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# DIGITALISATION IN THE MIDST OF A PANDEMIC

**THE** food and beverage industry is primed for disruption and innovation right now. The industry trend towards automation and digitalisation has only been accelerated by the ongoing pandemic.

Many businesses are facing challenges operating in this constantly evolving climate. Workforce shortages have proved to be an impediment to production flow for many manufacturers and producers. Increasing regulations and the rapidly changing demands of the end consumer are also key concerns for a business that wishes to stay current, and be future-proof.

Digitalisation could be the key to thriving rather than just surviving.

According to Yokogawa's Head of Digital Innovation Consulting, Ms Alicia Hui, a market survey of the global process industry indicated that 70 percent of companies will transform their business into autonomous operations by 2023. Autonomous operations address current challenges such as workforce shortages. Digitalisation is the driver of autonomous operations.

Digitalisation is not new to the industry. In 2018, we wrote about its benefits to the industry – enabling employee empowerment and enhancing traceability in the production process.

How well then has the F&B industry embraced digitalisation, especially to address challenges brought about by the pandemic?

In our interactions with manufacturers, we hear of automation, enterprise resource planning, and other forms of digital and IT implementations. In this feature, we spoke to key players to find out the benefits, common roadblocks, and concerns facing a business that is undergoing the digital transformation process.

## Digitalisation In A Dairy Manufacturing Company: A Gradual Implementation



**Irenelle T. Medalla, RND**  
R&D/QA Manager  
Dairy Technologies Corporation  
Imus City, Cavite Philippines

**Ms Irenelle Medalla**, R&D/QA Manager in Dairy Technologies Corporation shares her experience during the digitalisation journey.

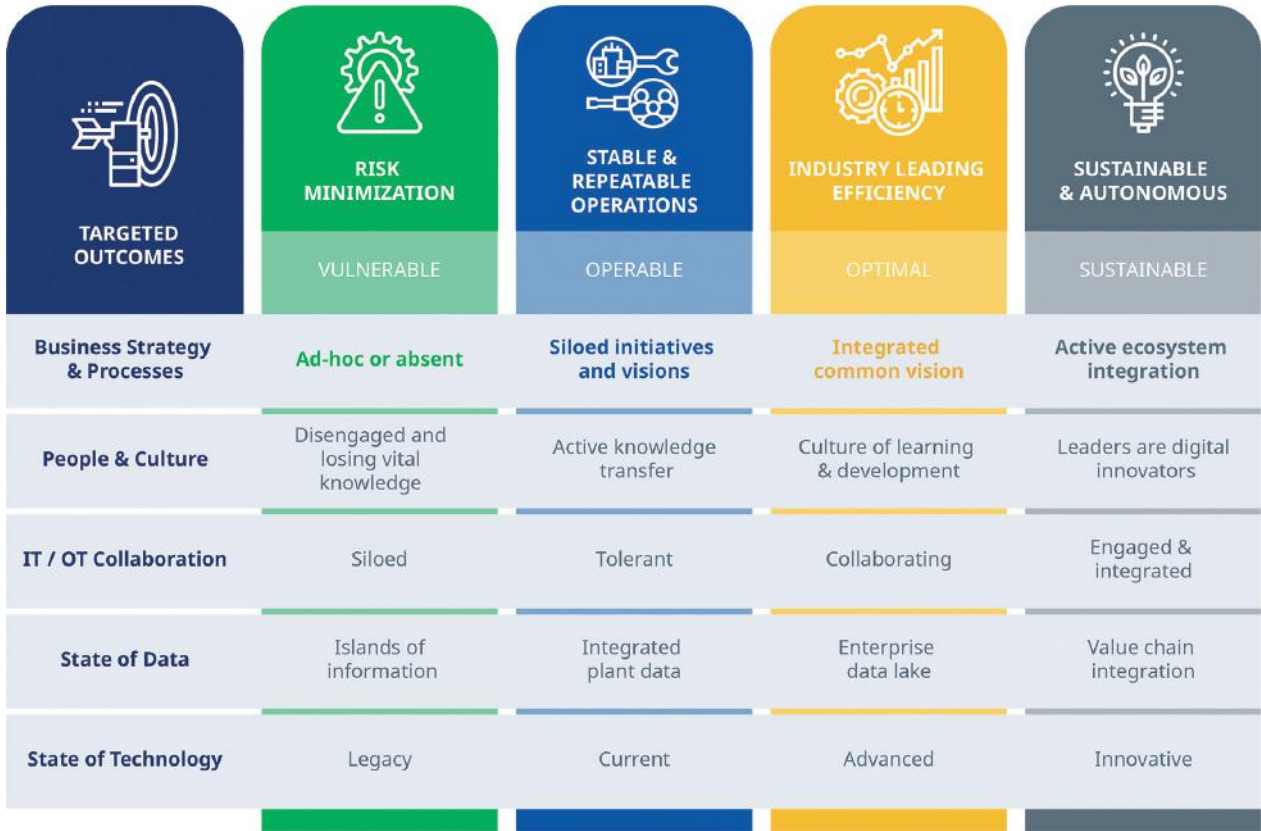
“The need for systemic digitalisation became a priority due to the emergence of the pandemic,” said Medalla. Dairy Technologies opted to convert their existing manual systems into a customised cloud-based workspace.

However, this conversion took months to complete and they had

**The need for systemic digitalisation became a priority due to the emergence of the pandemic.”**

– Ms Irenelle Medalla

# PROCESS INDUSTRIES DIGITAL TRANSFORMATION MATURITY MODEL



Source: Yokogawa Electric Corporation

to find solutions using current available data, previous experience and real-time feedback, to implement the changes gradually. Over the past year, they were eventually able to increase the efficiency of their production lines and their sales figures grew significantly.

We asked Yokogawa’s digitalisation consultants – Dr Darius Ngo and Ms Alicia Hui – to provide their insights and dispel any myths around digitalisation.

## Due to COVID-19, many F&B manufacturers worry about the learning curve of digitalisation and the drop in profits during the period of migration to a new system. How can companies overcome these challenges?



**Dr Darius Ngo:** The example given by Dairy Technologies Corporation is a great summary and starting point. Digitisation of their manual process is a transformative start. With data they collect, they can begin to analyse where to increase efficiency of production lines. Taking a gradual approach to change and working with various functions to overcome roadblocks were probably fundamental to their successful implementation.

There are several areas to consider when embarking on digitalisation, but I will just briefly cover four here.

**1 It is a journey.** First, the approach towards digitalisation is a journey and not a one-off implementation. I believe many F&B manufacturers have misconceptions on this approach.

**2 People matters.** Second, it cannot be seen as a technological implementation alone. Digitalisation has a broad impact even if only applied to production automation. It cannot be done in isolation. From our experience, it is strongly tied to people matters. Sustaining the effort and achieving continuous success at every stage requires backing from senior management and deliberate communications to the workforce.

**3 Build a roadmap and celebrate small wins.** Third, you must know your current state in order to determine your starting point, the areas to focus on, and to plot a roadmap to ensure what you implement today can be compatible to what you envision for the future. A roadmap will also help you identify areas of immediate wins and track your progress in achieving the intended ROI.

**4 No “one-size-fits-all”.** Fourth, your technological implementation has to make business sense. For you to see the effectiveness of your initiative, your technological hardware and software have to integrate with the intricacies of your business and operations. What works for your competitors might not work for you.

We observed many food manufacturers investing in automation and robotics. These are great initiatives to lessen the reliance on production workers, especially in this pandemic. Many of these businesses stop at that. However, Yokogawa sees that as starting points for digitalisation.





The opportunities are many and we understand that the industry has to take care of its bottom line. This is our approach – transformation not for its own sake but for the future of your business.

**To assist businesses in overcoming these challenges, Yokogawa is offering support through an SM/DX Assessment (Smart Manufacturing Digital Transformation Assessment).** We utilise SIRI Methodology to help customers look into 16 dimensions to identify where your gaps are, and customise progressive “change” approaches when transiting to the digitalisation phases.



**Ms Alicia Hui**  
General Manager, Head of  
Digital Innovation Consulting,  
Digital Enterprise Solutions,  
Yokogawa Engineering Asia

**Ms Alicia Hui:** Similarly, to mitigate the learning curve of digital transformation for your employees, change must start from the top management and flow downwards into all aspects of the business. Start by establishing a clear vision and solid business case (benefit justification). Develop a roadmap and appoint transformational leaders and change agents. A strong coordination throughout all levels

of the organisation, and a comprehensive integration and alignment of IT-OT, are key aspects for a successful migration. Lastly, by building a culture of constant learning and supporting change and innovation, you will be able to sustain the transformational process.

**‘Don’t fix what’s not broken’ is a common mentality among manufacturers who refuse to digitalise. What are the dangers of such a thought process in the long run, especially during this pandemic?**

**Dr Darius Ngo:** One benefit that digitalisation provides is the capability towards ‘Predictive Maintenance’, by leveraging

detailed instrument insight. This technique, sometimes called “Condition-based Maintenance”, aims to help determine the condition of in-service equipment in order to predict when maintenance is necessary, in order to generate “cost-savings” over routine or time-based preventive maintenance. This task is usually embedded with a logical insight towards the cost of degradation state of an instrument against the overall production health in generating revenue if it breaks down; quite similar to an individual towards healthcare. Routine health checks will allow earlier diagnosis of any health conditions versus seeing a specialist only when you already contracted a critical illness.

This is especially valuable due to the disruptions caused by a long-drawn pandemic like the one we are going through. Rather than simply survive, a business can thrive by viewing challenges as opportunities. For example, the shifting focus towards dining-in more frequently, provides an opportunity for a food manufacturer to diversify and curate their product offerings accordingly. A condition-based predictive maintenance process removes some of the worries of unforeseen equipment downtime, so you may confidently modify the production process.

Equipment well-being is just one part of the equation of a well-functioning factory floor. A food manufacturer can truly unlock business opportunities when they have visibility of their production line. Central monitoring takes center stage especially with producers that have multiple plants in different locations. Digital systems help to gather and process vital data and provides business intelligence. When you know exactly which raw ingredient, in which plant, will be in excess or shortage, you can make the business decision to divert production to minimise loss.

**Ms Alicia Hui:** A business that is disinclined to automate and digitise may suffer more safety and reliability issues, due to higher chance of human-error and inconsistencies in manual operations. In high-traffic areas, this may also cause non-compliance of safe-distancing measures, resulting in risk of infection and product



contamination. A heavy reliance on only human interventions for day-to-day operations, business analyses, and key decision-making, will create gaps and delays in recognising issues and opportunities alike. Additionally, with an antiquated production system and process that no longer meets standards and expectations, it will be challenging to attract highly skilled new-age personnel to push the business forward. This eventually contributes to inefficiencies, unhappy partners and customers, and a loss of competitiveness against more digital-ready competitors.

**With the ongoing pandemic, businesses are facing logistical issues as worker numbers are restricted. How will digitalisation solve these problems?**

**Dr Darius Ngo:** One area of digitalisation is leveraging robotics to support a more autonomous operation (monitoring and analytics). Our European counterparts are way ahead of us in this arena, both in terms of adoption and the technological enhancements. You can see robots used in various food production processes like harvesting, picking, and sorting.

Obviously, the applications vary with the type of production. A complex production process naturally comes with more challenges. We envision a factory floor run fully by robotics, but the reality is that robots such as grippers cannot handle delicate produce. We are more likely to utilise automated equipment that can sense, weigh, analyse, control, slice and clean. Less manpower is required - so that production is more precise and efficient, and risk of contamination is reduced.

Another interesting application lies in Artificial Intelligence and Machine Learning (AI/ML) solutions that you can put in place on the production floor to alert if safe distancing is not observed.

This is in the area of HSE.

Fundamentally what digitalisation opens up for the industry is in data mining. Applications that are usually embedded with AI/ML intelligence, help to provide more comprehensive information (in visuals or analytics) to the end-user by leveraging BIG DATA to resolve/assist in problem solving, such as quality, wastage, traceability and compliance.

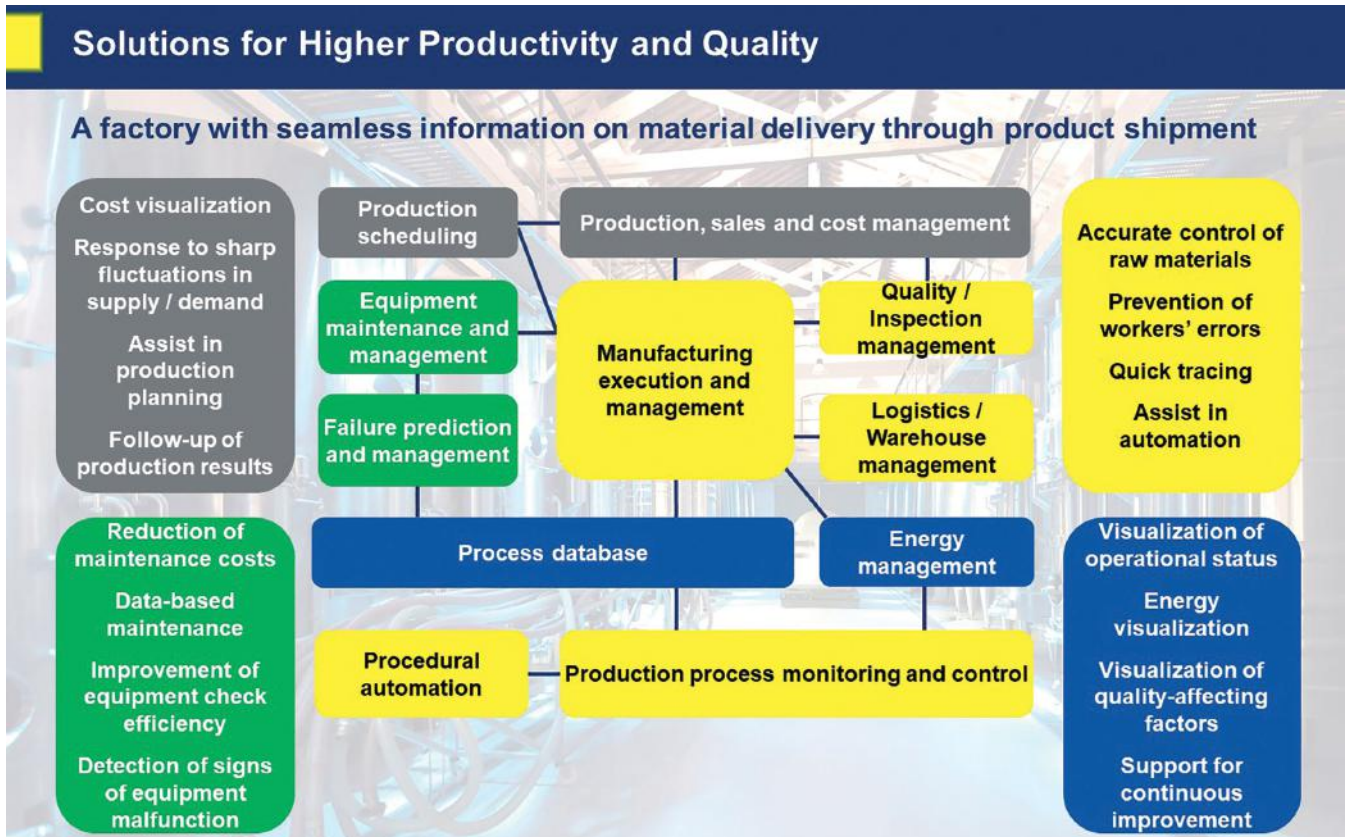
These are all various forms of digitalisation and how it can mitigate the issue of worker shortages. As I mentioned, digitalisation is a progressive journey and not a “one-size-fits-all” solution.

Digitalisation presents a vast opportunity for businesses. It is more than just automation and robotics. We recommend staying current on news regarding digitalisation. New things are being explored every day and the pandemic acts as a catalyst. There are opportunities for cross-industry learning, especially from industries that are more advanced due to safety, compliance and environmental regulations. Digitalisation can be as basic as digitising your process, and as extensive as integrating data from your operations, business, sales, and supply chain.

Start by reading more about how to assess your digital maturity before you embark on it. **APFI**



**Find out more at:**  
[https://www.yokogawa.com/sg/industries/food-beverage/#Details\\_Smart-Factory-IIoT](https://www.yokogawa.com/sg/industries/food-beverage/#Details_Smart-Factory-IIoT)



Source: Yokogawa Electric Corporation



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In 2022, shoppers are seeking out joyful food and drink experiences with exciting colours – while also paying increasing attention to products' impact on their health and the health of the planet. Contributed by Maartje Hendrickx, Market Development Manager, GNT Group.

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COVID-19 has accelerated wellness-related trends, reinforcing the importance of health as a priority, as well as viewing physical and mental well-being as an entire ecosystem. Contributed by Emil Fazira, Senior Consultant at Euromonitor International.



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# Biospringer unveils its new brand identity, reflecting an innovative transformation to create responsible taste in Asia Pacific

At Biospringer, we unveiled a new brand identity. It includes restructuring of our product range, reflecting our brand mission transformation, and a redefined strategy focused on creating responsible taste. Our new brand identity represents a commitment to innovation and to better provide tailor-made taste solutions for our customers and partners in the Asia Pacific (APAC).

