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A senate inquiry report: Australian Food Story

Carolyn Jackson



The Australian parliament has released the Australian Food Story: Feeding the Nation and Beyond report after its year-long inquiry into food security in Australia.

The inquiry, which the House Standing Committee on Agriculture commenced back in October 2022, examined ways to strengthen and safeguard Australia's food security, focusing on production, supply chains and key inputs, as well as climate change, biosecurity and food insecurity.

Over the course of the inquiry, the Committee (chaired by Meryl Swanson MP) held 24 public hearings, visited numerous sites around Australia, and received 188 written submissions from individuals, industry and community groups and government bodies.

Some of the 35 recommendations included in the report were:

- creating a comprehensive National Food Plan
- appointing a Minister for Food
- establishing a National Food Council
- developing a National Food Supply Chain Map.

The Committee also recommended measures to facilitate innovation in the production of food, eliminate food waste, and improve sustainability and resilience in the food supply chain.

Australia is currently a food secure nation, which produces more than it consumes, but, according to the report, there are food production challenges which could be addressed further to provide improved food security. For example it was reported that Australia's dairy industry produced around 8.5 billion litres of milk in 2021–22, which was the lowest figure since 1996–97. Strategies for reinvigorating the declining production in the Australian dairy sector as well as addressing the

reliance on imports in the seafood sector are some of the suggestions for the National Food Plan.

With around \$36.6bn of food lost or wasted in Australia each year — 17% in processing — the report included discussion about how to eliminate this waste as a method to improve food security. The interrelationship between food, packaging and the environment is described as complex but suggestions ranged from addressing issues with gaps in the cold chain to improving circular economy methods and more education about “best before” dates to reduce food waste. Fight Food Waste Limited even proposed that best before dates should be removed where possible.

AFGC CEO Tanya Barden said: “Having provided a submission and testified publicly, as well as numerous discussions with each of the committee members, the AFGC is pleased to see many of our suggestions put forward as recommendations by the Committee.”

Barden said many of the recommendations align with the positions outlined in the AFGC's report Sustaining Australia: Food and Grocery Manufacturing 2030.

Swanson said, “Food security is not something that any of us can take for granted. COVID-19, floods, the effects of the war in Ukraine, and outbreaks of Foot and Mouth Disease and Lumpy Skin Disease in Indonesia have highlighted risks to our food system. Systemic change is required so that all Australians, and those that depend on Australian food production, will be food secure. Consultation, cooperation, coordination and innovation are the keys to food security.”

All the key recommendations from this report will be under further discussion in the weeks and months to come.

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Bundaberg opens new production facility

Bundaberg Brewed Drinks has opened a new brewery that will allow for increased production of the brand's ginger beer and other soft drinks.

The \$152.4 million facility in Bundaberg took two years to construct and includes an innovation centre, large storage and cold room facilities, a laboratory, and manufacturing and processing equipment.

The Australian Government contributed \$19 million to the brewery, while Bundaberg Brewed Drinks provided \$133.4 million and the Queensland Government provided \$575,800.

During construction, the project supported more than 850 jobs and has created more than 600 ongoing jobs in the region.



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Mondelez International invests \$25m to boost biscuit production

One of Australia's largest food manufacturers, Mondelez International, has opened a new \$13m packaging line at its Gourmet Food manufacturing facility — which is part of a \$25 million investment by Mondelez International since acquiring the business in 2021.

The packaging line is designed to increase production of the Olin's Bakehouse Artisan crackers range by 35%, unlock additional export opportunities and drive further demand for Australian sourced ingredients.

Bevan Tippet, Managing Director of Gourmet Food, said, "The investment will increase the production of our prominent Olin's Artisan range by a third, as we meet growing local and export demand. Already, 20% of our volumes are exported overseas, and this investment will equip us to explore and capture opportunities to showcase our Australian-made products to the world."

Already operational, the packaging line is powered by 100% renewable electricity. Gourmet Food has joined Mondelez International's Victorian renewable power purchase agreement with Pacific Blue Retail (formerly Tango Energy).

The initiative will reduce the carbon footprint from the facility by 44% (against a 2023 baseline) and complement Mondelez International's Ringwood and Scoresby factories already powered by renewable electricity.

Unilever shares reformulation patents with ice cream industry

Unilever has announced it will grant a free non-exclusive licence to the ice cream industry for 12 ice cream reformulation patents, following two successful pilots that tested warmer ice cream freezer cabinets in the cold chain.

The patents include the reformulation for ice cream products that remain stable at the warmer freezer temperature of -12°C, rather than the current industry standard of -18°C. The company said it hoped that by sharing these patents with other ice cream manufacturers, the industry will be able to move towards more energy-efficient freezer cabinets across the globe.

Last year, Unilever announced its plans to increase the temperature of its last-mile ice cream freezer cabinets, while ensuring the same ice cream quality and consumer experience. Since then, research conducted at Colworth (Unilever's Global Ice Cream R&D Centre) and two pilots in Germany have confirmed an energy reduction of around 25% per freezer cabinet at the warmer temperature of -12°C.

Andy Sztchlo, Chief R&D Officer Ice Cream at Unilever said: "By granting a free non-exclusive licence to these 12 reformulation patents, we hope our peers and partners from across the ice cream sector will benefit and work to tackle emissions across the industry. We believe through collaboration, we can reduce the cold chain's impact on the environment, whilst continuing to deliver the great quality ice cream products our consumers love."

For more information about the patents and licence, email IceCream.Reformulations@unilever.com.



Hard Solo to be renamed following ABAC review

Carlton & United Breweries (CUB) will change the name of its ready-to-drink (RTD) alcohol lemon beverage from Hard Solo to Hard Rated following the Alcohol Beverages Advertising Code Scheme (ABAC) panel decision released on 16 November.

The ABAC Adjudication Panel (Panel) has determined that the packaging of the RTD alcohol beverage 'Hard Solo' has breached the ABAC Responsible Alcohol Marketing Code (Code). The panel's decision followed the receipt of multiple public complaints raising concerns that the brand name and can design of the product strongly appeals to minors.

Despite ABAC pre-vetting considering Hard Solo an appropriate product and consistent with the requirements of the Code, the ABAC panel's final determination has found that the name Hard Solo breaches the Code standard [s3(b)(i) on strong or evident appeal to minors].

ABAC Panel Chair, Professor Michael Lavarch said, "Hard Solo was a novel case in that previous RTD packaging designs



considered by ABAC had been built upon emphasising an alcohol type or a well-known alcohol brand being combined with a soft drink such as cola or ginger ale. Hard Solo packaging in contrast is led by the brand recognition of Solo soft drink. Because of the novel issue, the number of complaints spread over a month and the two-stage process for final decisions on brand names and packaging, the Panel determination

was lengthy, and the process has taken several months to finalise. Most ABAC decisions are made within 30 days."

While CUB said in a statement that it was disappointed by the outcome, the company has accepted the decision made by the ABAC panel. In accordance with the ABAC Rules, the company said it has ceased further orders for production of this packaging and will ensure the last Hard Solo can will exit the supply network by no later than 9 February 2024.

The new Hard Rated liquid will be identical to Hard Solo — the only difference will be the change to the name and packaging.

Haigh's \$130m chocolate factory under development



Haigh's Chocolates has released designs of its future \$130m Salisbury South manufacturing facility. The development is the single largest infrastructure investment in the history of the South Australian family-owned business as it prepares for further expansion and growth.

Haigh's currently produces 1000 tonnes of chocolate across its two existing manufacturing sites in Mile End and Parkside, which will remain home to its head office, artisan chocolate production and visitor centre.

"This project represents a significant milestone for Haigh's, as it will see our current chocolate production capacity double, allowing us to meet increased demand and interstate growth opportunities, including entering new markets," said Haigh's Chocolates Chief Executive Alistair Haigh.

Work will commence this month on the 36,000 m² site, which will include 9000 m² for production facilities and 6000 m² for warehousing and online fulfilment. The company is also investing \$36m in European-made equipment, which includes specialised panning, enrobing and moulding lines as well as kitchen and packing equipment chosen to complement the business's artisan chocolate-making capabilities.

"Not only will this project directly create new jobs and opportunities at this site, it will facilitate employment growth across our retail business Australia-wide, creating up to 250 new jobs in the medium and long term," said Haigh's Chocolates Chief Operating Officer Peter Millard.

CIP Constructions has been appointed to oversee the development on the site and support the construction of the building, which has been designed by BELL Architects.

The new facility is set to be fully operational in the second half of 2025.

Food

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TNA Wetherill Park facility.

TNA opens second confectionery manufacturing facility in Sydney

TNA solutions has added a third manufacturing site in Australia — at Wetherill Park, Sydney — in order to meet the growing equipment demands of the global confectionery and nutraceuticals sector.

“Our confectionery processing capabilities are continually evolving,” said Thiago Roriz, Chief Operating Officer at TNA solutions. “With our new Wetherill Park facility, we extend our ability to deliver complete solutions to our global customers efficiently and with short lead times.”

Since acquiring NID in 2017, TNA has been updating existing technologies while retaining high standards in the confectionery arena.

The company creates and integrates complete processing and packaging solutions that include everything from kitchen operations, starch conditioning, mogul tray handling, de-moulding, product cleaning and finishing, to depositing, distribution, packaging and case packing.



RFG CEO Matt Marshall (right) and Beefy's Pies CEO Mark Hobbs

RFG acquires Qld piemaker Beefy's Pies for \$10m

Global food and beverage group Retail Food Group (RFG) has announced its entry into a conditional sale and purchase agreement (SPA) to acquire Queensland piemaker Beefy's Pies (Beefy's) for \$10m.

Established in 1997, Beefy's is a family-owned manufacturer and retailer of pies and bakery goods on the Sunshine Coast. Beefy's founder and CEO Mark Hobbs said the company has nine stores across Queensland and key products are made in-house at its manufacturing facility on the Sunshine Coast, which employs 180 people.

RFG CEO Matt Marshall said, “The acquisition of Beefy's is significant not only because it is a great business that is complementary to our existing brand portfolio but because it marks the beginning of RFG's next phase of growth.

“We look forward to working with the Hobbs family and all Beefy's employees to ensure their pies can be enjoyed by more and more Australians.”

Mark Hobbs said, “Joining the RFG network will help Beefy's take the next step in its growth journey as we will become part of a team with many decades of retail experience, as well as benefit from being in a group with a larger balance sheet and access to support functions.”

Beefy's is anticipated to transition across to RFG following initial completion of the SPA in mid-December 2023. Mark Hobbs will continue in an advisory role during the first year and there will be no immediate changes to the Beefy's team, business operations or supply partnerships. All existing supply partner arrangements will remain unchanged and there will be no impact on franchise partner operations across RFG's existing brands.

Cultured quail could soon be on the menu

The first cell-cultured food application to be assessed in Australia and New Zealand is cultured quail cells.

Vow Group Pty Ltd submitted the application to allow the use of cultured quail cells originating from quail as an ingredient in food products.

Food Standards Australia New Zealand (FSANZ) has called for the first round of two rounds of public consultation required for this application to amend the Australia New Zealand Food Standards Code to permit the use of cultured quail cells as a novel food.

This first call seeks views on FSANZ's risk assessment, which focused on the first three stages of cell-based food production — cell line, method of production and cell harvest.

The assessment found that the cultured quail cell line is genetically stable and microbiological risks with cell line sourcing and harvest are very low. It also found no toxicological, nutritional safety or food allergenicity concerns associated with the consumption of the cultured quail cells.

The labelling requirements for this product were also assessed by FSANZ, which included research into consumer perceptions of cell-based food and associated terminology. The first call for submissions proposes the term “cell-cultured” be used in labelling of the product.



Image credit: Vow.

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Watching 'no added sugars' in 2024

One of the key outcomes at the latest Food Ministers' Meeting (FMM), held on Friday, 1 December, was in relation to FSANZ P1062 — Defining added sugars for claims.

'Proposal P1062 – Defining added sugars for claims' assessed changes to conditions for making voluntary nutrition content claims about added sugars in food. The FSANZ Board approved the draft standard on 14 November 2023 and it was considered at the FMM.

Chaired by the Hon Ged Kearney MP, the FMM comprises Australian and New Zealand ministers responsible for food, with the Food Standards Australia New Zealand (FSANZ) Board Chair and CEO also attending to observe the meeting.

The FMM decided it will not request a review of the draft standard that will incorporate a definition of added sugars into the Food Standards Code. This will support work on ensuring 'no added sugar' claims align with dietary guidelines. Following FSANZ gazettal, there will be a four-year transition period for the changes to claim conditions for 'no added sugar(s)' and 'unsweetened' nutrition content claims (and synonyms).

At gazettal, the Australia New Zealand Food Standards Code will be amended to incorporate the revised standard, which will not permit 'no added sugar(s)' claims when a food:

- contains, or is, an 'added sugar' as defined in the Code
- does not contain 'added sugar' but contains more sugars (ie, monosaccharides and disaccharides) than:
 - 10.0 g /100 g for solid food
 - 7.5 g /100 mL for liquid food.

The amended standard will:

- provide information to consumers to enable them to make informed choices in line with Australian and New Zealand dietary guideline recommendations about added sugars in food;
- minimise the risk of consumers being misled about the overall healthiness of products naturally high in sugar;
- provide clarity and certainty for industry and government in the implementation and enforcement of the voluntary claims permitted to be made about added sugars in food;
- provide a transition period that allows alignment with other currently proposed labelling changes (ie, P1058 – Nutrition labelling about added sugars).

While some infant foods will be captured by changes made in Proposal P1062, there are still issues that need to be resolved to ensure consumers have the information to make informed choices when buying infant foods and the composition of infant food is held to standards that meet public expectation.

Ministers have committed to undertake further work to address these issues and to consider them out-of-session.

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Raising frozen food temperature for decarbonisation

Research has suggested that standard frozen food temperatures could be changed by just three degrees to save carbon dioxide emissions.

Most frozen food is transported and stored at -18°C , a standard which was set 93 years ago and has been maintained since. Moving to -15°C could make a significant environmental impact with no compromise on food safety or quality, according to the research.

Experts from the Paris-based International Institute of Refrigeration, the University of Birmingham and London South Bank University have found that the small change could:

- save 17.7 million metric tonnes of carbon dioxide per year, the equivalent annual emissions of 3.8m cars;
- create energy savings of around 25 terawatt-hours (TW/h) — equivalent to 8.63% of the UK's annual energy consumption;
- cut costs in the supply chain by at least 5% and in some areas by up to 12%.

The research has been supported by global logistics firm and principal partner in COP28 DP World, which has set up an industry-wide coalition to explore the feasibility of this change, named 'Join the Move to -15°C '.

