputation as a safe, reliable honey producer and for the sustainability of the industry.

"This evidence could lead to other varieties commanding a higher market share and price, because consumers generally will pay higher prices for mono-florals over multi-floral or bush honeys."

The results build on the research team's study published in the journal *Measurement: Food* that found high levels of a key aromatic compound from *Leptospermum* plants in several Australian manuka honeys.

Leptospermum is a type of tea tree and its nectar is the source of manuka honey in both Australia and New Zealand. Australia has more than 80 species and New Zealand has seven.

"This study confirmed that the compound, known as Manuka Marker 1, is not limited to a single species from only one country of origin," Brooks said.

"Both studies together indicate that Australian beekeepers have access to a botanical bonanza not just for manuka, but for other premium varieties with various properties and qualities."

Project leader Dr Asmaa Boufridi said the aim is to form a phenolics database for other varieties of Australian honey, to support future labelling.

"Authentic labelling will improve the traceability of honey products to provide quality assurance," Boufridi said.

"Further studies aim to analyse more samples of each variety for their phenolic content, as well as other popular Australian honeys over several years, regions and seasons."

MFGM INGREDIENT FOR INFANT FORMULA

Milk fat globule membrane (MFGM) has been approved for use in infant formula products in Australia, with

Arla Foods Ingredients granted exclusive commercialisation rights.

The decision means that Lacprodan MFGM-10 will be Arla Foods Ingredients' first early life nutrition product to be approved by Australian authorities. It is also claimed to be the only MFGM ingredient approved for use in products for infants in the country for at least 15 months.

On 30 April 2025, Food Standards Australia New Zealand (FSANZ) approved the use of MFGM as a nutritive substance in infant formula products. Following formal acceptance by the Australia and New Zealand Food Ministers' Meeting, the approval is now effective.

It applies across Australia, where Lacprodan MFGM-10 can be labelled as 'Milk fat globule membrane-enriched whey protein concentrate', but not New Zealand, which recently opted out of the Australia–New Zealand joint infant formula products standard.

Alchemy Agencies

alchemyagencies.com



AI INSPECTION TECHNOLOGY FOR TETHERED CAPS

The Innocheck TSI closure inspection unit is now equipped with an AI-based fault detector.

With its AI-based fault detection system for tethered caps, the Dortmund turnkey supplier now provides smart engineering that identifies potential defects during cap inspection. The new module makes use of patent-pending algorithms to analyse images of bottle closures in real time. Cameras log the caps in high-resolution, while AI models evaluate this data. By applying deep learning, the models adjust to account for any new types of flaw found.

The KHS AI-assisted system is designed to increase both the accuracy and efficiency of inspection. It can be implemented on both new and existing machines.

KHS Pacific Pty Ltd

www.khs.com

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Liquid espresso

Moccona Liquid Espresso Coffee Sachets are reshaping the coffee category with a single-serve coffee concentrate available in three blends: Medium Roast, Dark Roast and Caramel. Available in an eight-pack format, each sachet is designed to be ripped open and emptied into a cup or glass with hot or cold water or milk.

www.moccona.com.au



Merging wellness with indulgence

DolCas Biotech has infused marine collagen tripeptides into a chocolate bar with each square (about 8 g) containing 1 g of Morikol, an ultralow-molecular weight Type I and III fish collagen tripeptide. The concentrated fish collagen has been integrated into milk, dark and white chocolate without affecting the flavour, aroma or texture of the confectionery, the company claims.

www.dolcas-biotech.com



High-protein milk

Hunt And Brew has launched its Extra Protein Milk, a low-fat milk with 16 g of dairy protein per 250 mL serve. Sourced from WA's South West region, the 1 L milk is now available in Coles stores nationwide.

huntandbrew.com



Some of the latest products hitting the shelves are designed with added functional ingredients, while others are just for sheer indulgence.



Bubbles in space

On 25 June 2025, Mumm Cordon Rouge Stellar was launched on an Axiom Space mission from Florida, returning to Earth on 15 July 2025 in perfect condition. Futuristic in conception, the specially designed packaging had to respect the stringent safety standards of a space mission and also allow the champagne to be served in zero-gravity conditions. The winemaking process was tweaked in order to counteract the dulling of the senses of smell and taste that occurs in space.

www.pernod-ricard.com



Prebiotic cola

PepsiCo has introduced its Prebiotic Cola online, which includes 5 g of cane sugar, 30 calories and no artificial sweeteners — with the same taste but added functional ingredient of 3 g of prebiotic fibre. The 8-packs of cans are expected to be retail ready in early 2026

www.pepsico.com



Chocolate liqueur with a raspberry twist

Central Coast-based Distillery Botanica has added a new flavour to its Koko Noir range. Created by distiller Philip Moore, the Chocolate Raspberry Liqueur combines the flavours of Vanuatu cocoa nibs with handpicked Tasmanian raspberries using the distillery's slow, cold infusion method. It is available in a 500 mL bottle.

www.distillerybotanica.com



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