## Biospringer: a key player in taste innovation for over 150 years

We have been a key player in taste innovation for over 150 years, with a full portfolio of specialty yeast extracts and yeast-derived ingredients. Thanks to the long-established fermentation expertise of our parent company **Lesaffre**, we are proud to be a specialist in creating food ingredients from yeast. Our mission is simple: **we partner with our clients to create innovative and natural origin ingredients from yeast fermentation, helping to make food tastier and healthier while being reliable and respectful of the planet and people.** At the heart of this mission, taste remains as the priority - the main building block in all our products, innovations, and technologies.



Note: Proteissimo range of product is only available in specific countries. Precursor range of product enables the development of roasted meaty notes during cooking reaction.



## The 360° Wheel of Taste

The 360° Wheel of Taste offers a comprehensive look at our family of yeast products and yeast-derived ingredients. Our new streamlined product portfolio is strongly inspired by our brand promise: at Biospringer, **"We create responsible taste"**.

"It was constructed with a focus on the benefits that each distinct product range brings when developing localized taste solutions in food and beverage formulations. The diversity in taste and intensities of yeast extracts and yeast-derived ingredients can accentuate the taste of numerous sweet and savory foodstuffs, including **sauces, seasonings, snacks, processed meats and seafood, dairy and plant-based dairy, plant-based meats and seafood, and many more**", said Hugo Leclercq, the APAC Innovation and Marketing Director. He further added, "These properties in taste perception are attractive for nutrition purposes, making yeast extracts and yeast-derived ingredients a natural and clean-label solution for developing healthier products as well as to reducing salt".

Product Range	Key Taste Benefits	Regional Taste Applications
Flavor base Springer® <b>Reveal</b>	Build complex, harmonized, and powerful taste profile such as creaminess, spiciness and fruitiness	<ul style="list-style-type: none"> <li>Spiciness: Tom yum soup</li> <li>Creaminess: Kaya spread</li> <li>Fruitiness: Mixed berries yoghurt</li> </ul>
Umami Springer® <b>Umami</b>	Rich in nucleotides that works synergistically to intensify, reinforce, and balance overall taste profile with long-lasting umami performance. Most suitable for salt reduction formulations	<ul style="list-style-type: none"> <li>Tomato chatpata</li> <li>Miso paste</li> <li>Beef meat ball</li> </ul>
Kokumi Springer® <b>Cocoon</b>	Naturally rich in flavorful amino acids and peptides (glutathione) that brings mouthfulness and smoothness taste profile	<ul style="list-style-type: none"> <li>Concentrated stock chicken</li> <li>Asian seafood bisque</li> <li>Mentaiko sauce</li> </ul>
Specific flavor notes Springer® <b>Signature</b>	Brings a wide range of specific flavor notes including dark notes, cooked notes, brown notes, and cheese notes	<ul style="list-style-type: none"> <li>Dark note: Sweet soy sauce</li> <li>Brown note: Coffee premix</li> <li>Cheese note: Hokkaido cheese tart</li> </ul>
Off-note masking Springer® <b>Mask</b>	Neutralizes off-notes from plant-based protein ingredients and balances overall taste profile	<ul style="list-style-type: none"> <li>Vegan cheese sauce</li> <li>Fishless fingers</li> <li>Chinese sausage</li> </ul>



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[www.biospringer.com](http://www.biospringer.com)



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Picture courtesy of KHS

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As the elderly population around the world continues to increase, it becomes more important than ever for businesses to understand what drives their consumption behaviours and what makes them tick. Contributed by Jackie Ng, Strategic Marketing Director, Kerry APMEA, Applied Health & Nutrition.

## 52 Eat Healthy To Age Healthy

The importance of consuming enough fibre and protein is not to be underestimated in any healthy ageing individual. Contributed by Dr. LaiYee, Lee (Technologist) and Anushia Shanmugaraj (Corporate Communications & Marketing).

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New closures that remain firmly attached to the bottle after opening will soon be a part of everyday life for consumers across Europe.

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A simple drop in temperature in frozen products can cause problems such as contaminants and unwanted moisture to enter the food, resulting in potential illnesses or forced discarding of products. The introduction of metal detectors could potentially solve these problems before they arise.

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Supply chains are a major contributor to environmental impacts. Hence, it is now crucial that they make the effort to digitise to reduce their carbon footprint. Contributed by Craig Roseman, Consumer Packaged Goods Segment Leader for Asia-Pacific & East Asia and Japan at Schneider Electric.

### 65 From Farm to Fork: Strengthening Supply Chain Transparency Across The Food Industry

"The rampant uncertainty around pandemic-influenced supply and demand challenges will persist in 2022 — and the food industry can no longer afford to be caught off-guard by 'unprecedented' delays, disruptions, and shortages". Contributed by Cas Brentjens, Vice President of Infor Nexus Supply Chain Business Networks, APJ, Infor.

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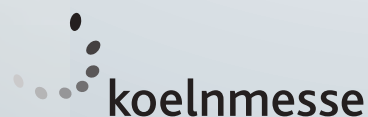
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# RETHINK ENERGY WITH ADM NEXT GENERATION ENERGY DRINKS

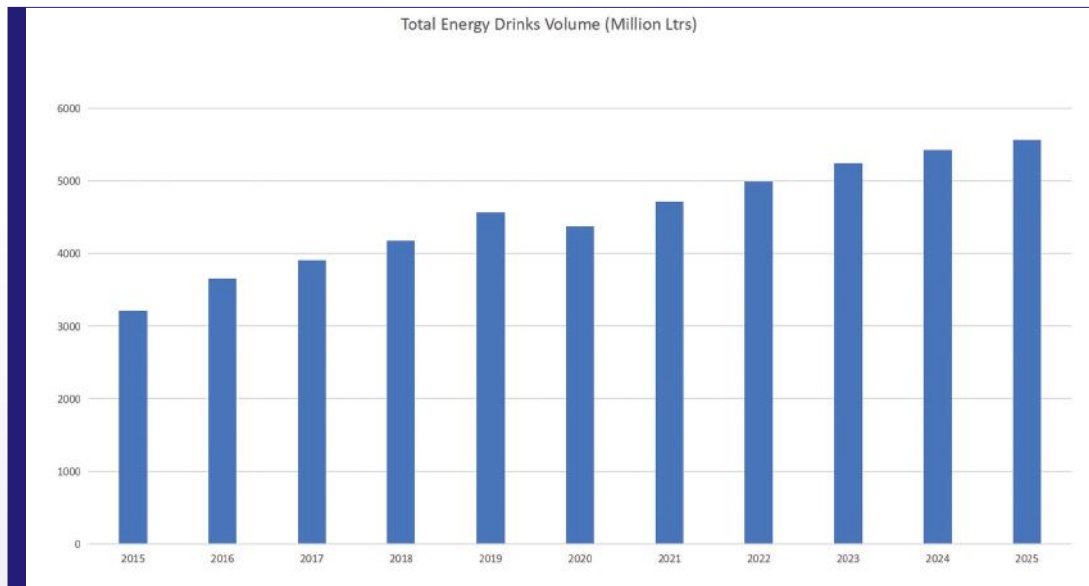
Consumers' wellness philosophies are increasingly rooted in an understanding of themselves as complex beings with unique needs. They are proactively managing healthier lifestyles and diets and making increasingly mindful decisions towards options they believe promote physical, mental and emotional wellness as nourishment for the whole self, identified as one of ADM's global consumer trends fueling growth in the food and beverage space.

**WITH** high relevance to the conceptual space of energy, we are observing new narratives which call for ways to communicate energy in new ways. According to ADM's propriety consumer energy study, consumers expectations are changing from "just need" to also "include wants" towards emotional and functional values like "Being Energised", "Craving Indulgence" and "Wanting Excitement"

According to FMCG Gurus, 2021, over 55 percent of the consumers surveyed in APAC are interested/very interested in products that promote improved energy levels. A continuously growing market segment in APAC energy drinks' emotional and functional value proposition towards the consumer also pays off in the segment performance. The market is continuously growing with strong growth rates and a promising but also impressive prediction for the future development with a value growth rate of 7.6 percent between 2020 to 2021, according to Euromonitor.

Traditionally, energy drinks have been positioned to impact performance and provide a feeling of increased energy, these drinks are fast evolving to capture new consumer groups such as e-gamers looking for a way to stay alert and engaged in an immersive digital world and seeking gentler energy through a more lifestyle-oriented and modernised lens.

Energy drinks are more than just a beverage. Well-known for their activating and energising functionality, they are also consumed because of their unique and appealing taste profile. Energy drinks combine functionality, as well as lifestyle and emotional appeal, and they fulfil consumers' demands for multiple consumption occasions, like alertness



Euromonitor analyses that Asia-Pacific energy drinks market to be growing at a CAGR of 3.8% in the forecast period of 2021-2025 and is expected to reach the USD 16.9 billion by 2025.

when driving or while at work, when learning or to stay awake in the evening when meeting friends.

This offers manufacturers multiple options for their own energy drink concept and flavour profile, as well as future-oriented range extension opportunities to participate in the attractive energy drinks market.

## ADM – Your Partner for Energy Drinks

### Explore How ADM Can Help Your Energy Drink Business

ADM has the expertise when it comes to energy drink formulations, ingredients and flavours to support you every step of the way.

**Flavour & Taste Profiles** from ADM's flavour expertise create the flavour profiles and great tastes that consumers love. Taste preferences are different from region to region. Count on ADM's solutions that meet APAC consumer's tastes.

**Innovations** Create the next generation of energy drinks. ADM continues to evolve in flavour and concept innovations supported by a range of botanical and functional ingredients designed for consumer-specific consumption occasions.

**Concepts & Solutions** What are consumers' energy drink preferences today? ADM can help you create the energy drink portfolio that fits your brand while further driving your



business and diversifying with innovations to meet consumers' expectations. Explore ADM's offerings from classic options to appealing fruit-flavoured range extensions to innovative complete turnkey beverage development and beyond.

**Portfolio & Expertise** ADM's broad portfolio enables you to evolve your energy drink range and to create future innovation supported by our experts in flavour creation, product and concept development and technical solution expertise.

Be successful with ADM's energy drink solutions that support aspiring consumers to establish a consistent, integrated lifestyle of wellness and optimal performance in everyday life.

Get in touch with us and explore the multiple solutions for your business! **APFI**





# SCOTTISH SEAFOOD: NATURE'S PERFECTION

**WITH** 18,000km of coastline, Scotland lies where the warm Gulfstream meets the cold waters of the North Atlantic - creating the perfect climate for some of the world's finest seafood.

Scotland lands over 60 species of wild and sustainably farmed seafood. Given the exceptional quality of Scottish fish and shellfish, it stands to reason that seafood is the country's largest food export. In demand around the globe, sustainable seafood from Scotland is the preferred choice for the world's most discerning chefs, buyers, and restaurateurs due to its superior quality and delicious flavour.

Esteemed executive chef Kirk Westaway is an advocate of Scottish seafood which often features on the menu at his Two Michelin Star JAAN by Kirk Westaway restaurant in Singapore.

### When did you first taste seafood from Scotland?

Coming from Devon in the UK, I was always aware of Scotland's reputation for producing some of the finest seafood in the world. I knew Scottish salmon and oysters were seen as premium products from a young age.

### What is your favourite species of Scottish seafood?

I am big fan and supporter of Scottish seafood; langoustines, scallops and blue lobsters are staples on my menu.

### Why do you love cooking with Scottish seafood?

The fresh, clean, sweetness and oceanic mineral taste of seafood from Scotland creates a beautiful balance in my dishes. The consistent high-quality flavour of the seafood products that reach us here in Singapore ensures Scottish seafood is always on the menu.

### How do you source Scottish seafood for your clientele to enjoy?

I have good relationships with suppliers in Singapore that connect directly with the markets and fisheries in Scotland.

## Scottish Lobster and Hispi Cabbage: A Kirk Westaway recipe

### Scottish lobster

2kg Scottish lobster	Chill lobster in the freezer for 20mins. Kill the lobster, remove the head and claw. Place in the large pan of boiling salted water for 1 minute. Remove and refresh in ice water. Cut through the shell into 2 pieces, remove waste pipe. Submerge the lobster in a closed dish with 2litres of brown butter. Place in a combination over at 50.c for 11mins.
500g lobster claw	Blanch in boiling water for 4mins. Refresh in ice water and crack to remove meat.

### Lobster reduction

2Kg	lobster heads	In a large sauté pan heat the olive oil, roast the gently crushed head and shell. Once caramelized add the other ingredients. Add water, just covering the ingredients. Simmer gently for 40 minutes, then pass through a fine sieve. Reduce the liquid until it forms an intense reduction.
500g	onions	
75g	purple garlic	
200g	fennel	
100g	leek	
20g	tomato	
25g	ginger	

### Roasted lobster claw mix

500g poached lobster claw	Roast the claw in olive oil.
25g blanched kale	Combine the claw with the blanched kale and confit of onion.
50g confit onion	Season.
lemon zest	

### Brown butter hollandaise

125g brown butter	Whisk eggs over heat, add lemon and slowly add the brown butter.
2 organic egg yolk	
1 whole organic egg	
5g lemon juice	
1g fine sea salt	

### Blanched cabbage stuffing, using the crunchy sweet heart centre

1200g hispi cabbage	Blanch cabbage leaves, refresh and dry.
200g roasted lobster claws	Remove claws from shell, keep the beautiful pieces for plating.
20g confit onion	Rough dice all broken pieces then mix with ingredients.
1g confit garlic	
lemon zest	



Seafood from Scotland supports Scottish seafood producers, processors and sellers to export their products to markets all over the world.

Find out more at [www.seafoodfromscotland.org](http://www.seafoodfromscotland.org) or by following the organisation on twitter @SeafoodFromScot, Instagram @SeafoodFromScotland or emailing [enquiries@seafoodscotland.org](mailto:enquiries@seafoodscotland.org)

Seafood  
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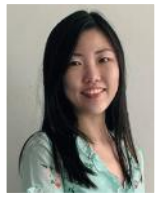
## THE SUPPLY CHAIN PLIGHT

**AS** I sit down to write this, a popular fast food chain in Singapore is faced with a pressing problem - their restaurants are out of fries.

It seems like a small complication that can be easily solved. But, if one stops to think about it, this simple shortage of fries may signal a bigger issue. After all, if even popular fast food chains have difficulty getting hold of a staple like fries, who will run out of supplies next?

The pandemic has definitely shined a spotlight on global supply chains. Delays in production, shipping, shortage of manpower, and other problems are starting to be noticed not just by businesses but consumers as well. What are the best ways to rectify these problems?

In this month's issue, we take a closer look at supply chains and how some businesses are managing with the pandemic and other issues. You can read more about the digitalisation of supply chains, why some companies hesitate to make the switch (page 1), and cold chain monitoring (page 62). We also delve deeper into the ever-growing protein trend, and find out the key to healthy ageing (starting page 44).



Wei qi



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### Grab Completes Acquisition Of Stake In Jaya Grocer

Grab has completed its acquisition of a majority stake in Jaya Grocer, a large supermarket chain in Malaysia. The two companies plan to work together to bring the convenience of on-demand grocery delivery to more consumers in Malaysia.

Prolonged movement restrictions and consumer concerns about safety and hygiene have led to a boom in adoption of online grocery shopping. About 64 percent of Southeast Asia's internet users purchased groceries online at least once during the pandemic, yet online grocery transactions only accounted for approximately two percent of the total grocery spend. It is estimated that online grocery in Southeast Asia could grow to US\$50 billion in gross merchandise value at a 10 percent penetration rate similar to advanced markets.

"We believe this partnership will further accelerate the growth of our groceries delivery business, and we are excited by the immense opportunity ahead of us," said Anthony Tan, Group CEO and Co-Founder of Grab.

### Agilent And A\*STAR's Collaboration Agreement To Advance Singapore Agri-Food Industry

Agilent has signed a Research Collaboration Agreement (RCA) with the Singapore Institute of Food and Biotechnology Innovation (SIFBI) outlining their collaboration on developing food research knowledge advancement over the next two years.

SIFBI is a research institute under the Agency for Science, Technology, and Research (A\*STAR) in Singapore. This collaboration aims to bring state-of-the-art science and technology to drive innovation in food, nutrition, ingredients, industrial biotechnology, and related applications. In Singapore, Agilent has been actively contributing to research development over the last two years in food sustainability, security, and innovation to enhance quality of life. This work supports the Singapore Government's ambitious plan of producing 30 percent of the nation's nutritional needs by 2030.

Agilent will supply the mechanical elements for early food research into target compound and high-value ingredients in this collaborative effort. The company brings innovative thinking, multidisciplinary technology expertise, and training



on world-class analytical development to help improve agri-food systems in Singapore. Through this agreement, Agilent's goal is to re-imagine data optimisation and analytics to drive prioritisation on the population's health sustainably.



Read the full story on [apfoodonline.com](http://apfoodonline.com)



## Affordable, Freshly- Handpicked Grocery Delivery To Meet the Needs of Southeast Asian Consumers

Southeast Asian online grocery platform, HappyFresh, has launched HappyFresh Supermarket to extend fresh and dry grocery accessibility by significantly growing its dark store presence in the region.

HappyFresh understands that weekly grocery shopping requires optionality and choice among multiple categories, especially “fresh”, hence the need for a larger range of assortments. This naturally increases order value and drives engagement, making it a more sustainable model in the long run, in contrast to “top-ups and instant delivery” shopping missions. HappyFresh Supermarket enables this with over 15,000 stock-keeping units (or SKUs) of fresh, dry, and frozen products in its inventory within three closely monitored temperature zones. Having been launched in Jakarta, Kuala Lumpur, and Bangkok - and in the process of rapid expansion within each respective market, HappyFresh Supermarket will offer competitive pricing, giving customers strong value for money with their purchases, without any out-of-stock moments.