The coalition aims to redefine frozen food temperature standards to cut greenhouse gases, lower supply chain costs and secure food resources for the world's growing population.

Various organisations such as AJC Group, A.P. Moller – Maersk, Daikin, DP World, the Global Cold Chain Alliance,

Kuehne + Nagel International, Lineage, Mediterranean Shipping Company (MSC) and Ocean Network Express (ONE) have already joined the coalition.

Maha AlQattan, DP World Group Chief Sustainability Officer, said, "The Move to -15°C will bring the industry together to explore new, greener standards to help decarbonise the sector on a global scale. Through this research, we can see how we can deploy accessible storage technologies in all markets to freeze food at sustainable temperatures, while reducing food scarcity for vulnerable and developed communities."

Annually, hundreds of millions of tonnes of food are transported around the world. While freezing extends shelf life, it comes with significant environmental costs. The logistics industry is working to decarbonise, yet demand for frozen food is increasing as appetites evolve in developing countries and price-conscious consumers seek food that is more affordable.

Experts estimate that 12% of food produced annually is wasted due to lack of refrigerated and frozen logistics, highlighting a need for greater capacity. Studies also suggest that 1.3 billion tonnes of edible food is thrown away annually — a third of global food production for human consumption.

In other recent news, Unilever has successfully piloted ice cream at -12°C . It has granted a free non-exclusive licence to the ice-cream industry for 12 ice-cream reformulation patents, which will allow product to remain stable at -12°C .

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Panel PC for heavy industrial applications

ICP Electronics Australia has released iEi's PPC2-C17-ADL panel PC for industrial applications. Built around the 12th Gen Intel Core processor, the device offers computational capabilities suitable for real-time edge computing, IoT workload consolidation and AI inferencing. It can support up to 64 GB of DDR4 memory and is equipped with Intel UHD Graphics 770.

Featuring a PCIe Gen4 x16 slot, the panel PC has increased bandwidth and speed for additional functionalities. The device comes with an IP65-rated projected capacitive touchscreen, which is resistant to glare and UV damage. Its design also allows for operation even with gloved or wet hands.

The device is built to withstand tough industrial conditions, featuring a true-flat front screen with a waterproof gasket seal on the back, providing high ingress protection against pressurised water. This makes it suitable for environments requiring stringent sanitation standards, such as food processing factories.

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Hopper feeder

Enmin's compact electromagnetic Hopper Feeder is engineered to optimise food production processes. This robust, yet compact unit holds bulk dry food products and ingredients and consistently delivers the product at a metered rate ensuring maximum production line efficiency.

Designed for mobility and to take up minimal floor space, it is suitable for a variety of food production facility needs and can be used as a standalone unit or as part of an integrated-modular turnkey system.

Constructed of 304 stainless steel for maximum durability, it adheres to the stringent hygiene standards of the food industry.

The Hopper Feeder is designed to provide multiple benefits including improved manufacturing efficiency and cost savings through greater performance and line speed. Plus quality is enhanced, operator workload is reduced and product wastage minimised.

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Bulk bag discharger

The Flexicon BULK-OUT BFF Series Mobile Frame-Mounted Bulk Bag Discharger with Flexible Screw Conveyor allows rapid, dust-free discharging and conveying of bulk solid materials at multiple plant locations.

The discharger allows forklift-loading of bulk bags from 914 to 2134 mm tall. A removable bag-lifting cradle with Z-CLIP strap holders permits bulk bags to be attached at floor level from an ergonomic standing height and forklifted into cradle cups atop the discharger's upright posts.

The bag spout is pulled through a 305 mm diameter iris valve which is then closed around the spout, preventing material flow. The spout can be untied, the snap-action access door closed and the valve released slowly, allowing controlled flow into the enclosed hopper through the bulk bag interface chute.

Complete discharge is aided by FLOW-FLEXER bag activators that press against opposite bottom sides of the bag at timed intervals to form a steep "V" shape and top-mounted POP-TOP extension devices that raise the uprights as the bulk bag empties, promoting the flow of material from the corners of the bag through the bag spout.

The hopper is vented to a BAG-VAC dust collector that creates negative pressure within the sealed system to contain displaced air and dust, and vacuum any particles trapped in bag creases during disconnect. Reverse pulse air jets on a timed cycle dislodge material accumulated on the filters, returning it to the material stream.

The enclosed 156 L hopper measures 762 mm square by 1067 mm high and is equipped with proximity level sensors and a pneumatic vibrator assembly to promote flow of material to the conveyor.

The outlet of the hopper charges the inlet of a BEV-CON Flexible Screw Conveyor that propels free- and non-free-flowing bulk materials at a 45° incline in user-specified distances for discharging directly into processing equipment or storage vessels through 254 mm diameter downspouting.

Specialised geometry of the internal screw allows handling of materials that pack, cake, smear, seize or fluidise, with no separation of blends. The screw is the only moving part contacting material and is driven beyond the point of discharge, preventing material contact with seals or bearings and allowing rapid cleaning.

Mounted on a mobile base with support mast, the self-contained unit can be rolled to feed various locations or to a cleaning station.

A lower clean-out cap on the conveyor tube can be removed to flush the smooth interior surfaces with steam, water or cleaning solutions, or to fully remove the flexible screw for cleaning and inspection.

The system is available in carbon steel with durable industrial coating, with stainless steel material contact surfaces, or in all-stainless steel finished to industrial, food, dairy or pharmaceutical standards. Its NEMA 4 control panel with PLC allows manual and automatic start/stop and speed adjustment.

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Facility upgrade transforms beef supply chain operations

Dematic has worked with John Dee, a family-owned Australian beef producer, to help transform its operations to meet the evolving demands of global beef markets.



John Dee's Warwick-based processing plant in Queensland, strategically located on the Darling Downs, just two hours from the port of Brisbane, is instrumental in supplying premium beef cuts to more than 145 customers in over 37 export markets worldwide. Over the years, it has evolved from a local beef producer into a major beef exporter servicing a diverse range of international markets.

"We've been a beef processor in Warwick since 1945, and today we've transformed into a full-blown beef export and processing operation," explained John Hart, Owner of John Dee, Warwick. "In the early days, we sold full sets of meat parts, whereas today we break them up and send different components to Japan, Korea, Indonesia, Taiwan, the EU and America."

With growing demand, especially from international markets, John Dee faced a critical challenge. The company had outgrown its existing storage capacity, and manual operations were proving inadequate to meet the complexity and scale of their production.

"With the way we're operating today, trying to get product into the right place at the right time, it was becoming almost impossible to do it by hand," Hart said. "In our previous manual operation, people had to understand all the product

codes and pick by hand out of a cold store. With over 10,000 cartons being produced a day, it became a logistical nightmare. A thousand cartons a year that would go out of date because they couldn't be located."

In response to these challenges, John Dee embarked on a multi-staged facility upgrade project, partnering with Wiley and Dematic to design and implement automated systems tailored to their unique needs. At the heart of the transformation is the Dematic Multishuttle Meat Buffer Storage and Handling System, a solution specifically designed to address the complexities of meat processing. The system automates the storage and retrieval of product cartons, streamlining operations in sub-zero conditions. It manages products both chilled to -1°C and frozen at -20°C, reducing the reliance on manual labour in harsh cold store and freezer environments.

"Our advanced Dematic Multishuttle system provides a high-performance, accurate, safe and cost-effective automated order fulfilment and despatch processing solution for the meat industry, and we are very excited to see John Dee reaping the many benefits at their Warwick facility," said Soeren Schauki, Business Development Manager at Dematic. "The system was completely operational at full speed on day one, and the throughput of this system is unmatched."

Operation of the four-aisle, 30-level Multishuttle is managed by Dematic Warehouse Control System (WCS) software that provides full track and trace, where each carton is followed throughout the supply chain, so losing product is no longer possible. The WCS also controls the storage duration of all cartons, allowing John Dee to set the time each carton can remain in the system. This helps to improve the shelf life of the meat products and is designed to ensure cold chain compliance is maintained.

The solution is designed for John Dee to scale up and increase its premium beef export market share. One of the frozen aisles can also be switched to chilled in response to anticipated future growth and advancements in cold supply chain export markets across Asia.

"In working with Dematic, we ensured that our system would be able to adapt for the future growth of John Dee to increase capacity to match significant surges in demand, whilst also providing improved worker safety," Hart said.

Since implementing the new system, John Dee has reduced its reliance on labour, which, in a tight labour market, has become difficult to source for harsh cold storage facilities. In doing so, John Dee has reduced occupational health and safety issues associated with employees working in a cold storage environment.

"Our recent expansion of our Warwick facility is the largest single investment in the company's almost 80-year history, and it is supporting our business growth and competitiveness during a time when beef exports are rising significantly," Hart said.

NEWS



Nestlé to move shipping needs to sustainable fuels

Nestlé, working with three large shipping companies, will move the equivalent of half its global shipping needs to alternative, lower-emission fuels with immediate effect.

By switching to cargo ships that use fuels made from waste, such as used cooking oil, the company is aiming to reduce its annual greenhouse gas emissions from shipping by around 200,000 metric tonnes of CO₂ equivalent. This could help avoid the use of around 500,000 barrels of crude oil for ocean transportation.

Stephanie Hart, Executive Vice President and Head of Operations at Nestlé, said, "The agreements we've signed with our shipping partners will help us cut emissions and immediately reduce our carbon footprint. We know this is an interim solution and continue to encourage the development of longer term decarbonisation solutions in shipping and distribution."

Although shipping makes up a small proportion of Nestlé's overall carbon footprint, the company is committed to reducing the impact of its logistics services as part of its path to net zero.

Fuels made from waste offer a reduction of at least 70% in equivalent emissions compared with standard options, according to information provided by the shipping companies.

The agreements signed with Hapag-Lloyd, Maersk and CMA CGM cover half of Nestlé's shipping volumes moved in 2023, with an option to extend into 2024 and beyond. It means that shipping companies will use alternative fuels to move an equivalent amount of tonnage in their operations this year.

Christine CABAU - EVP Group Assets and Operations - CMA CGM, said, "We are very proud and happy to have set this agreement with Nestlé, one of the first of its kind, whereby shippers and beneficial cargo owners (BCO) commit to decarbonise the globality of the Scope 3 shipping emissions. This initiative proves that there are some existing solutions to decarbonise Scope 3 of BCOs. These constructive solutions are already available with CMA CGM to accelerate on this path."

Stainless steel panel PC

Interworld Electronics has released the new generation ViTAM-924B 23.8" IP66/IP69K Stainless Steel Panel PC from APLEX Technology.

Like other models in the ViTAM series, the ViTAM-924B is a stainless steel panel PC solution with a wide range of features suitable for industrial applications where hygiene and sanitation are of serious concern, including food and beverage manufacturing. This new generation panel PC is powered by an 8th Generation Intel Core i3-8145UE/Core i5-8365UE onboard CPU and supports up to 64 GB DDR4 RAM.

The ViTAM-924B is fully enclosed with SUS304 (optional SUS316) stainless steel which provides anti-corrosion, anti-bacteria, and anti-oxidation protection, making it durable and rugged, even when it is exposed to harsh conditions. It also features IP66/69K water and dust protection, a fanless design, and M12 connectors for the I/O ports, which helps to prevent any water, dirt or grime entering the system. It is also able to operate under a wide temperature range (0~50°C) and is able to resist high pressure cleaning. These industrial-grade features are designed to provide 24/7 reliability, make it easy to clean, reduce maintenance cost, and provide a long-lasting rugged enclosure.

The 23.8" full HD (1920 x 1080) TFT-LCD is seamlessly integrated into the chassis with a true flat front bezel design. The ViTAM-924B also supports projected capacitive touch and high brightness display options. It also has many other options/features that can be customised to suit a wide range of applications.

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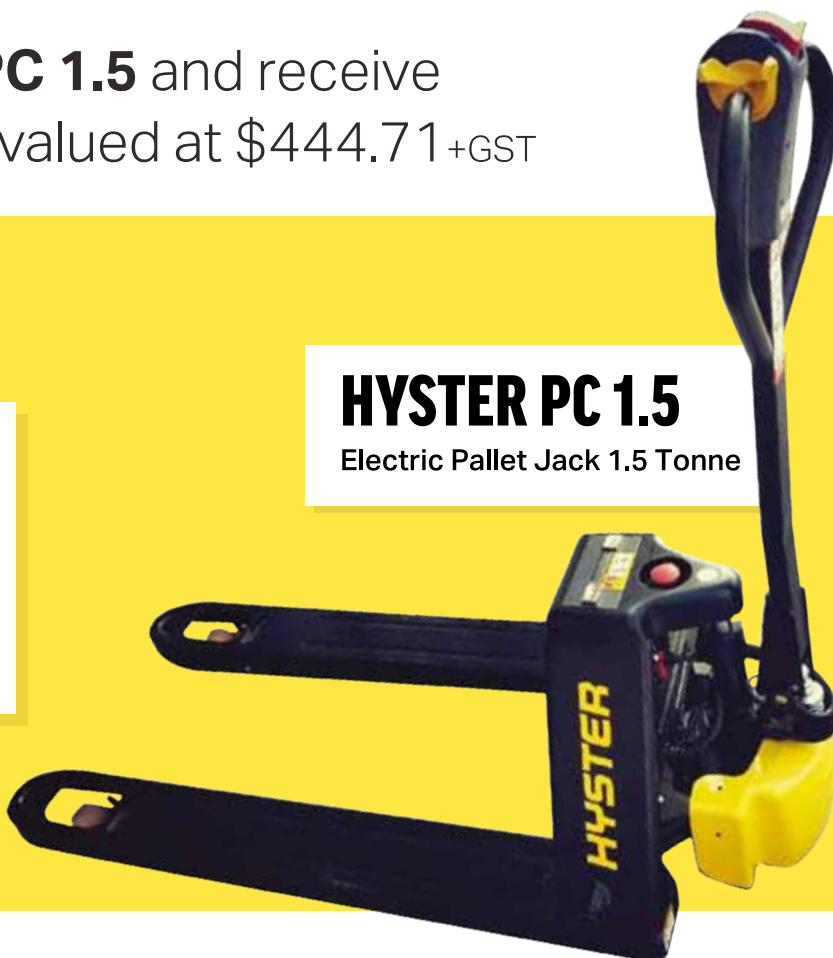
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Norco Lismore ice-cream factory is back

After an 18-month flood recovery process that cost more than \$100m, the Norco Lismore ice-cream factory is officially back in business with 130 employees back on the job and ice cream back on supermarket shelves.