“The grocery industry is going through a massive transformation driven by a fundamental change of shopping habits. Southeast Asia is at the cusp of it. We are talking about a \$300 billion industry, and hence setting the fundamental building blocks for how the next 100 million people shop for groceries is and will be our main focus as a company. We believe that our customers should have the choice to pick from a wide range of products, freshly handpicked at affordable prices, without having to compromise on quality. HappyFresh Supermarket is a one-stop-shop to satisfy their daily and weekly grocery needs, and we want to make it accessible to everyone,” says Guillem Segarra, CEO of HappyFresh.

## Nestlé Introduces A New Plant-based Version Of Milo In Thailand

Nestlé is shaking up the beverage market in Thailand with a new plant-based version of Milo, the world’s leading chocolate malt beverage.

The new ready-to-drink product is based on soy combined with the unique Milo malt flavour, to provide a nutritious plant-based alternative.

Consumers in Asia are looking to include more plant-based alternatives in their diet, and Nestlé is launching versions of some of its most-loved beverages in the region. That includes launches of Milo and Nescafé in Malaysia and Nescafé and Starbucks in Japan.

Mr. Chaiyong Sakulborrurug, Business Executive Officer – Dairy & Adult Nutrition, Nestlé (Thai) Ltd., spoke about the launch: “Milo is a much-loved and iconic brand, so we are proud to offer people this new soy version. Plant-based beverages are becoming increasingly popular in Thailand as people look to lessen their environment impact and take care of their health. We believe this launch will help create a positive trend towards plant-based alternatives.”

“We’re expanding our plant-based offerings with nutritious, tasty, products that complement the everyday diet of people in Asia for many different meal occasions. We leverage our expertise in dairy proteins, nutrition science, plant sciences, as well as culinary arts, to adapt the products to local preferences and needs,” says Guglielmo Bonora, Head of Nestlé’s R&D centre in Singapore.





## Semaai, An AgTech Startup To Begin Transforming Rural And Agricultural Development In Indonesia

Semaai, an AgTech startup based in Indonesia, has announced US\$1.25 million in pre-seed funding led by Surge, Sequoia Capital India's rapid scale-up program for startups in Southeast Asia and India, and Beenext. The startup is building a full-stack agri-tech solution to help farmers and rural MSMEs maximise their earning potential and revitalise rural agricultural communities in Indonesia.

Agriculture in Indonesia is a \$100 billion industry that comprises 13.5 percent of the nation's GDP and is powered by more than 40 million farmers and small businesses in rural areas – nearly a third (29 percent) of the country's labour force. Much of the farming workforce is made up of smallholders, small scale farmers, and rural MSMEs such as toko tanis, which are small agri-retailers that supply farming inputs and products to smallholders. Despite their contribution to Indonesia's economy, these farmers and rural MSMEs find it extremely difficult to sustain their livelihoods and take advantage of the growing middle-class demand for diversified food products.

Semaai aims to address such systemic issues in the industry by offering a comprehensive suite of services for rural agricultural communities. The startup is providing



customised consultancy through its team of expert agronomists, access to productivity tools such as soil testing technology as well as fairly priced farming inputs such as seed and fertiliser products. Semaai plans to expand its network of service delivery centres to deploy their services, starting with toko tanis (agri-retailers) and eventually reaching the vast number of smallholders in rural Indonesia. In just five months since launch, Semaai has seen the gross merchandise value (GMV) of products sold to agri-retailers and MSMEs increase by tenfold. The startup aims to deliver its services and impact up to 100,000 smallholders and rural MSMEs by next year.



## Subway Announces Partnership To Expand Its Presence In Thailand

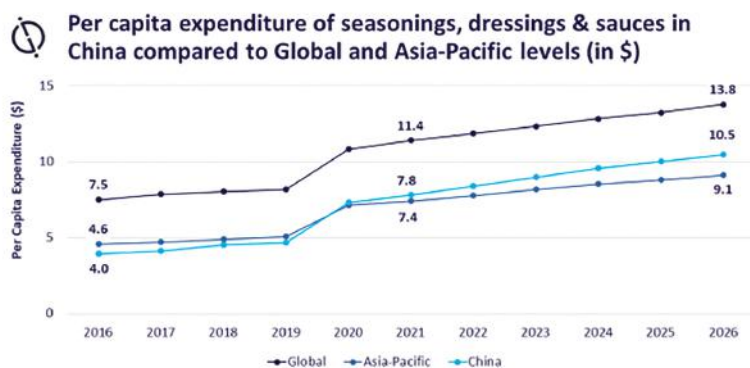
Under the new partnership, About Passion Co. Ltd. will open more than 700 new Subway locations across Thailand over the next decade, expanding on the brand's current footprint of over 130 restaurants in Bangkok by more than

five times. Under the stewardship of About Passion Co. Ltd., existing and future restaurants will adapt Subway's new, vibrant "Fresh Forward" design, while also allowing franchisees the flexibility to incorporate elements of the rich Thai culture into their restaurants. To meet the diverse needs of today's consumers and drive franchisee profitability, About Passion Co. Ltd.'s focus, will be to ensure restaurants are in locations with high accessibility and visibility, including drive-throughs and nontraditional restaurant models, such as kiosks and Grab & Go.

"Today's announcement is a significant step towards growing our Asia Pacific business," said John Chidsey, Chief Executive Officer of Subway.

The agreement with About Passion Co. Ltd. is part of Subway's multi-year transformation journey to build a Better Subway and improve across all aspects of the brand as the business expands its presence around the world. In Asia Pacific, the recent market entry into Indonesia and today's newly formed partnership in Thailand is just the start. Subway will continue to seek strong partners with expertise in local markets as it aggressively doubles its current network of restaurants in the region to over 6,000 in the next five years.





Source: GlobalData Market Analyzer

GlobalData.

## Dietary Preferences To Drive China Seasonings, Dressings & Sauces Growth

The Chinese seasonings, dressings & sauces market is projected to grow from CNY152.2bn (\$22.2bn) in 2021 to CNY203.8bn (\$30bn) by 2026, at a compound annual growth rate (CAGR) of 6 percent, forecasts GlobalData.

GlobalData's report, 'China Seasonings, Dressings & Sauces – Market Assessment and Forecasts to 2026', reveals that the market growth will be primarily driven by the wet cooking sauces category, which is forecast to register the fastest value CAGR of seven percent during 2021–2026. The category is followed by bouillons & stocks, which is expected to record a CAGR of 6.2 percent during the same period. Savitha Kruttiventi, Consumer Analyst at GlobalData, says: "The COVID-19 pandemic has disrupted the food consumption habits, with more consumers preferring their meals to be home-cooked. This

is driving the demand for a wide range of seasonings, dressings and sauces products. In line with the rising disposable incomes, consumer preferences for seasonings, dressings & sauces are changing, with demand on the rise for premium products with authentic provenance, and craft quality."

'Hypermarkets & supermarkets' was the leading distribution channel in the Chinese seasonings, dressings & sauces market in 2021, followed by department stores, and e-retailers.

The per capita expenditure on seasonings, dressings & sauces in China increased from \$4 in 2016 to \$7.8 in 2021 and is expected to reach \$10.5 in 2026, which will be higher than the regional average (\$9.1), and lower than the global average (\$13.8).

Foshan Haitian Flavoring & Food Co., Ltd, CITIC Group, and Lee Kum Kee were the top three companies in the Chinese seasonings, dressings & sauces market by value in 2020, while Haitian and Amoy were the leading brands.

## A Turn-Key Urban Farm Solution With Agritech Startup, Archisen

In just a short span of six years, this 7,000 sqft farm has grown to account for the production of about one percent of leafy vegetables grown locally by producing up to 100 tonnes of vegetables a year. With the goal of building the largest network of urban farms in Asia, Archisen focuses on cultivating a food resilient future and enabling urban landscapes to produce sustainable, affordable as well as accessible local produce with three simple solutions - Cropdom, Just Harvest and Just Produce.

Utilising cutting-edge IoT technology and data analytics, Cropdom has redefined the traditional physical barriers of farming. Powered by Archisen's proprietary software, Cropton, it consists of many



innovative functions such as farm design, market analysis, crop selection, sale of produce and financial modelling to optimise the usage of precious resources.

Founders Sven Yeo and Vincent Wei shared, "we didn't just build a solution to help solve farmers' problems. We created one that will benefit Singapore's food ecosystem, whereby fresh, flavourful and nutritious vegetables are made available to consumers at an affordable price." With the integration of Cropdom, Archisen has been able to retain a strong focus on sustainability, and their closed-loop farming system is estimated to use a remarkable 90 percent less water compared to traditional farming methods.

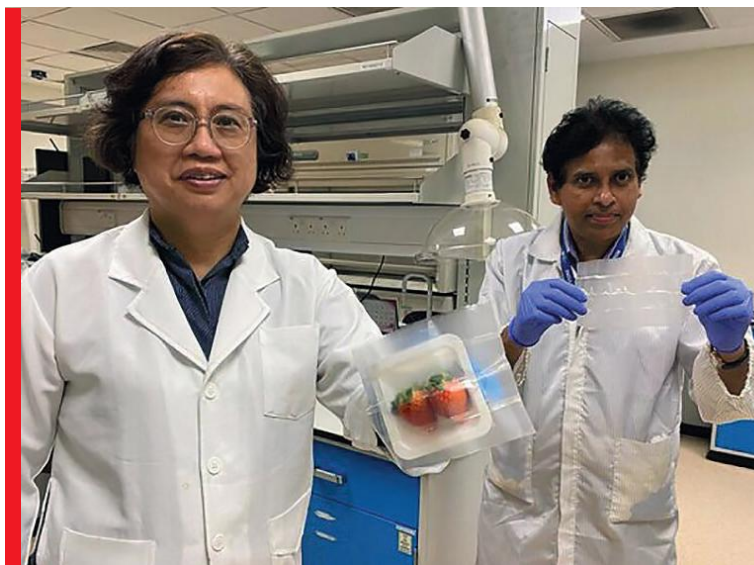


## NTU Research Team Develops Smart And Sustainable Food Packaging

A team of scientists from Nanyang Technological University, Singapore (NTU Singapore) and Harvard T.H. Chan School of Public Health, US, have developed a 'smart' food packaging material that is biodegradable, sustainable and kills microbes that are harmful to humans. It could also extend the shelf-life of fresh fruit by two to three days.

The water-proof food packaging is made from a type of corn protein called zein, starch and other naturally derived biopolymers, infused with a cocktail of natural antimicrobial compounds. These include oil from thyme, a common herb used in cooking, and citric acid, which is commonly found in citrus fruits.

The invention is the result of the collaboration by scientists from the NTU-Harvard T. H. Chan School of Public Health Initiative for Sustainable Nanotechnology (NTU-Harvard SusNano), which brings together NTU and Harvard Chan School researchers to work on cutting edge applications in agriculture and food, with an emphasis on developing non-toxic and environmentally safe nanomaterials. The development of this advanced food



packaging material is part of the University's efforts to promote sustainable food tech solutions, that is aligned with the NTU 2025 strategic plan, which aims to develop sustainable solutions to address some of humanity's pressing grand challenges.



## The World's First Eight Percent ABV Low Alcohol Soju Range In Singapore - Hana Soju By Chuga

Chuga launched the world's first eight percent ABV low alcohol soju range in Singapore, Hana Soju, in 2021. A new addition to their primary range of Chuga Soju distilled at an ABV range of 12 percent – 15 percent. Chuga Soju is a household name for many soju drinkers in Singapore, being one of the most popular soju choices on major e-commerce stores, supermarkets, convenience stores and bars and restaurants across the island.

Aside from striving to elevate consumers' scent and taste sensory experience, the brand places a strong emphasis on "feel" sensory too – the feel of the drink from sip to throat to the stomach. Chuga as a brand strives to differentiate itself with an unparalleled smooth drinking experience. This is achieved by activated charcoal and sedimentary rock filtration to filter and remove any impurities and enhance the liquid for an extra smooth finish.



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## GLOBAL NEWS

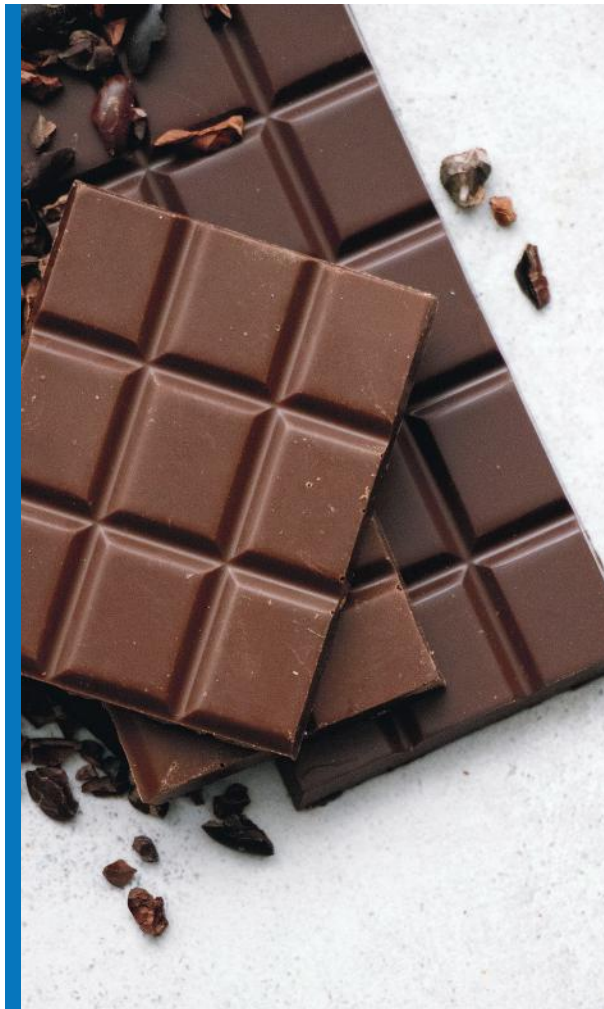


## PepsiCo Is Making 'A Much Bigger Play' In The Burgeoning Plant-Based Market

PepsiCo is accelerating the development of plant-based foods it hopes could one-day rival sales generated by some of its popular chip, tea and soda brands.

During their February earnings call, CEO Ramon Laguarta singled out plant-based snacking as a category the company is using to generate future growth. PepsiCo posted sales of US\$70.37 billion in 2020, an increase of five percent from the prior year. Organic revenue is forecast to increase in the mid-single digits in 2021, in line with its long-term outlook.

The biggest announcements for PepsiCo came in January when it established a joint venture called The PLANET Partnership with Beyond Meat that will develop, produce and market snack and beverage products made from plant-based protein. In 2018, PepsiCo also has purchased plant-based protein bar, mix and snack maker Health Warrior and baked fruit and vegetable snack manufacturer Bare Foods. Hilo Life, a brand within PepsiCo's Hive accelerator, recently launched an almond flour-based tortilla chip.



## Cadbury Recycled Packaging Breakthrough To Wrap 50 Million Chocolate Blocks

The trial, born from the Morrison Government's first National Plastics Summit, was seen by Sussan Ley, Minister for the Environment, when she visited Cadbury Australia in Hobart in December last year.

"Cadbury has committed to purchasing enough recycled plastic packaging to wrap 50 million family blocks of chocolate," Ley said, adding that the latest prototypes demonstrated that change is possible and that markets are there for recycled products.

"This exciting development in recycling soft plastics can be traced back to the collaboration between companies at the first national waste summit in 2020 and collaboration with industry is at the heart of our transformation of Australia's recycling industry. Australia has set National Packaging Targets for 2025 including a 20 percent average of recycled content in plastic packaging and the key to achieving those will be driving innovation rather than regulation," adds Ley.

"As we continue to work with consumers and industry in expanding local recycling capability, the goal will be to process more and more recycled plastic in Australia," says Ley.

"Our significant investment gives local industry the confidence it needs to invest in advanced recycling technology that will be vital for Australia to achieve a truly circular economy," said Darren O'Brien, President of Mondelez International.

*This article first appeared in stabledmate PKN Packaging News.*



## A New Consortium To Help Bring Allulose To The EU And UK Markets

The new consortium is called the Allulose Novel Food Consortium (ANFC). Companies seeking approval of allulose in Europe who are interested in joining the consortium are encouraged to contact the ANFC. Allulose is authorised as a food ingredient in many countries worldwide and is also under regulatory evaluation in other regions. Having European approval for allulose will provide additional business opportunities within Asia-Pacific, as two members of the consortium are based in the region, Matsutani in Japan and Samyang in Korea. Currently, allulose is FEMA (Flavour Extract Manufacturers Association) GRAS (Generally Recognised As Safe) for use as a flavouring in beverages and milk products.

ANFC's members believe that a single, joint, proprietary European Union (EU and UK) novel food application could accelerate the approval process, providing time and cost savings for members. In addition, members anticipate that approval of allulose as a novel food ingredient would benefit European and global food industries because of its potential as much more than just a low-calorie sweetening ingredient. EU regulatory approval would also be very influential to other international food regulators bringing

this novel food ingredient to the market. The development of reduced-calorie/reduced-sugar foods could also support any government policies for sugar reduction.

ANFC's next goal is to petition for the exemption of allulose from sugar labelling in the EU market, as per the situation in the U.S. and South Korea.

"The formation of the Allulose Novel Food Consortium is an exciting step forward towards accelerating more widespread use of allulose in Europe. Moving forward, we hope to have a far-reaching ripple effect to increase the use of allulose within Asia-Pacific as well," said Shigehiro Hayashi, Matsutani Chemical and ANFC.



## ADM Announce Partnership To Advance Decarbonisation Of Ethanol Production

Wolf Carbon Solutions US LLC (Wolf Carbon Solutions) and ADM, a global leader in nutrition and agricultural origination and processing, have signed a Letter of Intent paving the pathway towards further decarbonisation of ADM's footprint via the construction of a pipeline – developed, owned and operated by Wolf Carbon Solutions – which, together with a commercial agreement, will allow for the capture, compression and transportation of carbon dioxide produced at ADM's Clinton and Cedar Rapids, Iowa, facilities.

Designed as the backbone infrastructure needed to support the region's lower carbon transition, the 350-mile steel trunk line will be capable of transporting 12 million tons of CO<sub>2</sub> per year. The pipeline will offer dedicated capacity to transport CO<sub>2</sub> from ADM's ethanol and cogeneration facilities in Clinton and Cedar Rapids to be stored permanently underground at ADM's fully permitted and already-operational

sequestration site in Decatur, Illinois. The pipeline would have significant spare capacity to serve other third-party customers looking to decarbonise across the Midwest and Ohio River Valley.

"This partnership is an excellent example of industries working together to decarbonise and deliver upon their ESG strategies and commitments," said David Schmunk, President, Wolf Carbon Solutions. "Our organisations offer a great combination of complementary skills and experience – ADM with more than 10 years of experience owning and operating CO<sub>2</sub> sequestration wells, and the Wolf Carbon Solutions team with expertise in owning and operating carbon capture facilities and pipeline transportation systems, including North America's largest third-party CO<sub>2</sub> pipeline in Alberta, Canada. We are delighted to share our expertise to further the effort to develop low carbon fuels in the U.S."



Read the full story on  
[apfoodonline.com](http://apfoodonline.com)

## Brightseed And ofi Announce Partnership To Explore Health Benefits In Popular Spices

Medical research has shown that there are bioactives in black pepper and garlic that are known for their medicinal qualities. However, these humble ingredients have so much potential that is yet to be discovered.

Through a partnership with Brightseed and olam food ingredients (“ofi”), they hope to learn which varieties deliver the highest levels of bioactives. ofi’s innovation team in Fresno, California and Vietnam hope to discover exactly what health benefits exist in its U.S. garlic and global black pepper varieties.

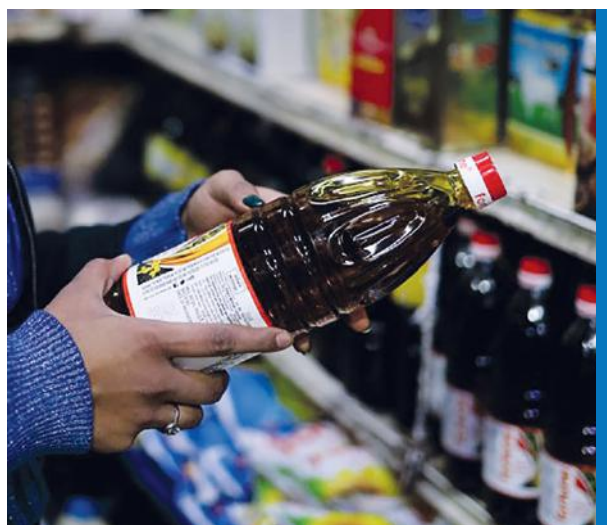
Brightseed will use its award-winning Forager® artificial intelligence platform to identify complex molecular structures and novel compounds in these spice categories. It seeks to pinpoint the specific mechanisms of plant bioactives that likely correlate to a direct health benefit, thereby



decoding the health impact of plant-based bioactive compounds and increasing the scientific understanding of these spices’ qualities.

Medical research has shown that black pepper produces piperine, a bioactive and antioxidant that has the potential to inhibit tumor growth and enhance the bioavailability of some therapeutic drugs. Garlic on the other hand, is shown to contain strong beneficial properties that may prevent common chronic diseases.

Forager® will analyse and seek to identify how different regions, cultivars, growing conditions, and processing methods impact phytochemical expression and bioactive potency across multiple areas of human health for ofi’s black pepper estates and its U.S.-based garlic sources. All of Forager’s® discoveries undergo in vitro validation and enable a de-risked clinical trial process for innovation.



## Global Food Prices To Hit Record Levels From Rising Oil Prices

Edible oil prices have more than doubled in the past two years on supply constraints. Palm oil hit a new all-time high

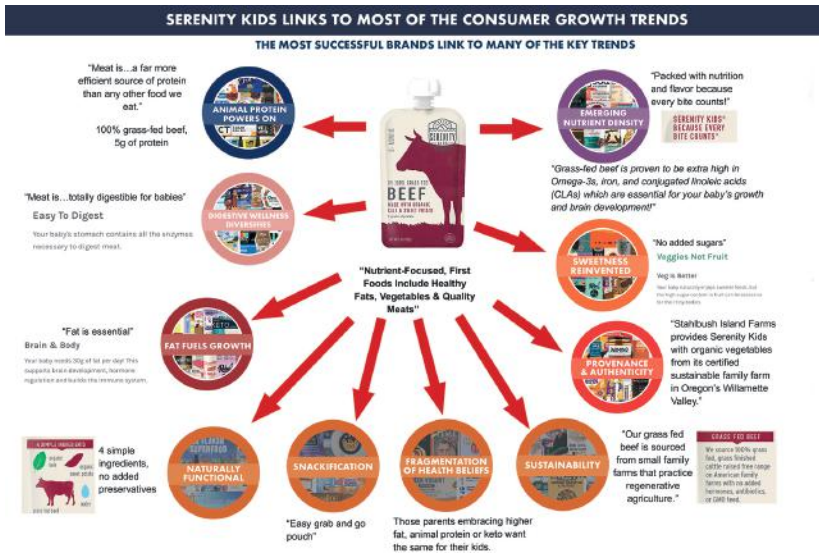
this week as top shipper Indonesia limited exports to protect the domestic market, while soybean and rapeseed oil have also risen as heat and drought wilted crops and demand surged. All this means that food prices may go up even more.

A measure of global food costs calculated by the United Nations climbed near to a record in January, driven by more expensive vegetable oil and dairy prices. A further rise this month could potentially push costs beyond that to a fresh all-time high. The rally is hitting India particularly hard because the country is the world’s biggest importer of palm, soybean and sunflower oil.

Cooking oils play a crucial role in feasts served to celebrate festivals across the nation. The government has taken steps to cool prices, reducing import duties and limiting inventories to prevent hoarding, but inflation pressures will be hard to quell.

Consumer food prices in India rose in December at the fastest pace in six months, crimping household budgets and increasing pressure on Prime Minister Narendra Modi’s government to provide more help for the poor. Two-thirds of the country’s population are already the recipients of food aid.





## "More fat And Healthier Fat" As An Emerging Trend In Kids' Food

"In the over-supplied and increasingly competitive market for pouched baby food, US brand Serenity Kids has used a positioning connected to quality fat and quality

animal protein, growing from a quirky challenger brand to being stocked in Target and Kroger," says Julian Mellentin, Director of New Nutrition Business and author of a new report, *Strategies & Trends in Kids Nutrition*.

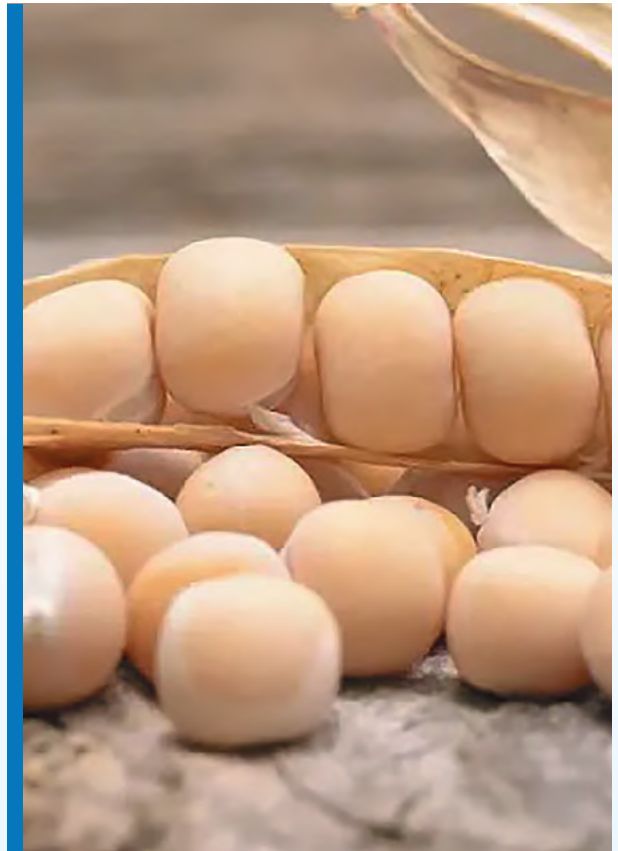
"As birth rates around the world decline sharply – with the birth rate cratering in China and the UK's fertility rate the lowest since 1938 – kids' nutrition brands will find themselves fighting more intensely for a share of a shrinking market. In an attempt to differentiate themselves and carve out a niche, more kids' brands will set out to connect to parents' food beliefs and this will drive the use of 'healthy fat' ingredients, such as avocado, coconut oil and nut butters," added Mellentin.

## Roquette Study Confirms The Excellent Nutritional Quality Of Its Pea Protein

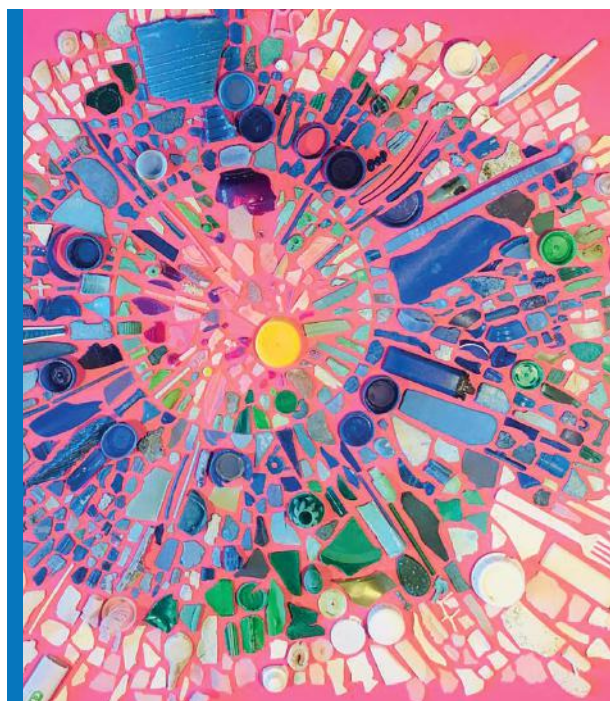
On the occasion of World Pulses Day, Roquette, a global leader in plant-based ingredients and plant proteins, highlights the exceptional properties of peas through the outstanding results of a recent DIAAS (Digestible Indispensable Amino Acid Score) study on its pea protein.

The nutritional quality of proteins is the combination of two factors that are key in terms of nutrition: digestibility and the composition in amino acids. The recent study, conducted by the Roquette team in partnership with renowned academic experts from the INRAE, France's National Research Institute for Agriculture, Food and Environment, concluded with a DIAAS score of 100, showing that pea protein offers a balanced amino acid profile and an excellent digestibility that fully responds to consumers' nutritional needs.

Thanks to its strong expertise, ambitious investments, and drive for innovation, Roquette is firmly committed to contributing to the current food revolution by helping people around the world add more plant protein to their diets. Studies highlight the number of plant protein product launches multiplied by 5 between 2014 and 2020, an exceptional growth rate driven by consumers' focus on health, well-being and sustainable development.



Read the full story on [apfoodonline.com](http://apfoodonline.com)



## Scientists Develop Recyclable Plastics Based On Sugars

Researchers from the University of Birmingham, U.K., and Duke University, U.S., have created a new family of polymers from sustainable sources that retain all of the same qualities as common plastics but are also degradable and mechanically recyclable.

The scientists used sugar-based starting materials rather than petrochemical derivatives to make two new polymers, one which is stretchable like rubber and another which is tough but ductile, like most commercial plastics.

By creating copolymers that contain both isoside and isomannide units, the researchers found that they could control the mechanical properties and degradation rates independently of one another. Hence, this system opens the door to using the unique shapes of sugars to independently tune the degradability for a specific use without significantly altering the properties of the material.

The chemical similarity of the polymers means that, unlike a lot of current commodity plastics, they can be blended together to yield materials with comparable or improved properties.

Dr Josh Worch, from Birmingham's School of Chemistry, and a co-author in the research said: "The ability to blend these polymers together to create useful materials, offers a distinct advantage in recycling, which often has to deal with mixed feeds".

A joint patent application has been filed by the University of Birmingham Enterprise and Duke University. The researchers are now looking for industrial partners who are interested in licensing the technology.

## Mixing Oil And Water Boosts Functional Food & Beverage Development

Product developers can now create new categories of functional foods and beverages thanks to Prodalim Resources, Ltd.'s new Capsoil Foodtech. The company advanced the capacity for mixing oil and water by developing ultra-fine, water-soluble powders out of natural oils. This breakthrough presents new possibilities for integrating beneficial nutritional oils, fat-soluble vitamins, and lipid-based nutrients into a broadened range of functional foods and beverages, as well as in new supplement formats.

Capsoil's advanced production technology does not apply any form of extraction, solvent, or heat process, nor does it alter the nutrient profile of the oil. Capsoil powders contain from 30 percent to 60 percent of the oil and its bioactive compounds, and the emulsion's nanostructured particles possess a large surface area, enhancing bioaccessibility and absorption of the encapsulated oil, leading to improved bioavailability. This can also translate into lower dose requirements.

"We are working with food and beverage companies to help them tailor a new food and beverage applications, or find new novel delivery methods, for desired food oils or key fat-soluble nutrients," adds Shafat.

Capsoil's tech also targets the dietary supplement space, giving the formulators new capabilities for incorporating lipid-based ingredients such as omega 3 into dry pill, capsule, or sachet formats rather than as an oil or softgel.

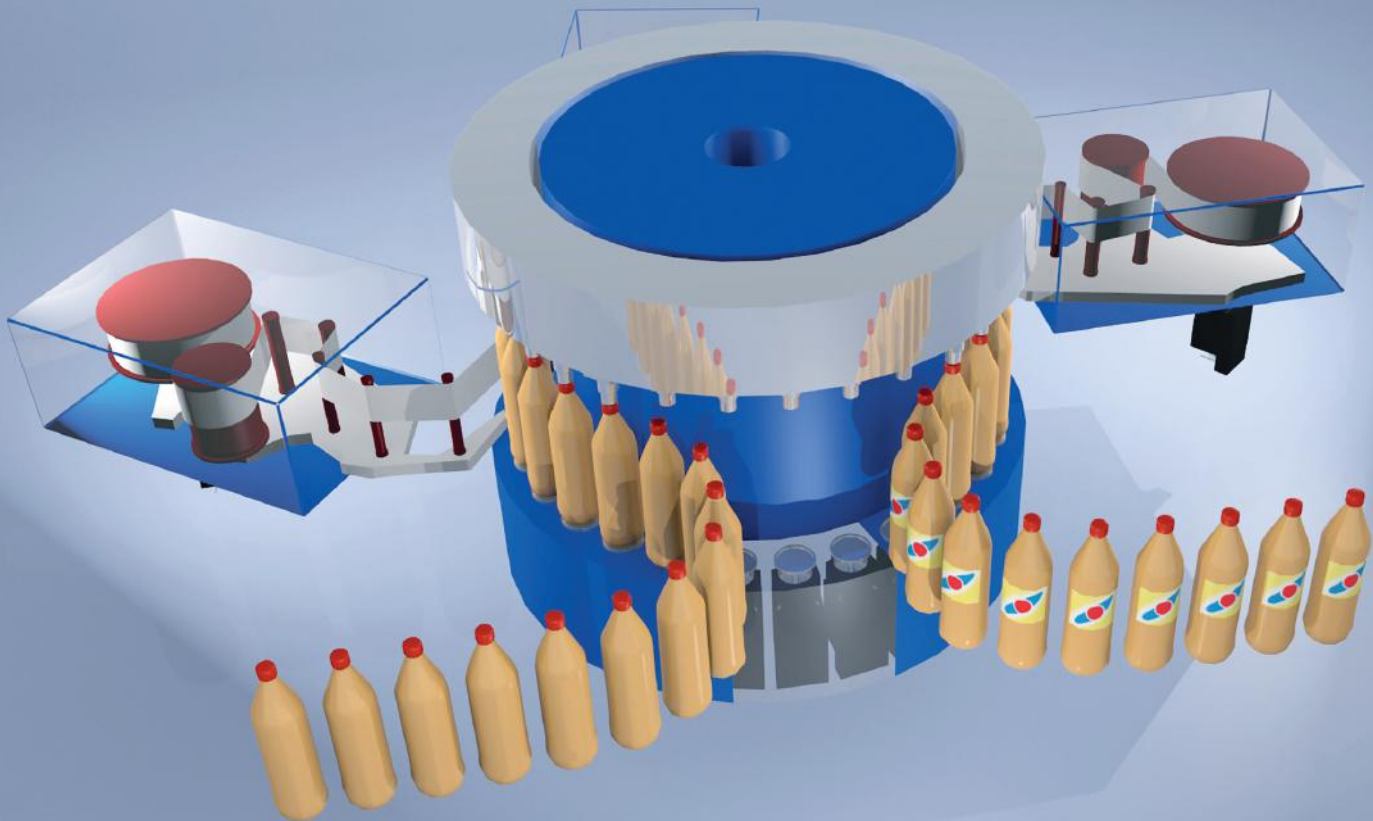
Capsoil FoodTech was established by Prodalim Group, one of the world's leading producers of natural fruit extracts and concentrates (NFCs), as well as other natural ingredients for the F&B industry.