The factory was left decimated by the devastating 2022 Lismore floods, and the uncertainty that surrounded its future proved that it was far more than just a factory to the town and people of Lismore.

With the help of Australian and NSW Government funding, the factory has now been reopened following a year-long rebuild and commissioning process that has seen the 100% farmer-owned dairy co-operative build a more modern and flood-resilient facility than ever before, featuring flood-proof design and technologies that have equipped the site to defend a 15.0 m flood — higher than the 2022 levels.

The 10,800 m² heritage-listed factory sits on 2.279 hectares and operates 24/7, five days a week (midnight Sunday to midnight Friday); a sixth day of operation may be introduced in the future.

The factory is capable of producing approximately 42 million litres of ice cream per year. That equates to approximately 808,000 litres of ice cream a week and 162,000 litres on any given day.

In addition to its own Norco brands, the factory produces ice cream for Australia's major supermarkets and retailers, including five major retail customers in Australia and overseas, spanning over 50 individual SKUs.

Michael Hampson, Norco Chief Executive Officer commented how proud he was about the reopening of the rebuilt factory.



"We understand just how important the factory is to our workforce and the Lismore community and will remain future-focused on continuing to create opportunities for the region, maintaining a strong focus on innovation, jobs creation and investment in people, to create exciting career development pathways from right here in Lismore," he said.

Hampson thanked both the Australian and NSW Governments during the opening ceremony of the facility.

The Federal Minister for Emergency Management, Senator the Hon Murray Watt, congratulated the Norco team and said the reopening was a significant milestone on the road to recovery in the Northern Rivers.

"Norco is one of the region's biggest employers, and seeing the doors reopen will be a big boost for the community," Watt said.

"The Albanese government invested \$20 million directly and close to \$35 million jointly with the NSW Government to help secure the future of Norco's Northern Rivers operations, because of the important role it holds in the local community.

"We're pleased to work collaboratively with the NSW Government and Norco to help keep staff employed and rebuild the factory to be more resilient to future flooding events."

The NSW Minister for Agriculture, Minister for Regional NSW, Tara Moriarty comments: "The reopening of the Norco ice-cream factory marks a huge milestone in the flood recovery efforts for the Northern Rivers.

"As one of the biggest employers in the region, we know how important it is to invest in projects that deliver resilient infrastructure in regional communities so people can stay in jobs and the economy can thrive.

"Our shared goal with the 100% Australian dairy farmer-owned Norco is that in the event of any future flooding event, this investment in the rebuilt ice-cream factory has ensured the business will be able to get back into action quicker.

As Australia's last operating dairy co-operative, the reopening is also welcome news for Norco's 273 farmer members, many of whom are still working to rebuild following the floods.

"Norco is a 100% farmer-owned co-operative, which means that anytime someone chooses to buy Norco, every cent goes back to supporting our farmer members — so seeing Norco branded ice cream back on supermarket shelves offers a strong sign of positivity for those farmers who have been doing it tough in recent times," Hampson said.

CASE STUDY

Industrial chiller for milk bottle production line

Coates Power & HVAC, a business division of Coates, has been able to mobilise an 800 kW industrial chiller to help Visy maintain a vital production line, completing delivery and installation from interstate in 36 hours.

Visy faced a disruption to its milk bottle production line and required an industrial chiller to keep the production going as planned. It engaged Coates Power & HVAC for a suitable chiller to be installed as soon as possible. The company arranged for an 800 kW chiller to be mobilised and delivered from New South Wales to Victoria — a chiller that represented the largest of its kind ever deployed by Coates' South Business Unit. It was installed and up and running within 36 hours.

The chiller was pre-tested by Coates to ensure it was in working order prior to delivery. Onsite, it was craned into position, connected to the fixed plant services and



commissioned. Soon after, the chiller had the production line back up and running, delivering cold water into the site's chilled water storage tank.

"We got the call on Wednesday afternoon, delivered Thursday and had a Coates chiller operating by Friday morning; we turned it around in 36 hours from time of order," said Paul De Villiers, Business Development Manager for Coates. "The launch of Coates Power & HVAC equips us with a range of services and equipment that we can deploy to minimise the impact of critical plant failures impacting production in the manufacturing sector. This is a great example of being able to deliver and install vital equipment quickly to get things back up and running for our customers."

Coates Power & HVAC was launched earlier this year to provide turnkey solutions for power, compressed air, climate control and process cooling, with a range of custom-built equipment and end-to-end service and support. The company's solution is designed to help keep an organisation's operations running, from temporary systems and short-term bridging solutions to long-term strategies. Suitable for use in industrial, engineering, mining, oil & gas and manufacturing environments, the product should also be of interest in regional areas.

Coates
www.coates.com.au/

NEWS

Driver safety initiative for the dairy industry

An Australian road safety initiative designed to reduce dairy tanker rollovers has been delivered, with a catalogue of multimedia training resources now complete.

Following research which revealed that dairy tankers were 2.4 times more likely to be involved in a major crash than other freight-carrying heavy vehicles, the initiative was developed by Australian transport and logistics insurance specialist NTI and partially funded through the National Heavy Vehicle Regulator's (NHVR) Heavy Vehicle Safety Initiative, supported by the Australian Government.

Training resources for dairy carriers and drivers are now available, featuring a report, videos and training modules.

Chris Hogarty (pictured), NTI's Executive General Manager – Strategy & Supply Chain, said the resources were the culmination of nearly two years working with key stakeholders in the Australian dairy supply chain and targeted research.

"Dairy tanker rollovers not only endanger the lives of drivers but can also lead to negative environmental impacts that, because of the specific challenges of cleaning and contamination, can be more detrimental than oil spills," Hogarty said.

The research involved developing an understanding of the unique conditions that made dairy tankers more susceptible to tipping, such as load volume, road conditions and tanker dynamics. To do so, researchers filmed milk inside a tanker as it was being driven and built a see-through model truck, allowing

researchers to understand how the milk moves and how shifting weight impacts stability.

"We're thankful for the wide industry involvement in this project — dairy companies, equipment manufacturers and transport operators have all worked with us to identify key areas that needed addressing. The resource pack will help fill those gaps and is designed to be integrated into already-existing driver training," Hogarty said.

In support of the initiative, the 2023 National Accident Research Centre (NTARC) report, produced by NTI, focused solely on dairy tankers, with data from 2019–2022 showing the leading cause of single vehicle rollovers was speed.

"It's important to note when we talk about speed in this regard, it does not mean 'breaking the speed limit' — even at low speed, as we now know, milk tankers can roll," Hogarty said.

"Speed represented almost a third (32%) of all major incidents for dairy tank rollovers in that time, compared to 13% of regular freight. Our research showed, in a high proportion of major incidents (16%), dairy tanker drivers were 'not at fault'. That's compared to 12% of crashes involving other freight vehicles."

NHVR CEO Sal Petrocchio OAM said the initiative is helping address a safety gap in the transport and logistics sector.



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Lightweight PET bottle for liquid dairy products

Sidel has launched a small, lightweight PET bottle for liquid dairy products.

The mini size has been designed for products such as drinking and probiotic yoghurts with capacities between 65 to 150 mL and is suitable for ambient and cold chain processes. The bottle is also suitable for applications within the juice, nectar, soft drinks, isotonic and tea sector.

Manufacturers can benefit from PET's sustainability credentials. The new preform design is qualified for 100% rPET content and also enables a low blowing pressure below 15 bars.

The bottle is available with a range of creative options including different formats and shapes; one-shot or multi-serve consumption; the use of white or transparent PET; multiple graphics and textures; and a range of bottle necks and caps. It is also compatible with roll-fed or sleeve labelling.

The new bottle size is compatible with the company's Aseptic Combi Predis FMA aseptic solution with dry preform decontamination.

Similarly, the bottle is also suitable for high production speeds with up to 66,000 bottles per hour.

Sidel Oceania Pty Ltd
www.sidel.com



LoTo valve locking during maintenance of aseptic processes

GEA now also equips the aseptic double-seat valves of the Aseptomag range with lockout-tagout (LoTo) devices. The Group is thus expanding its range of safety devices for process plants with valve technology. LoTo devices are mechanical locking systems that isolate machinery from potentially hazardous energy sources prior to maintenance or servicing activities.

Inadequately secured process plants are often the cause of accidents in production. If machines are switched on without authorisation during maintenance, the stored energy, be it hydraulic pressure, compressed air, gas, steam, electrical energy or fluids, can be released and significantly damage the operating personnel and the equipment itself. Since the GEA Aseptomag double chamber valves act as a transfer points between process steps, they can be used to control the plant's energy supply and secure it with LoTo.

For the aseptic double-seat valves, LoTo also comprises a mechanical lock (lockout) and a visual tag (tagout): The double-chamber valves GEA Aseptomag DK are equipped with a modified valve actuator that includes a special lantern and piston rod extension for the socket pin. To safely lock the valve, the operator inserts the socket pin into the lantern opening until the metallic stop is reached. This so-called disk lock principle prevents any movement of the actuator and valve disk. A red safety clamp around the threaded ring indicates that the subsequent process area is locked. In addition, a padlock is used for seamless identification and documentation.

GEA had already introduced the LoTo system for hygienic valve technology in 2021 and is now expanding its range to include the entire valve portfolio. Dairies, beverage, food and new food manufacturers that process products at the highest level of hygiene can thus secure their plants consistently with LoTo.

GEA Group
www.gea.com

Filters for process safety

Camfil offers a complete range of ProSafe filters designed to comply with the strict demands on safety, traceability and control in the food and beverage or life science industries. Explicitly designed for process safety, all HEPA classified ProSafe filters are thoroughly tested before they leave the factory to eliminate potential leakage.

The quality of the raw material is tested and developed according to precise specifications with resistance tested to chemicals used for cleaning and decontamination processes in cleanrooms. Free of harmful chemical components such as formaldehyde, phthalates and Bisphenol-A, all ProSafe filters are packed individually in hygienic bags.

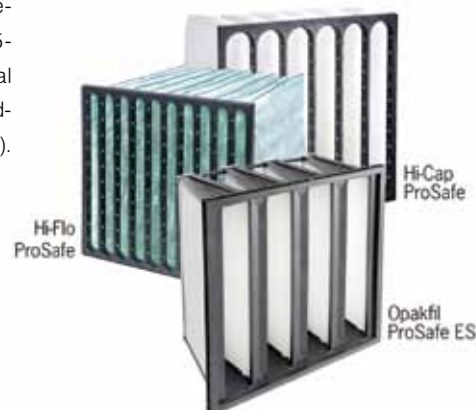
The Hi-Flo ProSafe is a pocket filter with high efficiency, used for air-conditioning applications and preparatory filtration in cleanrooms. It has an optimised pocket design for energy-efficient air distribution.

The Opakfil ProSafe ES has been designed to fulfil the strict safety requirements for preparatory filtration of air for cleanrooms in the most energy-efficient way.

The Hi-Cap ProSafe is suitable for preparatory filtration of air in cleanrooms. It features rigid self-supporting pockets designed to remove the largest particles.

For air-conditioning applications and filtration preparation of cleanrooms, the ProSafe range is designed for process safety, with food contact certificates for the materials used for frame parts, frame potting, gasket and filter media (according EC1935-2004) and antimicrobial growth certificates (according ISO846 and VDI6022).

Camfil Australia Pty Ltd
www.camfil.com.au



Texturising solution for dairy challenges



The Australian dairy industry is constantly evolving and innovating to meet ever-changing consumer demands. One thing that remains a priority is the consumer expectation for clean label* as a given.

Consumers associate clean-label products with being natural and healthier for them. 85% of Australian consumers aim to eat healthier food and beverages more often or will continue to do so¹. Over the last three years dairy products with clean-label claims in Australia have grown by 14%².

The increased consumer demand for cleaner labels can be particularly challenging for formulators.

Tate & Lyle has been expanding its CLARIA Clean Label Functional Starches range to provide solutions to meet the unique needs of food manufacturers. A recent addition to its portfolio is the CLARIA EVERLAST range, which can provide texture and mouthfeel in a range of applications, such as fruit preparations, which require stability in extended chilled environments. The range is designed to balance functionality and stability with clean-label credentials, labelling simply as Tapioca starch, which can help manufacturers tap into the clean-label trend across wider application categories.

The processing challenge

Starches used in chilled dairy products help provide texture, body and creaminess. Dairy process conditions such as UHT (ultra heat treatment) or homogenisation require process-tolerant starches to provide the right mouthfeel and texture. In fruit-flavoured yoghurt, the fruit preparation is also a challenging application. The high solids content, combined with the natural acidity of fruits, low pH, plus extended cold storage conditions can create a difficult environment for standard clean-label starches to function effectively.

The CLARIA EVERLAST range has been developed to match modified starches in terms of process tolerance, storage stability and inclusion level, meaning they are suitable for a host of chilled or frozen food preparation applications.

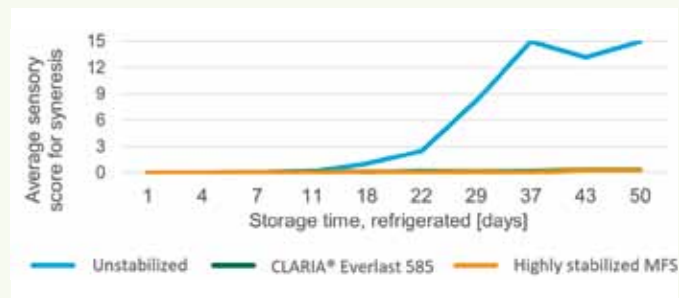
Consumers are increasingly looking for products without artificial additives — 30% of Australian consumers say ‘all-natural’ claims influence their yoghurt purchasing decision.¹

This functional starches range is made from tapioca or corn, so can be labelled as ‘corn starch’, ‘tapioca starch’ or simply ‘starch’ to help maintain a product’s natural credentials.

The most crucial factors for consumers when choosing dairy products is taste and appearance so the functional starches range has been designed to have a clean taste and colour that is particularly suitable for dairy products.

The clean-label product line can provide good stability and flavour in a broad range of process conditions. CLARIA EVERLAST 585 provides process tolerance and stability suitable for Australian-style yoghurts.

In testing, yoghurt with CLARIA EVERLAST 585 did not show signs of syneresis throughout refrigerated shelf life.



Data sourced from Tate & Lyle research.

The dairy landscape will continue to evolve and bring latest trends for manufacturers to consider, along with new challenges. No matter the application or the challenge, the CLARIA EVERLAST range is designed to help users create dairy products with great taste and texture as well as a clean label.

For more information, visit <https://www.tateandlyle.com/ingredient/claria-functional-clean-label-starch>.