# MODULAR MACHINERY FOR INCREASED FLEXIBILITY IN THE PACKAGING INDUSTRY

Compact servos increase through-put and bring more freedom in terms of containers. Contributed by Jan Treede, VLT Motion Business Director.



**FOR** many companies hoping to stand the test of time in harshly competitive markets, the basis for economic success is efficient and affordable production. Therefore, they strive to use their production facilities to their fullest. Newer bottles of different shapes and sizes, with symmetrical and asymmetrical designs made of different materials from glass to PET, both disposable and reusable, have taken over the drinks market. A variety of different products, liquids or semi-liquids, require fast and reliable machines for high through-put. Machines should be fast and break down less often. However,

they also need to be flexible during assembly in order to provide optimal opportunity when adapting them to a particular form. This puts higher demands on the flexibility of blow mould machines and packaging: filling, closing, labelling or the end-of-line handling. One trend for achieving this level of flexibility and to ensure increased investment security is to use modular automation and packaging machines.

## GERMANY TAKES LEAD IN MANUFACTURING

With a share of 22.5 percent of the total export market, Germany is the global market leader in this

manufacturing sector. In 2012, the industry also aimed again to achieve eight percent growth on the highly competitive markets\*. Despite increasingly tough international competition, the euro crisis and the growing market power of multinational corporations on the customer side, the industry managed to overcome these challenges. The recipe for success developed by German manufacturers: A long-term orientation of the company strategies towards innovation, quality and customer focus has in the past ensured great success and guarantees good business and continued growth in difficult times.

For the development departments of machinery manufacturers, these strategic guidelines mean developing concepts that they can quickly and flexibly adapt to customer requirements. This is not only true for new machines but for the whole life-cycle of a machine. One of the challenges is to keep development time of new automation solutions as short as possible, as the time-to-market becomes ever more critical.

### **SPECIALITY PACKAGING MACHINES: COMPLEX AND VERSATILE FEATURES**

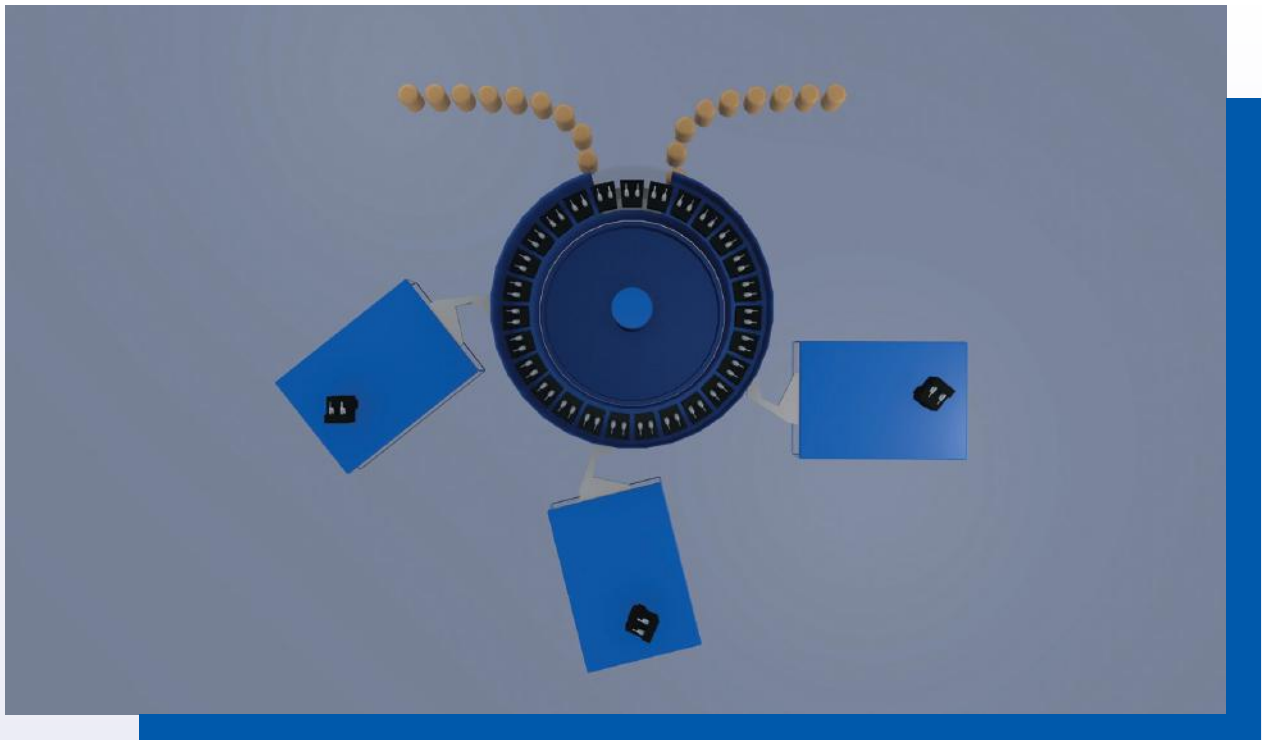
As a rule, machines have access to a variety of driving machine elements, which carry out precise moving processes. However, packaging machines are very complex because of the functionality that is required, the variety of goods being packaged and the packaging materials.

In order to master this complexity with process reliability, machines and plant construction firms replace the conventional central drives with mechanical transmission elements (such as bevel drives with curves) with servomotors in combination with efficient motion control steering. Compared to the expensive mechanical solutions, this step of automation offers the advantages of increased machine performance and flexibility when changing containers and, last but not least, wear resistance.

### **FURTHER DEVELOPMENT: MODULAR AUTOMATION OF THE MACHINES**

The previous versions already show that packaging technology relies on high machine precision. In order to meet these demands and increase the performance of solutions in future, manufacturers have to rely on consistent modularisation of the machine's design, in which they attach individual components to machines especially adapted to the relevant demands, as with modular assembly systems. They can add or change individual components at later points in time.

This means customers can equip their machines with additional functions afterwards, without significant stoppages for retrofitting and interruptions to production. Additionally, they only pay for equipment and functionality that they also need in their facilities. Already, the flexibility of alternating operations and facility-side and production-side industrial building systems, motion control systems





have proven themselves in the past few years and are on the rise. A good example of this is labelling machinery in the beverage industry, where there are various labelling modules available such as hot glue, cold glue and self-adhesive labels that the user can flexibly commission on a turntable.

The possibilities of automation technology to support these modular machine concepts have been limited up until now. Since machine engineers could either design power supply, control and drive technology in a central control cabinet for the maximum configuration in terms of size, power input and cooling, or they had to provide an individual control cabinet for each module.

Now, users have a flexible alternative. For each station there are modules with specially tailored tools or components for optimally completing tasks for the relevant packaging or filling operations. This includes, for example for joining, assembling boxes, filling bottles/containers or monitoring. Even for complex operations, where they show the labelling through exact positioning and optimal application of the relevant label the transport of containers is normally intermittent. Therefore, a start-stop-movement with exactly defined movement processes. It is the same when pad printing or screw capping, which requires equally high precision.

### **COMPACT SERVOS OFFER NECESSARY MOTION CONTROL FUNCTIONS**

Through flexible, modular automation of the required application in packaging machines for the drinks industry with modern motion control solutions, significant advantages can be brought about for both machine engineers and end users.

One example of this is the distribution of machines in scaleable, self-sufficient and testable Modules. This sort of solution relies on compact, intelligent installation engineering, which carry out all movements electrically. Compact servo drives with integrated motion control are ideal for use in modular machine engineering. They extend operation with a control option which, regardless of an overriding SPS, can completely transfer a module's flow control. In

this way, the constructor or engineer has the option of building, operating and testing the module during the development and test phases without using a turn table. User-friendly instructions on how to position, synchronise positions and/or velocity as well as cam functions make commissioning easier without extensive and deeper programming knowledge.

### **FASTER, BETTER, MORE ACCURATE**

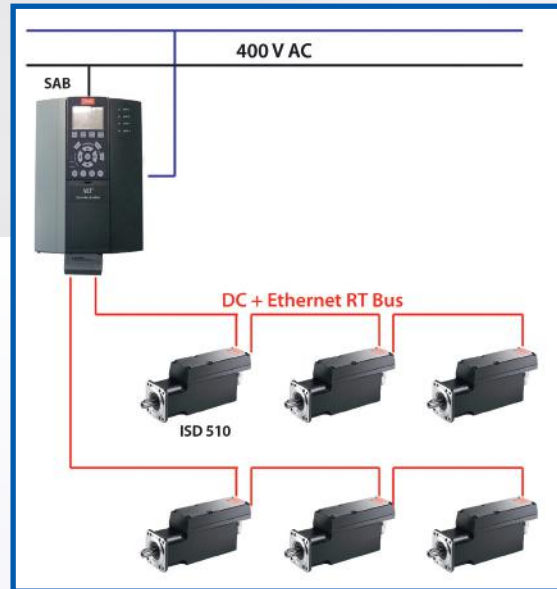
These applications show that it is possible to automate these machines modularly and that this provides many benefits. Both the machine engineer and the user receive the highest degree of flexibility which allows them to make the most of the the automation benefits of their machine and ensuring competitive benefits for themselves thanks to a higher level of flexibility. Consistent modularisation, flexibilisation and the reusability of developments which have already occurred are important components for being able to react very quickly to changing demands with optimally adapted solutions.

### **VLТ® INTEGRATED SERVO DRIVE ISD 510**

Danfoss supports the modular approach with the ISD 500 family of drives. As servomotors and drives are completely integrated, this decentralised automation architecture only requires one component for the drive technology in the control cabinet: the Servo Access Box (SAB). This provides up to 64 drives with an intermediate circuit voltage of 600 V, control voltage of 24 V, and control signals via the system bus. A single hybrid cable from the SAB to the first drive provides the connection from the control cabinet to the drives, all other signals and the supply voltage then pass short loop-cables from motor to motor (daisy chain). Cable conduits can be laid to save plenty of space and significantly decrease wiring time.

Furthermore, the ISD 510 drives have an additional interface for the system bus. Here, users and machine engineers can connect things like I/O islands to IP67 protection class All sensors, switches and pneumatic valves of a machine module can be cabled to one I/O box that is connected to an ISD510. Complicated wiring at the I/O layer to the control cabinet is avoided. This is

**DUE TO THE RISING NUMBER OF SINGLE-PERSON HOUSEHOLDS, THERE IS A HIGHER DEMAND FOR GOODS PACKAGED IN SMALLER PORTION SIZES AS WELL AS MORE CONVENIENCE LIKE RESEALABILITY OR MICROWAVABLE PACKAGING.**



advantageous, especially when retrofitting additional modules to an existing machine, because only the hybrid cable has to be connected to the first ISD510 of the module. All data from the drives and the I/O layer are then available to the higher-level controller on the system bus.

Implementation of a multi-vendor, open controller architecture also contributes to increasing flexibility and competitiveness. Danfoss consistently focuses on open concepts in machine automation. The ISD500 family currently supports both PowerLink and EtherCAT bus systems. This can be done without any changes to the drive technology, whose mechanical connection and wiring use various controllers. For example, to satisfy the end customer’s equipment requirements. Since the motion components of the software runs locally on the ISD 510 drives, changes to the software are restricted to the sequence programme when using different higher-level controllers.

Danfoss utilises the IEC61131-3 programming standard in engineering to provide an open system with extensive function libraries for cam discs,

synchronisation and motion functions. These powerful integrated servo drives feature high precision and dynamic performance, so that the company can offer the ideal drive technology for the implementation of modular food and packaging machinery. **APPI**

*\*Sources available upon request*

**ENQUIRY No 3101**

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# A GREENER FOOTPRINT

Global supermarkets and brands are looking to reduce their packaging footprint. What will be the impact on the label and packaging industry?  
Contributed by Mike Fairley,  
Founder of Labels & Labeling.

**THE** food and beverage sectors dominate the usage of labels worldwide, with the leading global supermarket groups and major brands having a significant influence on packaging and label purchasing trends.

This dominance has meant that supermarkets have built-up an almost unprecedented economic, purchasing and political power in the food and beverage sector, as well as a growing responsibility in promoting and demonstrating a high degree of corporate social responsibility.

A recent report highlighted that a third of global food sales were made by the world's 10 largest supermarket chains. Another study found that food and beverage applications together accounted for about 30 percent of all global label demand, while the supermarket groups identified by Labels & Labeling Consultancy in the highlighted table – with more than 200,000 stores or retail outlets between them are believed to represent more than half of global retail sales in a market estimated to be in excess of \$US26 trillion.

Another recent study points out that by 2027 the food and beverage end-use sectors are expected to hold more than 55 percent of the global label market share. One important consequence of such supermarket domination, especially in the food sector, has been the steady and continuous growth in supermarket in-house brand foods, which are actually owned by the supermarket retailer, wholesaler or distributor and are exclusively sold in their own retail outlets.

Consequently, the leading supermarket groups have a key role in not only selling the products but also in their manufacture including the detailed specification of the packaging and labels, the sourcing of packaging and label materials, and the supermarket and supplier relationship. In certain areas the supermarket groups have even come together with a common aim: improving sustainable sourcing of raw materials.

### REDUCE, REUSE, RECYCLE, RENEW

Many of the leading supermarket groups assess their packaging and labels against the 4R Guidelines (Reduce, Reuse, Recycle, Renew), both working to reduce packaging and increase the recyclability of their packaging (and label) materials. A key aim is to make packaging recycling easier for customers. For example, Carrefour aims for 100 percent recyclable, reusable or compostable packaging for its own brands by 2025.

A further company focusing on a 4R strategy is Tesco, a near \$US90 billion supermarket chain with around 7,000 stores in 12 countries. has

been prioritising ongoing removal of unnecessary packaging and working with suppliers and partners to reduce, reuse and recycle packaging. Its commitments include the removal of plastic packaging where it can, and introducing a scalable reusable packaging offer for customers.

Many of the supermarket groups, such as Lidl with some 11,000 stores in 32 countries, have also set ambitious carbon reduction targets and are looking to work collaboratively with their suppliers to establish their own climate targets and strategic plans for the next five years or more. Aldi too, with stores in 20 countries, has stated that it is continually working to reduce the amount of plastic and packaging that it uses, and to ensure that the materials it does use are easy for customers to recycle.



TO WORK TOWARDS ZERO PLASTIC WASTE, OWN-BRAND PACKAGING CAN BE MADE BY USING 100 PERCENT RECYCLABLE COMPOSTABLE OR REUSABLE MATERIALS.



As the world's largest retailer in terms of sales, with over \$US500 billion in revenue annually, Walmart is working with US private brand label and packaging suppliers to achieve 100 recyclable, reusable or industrially compostable packaging for its private brand packaging by 2025. It is also targeting at least 20 percent post-consumer recycled content in private brand packaging by 2025.

With the focus of the circular economy on reducing, reusing and recycling, Spar's drive to redesign packaging has gained increased importance. Indeed, across Spar's 13,500 stores in some 48 countries, its partners are working to ensure unnecessary packaging and non-recyclable materials are removed from Spar own-brand products wherever possible. Key considerations are to ensure reduced CO2 emissions at the production phase and reduced energy consumption during recycling processes.

### COMMITMENT

Go beyond the top 10 or so global supermarket groups discussed above to look at the top 50 or even the top 100, and pretty well all of them are committed in various way to improving their packaging and label footprint over the next five or six years. This commitment obviously has implications for all the packaging and label producers looking to serve the food, supermarket and beverage sectors.

If these commitments already seem to be quite stringent then the packaging and label producer needs to realise that the current supermarket policies were all drawn-up before the recent 2021 IPCC Report on global warming and the October COP26 Climate Conference in Glasgow took place, both of which will likely end-up putting further pressure on the global supermarkets and brands in terms of sustainable development and low carbon goals and, in turn, on label and packaging producers.

Much has changed over the past 18 months: the global pandemic has created many challenges for physical store retailers. The global market share of big supermarkets is now shrinking as a growing order of discounters and e-commerce continues to take hold. Amazon, for example, with global retail sales in excess of \$US380 billion in 2020, is the largest publicly traded market capitalisation, while Alibaba (sales revenue \$US120 billion) is a world champion in sales via marketplace platforms.

As a consequence, many global supermarket groups have been facing pressure to reduce costs, rationalise product ranges, provide more own-brand products, and to develop or expand their own online shopping offerings. All of these factors have implications for label and packaging groups.



While the supermarket groups are the world's largest grocery and food retailers and undoubtedly have a major influence on label and package sourcing, especially of their own-brand products, similar patterns of influence are found in many other label end-user sectors. Just 10 companies for example, are said to be involved in or control pretty well almost every major food and beverage brand found and sold on grocery shelves worldwide: Kraft Heinz Company, PepsiCo, Nestlé, P&G, Unilever, Johnson & Johnson, Kellogg's, Coca-Cola, General Mills and Mars.

Take any one of them to look at in more detail. Nestlé is a partner of the Ellen MacArthur



to reduce the environmental footprint of its packaging throughout its life cycle.

Put all of this research together and the conclusion is that probably less than a 100 or so global super groups are responsible for specifying, sourcing, designing and buying the great majority of all the world's labels and packaging, and for driving forward sustainable packaging programs, circular economies, packaging compliance, and carbon reduction initiatives. The recent 2021 IPCC Report on global warming and the October COP26 Climate Conference in Glasgow are likely to put further pressure on these groups to bring forward and enhance such initiatives.

Such pressures are undoubtedly going to also be pushed down the supply chain to the label and packaging suppliers in terms of materials sourcing, minimising the use of plastics, cost reduction, carbon reduction, sustainability and recycling. If the label and packaging converter wants to understand where their major buying customers are going to take them over the five or ten years, then a study of their packaging footprint policies would be a good start. **APFI**

*\*article originally published on Labels & Labeling*

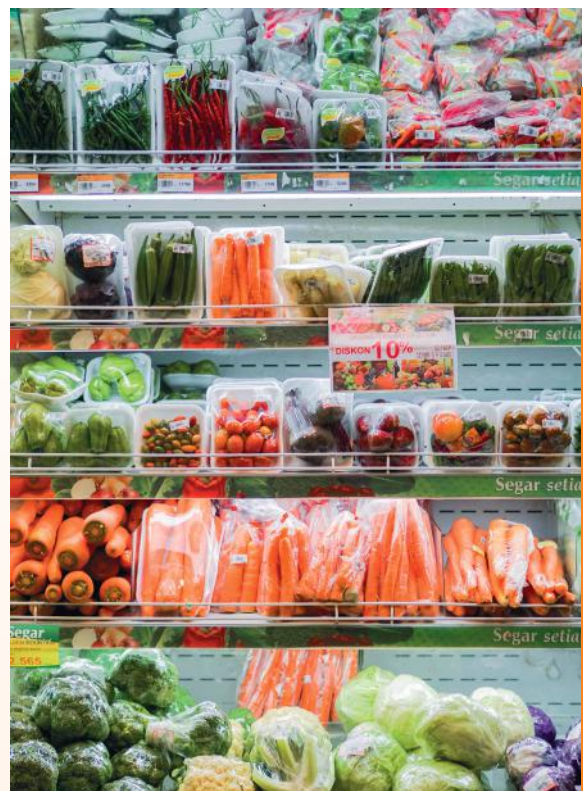
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Foundation's New Plastics Economy initiative, and has announced its ambition to make 100 percent of its packaging recyclable or re-usable by 2025. Its vision is that none of its packaging, including plastics, ends up in landfill or as litter. All the other food and beverage brands have similar kinds of packaging footprint programs.

The same can be said of the world's biggest pharmaceutical companies such as Pfizer, Bayer, Johnson & Johnson and AstraZeneca all of which have annual sales revenues of between around \$US40 billion and \$US80 billion. Again, as an example, Pfizer is dedicated to collaborating across its supply chain





# FILLING CANS IN ENHANCED HYGIENIC DESIGN

**Spitz of Austria uses the Modulfill Bloc FS-C filler-seamer block for cans in hygienic design with a small clean room.**

**ASEPTIC** filling of beverages into PET containers has been common practice for many years. But what about cans? Market demand is pushing in the direction of enhanced hygienic design, which would eliminate the need for a pasteuriser or preservatives in popular products. This trend holds true for the Austrian food and beverage producer Spitz – and the company has responded by installing a hygienically designed variant of the Krones Modulfill FS-C filler-seamer block with a small cleanroom.

Spitz is the first company to use Krones' new filler-seamer block in hygienic design. And they have good reason to do so: demand for sensitive drinks in cans is growing steadily among customers in industry and retail. "We're completely sold on the hygiene concept behind the Modulfill Bloc," says Leo Gietzen, Operations Manager for the Beverages Division at Spitz.

"In the run-up to the project, we had some lively discussions with Krones about our current and future requirements. And we were really excited that we'd be using technologies and concepts on a canning line that had, until now, only been used for filling into PET. Because no matter how much pressure there is to innovate – and there is a lot – the most important thing is still to produce excellent products of impeccable quality, in every batch," Gietzen explains.

## STRONG ON PRIVATE-LABEL PRODUCTION

This can be said of Spitz in the beverages segment: "There is very little that we aren't good at," says Jörg Knebusch, Division Manager Beverages. He is referring to the fact that Spitz makes all product categories, from mineral water to juices, CSDs, and energy drinks to the newest drinks as well as alcoholic beverages. Like their product range, the types of packaging they use are extremely diverse.

"We have the utmost competence in private-label manufacturing," emphasises Knebusch. Spitz also produces its own brands, which are marketed through its Alpine Brands company.

The options for filling are also many and varied: Spitz runs a total of 13 lines for cans, PET containers (including aseptic and conventional filling), glass bottles, beverage cartons, and large canisters – making it one of the most versatile filling companies in Austria.



## TWO NEW FILLING LINES FROM KRONES

As part of the company's five-year plan, Spitz has recently made a number of investments, among them two new filling lines: a state-of-the-art aseptic PET line and a canning line – both for the facility in Attnang-Puchheim, both recently brought online, and both from Krones.

"We have a long-standing partnership with Krones. Over the many years of our relationship, Krones has proven to be a dependable partner for beverage production machinery and equipment – and an important sounding board for us when it comes to determining which technologies we need for our products," says Gietzen.

### TURNKEY LINE FOR 87,000 CANS PER HOUR

Krones delivered the canning line, which is rated at 87,000 cans per hour (based on the 0.25-liter can), as a turnkey project. “Of course, it’s always easier if you have just one contact for everything, because every interface has the potential to cause problems,” says Gietzen.

The heart of the line is the Modulfill Bloc FS-C, comprising a Modulfill VFS-C can filler and a Modulseam seamer. The block is equipped with a small cleanroom for improved hygiene. Prior to filling, the empty cans are checked by a Cantronic inspector. Krones also delivered the process technology, which included a Contiflow mixer for beverage preparation and the VarioClean CIP system as well as a LinaFlex pasteuriser downstream of the filler.

For packing and palletising, Spitz uses a Variopac Pro TFS packer and a Pressant PalBloc 1AJ palletiser block which incorporates a Robobox T-GS grouping system. The entire line is monitored and managed by SitePilot Line Diagnostics.

“We installed the new Krones canning line to expand our overall capacity in this segment because we’ve seen very high demand from the market – from the private-label side and from the B2B segment,” explains Jörg Knebusch, Division Manager, Beverages. “We have identified the can as a model for the future,” Knebusch adds.

The new line more than doubles production capacities for cans and gives Spitz more flexibility. The existing canning line could only handle the different formats sequentially. With the second line, the team responsible at Spitz can now better combine orders as needed.

Thanks to the new variant of the Modulfill Bloc, Spitz can ensure a higher standard of hygiene than a conventional block – let alone a stand-alone filler and seamer – can provide. “Our decision to go with this particular Krones line stems from the fact that we had repeatedly received specific requests for beverages that are unpasteurised but at the same time contain very little CO<sub>2</sub>. I’m thinking, for example, of interesting water blends that are ‘lower’ in sugar, carbonation, calories, etc. This line’s hygiene concept opens up the possibility for us to cover this beverage segment well and safely fill sensitive beverages,” says Knebusch.

### WHAT MAKES THE NEW CONCEPT SPECIAL FROM A HYGIENE PERSPECTIVE?

The Modulfill Bloc FS-C is a block solution for filling and seaming cans. In it, Krones combines two individual machines: the Modulfill VFS-C can filler and the Modulseam seamer. In this variant for Spitz, Krones has encapsulated them in a small cleanroom.





The concept of a small cleanroom ensures that the sensitive filling and seaming area is self-contained and thus no air or dust particles can be carried in from outside. The cleanroom has been kept as small as possible – so the volume of air to be filtered is around one-tenth of the volume for a filler with a large cleanroom cover. That reduces the burden on the HEPA filters, which ensure that the circulating air is free of particles, and the integrated ventilation, which generates a slight excess pressure so that the filler is charged with clean air only.

The small cleanroom is designed to a dry-floor concept. That means the filler is fully enclosed so that no product or other liquids can drip onto the hall floor. On the one hand, the filling area is securely separated from the surrounding environment and can be fully cleaned, while, on the other hand, the hall floor doesn't get soiled.

The Modulfill VFS-C can filler has a new filling valve that works with a high-precision inductive flow meter. It has no corners or edges and is completely cleanable while the main bearing is grease-free, lubricated instead by an automatic oil-circulating system, which improves cleanliness in the drive area.

The machine is cleaned fully automatically, with both inside and outside cleaned simultaneously with hot caustic, which has proven highly efficient in a small cleanroom. When foam cleaning is used, it is also



automatic but inside and outside must be cleaned sequentially since the foam would otherwise stick to the hot machine.

Since the inside and outside of the machine can be cleaned simultaneously, daily cleaning times are shorter by around one hour – time gained that can be used for production. At the end of the day, the operator has benefited from higher line uptime and can therefore put more cans on pallets with the same size filler.

This also reduces the volume and variety of cleaning media needed since CIP and COP can be done with the same cleaning media. Moreover, this design eliminates the need for CIP cups.





### SMALL BATCHES, FREQUENT CHANGES

But hygiene wasn't the only factor that played an important role in the decision to use the Modulfill Bloc FS-C. As a contract filler Spitz, too, is following the general market trend toward smaller batches, which inevitably entails frequent changeovers.

"The challenge for us is to process the wide variety of our customers' products and at the same time use this high-speed line as efficiently as possible – so we can fill small batches, with frequent product and format changeovers, securely and economically," explains Gietzen.

### A number of features on the line ensure that these product and format changeovers happen quickly:

- Height adjustment is fully automated
- Adjustments to the drag chain pitch are fully automated
- Handling parts that can be replaced and adjusted quickly make for fast changeovers to different can sizes
- The combination centering bell can be used for several can sizes
- A unified operating concept and a shared touch screen for the filler and seamer and pre-programmed type settings entered directly at the touch panel make changeovers easier

Spitz is already operating the new line in four shifts – and thus nearly at full capacity. The main products handled on the line are carbonated beverages like energy drinks and CSDs, but still ones are also covered. In all, seven can formats (slim, sleek, and base) and sizes (from 150 to 500 milliliters) are filled and then put into a variety of secondary packaging. **APPI**



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# NATURE'S TREASURE BOX: PLANT-BASED INGREDIENTS TO SUPPORT TODAY'S LIFESTYLE CHOICES

**Flexitarians are driving the plant-based boom. What kind of ingredients should food manufacturers be including in their products to attract this group of consumers?**

**HOW** many people do you know have some sort of dietary restriction? People limit or increase intake of specific foods for different compelling reasons to fit their lifestyles. Consumers may require halal, kosher foods, or vegetarian diets in line with their religious and ideological beliefs, or in keeping with dairy-free or gluten-free diets to manage food intolerances.

Most people, however, with dietary restrictions would likely fall into the flexitarian category. According to a survey by Euromonitor, 42 percent of global consumers are flexitarians, compared to vegans (four percent) and vegetarians (six percent). What sets flexitarians apart is their freedom of choice – they can freely switch between animal and non-animal-based products – and they are largely driven by concerns in three areas:



**HEALTH:** They have certain perceptions about what animal-based products can do to their health. The image of processed red meat and its link to heart issues, cancer or obesity also plays a part. In general, eating less animal-based products and including more greens “makes them feel healthier”.



**ENVIRONMENT:** “The greenhouse gas footprint of animal agriculture rivals that of every car, truck, ship and airplane combined,” The United Nations Environment Programme (UNEP) has called meat production “the world’s most urgent problem”. Saving the environment by looking for sustainable sources of food is a motivation for the flexitarian consumer.



**ANIMAL WELFARE:** Consumers are also increasingly aware of their food sources and how their food is produced. Intensive farm production technologies that lead to stress and

discomfort for animals have caused consumers to move away from meat consumption.

The move away from animal-based products has led to an increased consumption of plant-based products such as meat substitutes, which has seen value growth accelerated from five percent in 2017 to 38 percent in 2020 in North America. The availability of more varieties of milk substitutes is increasing in Asia Pacific as the dairy alternative market is expected to grow at 10.7 percent. However, the plant-based boom is not confined to meat substitutes and dairy alternatives. It may also impact the way flexitarians view the spectrum of food products they consume and the ingredients in those products.



Dunaliella salina is grown and harvested from more than 800 hectares of open-air seawater lagoons in Western Australia.



In Asia Pacific, 71 percent of consumers indicated color matters in plant-based food and drinks, according to a survey by FMCG Gurus. The yellow hue from natural beta-carotene makes it suitable for incorporating color to foods such as plant-based chicken nuggets, vegan cheese, and dairy-free yogurt.

So it's not a surprise that food companies in Asia are beginning to add plant-based ingredients to their products and rebranding themselves as "sustainable" and "environmentally friendly". For 52 percent of consumers surveyed in the Natural Marketing Institute (NMI) Health & Wellness Study (2017), it is important that a food contains a food colour from plant source at the time of purchase. The choice for a specific dietary supplement could also be affected. According to Mintel's study (2021), 45 percent of adults in the USA would like to see more plant-based versions of vitamins, minerals and supplements.

## TWO-PRONGED APPROACH TO ATTRACT THE ATTENTION OF FLEXITARIANS

Claims related to health, environment and animal-free ingredients offer opportunities to address consumers' main motivation when customising packaging and labelling for each region. For example, while 'vegetarian' claims are the most popular on packaged foods in Asia Pacific, 'vegan' claims enjoy higher penetration in Western Europe and North America. Other claims such as 'natural', 'free-from' are on the rise in North America, while in Asia Pacific and Europe, 'ethical' claims such as 'eco' and 'sustainable' alluding to environmental effects are growing in dietary supplements.

In addition to claims, product transparency is recommended to bolster consumers' trust in products. A clear outline of the company's philosophy on sustainability, ingredients used, processing methods and other product qualities will appeal to this group of consumers, on top of label claims alone.

## INGREDIENTS SUITABLE FOR PLANT-BASED DIETS

Industry professionals have observed a steady increase in customer interest and demand for plant-based options. This is done through examining some of the ingredients from plant sources that are dairy/lactose-free and suitable for vegans, vegetarians and flexitarians alike.

### NATURAL BETA-CAROTENE (BETATENE®)

Betatene® is derived from a natural micro-algae known as *Dunaliella salina*, which produces carotenoids to protect itself against stress conditions such as UV light and/or harsh habitat conditions. The algae are grown utilising sunlight, fresh air, seawater and nutrients and BASF harvests a concentrate rich in natural beta-carotene. This is used in dietary supplements and functional foods & beverages, and one of the benefits of this ingredient is that it can moderately protect against sunburn and UV damage and to support healthy skin.\*

The yellow hue from natural beta-carotene also makes it suitable for incorporating colour to foods such as plant-based chicken nuggets, vegan cheese, and dairy-free yogurt.

In Japan, the health claim, "This product contains beta-carotene. Beta-carotene, which has antioxidant properties, has been reported to have functionality that helps protect the skin from UV stimuli[.]" has been approved as a "Foods with Function Claims (FFC)" in 2020, when using a minimum of 24 mg of beta-carotene in the product.\*







A field of marigold flowers

2

**LUTEIN (XANGOLD®)**

Plant-based lutein can also be naturally sourced from marigold flowers. During the extraction process, a naturally occurring ratio of lutein esters and zeaxanthin esters is maintained.

Lutein and zeaxanthin esters are naturally found in plant-derived foods such as fruits and vegetables. As a health ingredient in dietary supplements and functional nutrition, lutein is used to support normal vision and eye health but also - in combination with zeaxanthin - it improves brain and cognitive function.\*

3

**CONJUGATED LINOLEIC ACID- CLA (TONALIN®)**

Conjugated Linoleic Acid (CLA) is found naturally in dairy and meat products, which may not appeal to flexitarians.

Today, food and health ingredients suppliers such as BASF offer plant-derived CLA – Tonalin, obtained from natural safflower oil through a proprietary process. The oil content found in safflower seeds has the highest concentration of linoleic acid amongst commercially available vegetable oils.

Tonalin CLA is known for its contribution in supporting a normal body composition: Some studies have shown modest fat loss and maintenance of lean muscle mass with CLA supplementation as part of a healthy diet and exercise regimen.\*

4

**PLANT STEROLS (VEGAPURE®)**

Numerous studies have found plant-based diets, especially when rich in whole grains, fruits, vegetables and nuts, to be associated with lower levels of certain cardiovascular risk factors. Specific components like vegetable fats, fibres and phytonutrients such as plant sterols have been linked to this positive effect.\* Plant sterols are similar to cholesterol; they can compete with cholesterol for absorption in the human gut, meaning that less cholesterol may enter the bloodstream. This may result in lower blood cholesterol levels and hence contribute to heart health.\*

Vegapure plant sterol esters are composed of sterols and of fatty acids extracted from plant sources.



The oil content found in Safflower seeds is rich in linoleic acid and offers the highest concentration amongst commercially available vegetable oils.