*Clean label includes one or more of the following attributes: organic, natural, non-GMO, no artificial sweeteners, no artificial flavours, no artificial preservatives — Mintel GNPD 2017–2022

1. Tate & Lyle Proprietary Research, 2022 Global Consumer Ingredient Perception Research Australia
2. Mintel GNPD



Air filters

Camfil Absolute V-shaped air filters provide extra-high-efficiency final filtration in air-conditioning systems, housings and diffusers for systems that require a very high airflow and low pressure drop.

Absolute V filters are usually used in make-up-air or recirculation units as a final HEPA stage to protect terminal HEPA filters in cleanrooms. They can also be used in exhaust air to help remove harmful ultrafine particles, whether chemical, biological or radioactive.

The range is available in filter classes E10 to H14, with an MPPS of 85% to 99.995%, and is suitable for very high airflows greater than 3400 m³/h. The media is pleated using Camfil's patented controlled media spacing (CMS) technology for optimal airflow and media performance. Together with intermediate hot-melt separators, the product is designed to ensure uniform pleat spacing and the ability to form a rigid self-supported media pack. The product's gasket seal is a seamless polyurethane foam gasket applied to its flange that is designed to eliminate the risk of air bypass.

The Absolute V family includes Absolute VG and Absolute VE. Absolute VE features an enclosing frame of galvanised sheet metal that forms a rugged and durable enclosure. Absolute VG is made from lightweight plastic and is completely fire combustible upon disposal.

Each Absolute V filter is individually tested and certified to EN 1822 with a separate scan test protocol and serialised on the product label.

Camfil Australia Pty Ltd
www.camfil.com.au

Fruit and vegetable sizing and grading systems

Key Technology has added new features to its Rotary Sizing and Grading Systems. The range, which includes the Precision Size Grader (PSG), Rotary Size Grader (RSG) and Sliver Sizer Remover (SSR), enables vegetable and fruit processors and packers to mechanically size and grade product while removing small pieces, debris and other targeted material. The systems are now available with optimised rollers, lubed-for-life bearings and drive covers.

New grooved rollers on the SSR facilitate the same throughput as traditional SSRs but with more precise product grading. PSGs retrofitted with the new grooved rollers achieve the same precision as traditional PSGs but with higher product separation efficiency. Suitable for wet potato strips and other cuts, with more applications in development, the grooved rollers are available as an option on new SSRs and as a field upgrade for installed SSRs and PSGs.

New lubed-for-life bearings, now standard on Key's PSG, RSG and SSR and available for retrofitting, include a permanently lubricated stainless steel insert and newly developed blue polymer housing made from EC1935-compliant material.

An updated cover for the PSG, RSG and SSR features a singular latch mechanism instead of bolts, allowing easier access to the drive system, adjustment system and bearings for cleaning and maintenance. Additionally, perforations on the side of the cover provide better visibility while the cover is closed and enable an operator to spray through the perforations during routine cleanings.

Available in widths from 61 to 201 cm, the systems can achieve capacities from lower than 1.8 to more than 20.4 metric tons per hour.

Key Technology Australia Pty Ltd
www.key.net





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Turnkey systems drive HRS business growth

Matt Hale, International Sales & Marketing Director, HRS Heat Exchangers



Clients in the food sector are increasingly looking for turnkey solutions for their thermal processing challenges, rather than creating their own lines using a range of components from different suppliers.

Since the pandemic, as a company we have seen significant sales growth around the world, with turnover increasing more than 60% in 2022 compared to the previous year. In terms of volume, component orders remain our core business; however, the number of full systems we are commissioned to produce is increasing every year and now accounts for the majority of turnover.

Most of the demand for complete systems comes from the food and drink industry, but we are also seeing a strong interest in systems for wastewater treatment, as well as specialist applications such as anaerobic digestion and zero liquid discharge.

Global trends

One reason for increasing interest in complete lines and systems is a move towards greater automation — something we see from food manufacturers across the globe. One survey showed that almost two-thirds of food and drink manufacturers planned on investing in automation or robotics in the last year. Two of the biggest driving factors are that automated integrated solutions improve quality control and traceability.

Every transfer between machines or lines introduces the potential for error or losses, so complete lines which have an integrated

design make sense. Keeping ingredients and products together improves efficiencies and enhances food safety, while minimising the potential for human-related errors or contamination. Automation also makes it easier to ensure product consistency time-after-time, batch-after-batch, for even complicated recipes.

Having integrated lines and systems also reduces the number of checkpoints required during manufacturing, while also helping with

record keeping and traceability. Not only do automated traceability systems remove the potential for human error, but they also reduce worker stress and can help to reduce the costs associated with safety compliance in the workplace. An integrated system can centralise data from multiple sources to make it easier and quicker to find what you need.

Complete lines also reduce food waste, a key agenda for manufacturers driven by both economic and environmental considerations.



Many systems can be skid-mounted for easy installation



HRS is seeing increased demand for complete line solutions, particularly in the food sector

Not only is the potential for physical waste during production reduced, but so too is the likelihood of out-of-specification product which then has to be destroyed or reworked. The same recording systems which provide product traceability can also be used by production staff to check against inventory and stock levels, providing another way to monitor and reduce waste.

Right first time

Each product is designed to meet a client's individual needs and specifications. While this can increase the development and production period, it also means that our customers get the right system first time around.

HRS Engineering Manager Alejandro Lopez explains: "The average length of a typical system project from order to commissioning is between 20 and 26 weeks. We design and build each system to the client's exact specification, and we also see each system through the commissioning phase. This can mean travelling anywhere in the world from our manufacturing base in Spain, although we are increasingly seeing clients opt for remote commissioning, which we are happy to facilitate.

"Our most popular systems are for pasteurising juices, similar to those in the fruit growing area near our manufacturing base in Murcia, Spain. However, we are also seeing strong demand for our R Series rotary scraped surface heat exchangers, particularly in Australia and New Zealand. Energy recovery,

which can reduce energy consumption by 70–80% in juice processing, is increasingly popular and we are designing more systems which incorporate this. "In the last few years, we've completed a number of other systems. For example, those which contain tanks, aseptic filling stations, clean-in-place kitchens, preparation areas and more. We are actively looking to grow our systems department and have recruited additional engineering staff to accommodate this."

Systems for every need

HRS can offer clients a range of modular or turnkey system solutions, such as our Asepticblock pasteurisers and sterilisers which combine heat treatment, aseptic filling, and clean-in-place capabilities in a single system, and which can be skid-mounted for easy installation. Other systems for the food and drink sector include deaeration systems, ice crushers and melters, direct steam injection sterilisers and dedicated CIP and SIP kitchens. We also provide trial systems for conducting product and processing trials before committing to a final production solution.

Many system solutions are based around our key products: component heat exchangers and other products (such as hydraulic piston pumps) which underpin our whole business, and we continue to invest in product development and innovation in all these areas.

Turnkey system case study: Fruit juice processing

HRS supplied a complete sterilisation and aseptic filling solution for a leading specialist in fruit product processing and logistics located in Murcia, Spain. With the capacity to process up to 300,000 litres of fruit juice per day, the main products include concentrated juices such as lemon, orange, and mandarin, grape and peach, and some mixed fruit juices.

The first part of the system sterilises the product in an HRS Thermblock steriliser featuring a multi-tube heat exchanger. The product is pre-heated in a buffer tank to 48°C, then passes through a deaerator to mitigate oxidation which would spoil the product. It is then heated to pasteurisation temperature (around 92°C) for one minute to kill any bacteria, before being cooled to 31°C to preserve quality.

The sterilised product is then placed into sterilised bags within drums using an HRS Aseptic filler. The two-headed design ensures continuous operation, with the product placed into 200 litre bags inside a drum at a rate of 12,000 litres/h (60 drums/h). Once full, the drums are then transported to final customers across Europe and the United States.

The client's Plant Manager comments: "The HRS aseptic plant was designed and optimised to exactly meet our needs and we are very satisfied with it. It's simple to use and manage, does exactly what it was designed to do and is extremely reliable. We have had no problems with it since it was installed. The engineering involved is excellent and I would definitely recommend both the system and HRS as a company."



HRS Heat Exchangers Pty Ltd
www.hrs-heatexchangers.com/anz

Modular oven

Marel ModularOven+ provides customisable oven technology that allows processors to begin with essential features and add more capacity or features as needed, such as transitioning from 500 to 900 kW heaters.

The oven has two separate zones, each with independent controls for temperature, dewpoint and air speed. This provides versatility for two different climates, whether for steaming, cooking or roasting. For example, one tower may be used for high-dewpoint steaming while the other is used for high-temperature, low-dewpoint roasting.

Equipped with an air regulation system featuring high-tech diffusers and multiple temperature sensors per zone, the oven is designed to ensure optimal airflow, even heat distribution and ideal moisture content. This results in a consistent core temperature and reproducible quality, irrespective of variables like time of day, belt position or oven loading. The system is designed to enable lower core temperature averages, leading to shorter cooking times and significant energy savings. The combination of separate climate zones and air regulation can result in up to 6% higher yield compared to other comparable ovens.

Integrated SmartBase software allows processors to proactively analyse performance, identify areas for improvement and pinpoint potential issues before they occur. This internal digital engine offers the opportunity to (remotely) monitor the health of the oven and allows for (remote) support by Marel. SmartBase goes beyond visualisation of the extra data it retrieves on the dashboard. Combined with predictive, standardised maintenance, SmartBase can reduce unexpected downtime.

Marel

www.marel.com



Class 0 oil-free compressor

Kaeser Australia has released the latest class 0 oil-free compressor, which is suitable for sensitive processes such as pharmaceuticals, food and beverage, health care, chemicals and other specialised engineering applications.

Recently launched in Australia, the CSG.1 rotary screw compressors have air flow rates ranging from 4 to 15 m³/min and pressures up to 11 bar. They are available with a choice of air- or water-cooling, and users can select an optional integrated refrigeration dryer or an i.HOC (heat of compression) dryer.

The range can be specified as a fixed speed, fixed flow rated machine or, for applications with fluctuating compressed air demand, variable speed controlled 'SFC' versions are available with IE5 Ultra-Premium Efficiency synchronous reluctance motors.

The risk of potential product contamination by oil from the rotary screw compressor is evaluated and minimised by means of an HACCP (Hazard Analysis Critical Control Point) analysis. Process validation is made easier for the user, as KAESER's diligence is confirmed by the TÜV Rheinland in the form of a residual oil class 0 certificate in accordance with ISO 8573-1.

The range has also been certified according to ISO 22000:2018, which covers the manufacture of food and beverage equipment. To further formalise the supply chain's integrity, users can also option the CSG.1 with Pharmaceutical, Food or Engineering Industry Certification Packages. Additionally, users can request certification that the machine is free of silicone contamination, as per VW PV 3.10.7.

Kaeser's patented, energy-efficient Sigma Profile rotors now feature a wear-resistant PEEK coating, which results in an air end that will exhibit no air flow loss during its lifetime. Developed in-house, the special coating has three layers: nanoceramic, PEEK basecoat and topcoat. This coating is biocompatible, FDA-certified and compliant with European requirement VO 1935 for food contact materials, making it suitable for use in the food and pharmaceutical industries.

Kaeser Compressors Australia

au.kaeser.com



Industrial fryer

GEA has launched its ProFry industrial fryer system, which is suitable for fried foods such as meat, fish, vegetables, poultry and tempura. The system is designed to focus on sensitive areas in the production process using its patented oil circulation and conditioning system. It also includes data transparency and traceability features, collecting process data from several data points in the machine.

The system is designed to give better control of the oil condition and achieve up to 30% better oil flow compared to its predecessor. It automatically collects data from within the machine and establishes the precise oil condition, replacing the need for manual sampling; alerts the operator to any divergence from optimum levels; and allows adjustments to be made, inline, without stopping the machine. The automated, inline oil measurement is GEA-patented.

Using the control system, frying oil can be maintained at a constant level by topping up with new or used oil as required. For some applications, it may be possible to match the volume of top-up oil with that taken up by the product, and so run the machine almost continuously, with minimal need for cleaning.

Other features include: the system is equipped with scrapers and filters to remove sediment from the oil; the hood and kettle have been redesigned not only by making them stronger and more stress-resistant but also better insulated; and there are five models: 5, 6, 7.5, 9 and 11 m long, each available with 650 or 1050 mm-wide belts.

GEA Group

www.gea.com

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Top five benefits of using AI for food manufacturing

Stephen Dombroski, Director of Food and Beverage Markets, QAD

The innovative benefits of artificial intelligence (AI) go well beyond the technology industry. This technology can transform a variety of industries, from health care to retail to education. Food manufacturing and the food supply chain are no exception to the benefits of this technology. AI enables food manufacturers to improve their operations by improving quality control and food safety, enhancing its efficiency and more. Here are the top five benefits of using AI in food manufacturing and the food supply chain:

1. Supply chain visibility and traceability enhancement

Maintaining and building consumer trust while ensuring food safety is critical for food manufacturers, and this starts with food supply chain transparency and traceability. Internet of Things (IoT) devices, an example of AI technology, are equipped with end-to-end traceability for consumers to access their food products' origin, processing and transportation information. Additionally, using blockchain technology along with AI protects data integrity while ensuring immutability and minimises the risk of fraud and counterfeit products entering the marketplace.

AI analytics also markedly enhances a company's supply chain transparency and can boost its response time to issues. Analytical insights made by AI can identify unauthorised substitutions or even unauthorised suppliers.

2. Boost production process

Machine learning algorithms, a subset of AI, can analyse a vast amount of data collected from historical records, sensors and production lines in the manufacturing facility. With this large data set, the algorithms can identify patterns to optimise production parameters, leading to an optimised food manufacturing process and improvements to production efficiency. Furthermore, AI algorithms can improve product turnaround time, reduce costs and increase productivity by boosting production schedules, inventory management and supply chain logistics. AI can also enhance predictive main-

tenance to ensure that equipment is being used to maximum efficiencies and productivity.

3. Advance food safety and quality control

Undoubtedly, gaining consumer trust is paramount for a company's success — and earning that trust starts with meeting consumer expectations and federal regulations by ensuring food safety and prioritising quality control. Systems enabled with AI technology can detect anomalies and deviations in real time to decrease the risk of spoiled or faulty products hitting store shelves. Moreover, with AI's computer vision technology, manufacturers can perform automated visual inspections, leading to the highly accurate identification of defects and foreign objects in the product. AI algorithms can also monitor critical control elements, such as temperature and humidity, to protect storage conditions and avoid costly mistakes like food spoilage. Documentation is critical and is frequently reviewed by government agencies and regulators. Artificial Intelligence can be used to ensure that documentation is continuously updated, meeting the current standards.

4. Assists in product development and enables personalisation

Consumer preferences are changing almost daily. They want and are almost demanding new and innovative products. Through the use of artificial intelligence, manufacturers along with their marketing, sales and development teams can get improved information on what their consumers want. With AI, companies can personalise product selection for their customers. By using consumer data, machine learning algorithms can create food recommendations for each individual, tailored to their unique dietary preferences, allergies and even health conditions. Another benefit of AI is its chatbots and virtual assistants. These virtual concierges can help consumers make smart nutritional choices by using machine learning algorithms to learn about each customer and help them make more informed dietary choices based on their particular needs.



AI can also help manufacturers develop new, innovative products. The AI can learn about flavour preferences, ingredient combinations and current trends. Manufacturers can then leverage these insights to create a product that its customers truly desire.

5. Increases sustainability and reduces waste

As food manufacturers move towards sustainability, reducing food waste is becoming a significant priority, and AI offers a new way to achieve this goal. Reducing food waste must start with predicting demand more accurately; companies need to look at more than just historical sales data to increase accuracy. AI algorithms can handle more data than older planning methods, making it easier to include additional data, such as customer preferences and weather patterns. Improving their demand forecasts will lead companies to better inventory management and production planning, meaning less overproduction and excess inventory, ultimately decreasing food waste.

Furthermore, AI can help streamline a manufacturer's distribution processes. By analysing trends and data of the current marketplace, AI enables manufacturers to make informed decisions to optimise routes by reducing transportation and fuel consumption, leading to a sustainable future.

Futuristic technology solving today's challenges

Using AI today can lead to an optimised future for the food industry. The technology will only continue to advance and will pilot companies that capitalise on the solution to new heights of success. Those companies that do not embrace this new technology are at risk of being left behind. To stay ahead of ever-changing customer demand and to create a safer and more sustainable food chain, food manufacturers and company leaders should welcome the innovative technology of AI.

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Sanitary ultrasonic flow meters

Bronkhorst has released its new generation of ES-FLOW Ultrasonic Flow Meters for low flow rates of water, additives and other liquid substances.

The flow meters measure volume flow from 2 up to 1500 mL/min with higher precision, high linearity and low pressure drop, using ultrasound in a small-bore tube. The instruments are liquid-independent, thanks to the unique measuring principle in which the actual sound velocity is accounted for in the flow calculations. Thanks to the combination of a straight sensor tube with zero dead volume the flow meter is self-draining.

The flow meter with orbital TIG-welded flanges is CIP cleanable, and now meets 3-A sanitary standards for hygienic applications. Wetted parts are made of stainless steel, the exterior design is rated to IP66 or IP67. The local user interface is a capacitive touchscreen with a TFT display to operate and readout the instrument. For remote operation, Bronkhorst added a variety of Ethernet based fieldbuses to the already available range of analog and digital communication options. The on-board PID controller can be used to drive a control valve or pump, enabling users to establish a complete, compact control loop.

Typical applications for the new low-flow liquid flow meters and controllers can be found in food, beverage and pharma (eg, additives, sterilisation of packages); medical and chemical (eg, catalysts, reagents); and many other markets that require precision fluid-handling.

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Oil-free screw compressor

BOGE has improved the energy efficiency of its SO series with the introduction of the SO-3 oil-free screw compressor. The specific power consumption has been increased by 8%.

The newly developed airend of the compressor has low speeds and subsequently low compressor temperatures, as well as a wear-resistant design. The integrated IE4 drive motor also contributes to its efficient and cost-effective operation. The efficiency is further increased by the cooling system that has low compression and output temperatures. While the screw compressor is compact, the components are still easily accessible for maintenance purposes. Specific sound insulation measures have been implemented to reduce noise levels. The compressor is available with frequency control and heat recovery, as required.

Other features include the large control range, quiet and maintenance-free operation and the option to recover heat from hot water temperatures of up to 90°C. It is also equipped with the optional service tool BOGE connect.

Suitable for applications from the pharmaceutical and food and drink industries through to the textile industry, mechanical engineering applications and industrial coating companies, the screw compressor is designed for applications that require large quantities of high-quality, oil-free compressed air.

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CASE STUDY



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Determining meat quality with AI

New Zealand red meat co-operative Alliance Group (Alliance) has partnered with MEQ to roll out artificial intelligence technology designed to identify eating quality in beef and lamb across its plant network.

The 100% farmer-owned co-operative strives to create the best market value for its red meat and co-products, while providing high-yielding meat processing when its farmer shareholders need it.

The partnership will allow Alliance to use MEQ's lamb and beef probes, which are powered by machine learning and artificial intelligence to measure the intramuscular fat (IMF) levels in lamb and marbling percentages in beef.

The technology is designed to provide a real-time view of the eating quality of the meat produced across Alliance's plant network. IMF and ageing are believed to be the two largest contributors to the sensory experience when eating quality meat.

The probes have been industry-accredited by AUS-MEAT and use a combination of spectral analysis and AI to measure IMF in a carcass at the beginning of processing to capture a 'fingerprint' within a loin muscle.

The solution is designed to provide the co-operative with objective measurable data to give farmers visibility about the quality of meat they are supplying, enabling farmers to make informed decisions about breeding programs and feed, leading to more sustainable livestock management.

Alliance has been trialling the technology at its Smithfield (Timaru) and Pukeuri (Oamaru) plants over the past nine months.

Willie Wiese, Alliance chief executive, said, "Quality farming and quality processes are integral to Alliance's promise of delivering only the best red meat to the world.

"Our farmers are always hungry for detailed information about the quality of their animals because ultimately higher IMF and marbling readings translate into greater returns for them and the co-operative. In pasture-based livestock production systems, IMF has a strong correlation with polyunsaturated fat including Omega fatty acids. High IMF levels represent healthy fats, which are good for nutrition."

MEQ technology will enable Alliance to deliver IMF feedback to farmers, which can provide benefits across the supply chain and to end users.

"It will enable us to build up and scale our premium programs, which is a growing part of our business, and allow us to further differentiate our product offering to target consumers," Wiese said.

MEQ's probe technology does not require carcasses to be chilled to measure IMF or marbling. This will give Alliance more time to determine cut design plans and optimise carcass value and allocation into branded ranges. The technology therefore saves on chiller space and reduces energy consumption.

Remo Carbone, MEQ CEO, said his company was pleased to be providing Alliance with real-time, data-backed insights.

"Our AI-powered technology is unique in the way that it slots in seamlessly within processors' existing infrastructure, but monumentally increases optimisation from herd and mob management all the way to chiller space at the point of carcass breakdown — the information gathered by the probes has transformative implications for each stage of the process."

Meet the pH challenges in food and beverage applications



Thanks to breakthrough X-Chip™ technology, InPro X1™ pH sensors are unbreakable*, enabling in-line pH measurement in applications with the highest product safety requirements.

Measuring in-line enables better process control, leading to higher product quality and increased yield. InPro X1 sensors are sanitizable using standard industrial processes without the need of expensive and maintenance-heavy retractable equipment. The InPro X1 complies with all relevant standards for the food and beverage industry and can be easily implemented with the same Standard Operating Procedures valid for glass pH electrodes.

Typical pH measurement challenges in the food and beverage industry

pH measurement is used in a plethora of industrial processes for monitoring product quality, increasing process efficiency, ensuring plant safety or monitoring wastewater.

Until recently, glass-bulb pH sensors provided the most reliable measurement performance. However, challenges with glass electrodes correlated with their need for frequent calibration and poor mechanical strength has limited their use in the production of beverages, dairy products and other foods.

Regular maintenance of pH sensors is necessary for maintaining measurement reliability: cleaning to prevent fouling and build-up of material that can interfere with sensor performance, and calibration to correct for measurement drift. It is exposure to high temperatures (cleaning-in-place) and/or harsh

conditions that cause the most drift of a pH sensor's measurement signal, therefore shortening required maintenance intervals. The more often maintenance on sensors is performed, the higher the operating costs. A pH sensor failure due to glass breakage will, in the best case, cause production downtime. At worst it can lead to expensive rework or even discarding of an entire production batch because of contamination of the product with glass splinters. Understandably, in the food and beverage industry, the use of in-line glass electrodes is only permitted in non-critical processes.

No risk of glass contamination

As a response to industry challenges, METTLER TOLEDO has developed a new technology for measuring pH: the X-Chip.

X-Chip is a fully solid composite pH-sensing element with exceptional mechanical resistance. The X-Chip uses the same potentiometric measurement principle as pH-sensitive glass normally used in pH sensors.

The surface of the X-Chip is in contact with the measuring solution. Here, as in traditional electrodes, a gel layer forms where H⁺ ions can diffuse, creating a charge the level of which is dependent on the pH value of the medium (the potential of this surface is proportional to the pH of the measurement solution).

In order to have a reliable measurement, the inner surface of the sensor's pH-sensitive layer has to be kept at a stable potential, this way the difference in potential between the two surfaces is only dependent on the pH value of the measurement media. In traditional electrodes this fixed potential is achieved by filling the glass bulb with an inner buffer which maintains a constant pH value.

The X-Chip achieves the same result without any liquid buffer. Instead, it is a



Figure 1: Food-Safe, CIP Resistant, In-Line pH. The InPro X1 HLS is a digital, food-safe, in-line pH sensor that withstands clean-in-place processes. The sensor's unbreakable X-Chip technology eliminates the risk of glass contamination.

composite material with different solid layers. Diffusion bonding ensures perfect adhesion of all layers, and as a result, the X-Chip is mechanically very stable and cannot shatter. As with traditional glass electrodes, the X-Chip design features a reference electrode to enable it to measure pH precisely.

To find out more about this breakthrough technology, email info.mtaus@mt.com, go to mt.com or call 1300 659 761.

* The InPro X1 has passed the US military's MIL-STD-810H drop test.

METTLER TOLEDO

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Traceability and food safety: 7 optimisation opportunities

By Marel

Do you want to produce safe nutritious food with greater product variety and be able to trace your products all while increasing yield, improving throughput level and reducing giveaway? Then start looking at the following seven food processing areas and consider which ones can be optimised — every detail counts.

1. Are you maximising the shelf life of your products? Every process counts when it comes to raw materials with limited shelf life.

Moving raw materials between production areas and different processes needs to happen fast. A highly automated production line reduces processing time with multiple benefits to the value chain. Here, the use of intelligent technology can greatly improve efficiency and safety in material handling and throughout the rest of the system.

A set-up that ensures no contact between raw materials and the end product, as well as minimum manual handling,

will lower the risk of contamination as well as help extend shelf life, maintain nutritional properties and support food safety. You can raise efficiency further with a quality control system that monitors performance and responds quickly to any deviation.

2. Could your quality control be improved?

Every piece of information counts in an industry that needs to meet the highest standards.

In every food processing plant, quality control is crucial to ensure safety, hygiene and traceability while also meeting the demands of authorities, customers and consumers.

A quality control software application collects and integrates quality control inspection data, enabling users to increase the quality and value of processes and products. With cross-correlation of multiple data streams, users will get rapid, cost-effective means of quality assurance — totally paperless and automated.

Smart, data-driven processes can address quality issues immediately, so users don't have to deal with problems further down the line or on completion of an order.

3. Is your production flexible and fit to evolve?

Every demand counts, whether it is new products, new features or something else. A flexible food processing set-up is geared towards constant changes in the market.

There is an increase in demand for flexibility in regard to larger product mixes, smaller series, shorter production runs and last-minute orders. Often a customer will make a change to their order at short notice, and the raw material's quality may have changed from when they originally placed their order.

Flexible production lines and planning tools can help to both predict what to produce and ensure reliable production. Users of these tools will be able to respond to fluctuations in supplier or customer conditions and raw material flows, depending on the product being made, as well as any demand or schedule changes, all in real time.

By improving agility, users can also increase factory uptime and yield by minimising changeovers and enabling flexible scheduling. If users integrate analysing software into processing, they can investigate data in real time and make immediate, informed decisions to refine production systems.

4. Are your products traceable?

Every step of the journey counts: from farm to fork, sea to supermarket. Consumers are demanding reliable information about their food's origin and production throughout the supply chain.

Consumers have a growing desire for information about their food. They want to know all the details of what they are eating: its origin, its nutritional value and its safety standards. Various degrees of traceability are also required to comply with general food laws and control regulations. The technology to meet these requirements effectively is always improving.

Providing detailed product information may seem impossible for individual products. However, with thorough data collection and advanced software to analyse the data, processors have a strong backbone of food safety information to tackle this challenge. With a traceability engine built into the production process, users will be able to record each step of a product's journey, from source to production, processing and distribution.

5. Are inaccuracies affecting your throughput level?

Every minute counts when you want to run an optimal production and reduce downtime.

Data can reveal a great number of 'pains' in a factory and help identify opportunities for improvement. With food processing software, users will be able to gather, store and manage the data generated across the full line and beyond. This will even provide information such as yield, throughput, capacity and labour efficiency. Data can also highlight recurring problems with issues like equipment functionality to show which specific area needs attention, which helps with scheduling maintenance proactively.

With the right production data, users will find it easier to identify ways to reduce downtime and increase throughput, which can in turn help with the development of new products and processes, thereby opening up new revenue streams.



*A highly automated production line
reduces processing time with multiple
benefits to the value chain.*



6. Is ineffective manual handling reducing your yield?

Every deviation counts and even small inaccuracies in production flow matter. Automating manual processes can make a plant much more productive.

Naturally, you want to make the most of every cut, and you want your employees to work in the production line where they create the most value. If your production suffers from inaccuracies or inconsistencies in manual handling, automating processes can help to reduce labour costs and maintain product quality.

One way to optimise production is to automate some of the manual processes. A dynamic workforce that comprises humans and machines working collaboratively can make operations more productive. Gradually, automated systems can take over the repetitive and intensive manual operations, and human interference will only be required for process control and adjustment.

If skilled workers are limited, automation can also help to fill this gap.

7. Is your production reducing giveaway?

Every gram of meat, poultry or fish counts if you want to increase yield, have happy customers and sell products at the most profitable price.

Is your production mainly focused on just one premium product, while the remaining parts have to be sold at low prices? When you know how to find the balance between incoming material and customer orders, your operations will have much more added value and your process will become more sustainable.

From primary processing to deboning systems and portioners, every system can be designed to salvage every last profitable piece of meat, poultry or fish in the production process. This can help to gain extra grams per product and add value to the offcuts.

The key is also to be able to act on any surpluses or shortfalls and use a set-up that allows for change processing programs from one product to another. In instances like this, an automated process is more flexible than a manual one.