Fatty acids are obtained from sunflower oil containing high amounts of polyunsaturated fatty acids. Plant sterols are present in plant cell membranes. They are extracted from vegetable oils such as soybean, rapeseed oil or pine tree oil.

Plant sterols esters are further refined and deodorised to obtain a fat-like product with soft consistency and pleasant taste in applications such as food, beverages and dietary supplements; convenient

options to ensure daily compliance and enable consumers to support their heart health.

### **NATURE OFFERS US A TREASURE TROVE OF KNOWLEDGE AND BENEFITS.**

Nature offers us plentiful benefits. With science and a thorough knowledge of nutrition and consumer preferences, manufacturers can apply this knowledge to develop a strong value proposition for the growing group of flexitarian consumers.

This includes companies like BASF, which work closely with their customers to support them with formulation, application, marketing and product development know-how, while leveraging on their deep scientific expertise and technical expertise to provide the right nutrients to the right people at the right time. **APPI**

\*NOTE: This claim may not be used in any promotion, marketing, or information relating to products intended for sale or reasonably anticipated for use in the United States.

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# CREATING COLOURFUL PRODUCTS THAT CATER TO MODERN CONSUMERS

**In 2022, shoppers are seeking out joyful food and drink experiences with exciting colours – while also paying increasing attention to products' impact on their health and the health of the planet. Contributed by Maartje Hendrickx, Market Development Manager, GNT Group.**

**AFTER** living with COVID-19 for more than two years, consumers are now looking to experience moments of joy and excitement – not least through their food and drink choices.

As part of its 2022 global consumer trend 'Enjoyment Everywhere,' Mintel points to a growing demand for exciting new products that amplify flavours, colours, textures, aromas, and interactivity as a result of the pandemic. The market research firm notes that, in the Asia-Pacific region, social media is playing a key role in driving playful food and drink content and activities.

Innova Market Insights' research, meanwhile, shows that more than half of all consumers worldwide want to be more adventurous with their food and beverage choices post-Covid-19\*.

## THE IMPORTANCE OF COLOUR

Colour can play a vital role in developing exciting food and beverage products. Multiple studies have shown that it plays an important role in determining expectations and experience of flavour. Shades that

match up with flavour expectations have been shown to help increase the perception of sweetness in beverages, the richness of orange juice, the pungency of salsa, and the richness of chocolate. Shades that defy flavour expectations, meanwhile, have the potential to generate a powerful buzz. Some of the most famous examples from the global market include clear and gold cola, green ketchup, and blue raspberry desserts and confectionery.

Today, there is a clear demand for eye-catching products. A survey carried out by FMCG Gurus shows 65 percent of consumers in the Asia-Pacific region like the food that they eat to have bright and intense colours. In addition, 56 percent say they like products with new and experimental colours, with 64 percent of these shoppers saying they make products fun and exciting.

## NATURAL FORMULATIONS

Nonetheless, the pandemic has also created an increased focus on health, leading consumers to take greater interest in how their food and drink is made.





In Asia-Pacific, 69 percent say they are being more attentive to natural ingredient claims as a result of Covid-19. Nearly two-thirds (65 percent) also seek out products with recognisable ingredients\*. More than seven in ten (72 percent) shoppers in the region now say they are concerned about ingredients that sound chemical.

It can be a challenge for brands to create colourful food and drink products that match up to the growing demand for clean and clear labels. Artificial colours and even natural colours with chemical-sounding names can limit a product's appeal.

Plant-based colour concentrates – made from edible fruit, vegetables, and plants using traditional physical processing methods – can provide an effective alternative. Due to the way they are created, these concentrates qualify for cleaner and clearer label declarations in much of the world. A survey of Asia-Pacific consumers also found that colours made from the concentrated juice of fruit, vegetables, and other plants are the most attractive choice for Asia-Pacific consumers, with 63 percent considering them to be appealing or very appealing.

### SUSTAINABILITY IN FOCUS

Mintel's 2022 trends also highlighted consumers' increased need for a sense of control due to the pandemic, with food and drink brands needing to empower shoppers to make confident decisions. This not only involves making label information easy to understand to support health considerations but also showing measurable progress on environmental and ethical commitments.

It's clear that sustainability and ethics have never been more important. In fact, both Innova and FMCG Gurus placed sustainability concerns at the head of their top global trends for 2022. The latter's research

shows 75 percent of Asia-Pacific consumers have become more concerned about the environment as a result of the pandemic, with many wanting to see claims such as non-GMO (81 percent), reduced carbon footprint (74 percent), and minimal use of water (41 percent) on food and drink. Nearly half (49 percent) also want to see initiatives around the ethical treatment of farmers (49 percent).

Recent years have seen a significant rise in many of these claims. Mintel data shows 'GMO free' claims in new product launches increased by 24.3 percent worldwide between 2016 and 2021, while Innova found there was 56 percent year-over-year global growth in on-pack carbon emission communication between 2020 and 2021.

Food and drink brands therefore need to take every ingredient into account – including colours – to deliver the positive environmental claims these consumers want to see when they turn to the label.

### FUTURE-PROOF COLOURS

EXBERRY® colouring Foods are plant-based concentrates that can tick every box for the modern consumer. Its range of shades covers the whole rainbow and they can be used for almost any food and beverage application. Concentrates are made from non-GMO fruit, vegetables, and plants grown by farmers working as part of our vertical supply chain. GNT is also working towards a range of ambitious sustainability targets for 2030, including reduced water use and cutting its overall product environmental footprint by 25 percent. **APFI**

*\*References available upon request*

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# HEALTHY AGEING: FROM ANTI-AGEING TO AGE-EMBRACING

COVID-19 has accelerated wellness-related trends, reinforcing the importance of health as a priority, as well as viewing physical and mental well-being as an entire ecosystem. Contributed by Emil Fazira, Senior Consultant at Euromonitor International.

**THE** desire to be healthier is changing the narrative of ageing, moving away from fighting the signs of ageing to focusing on 'looking and feeling good at any age'. This shift represents an opportunity for businesses to be able to support consumers in their search for a healthier life, across all age groups. Hence, it is vital to understand health trends and consumer approaches to treatment and prevention, as the approach to wellness becomes more and more holistic. The shift from treatment to prevention is increasingly evident as consumers take greater ownership of their health and reconsider their eating habits as a result.

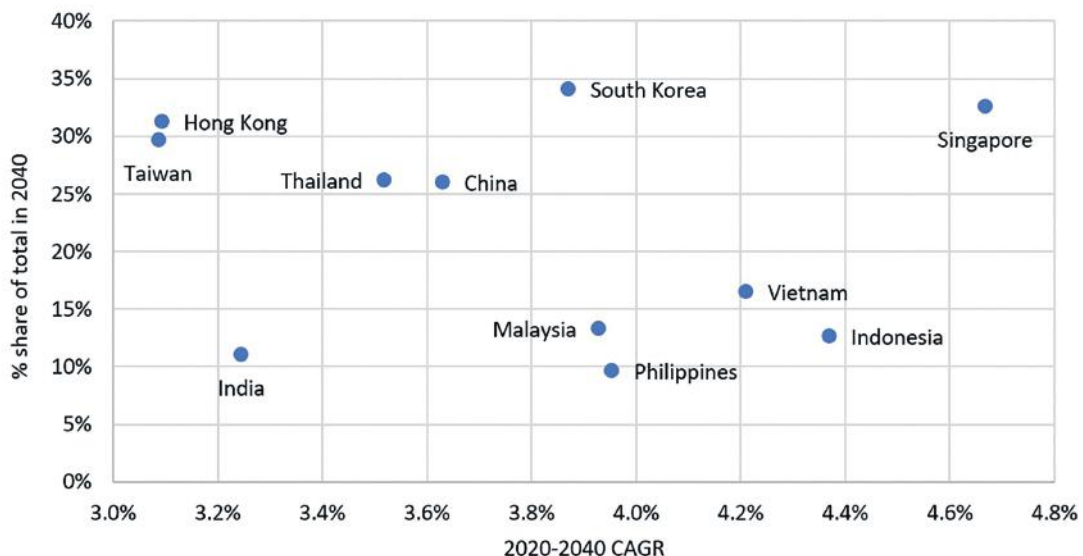
## INDONESIA, VIETNAM: YOUNG NATIONS, HIGH RATE OF AGEING

Japan has typically been at the forefront of healthy ageing innovation due to its large proportion

of seniors; consumers aged 65+ make up 35 percent of Japan's population, and the country expects a slow growth in the number of people within this age group up to 2040. The remaining Asia Pacific markets, however, are expected to age rapidly, particularly Singapore, Indonesia and Vietnam.

Vietnam and Indonesia in particular, have a small percentage of consumers aged 65+ although by 2040 they will be well ahead of markets like Malaysia, the Philippines and India. In fact, both Indonesia and Vietnam are among the youngest nations in terms of median age in 2020, with 30 and 33, respectively. Products positioned as preventative will likely attract them as they approach a senior age. In fact, Euromonitor International's Voice of the Consumer: Lifestyles Survey shows that 56 percent of surveyed Vietnamese respondents aged 30-44 intended to

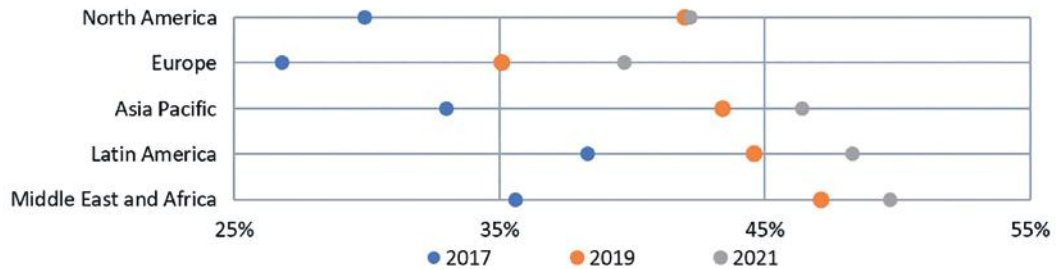
Forecast for 65+ Agers in Asia Pacific excluding Japan  
% share of total in 2040 vs 2020-2040 CAGR



Source: Euromonitor International Population

Note: Japan has been excluded due to its large share of 65+ agers (36%) and low forecast CAGR of agers (0.5%)

**I Closely Read the Nutrition Labels of Food and Beverages Before Consuming, 2017/19/21**  
% of respondents



Source: Euromonitor International Voice of the Consumer: Lifestyles Survey; fielded Jan-Feb 2017-2021  
n 2017=28,487, n 2019=40,464, n 2021=40,732

increase their spend on health and wellness products in 2021, the highest percentage within this age group among Asian markets.

**NUTRITION: FUNCTIONAL NUTRIENTS MEET TRADITIONAL HERBAL INGREDIENTS**

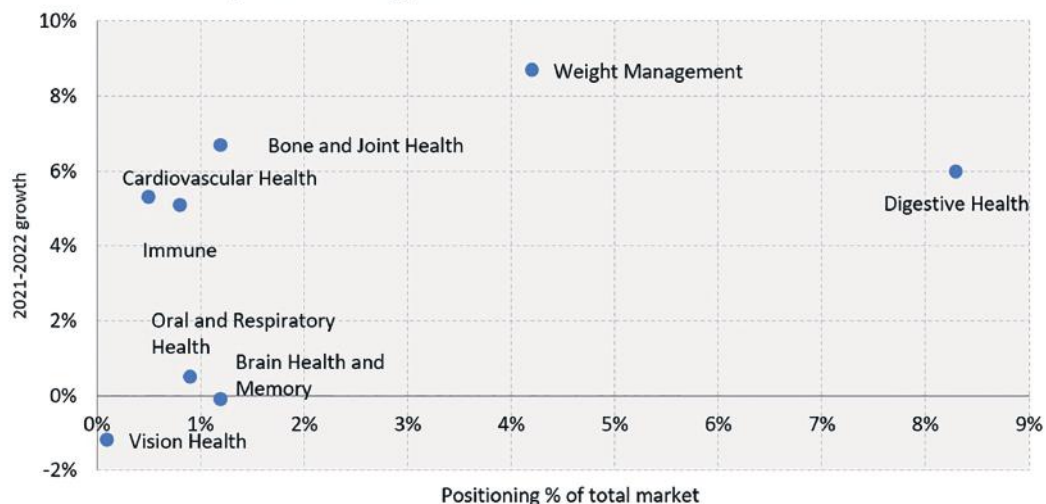
Escalated by COVID-19, the incorporation of healthier ingredients into daily diets has become a greater priority among consumers. Results from Euromonitor’s International Voice of the Consumer: Lifestyles Survey indicate that Asia Pacific saw the largest rise in the percentage of consumers who show strong interest in reading nutrition labels between 2016 and 2021. In 2021, 46 percent of respondents claimed to closely read nutrition labels of food and beverages before consuming.

Consequently, there has been higher demand for targeted functionality as a key component of wellbeing.

The extra benefits delivered by functional ingredients, ranging from immunity boosting to brain health, are increasingly accepted as a means of promoting well-being, as well as minimising nutritional gaps in the diet. For example, in Vietnam, Vinamilk’s Kenko Haru (powdered milk) was launched in August 2021, which contains Fucoidan; the product is positioned to support bone health and immunity, primarily targeting senior consumers.

Bone and joint health is expected to be one of the fastest growing positioning types in 2022 amongst packaged food, in terms of value sales. However, its penetration in the market is still low, at only one percent, compared to digestive health with eight percent. The large presence of digestive health positioning among packaged food is owing to the natural positioning of yoghurt and probiotic content in products.

**Prime Positioning of Health and Wellness Packaged Food**  
2021-2022 USD million (constant terms) growth vs % of total market



Source: Euromonitor International Health and Wellness



Interest in simpler foods with a nutritionally balanced offering and natural healing properties has also increased significantly, as consumers seek out healthier food and drinks. This has resulted not only in additional opportunities for traditional ingredients and ancient herbs and botanicals, but also for product innovation, with companies re-engineering product formulas to include more natural options and new functional ingredients. Traditional ingredients will also bode well with local consumers; for example, in Indonesia, FamilyMart introduced jamu drinks in October 2021. Jamu is a local drink containing a mixture of various herbs, primarily known to boost the immune system.

### MENTAL WELLBEING: CONSUMERS KEEN TO FIGHT AGAINST STRESS AND DEPRESSION

Increasingly, consumers are also seeking internal balance, in the sense that their nutrition health matches their mental and emotional states. Indicators include brain and memory health, and sleep and stress. Compared to other regions, Asia Pacific records a higher percentage of survey respondents concerned about certain mental health indicators for the long term. Memory issues is especially pertinent, pointing to a continued need for products addressing such concerns.

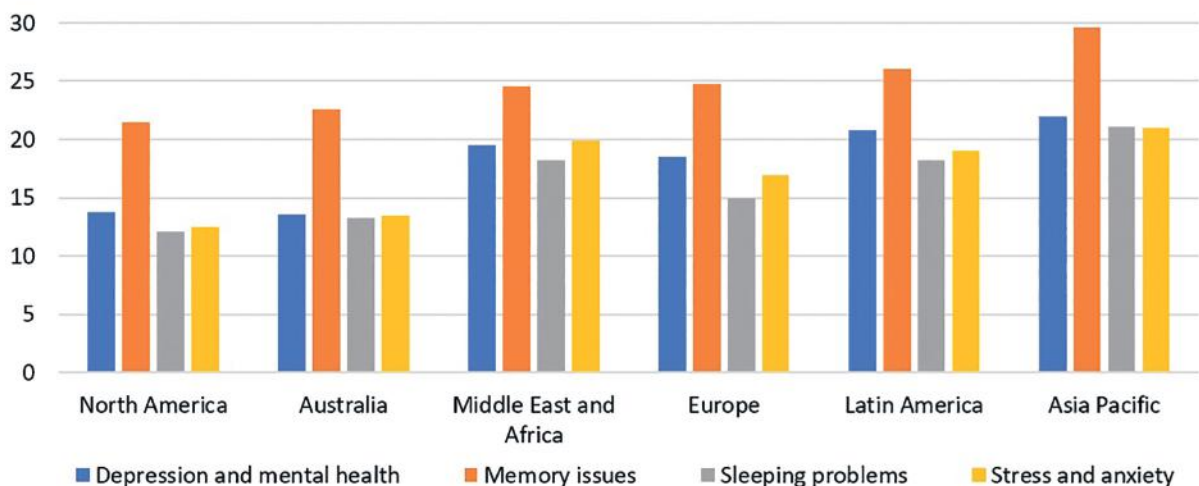
Currently, the proportion of products in the market that claim to support brain health and memory is low. Products with brain health and memory positioning

make up a US\$3.2 billion market in Asia Pacific, but only comprise one percent of total sales, with flat growth expected between 2021 and 2022. Much of these products are also targeting children in baby food, leaving limited options for adults, and much room for improvement.

Regardless, there have been developments addressing mental health – mainly positioned for relaxation and sleeping. Japan leads innovation in this area, targeting working adults. Although not explicitly addressing ageing concerns, targeting 30-40-year olds is aligned with the concept of preventative health, as consumers adopt healthy lifestyles in preparation for old age. One such example is a ready-to-drink (RTD) tea launched by Asahi Group, one of the top five RTD tea players in Japan. Its new product was introduced in August 2020, which claims to relieve stress and improve sleep quality by reducing fatigue as it contains L-theanine.