What also counts

In order to transform the way food is processed, we must make everything count towards more sustainable food production. We want to supply consumers around the world with safe, quality, affordable food, while respecting nature and making its limited resources last.

Making everything count is nothing new. Butchers, fishermen and farmers have been working with this mantra since the beginning of time. As feeding, breeding and preparing involved lots of hard manual work, it was about getting as many edible parts out of the product as possible. Marel has always respected this heritage and we continue to work on the same foundation: all our equipment and solutions mimic the manual operations of yesteryear's skilled butchers and labourers.

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In comparison to a conventional IE3 asynchronous motor, one single IE5+ synchronous motor is said to reduce emissions by around 0.15 t CO₂ per year. In large systems, for example in intralogistics with hundreds or even thousands of drives, this adds up to an even bigger saving.

The product was created as an 8-pole synchronous motor in an IPM design. This reduces the size of the motor's active components, which not only results in material savings in the sheet metal package but also in the magnet material. In the course of material savings, it was also possible to reduce the proportion of rare earth elements in the magnet material.

With 8-pole synchronous motors, the stator can be manufactured with the so-called single-tooth windings. As a result, valuable material such as copper is only used where it is actually productive, and inefficient use in the winding head is reduced.

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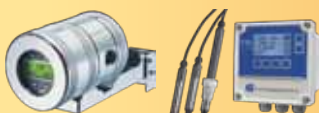
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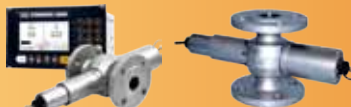
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Compact mass flow and density meters

Emerson has introduced the Micro Motion G-Series line of Coriolis mass flow and density meters, which is available in a smaller and lighter form factor. Compared to traditional volumetric flow meters, it provides direct mass flow measurement, immunity of process temperature/pressure changes and advanced process and health diagnostics.

Emerson also introduced the Micro Motion 4700 Coriolis Transmitter, adding new capabilities for use with its Micro Motion family of Coriolis flow meters. The transmitter can be retrofitted to most existing Micro Motion sensors, and ordered with all new meters, including the new Micro Motion G-Series. The combination of these two new products provides a good solution for chemical and other industrial applications.

The flow meters are suitable for chemical plants that need to improve safety, reduce energy use and minimise emissions. They are available with Pressure Equipment Directive (PED) and Safety Integrity Level SIL 2 and SIL3 certification, and are designed to meet NAMUR NE 132 guidelines.

Hygienic models will also be available in the first half of 2024 for food and beverage, life sciences and other applications where 3-A or European Hygienic Engineering & Design Group (EHEDG) certification is required.

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CASE STUDY

Beer bottling centre installs canning line

In 2022, the Rittmayer Hallerndorf Brewery, one of Germany's oldest family-owned breweries, celebrated its 600th anniversary. The company brews roughly 30,000 hectolitres of beer annually and operates as a co-packer for both smaller and larger breweries in its filling centre.

For 20 years, Rittmayer has been filling an array of beers (up to 100,000 hectolitres a year) into a total of nine different bottle shapes, making it one of the largest contract bottlers for beer in its home region. The centre mostly serves small, privately owned breweries in Upper Franconia.

In response to a growing trend in the beer sector, the brewery's filling centre is being expanded to include beverage cans.

Managing Director Georg Rittmayer said cans will help boost the company's sustainability. "The can doesn't weigh much, it boasts a high recycling rate and does not entail any losses in quality," he said.



The canning line has also been configured for small batches, allowing the brewery to fill volumes as low as 15 hectolitres per beer type, which especially benefits the small, private brewers in this region as well as breweries offering many specialty beers.

The company opted for the Craftmate C filler from Krones that has a compact layout.

The Rittmayer Brewery already uses Krones technology for its bottling line, which features a Krones bottle washer, filling system and labeller.

Besides quality and optimal use of the limited space available, short changeover times are important for the brewer because it processes small batches, a vast array of different beers and many different can formats.

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

CASE STUDY



Pet food company manages its carbon pawprint

Rockwell Automation is providing an energy management software solution to Real Pet Food Company across four of its production facilities in Australia. The solution, which will be delivered by Rockwell's consulting arm Kalypso, will be designed to help the company enhance energy efficiency and reduce carbon emissions.

Real Pet Food Company produces pet food brands such as Nature's Gift, Farmers Market, Ivory Coat and V.I.P and supplies major Australian supermarkets.

The business is currently measuring its energy management using spreadsheets and clipboards, which results in decentralised and disconnected information, and a lack of real-time management.

"Turning this manual data entry into a digital solution will provide Real Pet Food company with better visibility of its energy consumption linked to production data, allowing it to identify optimisation opportunities," said Rockwell Automation Regional Director – South Pacific Anthony Wong.

According to Real Pet Food Company's Head of Sustainability, Jarrod Edgecombe, "Real Pet Food Company has a renewed focus on sustainability, with a new strategy in place involving a focus on a Fresher Future and put into action through the philosophy that Every Pawprint Counts. The partnership with Rockwell is transforming our data availability to ensure that we see an increase in the volume and the quality of data. These two factors are critical to underpin our decision-making in real time and enable our journey in decreasing energy intensity and carbon footprint through our operations."

The Energy Management software can integrate directly into Rockwell Automation's ThingWorx IIoT platform. ThingWorx is part of Rockwell Automation's FactoryTalk InnovationSuite, powered by PTC, and allows users to connect, manage, monitor and control diverse automation devices and software applications through one intuitive user interface.

"Once fully installed, the Energy Management software will help increase Real Pet Food Company's energy efficiency, reduce carbon emissions and allow access to real-time operational data for reporting and audits," Wong said.

"The software was developed in part by local software engineers, so the Australian teams from both Kalypso and Rockwell Automation had extensive experience to draw upon when creating the optimum sustainability solution for Real Pet Food Company."

Rockwell Automation Australia
www.rockwellautomation.com/en-au.html



Tasting the Success of Operational Excellence: Poppy's Chocolate

Background

Poppy's Chocolate is a Queensland chocolatier, specialising in crafting exquisite chocolates and confections. Poppy's Chocolate has become synonymous with high-quality ingredients, artisanal craftsmanship, and a dedication to creating delectable flavour experiences.

The Challenge

Poppy's has been growing steadily and implemented a number of changes to support the growing business. Migrating to more robust and reliable digital systems and introduction of customer service agents to increase customer service, Poppy's has over 300 active SKUs with around 70 high-volume lines.

The scheduling system used a manual trigger which feeds into a digital system for the weekly schedule. The schedule then drove the planning decisions for the following week. The scheduling system was struggling to keep up with demand and needed to be redesigned.

With 150 SKUs of raw materials, the control of raw materials was also unstructured

with a weekly stocktake triggering the replenishment process, which was very manual and time consuming.

The Solution

A Kanban system was developed to effectively manage inventory, both incoming and outgoing, enabling tracking of finished goods production and the procurement of new raw materials. To familiarise the staff with the new visual management system, each team member received concise shopfloor coaching sessions.

To achieve a balanced production flow, a visual scheduling system for chocolate manufacturing was introduced. Additionally, TXM Senior Consultant, Justin Tao, implemented the TXM Lean Daily Leadership Process (LDLP) by utilising visual management boards displaying key metrics from previous days and weeks. Daily stand-up meetings were also introduced to foster a culture of continuous improvement.

The Results

Lynda and her team are now able to reliably fill orders quicker, more accurately and with

less resources. Some of the tangible impact included:

- Achieved increased operational efficiency enabling a reduction in the number of operators from 11 to 5.
- Improved capacity to meet client orders during peak periods such as Christmas and Easter holidays.
- Implemented visual management schedules and standardised work processes, resulting in enhanced system comprehension and usability.
- Implemented production levelling and supermarket practices to effectively manage inventory, mitigating issues related to stockouts and overstocking.
- Leveraged the visual management system and implemented Lean daily meetings to significantly enhance team performance.

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The SMC ITV series range of electro-pneumatic regulators/electric vacuum regulators provides stepless control of air pressure in proportion to electrical signals. The range has recently received an IIoT upgrade to include IO-Link functionalities.

The series provides dynamic control of air pressure by means of electrical signals. It is compact and lightweight, with integrated LED display and an IP67-rated enclosure to protect against water and dust. It also offers energy savings with a power consumption of 4 W or less.

With a sensitivity range of 0.2 kPa, linearity of $\pm 1\%$ or less and a hysteresis of 0.5% or less, it is compatible with communication models like CC-Link, DeviceNet, PROFIBUS DP, RS-232C and IO-Link.

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IoT gateway edge computing system

Backplane Systems Technology has introduced iBase's AGS101T IoT gateway edge computing system. The compact, fanless system is powered by the Intel Atom x6212RE/x6414RE processors.

Equipped for 5G readiness, it includes a dedicated M.2 B-Key 3052 slot that supports a 5G module, ensuring high-speed wireless connectivity essential for IoT applications.

The device also has an array of I/O options, including 2x RS232/422/485, 2x full-size Mini PCI-E, 2x USB 3.1 and 2x USB 2.0 ports. For display connectivity, it offers 1x DVI-I and 1x HDMI ports.

Able to operate in temperatures ranging from -20 to 70°C, the device has over/under/reverse voltage protection and a wide-range power input, making it suitable for diverse industrial settings.

Backplane Systems Technology Pty Ltd

www.backplane.com.au



Screw compressors

BOGE S-4 screw compressors are the expanded fourth generation of the S series, covering a power range from 45 to 160 kW.

The model is characterised by quiet operation and efficiency values. Compared with the previous model, the compressor's energy consumption has been reduced by up to 12%, while the free air delivery has been increased by almost 9%. The S-4 models are equipped with IE4 motors and permanent magnet motors that can also be operated in environments with extreme temperatures above 45°C.

The compressor can be managed by BOGE airtelligence provis 3 control, which allows the management of an unlimited number of compressors and accessory components depending on consumption. Via the Modbus interface module, the airtelligence provis 3 can also integrate compressors from other manufacturers.

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EtherCAT slave I/O module

The ICP DAS EC2-P32 is an EtherCAT slave I/O module that comes with 32 isolated digital inputs, providing a flexible solution for various industrial applications.

The EC2-P32 supports the EtherCAT protocol, which allows real-time control and seamless integration within an industrial network. Its 2 x RJ-45 bus interface is designed to ensure optimal connectivity, and the support for daisy chain connection simplifies installation by allowing devices to be linked in sequence.

It has a removable terminal block connector and a built-in isolated 32-channel digital input. A low-pass filter adds to the signal integrity, filtering out any unnecessary noise.

LED indicators for input status allow users to monitor the device's operation, enhancing diagnostic capabilities. The maximum distance between stations can reach up to 100 m (100BASE-TX), offering further flexibility in installation and set-up.

The device has passed and been verified by the conformance test tool. This makes it easily manipulatable by eligible EtherCAT Master or configurators, allowing for straightforward implementation across various applications.

ICP Electronics Australia Pty Ltd

www.icp-australia.com.au

lab
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SCIENTIFIC

Who is
LabCo
Scientific?



labcoscientific.com.au/food

How Handtmann protects the environment and saves money in the dairy and food processing industry

A case study

In the bustling world of food production and distribution, every detail matters. For Parmalat S.p.A., a renowned global player in the food industry, the need for efficient and eco-friendly solutions is paramount. Producing a wide range of everyday essentials including milk, dairy products, and fruit beverages, Parmalat always seeks ways to optimize their processes. Enter Handtmann — a name synonymous with innovation and sustainability in food processing equipment.

THE CHALLENGE: ensuring processing equipment is thoroughly cleaned, particularly in processed cheese production. Traditionally, this required a two to three percent caustic solution, which once used, was usually discarded.

THE SOLUTION: Albert Handtmann Armaturenfabrik GmbH & Co. KG. With their expertise in recycling and innovative crossflow system, Parmalat can now recycle dirty caustic and return it for re-use, reducing caustic consumption and thus reducing costs.

The Handtmann CF (crossflow) system is a triumph of environmentally conscious technology. The system filters and purifies the caustic solution, returning it to the central tank, creating a cost-effective and eco-friendly recycling closed loop process. Thanks to this system, Parmalat significantly reduces its chemical waste and costs, conserves water consumption, most importantly reduces discharge to wastewater treatment and energy cost for reheating new caustic batches. Connecting a CIP to a buffer tank is only one option. Alternatively, the customer

can operate without a tank or connect multiple CIPs to a single tank.

Crossflow Process, Single Tank with connection to one or more CIP Units

Transform your operations and move toward sustainability with the Handtmann System — **a revolution in filtration efficiency.**

With a remarkable filter efficiency of 99%, a mid-sized Handtmann system can process approximately 20 cubic metres of contaminated caustic into pure filtrate daily. Handtmann isn't just a solution for Parmalat; it's a game changer for various industries. From southern Germany's processed cheese production to countless other applications, the Handtmann system is proving its worth.

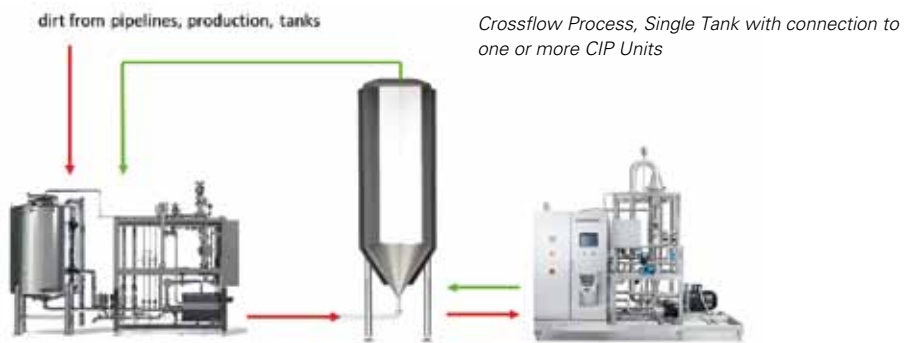
One of our satisfied customers required that the caustic loss should not exceed one percent — a demand met effortlessly by the Handtmann system, but we didn't stop there.

A bigger Handtmann system was set to a filter capacity of 5.000 litres per hour. Even more impressively, we've managed to permanently reduce the COD value (Chemical Oxygen Demand) over 68%, maintaining it well below the limit of 3,500 mg/L set by the relevant wastewater authority.

Imagine a filtration system that works around the clock, seven days a week, and completely automated. A system capable of operating independently, or connecting to other systems via a central, overarching parent system. A system that ensures continuous operation even in the face of unexpected tank failures. This is the reality with Handtmann's Crossflow Filter Technology. At the heart of Handtmann's CF system lies the ceramic membrane, a powerful component that can be utilized for microfiltration or ultrafiltration, up to a best case separation limit of 5 kDa (kilodaltons), based on the task at hand. This robust membrane navigates the filtration process with such ease that the alkaline solution passing through it at a temperature of approximately 60 degrees Celsius is a testament to its prowess.

So, what about the Future? Parmalat and Handtmann continue to collaborate after installing Handtmann systems for caustic regeneration in five of nine Parmalat's Italian plants in 2021 and 2023. The Handtmann system is more than just a piece of equipment; it's a solution that meets the demands of today and the challenges of tomorrow. It's a testament to the power of innovation and the importance of sustainability in the food industry.

The CF system's capabilities extend beyond its impressive operational efficiency. The ceramic module within the system boasts high thermal and chemical resistance,



making the CF filter technology not only suitable but also exceptionally durable for corrosive filtration in the food and beverage industry. Our case studies with long term customers demonstrate this durability, with the ceramic membrane performing reliably for more than 10 years so far without exchange. Maintaining peak performance is simple, by weekly descaling of the ceramic module with acid. During this one-hour process, the CF system is temporarily disconnected from the plant. But rest assured, this short break is the only pause in the system's otherwise relentless operation.

Today, Handtmann's revolutionary technology is being transferred from the German and European market to global leaders in the food and beverage industry, dairies, and processing production. As regulations for environmental protection increase, and caustic concentrate prices

increase, the need to use resources sparingly and sustainably has never been more crucial.

Experience the Handtmann difference firsthand. Now available in Australia & New Zealand to buy or rent for tests. **Discover how Handtmann's technology can benefit your business.** After all, every step towards a more sustainable future is a step in the right direction. It's not just a product, it's a promise for a smoother, more efficient, cost effective and sustainable operation for your business.

Need more? contact:

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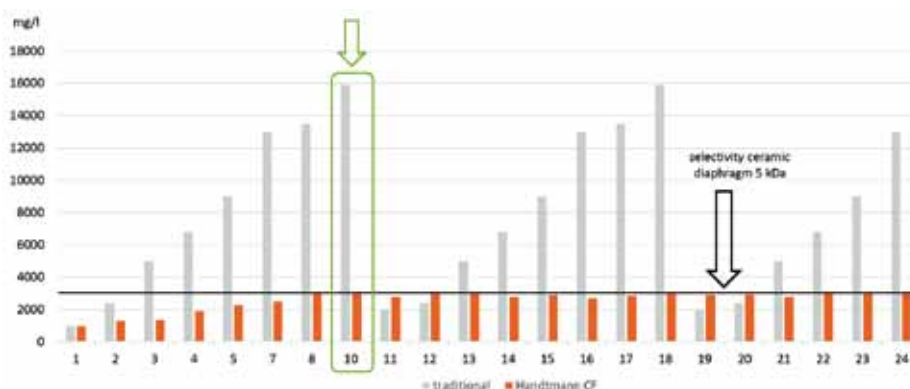


Sandy Ross

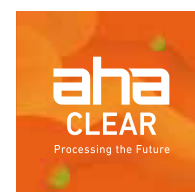
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Crossflow Filtration Unit and ceramic membrane, 5 kDa



Cross Flow COD Data of Ultrafiltration. Traditional lost caustic vs. Handtmann Filtration



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Prinova Europe Limited

www.prinovaeurope.com

Flavour strains for non-alcoholic brewing

Chr. Hansen has added two new flavour strains to help brewers meet the growing demand for non-alcoholic beer options.

With the addition of NEER Poly and NEER Punch, the SmartBev NEER technology range now comprises three distinct *Pichia kluyveri* yeast strains, each selected to bring the full beer experience without the alcohol.

The new strains complement the original strain in its portfolio recommended for a balanced beer, giving brewers an expanded palette of flavours to customise their beers according to taste preferences.

NEER Poly is suitable for a more neutral impact of the yeast, allowing the malt and hops to shine in the beer's flavour profile. It provides a good choice for pilsner, stout and ale beers.

NEER Punch is best suited for a fruity beer as the strain rolls out full ester characters, adding depth and complexity to the flavour. It is suitable for IPAs, wheat and fruit beers.

The new strains have been sourced from the VIB-KULeuven Center for Microbiology.

Chr. Hansen

www.chr-hansen.com





*Insect-derived ingredients from *Tenebrio molitor*.*

Building an industrial-scale plant for insect-derived food

Founded in 2020, Divaks is a food-tech company developing insect-derived ingredients for the food industry. Based in Lithuania, the company has selected the Swiss technology group Bühler to build its first commercial-scale yellow mealworm plant.

The plant is scheduled to go into operation in 2025 and will produce up to 15,000 tonnes of sustainable insect-derived products annually. Bühler will be responsible for planning and executing the plant as well as providing solutions for the entire supply chain.

Following the establishment of its pilot facility in May 2022, Divaks expects to double its production by 2030 in the new facility, which is planned to be constructed on a 10,000 m² site.

In the new plant, Divaks will produce yellow mealworm (scientifically known as *Tenebrio molitor*), which is an environmentally friendly, nutritious protein source that can be used in applications including meat alternatives, sports nutrition, snacks and confectionery as well as pet food. The residue from the mealworm production (or insect frass) will be used as organic fertiliser.

As the technology provider for the plant, Bühler will be responsible for all process technology, which will include feedstock preparation to provide safe, palatable and nourishing feed to the larvae and a fully automated larvae growth system with climate control. Bühler will also provide the processing line to transform the harvested larvae into textured insect proteins (TIP), insect protein concentrates (IPC) and other specialised food ingredients.



Rendering of the Divaks plant.

Divaks CEO and Co-Founder Kęstutis Lipnickas said: “This is a huge step forward for Divaks as we work to establish ourselves as global leaders in high-quality insect-derived ingredients for human nutrition. Bühler will deliver the state-of-the-art technology we need, allowing us to focus on the most important activities: market development and creating sustainable products that excel in nutritional and functional qualities.”

Andreas Baumann, Head of Market Segment Insect Technology at Bühler, added: “We are delighted to have been chosen to provide a full-scope solution for Divaks’ yellow mealworm production site. It reinforces Bühler’s commitment to ambitious targets that will help to mitigate climate change and build a more sustainable food system.

Lipnickas added: “Edible insects have a key role to play as we move toward a more resilient and sustainable food system. Our new facility will help food brands tap into this fast-growing, high-potential sector with high-quality protein ingredients for premium food products.”

Aluminium wine bottles

CCL Container, a North American manufacturer of recyclable aluminium packaging, has released new aluminium bottle shaping capabilities that reflect the profiles of conventional wine bottles.

Designed with CCL Container's BodyShapes shaping technology, the 750 mL aluminium bottles are resealable with a threaded cap that is designed to keep wine fresh. Due to higher thermal conductivity and greater chill retention than glass or plastic, the bottles can cool quickly and stay cooler for a longer period of time than glass or plastic bottles.

The threading in the cap does not contain plastic, making the entire container, which is made from virgin aluminium, 100% recyclable. Despite a wide diameter, aluminium bottles weigh less than glass bottles, making them less expensive to ship. They are also more durable than glass.

Aluminium wine bottles enable wineries to take advantage of expanded creative possibilities in terms of labelling. Multi-colour lithography is available in as many as nine colours, as well as embossing and debossing of graphics and logos, and a variety of other design options and finishes make it possible to create outstanding brand distinction and differentiation.



Compostable packaging

Detpak has released a broad range of compostable, no-added PFAS sugarcane plates, bowls and containers.

The Vanguard range from Eco-Products uses a proprietary formulation to achieve grease resistance without relying on the addition of PFAS (per- and polyfluoroalkyl substances).

The compostable packaging range is made from renewable moulded sugarcane fibre.

Detpak is the exclusive retailer of the Vanguard range in Australia.

Detpak Pty Ltd

www.detpak.com.au



Hygienic packaging system for bakery products

The RRS60 packaging system from Rianta is a fully automatic, modular solution developed for cutting, stacking and packaging bakery products.

The system's new design takes into account the hygienic design guidelines of the EHEDG and the food industry.

The modular design enables good visual inspection and fast maintenance as well as easy replacement of individual modules.

The machine is easily accessible and the use of the latest control and servo technology enables quick format changes via the HMI.

OPTIMA packaging group GmbH

www.optima-packaging.com/en

Palletiser for frozen foods

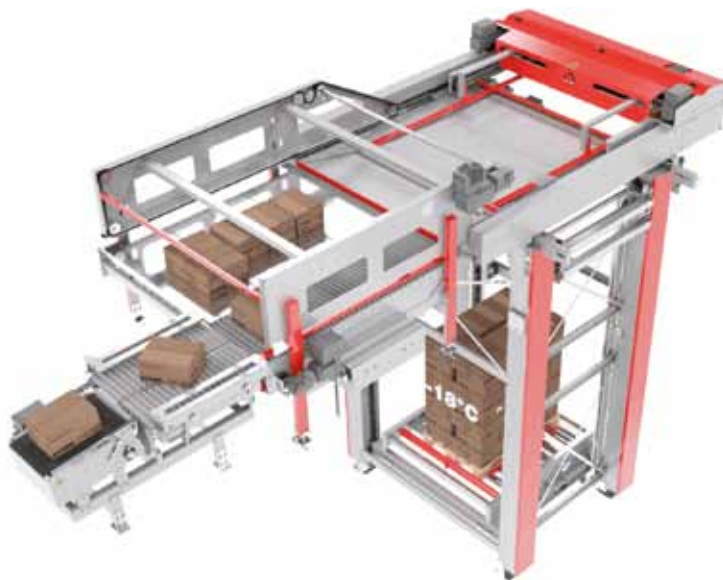
Qimarox has expanded its product portfolio with a palletiser for frozen foods (IQF Products). The Qimarox Highrunner HR8 palletiser is capable of stacking boxes of frozen foods into sturdy and stable pallets, even if they are not form-fixed or not fully filled. The unique pattern generator allows easy generation of new stacking patterns without the intervention of a software specialist.

The patented technology used to form pallet layers makes it possible to adjust the spacing between boxes to the nearest millimetre. As a result, all boxes of frozen products can be stacked, even if they are not completely formable. The palletiser also takes into account the ribs that give the boxes their strength. By placing the boxes with their ribs exactly on top of each other, the system is designed to prevent boxes that are not completely filled from collapsing. The result is a stable pallet that is claimed to require less film than usual.

The low-maintenance system features a smart pattern generator that automatically generates stacking patterns based on the box size.

Qimarox

www.qimarox.com



Recyclable elastic band

Eco-Band elastic bands are made from a TPU rubber-like soft plastic material which is powder-free, latex-free and 100% recyclable.

Available in a range of colours, designs and sizes, the bands have good elasticity and strength. The material is also non-toxic, which makes them suitable to be used for food packaging.

Custom designs can be printed onto the bands, which are designed to have good durability and flexibility.

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Kikkoman LuciPac A3 Sanitation System

The Kikkoman LuciPac A3 Sanitation System is an innovative, new test for hygiene monitoring that offers better detection and higher sensitivity.

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CASE STUDY

Creating a higher barrier paper-based packaging

Afreen Sultana, Clemson University PhD student, is working to engineer higher barrier, biodegradable, paper-based packaging enhanced by cellulose nanocrystals taken from the kudzu plant.

Sultana has been awarded a \$25,000 fellowship from Hitachi High-Tech America Inc. to support her research and the completion of her doctoral degree in food technology.

According to the international Organization for Economic Cooperation and Development (OECD), globally, nearly 400 million tonnes of plastic waste is generated each year, with only 9% recycled.

Paper-based packaging holds promise as an environmentally friendly, biodegradable alternative to petroleum-based plastics. The problem, however, is that paper is permeable to liquids, water vapours and gases, and current packaging often relies on synthetic polymer coatings to protect its contents. It can be challenging and costly to recycle such materials.

Sultana is working to strengthen starch-based coatings by using cellulose nanocrystals taken from the invasive kudzu plant to improve paper-based packaging's resistance to liquids and gases. Sultana extracts from pearl millet for the starch, a summer hay crop that is inexpensive to grow. Using equipment at Clemson's Electron Microscopy Facility, she will analyse materials at the molecular level to fine-tune these biofilms.

In the past three years, Sultana has published nine research publications and has worked closely with packaging industry partners on sustainable packaging research. With this project,



From left: Carl Hodines, Maurilio Martinez and Chris Watters of Hitachi High-Tech America Inc., Clemson Ph.D. student Afreen Sultana, Kohei Soda and Dean Plunkett of Hitachi, Clemson professor Scott Whiteside and Tanju Karanfil, Clemson senior vice president for research, scholarship and creative endeavors.

she is under the supervision of Professor Scott Whiteside in the Department of Food, Nutrition and Packaging Sciences.

Interim Department Chair Feng Chen said, "Developing innovative sustainable packaging materials is currently a hot topic in academia and will have a significant impact on the packaging industry. Dr Whiteside and Afreen's current study on developing starch-based, biodegradable packaging material is one of the possible solutions to reduce the use of non-environmentally friendly plastics, which will not only accommodate contemporary consumers' needs, but also keep our planet cleaner and safer."

The fellowship was established by Hitachi High-Tech America in 2014 to support a graduate student using the Clemson University Electron Microscopy Facility to conduct research as part of their doctoral studies. Sultana is the 10th recipient of the fellowship and the first from the College of Agriculture, Forestry and Life Sciences.

CASE STUDY

Bacardi uses new technology for glass bottles to save emissions

Bacardi worked with glassmaker Hrastnik1860 on a new technology that powered a glass furnace with hydrogen as its primary energy source, cutting greenhouse gas emissions typically produced as a by-product of glass bottle production.

The bottle, which for the purposes of the trials was the ST-GERMAIN elderflower liqueur bottle, is identical in appearance to the bottle produced using traditional methods.

Over the course of the trial, which produced 150,000 of the brand's 70 cL (700 mL) glass bottles, hydrogen contributed more than 60% of the fuel for the glass furnace, cutting GHG emissions by more than 30%.

Rodolfo Nervi, Vice President, Safety, Quality and Sustainability for Bacardi, said the learnings from the trial will be used to create a pathway to hydrogen-fuelled glass production.

"Successfully producing lower emission, premium glass bottles at a commercial scale, with absolutely no compromise on quality, has made all the hard work worthwhile. Like Bacardi, we are committed to developing new innovations that lower emissions while maintaining premium quality. This revolutionary technology proves the two can go hand in hand and we are now taking the first steps in bringing it to market," said Peter Čas, CEO, Hrastnik1860.



Image credit: BusinessWire

APPEX 2024; Sustainability, Efficiency, & Automation for Australian Manufacturers



The must-attend free event for Australian Manufacturers will open its doors in Melbourne from the 12th–15th March 2024 at the Melbourne Convention and Exhibition Centre.

Previously known as AUSPACK, APPEX 2024 is set to be Australia's largest processing and packaging expo for manufacturing, retail and distribution to source the latest in machinery, equipment, materials & packaging, food processing and industry services.

Owned and presented by APPMA; the Australian Packaging and Processing Machinery Association, APPEX is built on a strong foundation laid by 35 years of successful AUSPACK exhibitions.

APPEX promises to deliver a unique and valuable experience not previously seen in Australia, including the largest display of working machinery.

Taking over the entire 20 bays of the Melbourne Convention and Exhibition Centre, the exhibition will be divided into four easy-to-navigate zones; IT & Services, Materials & Packaging, Packaging Machinery and Packaging & Processing Machinery to assist visitors in navigating the products and services they are looking for.

In addition to the main exhibition, APPEX will feature a series of educational and networking events throughout the four-day event, including the debut of the APPEX Women in Processing & Packaging event taking place on Wednesday 13th March.

The APPEX Women in Processing & Packaging event will be an opportunity for all

individuals across the industry to connect and be inspired by influential women leaders in processing & packaging.

Keynote speaker Louise Weine, CEO of NAWO (National Association of Women in Operations), will present on 'Achieving Gender Balance in Packaging and Processing: Systemic Change that Works', to be followed by an in-depth panel discussion.

Tickets to the APPEX Women in Processing & Packaging event are now on sale with all proceeds going to the Good Friday Appeal, raising funds to enable The Royal Children's Hospital in Melbourne to provide world class care to our children.

Another noteworthy feature of APPEX 2024 will be Meat Industry Day, also being held on the 13th March, which is a collaboration between three key industry partners including; the Australian Meat Industry Council (AMIC), the Australian Meat Processor Corporation (AMPC) and Meat & Livestock Australia (MLA). Meat Industry Day will also include an exclusive networking event; an opportunity for the two industries to connect and do business.

The exhibition floor will bring together over 350 exhibitors including Ball & Doggett, who are set to deliver an industry-first 'live experience' with their award-winning ecoporium by Ball & Doggett sustainability platform.

The 'Live Experience' platform focuses on driving education and sharing expert insights from across the supply chain that impact the delivery of sustainable packaging into the industry.

"This is the industry's opportunity to connect with speakers from both international and domestic markets and immerse yourself in content. As the Australian packaging industry navigates a period of unprecedented change, these conversations are more relevant than ever," said Zaidee Jackson, the National BDM in Sustainable Packaging at Ball & Doggett and the driving force behind the award-winning platform.

Speakers across the ecoporium 'Live Experience' program are leaders in their respective fields, spanning design, printing and converting, and manufacturing, including Managing Director of Edison Agency, Amber Bonney, Strategy Director of Denomination Design, Mariella Menato and Commercial Manager of HP, Craig Walmsley. For the complete speaker line-up and timetable visit the APPEX website.

Don't miss out on participating in Australia's largest processing and packaging event, as from March 2024, APPEX will move to a three-year rotation, with its next return to Melbourne scheduled for 2027. Secure your ticket to Australia's largest event shaping the future of the processing and packaging industry.

APPEX 2024 is free to attend, and visitor registrations are now open.

Visit www.appeex.com.au for more information.



Exhibitions & Trade Fairs Pty Ltd
www.etf.com.au

CASE STUDY

Neuroscience for new food product development

Givaudan has established an agreement with neuroscience company Thimus, the developer of the TBox platform that provides an integrated collection of explicit and implicit data for exploring how humans experience food. Givaudan's collaboration with Thimus is the first extensive use of the TBox platform in the world of food, resulting in Givaudan's new program, called 'Food Emotions powered by Thimus'.

Food products are being redesigned to meet new expectations, and sustainability, health, quality and emotion are crucial considerations in this re-invention. Understanding and responding to consumer preferences has never been more important, but there's often a gap between what consumers say and their actual experience and behaviour. Neuroscience may be the key to closing that gap, so a portable tool developed by Thimus is being used to gain a fuller understanding of the consumer experience.

In addition to having consumers participate in a focus group or answer a questionnaire, Thimus's TBox provides participants with a headset to wear during taste tests. The headset records brain signals, which are then processed by validated algorithms to measure four key mental states including frontal asymmetry, engagement, cognitive workload and relaxation. Using proprietary software and a cloud-based database for data analysis and retrieval, the tool is able to deliver insights that were previously unavailable or unreliable.

"Neuroscience has the unique ability to reveal how consumers truly feel about a product throughout the eating or drinking experience," explained Fabio Campanile, Global Head of Science & Technology for Taste & Wellbeing at Givaudan.

Givaudan has used the Thimus technology extensively in several customer projects with successful results. For example, it was used in recent consumer tests on botanical soft drinks, comparing two prototypes. The results revealed that consumers implicitly found one concept significantly more satisfying than the other. The implicit data gathered from Thimus was used to pinpoint a negative reaction during the taste phase in the second product. The team was then able to identify a successful route to optimise the soft drink by improving mouthfeel. In this instance, the problem and its resolution could not have been uncovered by examining declarative data alone.

The technology will gradually be rolled out within Givaudan and will be available for selective customer use in some regions.

Givaudan

www.givaudan.com



Hygiene monitoring system

For food and beverage manufacturers, hygiene monitoring and accurate information are critical.

Microorganisms and organic residue contain adenosine triphosphate (ATP) that can be easily detected to measure the effectiveness of cleaning processes. ATP testing is a widely accepted approach to hygiene monitoring that differs from other methods in that it is rapid, sensitive, quantitative, efficient and simple to use.

The Clean-Trace Hygiene Monitoring System from Neogen provides a complete ATP solution.

The system is both stable and consistent, and with a higher degree of repeatability and lower variability, it is designed for accurate results.

Clean-Trace ATP Tests are simple to use. The long, flexible swabs are designed to get into hard-to-reach areas and come pre-moistened so users can just grab and go.



The LM1 ATP meter features fast time to result and easy, one-handed operation so users can multitask. Its ergonomic design makes testing simple, minimising training time and costs.

To complete the package, the intuitive and user-friendly software turns data into information, helping users make better, more educated decisions so they can take decisive action quickly and confidently.

Neogen Australasia Pty Limited

www.neogen.com



Indulge the taste buds

Consumers are looking for more sweet and indulgent flavours in dairy products.

While the traditional flavours are still a popular choice, consumers are becoming more adventurous, and are open to experimenting with flavours.

Book a meeting with the IMCD team to discuss the future of flavouring in the dairy industry.

Scan the QR code for more information





Can natural alternatives be used for meat preservatives?

The past few decades have seen an extensive search for novel natural alternatives to synthetic chemical preservatives used to reduce the level of contamination of foods by pathogenic and spoilage microbes.

In a study published in the journal *Food Quality and Safety*, researchers from Zhejiang A&F University and Zhejiang University conducted a review and found that natural preservatives can offer a viable alternative to synthetic chemicals in meat preservation.

The natural compounds — including phages and their endolysins, bacteriocins and plant-derived substances — demonstrate potential in mitigating pathogenic bacteria in meat products.

The research highlighted the need for streamlined methodologies and clear guidelines to transition these natural preservatives from the lab to industrial use effectively.

The study makes a strong case for these natural alternatives to synthetic chemicals in meat preservation, particularly emphasising the targeted efficacy of bacteriophages (phages) and their endolysins against specific bacterial pathogens like *Salmonella* and *E. coli*. It also delves into the potential of bacteriocins, which are antibacterial peptides produced by bacteria, noting the requirement for genetic engineering to enhance their effectiveness. Furthermore, the study acknowledges the antimicrobial capabilities of plant extracts and essential oils, while pointing out the challenges they face in practical applications. Lipopeptides, particularly those from *Bacillus* species, are also highlighted for their unique structure and antimicrobial activity.

The study concludes that while these natural compounds demonstrate significant potential in reducing pathogenic bacteria in meat products, their successful transition to widespread industrial use hinges on overcoming challenges related to their efficacy, stability and safety in various food contexts.



Plant-based egg substitute for baked goods

Ingredients specialist Loryma is expanding its wheat-based portfolio with a functional mix that is free of animal ingredients, as well as artificial colourings, flavourings and preservatives.

Vegan, wheat-based Lory Stab is designed to replicate the technological properties of egg or milk in bakery products. Products made with this base ingredient, such as muffins, sponge cakes, cake bases or lava cakes, are claimed to have the typical airy texture, light crumb and consistent pore structure.

Combined with other ingredients such as flour, sugar, oil, water and flavourings, the concentrate can be used to make all types of vegan dough. The result is a viscous mass into which ingredients such as chocolate chunks or fruit can be easily incorporated.



The wheat-based mix is neutral in smell and taste, which allows for individual recipes and a wide range of applications, including muffins, sponge cakes, cake bases, lava and cupcakes. The stabilising and raising components create a loose and elastic crumb structure, which results in the characteristic mushroom-shaped bulge in muffins, for example.

Loryma

www.loryma.de/en/

Sourdough culture study could boost gluten-free options

People with coeliac disease, or intolerance to dietary gluten, may soon have more food options, thanks to an unlikely source: sourdough bread. Penn State and Colorado State University researchers are studying whether bacteria in the yeast starter needed to make sourdough bread might help reduce gluten in other bread products.

Gluten is a protein naturally found in cereal grains such as wheat, barley and rye that can trigger an immune response in people with gluten intolerance and coeliac disease. Gluten intolerances are estimated to affect approximately 7% of the US population, according to the National Institutes of Health. Of this number, 1% suffer from coeliac disease and this number is increasing. In Australia, approximately 1 in 70 have coeliac disease but only 20% of these people have been diagnosed — according to Coeliac Australia.

Funded by a US\$500,000 grant from the U.S. Department of Agriculture, co-principle investigators Josephine Wee, Penn State assistant professor of food science, and Charlene Van Buiten, Colorado State University assistant professor of food science and human nutrition, will not only investigate if sourdough starter microbiomes can detoxify gluten in bread products, making them safe for individuals with coeliac disease, but also whether they can be selected and manipulated to boost bread quality and safety.

Conventional bread dough uses baker's yeast in place of naturally present yeast and bacteria — known as sourdough fermentation, Wee explained. Sourdough bread is made by

the fermentation of dough with wild *Lactobacillaceae* and yeast. Sourdough bread is leavened with 'starter cultures', or communities of naturally occurring bacteria and yeast that are portioned and maintained through a series of passages at room temperature. These communities are collectively known as the sourdough microbiome.

"A study of 500 sourdough starters collected from around the world showed that no two starters are exactly alike, and presently, little is known about the ability of sourdough microbiomes," Wee said. "Outcomes from this work will use whole food microbiomes to develop fermentation technologies that will address the next generation of consumer demands for high-quality 'clean label' products with reduced gluten immunogenicity."

Immunogenicity is the ability of cells or tissues to provoke an undesirable immune response. Clean label means making a product using as few ingredients as possible and making sure those ingredients are items that consumers recognise and think of as wholesome, or less processed — ingredients that consumers might use at home.

"With combined expertise in food microbiology and nutritional biochemistry, our team is interested in characterising the relationship between the sourdough microbiome, bread quality and gluten immunogenicity," Wee said. "We hope the findings of this research will influence functional outcomes of bread quality and safety."

Van Buiten is a Penn State alumna, graduating with a doctoral degree in food science in 2017.

What's new



Gin-based cocktails

Gami Chicken & Beer is adding a trio of gin-based cocktails to its menu. Gin meets tea with a lemon-lime twist in Earl Grey Bliss; soju, honey and Gun:Bae lager blend for the Bee's Nest cocktail; while Yuzu Gin features a citrus-forward cocktail of yuzu, gin and tonic.

<https://www.gamichicken.com.au>

Healthier tuna pouches

John West Protein+ is a range of new tuna varieties available in a shelf-stable 1 kg pouch for convenient pantry storage. The range features John West Protein+ Fibre, John West Protein+ Calcium Rich Tuna in an Olive Oil Blend, John West Protein+ Omega 3 and John West Protein+ Calcium Rich Tuna in Springwater.

johnwest.com.au



Dairy-free custard

COYO has launched a dairy-free vanilla coconut custard. COYO's Dairy Free Vanilla Custard combines organic coconut and chicory root as a source of prebiotic fibre.

<https://coyo.com/au>

Premium cheese range

Beston Global Food Company has launched the high-value Farmer's Tribute brand, showcasing South Australian dairy. The brand features artisan cheese and dairy products.

bestonglobalfoods.com.au/



Gluten-free pasta

Roma Foods has released its Pasta Roma brand, a gluten-free and vegan range packaged in vibrant orange bags.

romafoods.com.au

Ready-to-drink iced coffee

Suntory BOSS Coffee's range now includes the Rainbow Mountain Blend, Iced Caramel Latte, Iced Double Espresso, Iced Vanilla Latte, Iced Latte and Iced Long Black. Suntory Boss Coffee is available at major retailers and convenience stores across Australia and New Zealand.

store.suntorybosscoffee.com.au



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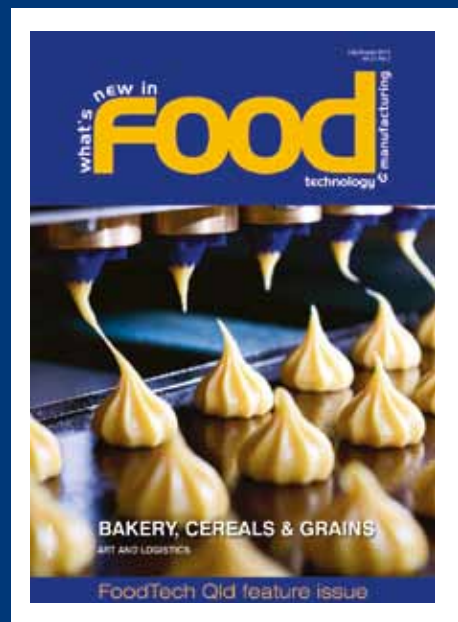
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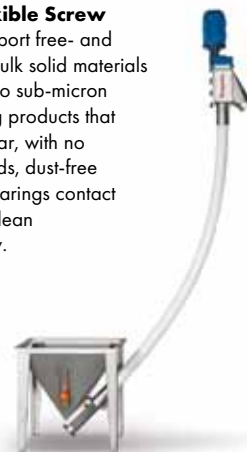
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