Aside from the fairly well known ingredients of L-theanine and GABA (Gamma Aminobutyric Acid), other plant-based ingredients and botanicals, also known as adaptogens, are becoming increasingly associated with holistic wellness and relaxation. Herbs, mushrooms and roots common in traditional Asian medicine may constitute an emerging part of consumers' diets striving for internal wellbeing, especially those seeking plant-based functional solutions.

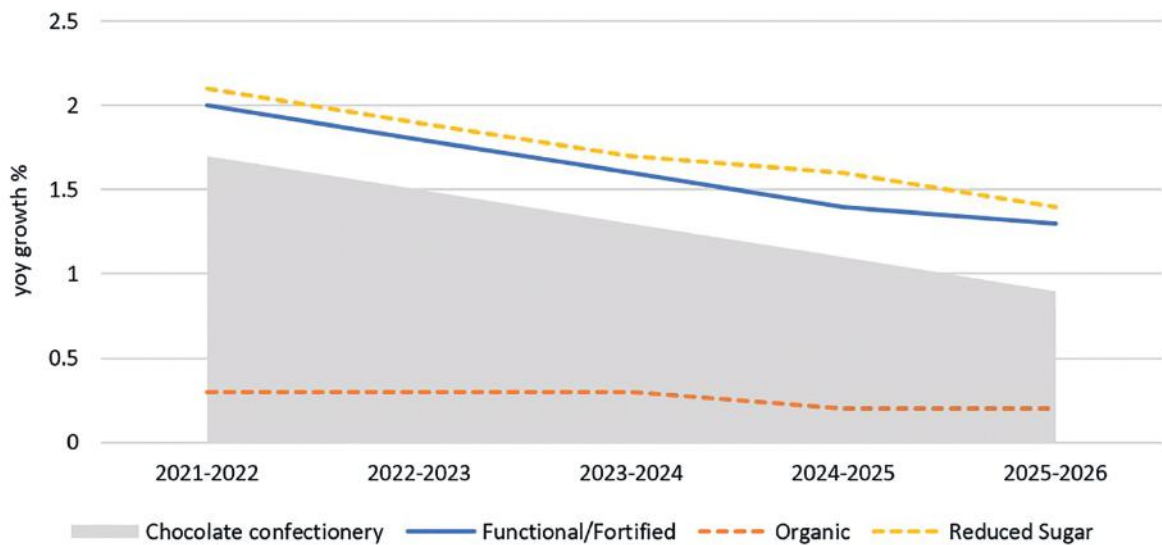
**Long Term Future Health Concerns, 2021**  
% of respondents



Source: Euromonitor International Voice of the Consumer: Health and Nutrition Survey; Fielded Jan-Feb 2021; n=21,460

### Growth of Chocolate Confectionery Across Health and Wellness Types: Japan, 2021-2026

% growth of retail value RSP



Source: Euromonitor International Health and Wellness, Snacks

### INNOVATION FOR HEALTHY AGEING

Innovation remains key to promoting healthy ageing products. Product choice is limited despite growing consumer interest to address these impending health concerns. As Asia remains a price-sensitive market in general, it is expected that the core consumer base who might be more willing to spend are working adults with higher disposable incomes and fast-paced lifestyles.

With Japan as the hub for such innovations, white spaces could be sought by studying the Japanese market to understand where the trend might develop, such as in functional chocolate, a growing market. North Colours Life Smart, for example, targets middle-aged consumers with memory issues and sleep and skin health concerns. Its functional ingredient is kendir extract, an adaptogen that promotes quick sleep. Such a product is a two-pronged approach in creating opportunity: the first being chocolate as a food vehicle for functional ingredients, and second, functional ingredients as a category booster, should perceptions around chocolate as an unhealthy snack persist, while retaining their indulgence positioning.

In Japan's case, higher growth rates of reduced sugar chocolate confectionery raise a key consideration; manufacturers must consider local perceptions of health and indulgence. Premiumisation and indulgence go hand-in-hand with certain health claims; higher cocoa content for example, is often related to being less sweet yet premium.

Hence, fortified/functional claims must consider related health trends instead of relying solely on functional ingredients, especially since active ingredients in a nascent health category have yet to fully gain consumer trust. **APFI**

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# UNDERSTANDING THE DRIVE OF HEALTHY AGEING NUTRITION

As demand for functional products increases, product manufacturers need to earn the trust of consumers by communicating transparently about product benefits and using proven ingredients supported by high-quality research. Contributed by Jackie Ng, Strategic Marketing Director, Kerry APMEA, Applied Health & Nutrition.

**ENJOYING** good health and quality of life is something we all strive for, and this becomes more important as we get older.

More than ever, today's older consumers are proactive about their health and well-being – they are staying active, making healthier food choices and reducing salt, sugar and fat in their diets, and getting enough quality sleep.

Older consumers define healthy ageing less in terms of youthful appearance or long life and more about embracing the natural ageing process while being free of illness, with 64 percent saying keeping an active mind and 58 percent identifying staying physically active as the most important aspects of healthy ageing.

While six in 10 of Generation X and Baby Boomers say their current age is the time to start taking steps to maintain good health, interestingly, almost half of older Generation Z consumers report taking steps to age healthily from age 20.

### THE SENIOR CONSUMER

In Asia Pacific, one in in four people will be 60 years or older by 2050. Faced with a fast ageing population, the number of older adults is expected to more than double, from 535 million in 2015 to about 1.3 billion by 2050.

In Southeast Asia, the proportion of people aged 60 or above in 2017 was 9.8 percent — this figure is projected to grow to 13.7 percent and 20.3 percent by 2030 and by 2050, respectively.

Globally, among age-related health concerns, immune, digestive, muscle, cognitive and bone and joint health, cardio metabolic and weight management rank high.

What this means is that unlike infant nutrition or performance nutrition where categories are defined around common needs, 'Healthy Ageing' nutrition is a broad and wide market, not a singular category, and healthy ageing products should address need states rather than age.

Yet when it comes to food and beverage innovation, only one percent of global innovation and 10 percent of marketing spend target adults over 50, despite the fact that it is the fastest-growing consumer demographic.

### IMMUNE, GUT & MUSCLE HEALTH KEY TO HEALTHY AGEING

With age, consumers' priorities shift from improving health to maintaining health; they want food, beverage and supplements that keep them physically and mentally well. Interest in immune health has increased, with the ongoing pandemic driving this focus, particularly among older consumers who already stand a higher risk of disease and infections.

But while our immune health slows and weakens with age, our desire to enjoy a healthy, active life does not.

More than one quarter of respondents aged 56 and older named immunity, gut health, heart and bone health, improved sleep and ageing well support as benefits they want to see in food and beverages.



In Asia, immune (35 percent) and digestive health (31 percent) were top ageing-related claims among global food and beverage launches with ageing related claims in the first six months of 2020 and 2021.

Soft drinks, dairy and hot drinks make up half of food and beverage launches with immune health and ageing-related claims. Interest in immune health may also be propelling growth in a broader range of products, including confectionery, which saw a projected 36.3 percent CAGR from 2018-2020, and spreads at a 25.2 percent CAGR over the same period.

Kerry research shows that among consumers in Asia Pacific, Middle East and Africa, more than 70 percent are users of or considering using healthy lifestyle products with immune health benefits.

When it comes to digestive health, more than 60 percent of Asian consumers have either used or considered purchasing products that provide digestive health benefits, with nearly a third seeking digestive health benefits in dairy beverages, fruit and vegetable juices and hot beverages. In the wider APMEA region, the functional beverage market is the largest globally, valued at US\$42.8 billion.

Equally as strong are probiotic-fortified foods in the region, which topped US\$47 billion in 2020, with 50 percent of consumers having consumed a probiotic in food in the past six months and want their probiotic fix



on the go, in snacks, bars, baked goods, frozen foods and desserts, and confectionery. Part of the reason for this is the growing body of scientific research on the benefits of probiotics, including a wealth of studies carried out on kids. For example, research with BC30™, Kerry's spore-forming probiotic, found that the probiotic ingredient can support digestive health as well as protein absorption.

Along with immune and digestive health, muscle health is also a critical factor in healthy ageing. As we get older, we lose muscle mass, which leads to reduced strength and mobility and sarcopenia or skeletal muscle disorder. With muscle loss, our body's ability to absorb protein is also affected, which means we need more protein as we get older. Maintaining muscle is the difference between a healthy, active, independent retirement, and physical dependence.

A new Kerry report found that in Asia, 40 percent of consumers associate protein consumption with healthy ageing, bone/joint health, immunity and skin/beauty benefits. Some 84 percent of consumers in APAC are willing to pay a higher premium for protein products, with quality of protein being the top purchase motivator for 60 percent of consumers. Breakfast foods and indulgent snacks, including granola and cereal bars, yogurt and breakfast cereals top the list of preferred protein foods, while drinkable yogurt, dairy-based milk and nutritional beverages are the protein-preferred beverages in the region.







### WINNING IN AN EXPANDED MARKET

The core of ‘Healthy Ageing’ is prevention, not cure. Consumers are beginning to view healthy ageing as a lifelong exercise – the earlier one starts, the better.

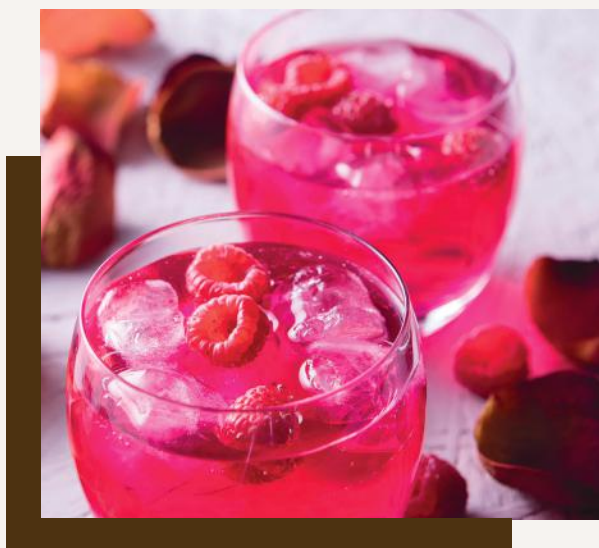
There is huge opportunity to deliver healthy food and beverages that are nutritious, convenient and deliver on the benefits older consumers want and can understand.

New products can highlight nutrients and ingredients that support physical and mental function, including protein, calcium and newer functional ingredients, rather than focus on therapeutic or medical benefits.

Fortified beverages may attract older adults who recognise the importance of hydration. “Clear” whey ingredients, for example, can be used as protein sources for beverages such as tea and coffee.

Water and sparkling beverages with easily incorporated functional ingredients can allow older consumers to personalise their selection to meet a specific health need.

When it comes to immunity and gut health, to stand out from the crowd and build consumer trust, research is everything. Consumers want clarity when evaluating



immune health ingredients. Formulating with science-backed yeast beta glucans, like Wellmune®, Kerry’s proprietary yeast beta glucan, can help manufacturers create functional foods with clinically demonstrated immune health benefits consumers seek.

For instance, Kerry’s scientifically-backed Wellmune®, in addition to a team of formulation experts, helped a major snack company in the Asia Pacific region create a protein powdered beverage that provides immune health benefits, with region-specific flavours like Thai Tea and Cappuccino Coffee.

Consumers want more information about the nutritional value of products, and many now make purchase decisions primarily by looking for ingredients they recognise, or that are supported by scientific data. For example, in APMEA, 43 percent of consumers say they are influenced to purchase healthy lifestyle products by doing their own research while 39 percent say they are influenced if they see research or scientific studies.

Within this, the pandemic has increased the burden of responsibility on manufacturers from both an innovation side – creating products that fit consumer’s wellness routines – and a benefit side, which is where science-backed functional ingredients come into play. As demand for functional products increases, product manufacturers need to earn the trust of consumers by communicating transparently about product benefits and using proven ingredients supported by high-quality research. Creating products with branded, science-backed immune ingredients or probiotics can further enhance a product’s offering to better help seniors support their health. **APPI**

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# EAT HEALTHY TO AGE HEALTHY

**The importance of consuming enough fibre and protein is not to be underestimated in any healthy ageing individual. Contributed by Dr. LaiYee, Lee (Technologist) and Anushia Shanmugaraj (Corporate Communications & Marketing).**

**I**n recent times, the world of food has become trendier as it steers its way into healthier, more balanced ways of consuming food. Diets like keto, and intermittent fasting rose to a high during the peak of the pandemic and has piqued the interest of many. People are now focusing on diets that contribute to healthy ageing, therefore, we see a shift in purchasing patterns more skewed towards plant-based diets as well as consuming products with added nutritional functions.

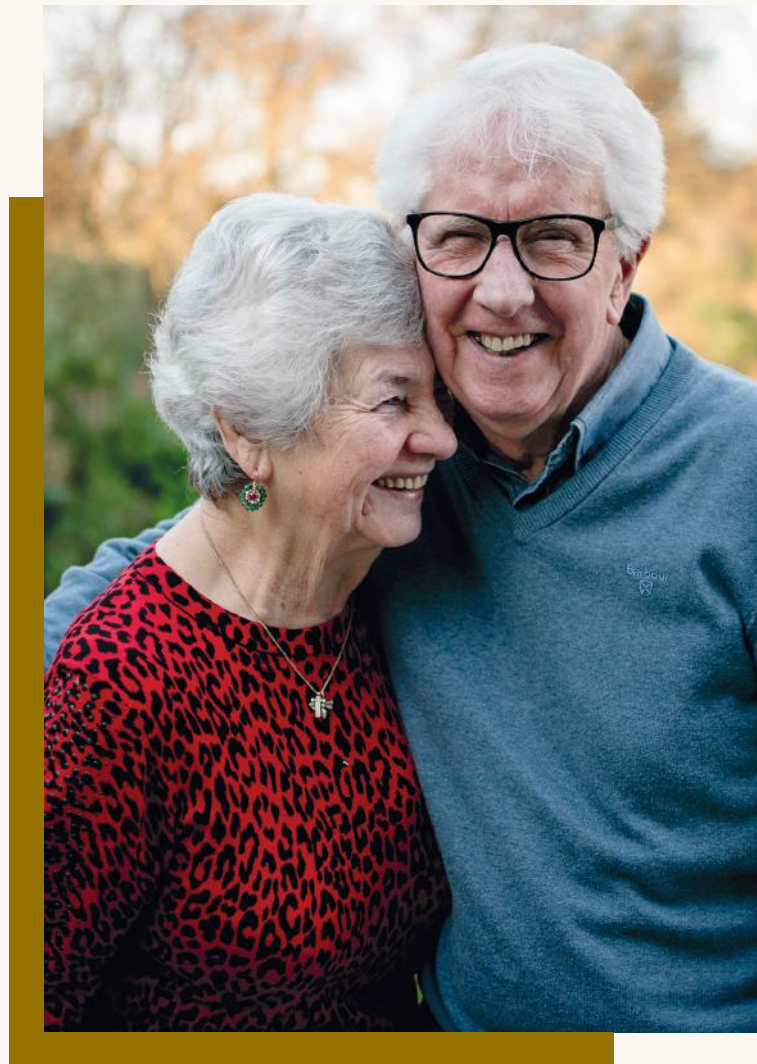
As general consensus would agree, eating plant-based is good for the environment. It also has direct health benefits that include being good for the heart, brain and gut. Many clinical tests and trials show that in order to practice healthy ageing, diets that consist of plant proteins and fibre based foods can help increase longevity as well as decrease developments of chronic diseases such as diabetes, cancer and heart problems, diseases that are more likely to emerge as one ages. However, having limitations to the kind of foods available may sometimes be a hindrance in maintaining these lifestyle choices.

Companies like Futura Ingredients have thus, developed a range of products within the plant protein and soluble fibre category to bridge the gap of healthy eating and food that are deemed unhealthy within applications for bakery, dairy and non-dairy beverages as well.

## THE NECESSITY OF PROTEIN

According to The European Food Safety Authority (EFSA), they suggest 0.83g per kg body weight per day of protein intake and 25g per day of dietary fibre intakes for good health. The US FDA has increased this daily recommended value for dietary fibre from 25g to 28g per day in March 2020.

It has been estimated that 0.5 – one percent of muscle mass is lost annually when we turn 50. It is therefore, necessary to increase our dietary protein



intake as we age. In fact, there are studies suggesting that we should increase our dietary protein intake earlier in life to mitigate muscle ageing process. Furthermore, protein produces greater satiety in comparison to carbohydrates and fats so we stay full longer. High protein diets have also been shown to be an effective weight loss strategy for overweight and obese individuals as it reduces hunger.

Proteins are large molecules made up of long chains of amino acids, which are the building blocks of proteins. Each amino acid has the same fundamental structure, consisting of a central carbon atom, bonded to an amino group (NH<sub>2</sub>), a carboxyl group (COOH), a hydrogen atom, and a side chain that differentiates the amino acids. There are 20 types of amino acids in total, of which 11 are non-essential amino acids, and the remaining nine are the essential amino acids. The non-essential amino acids can be synthesised by our body, while the essential amino acids (histidine, isoleucine, leucine, lysine, methionine, phenylalanine,

## FOOD MANUFACTURERS MUST KEEP IN MIND TO ADAPT THE TASTE AND TEXTURES OF THEIR FOOD TO SUIT THEIR CONSUMERS' PREFERENCES.

threonine, tryptophan, and valine) cannot, and needs to be obtained through diet.

Therefore, in addition to giving nutrients to humans, proteins are unique for its functionalities in food applications because of the several forms of interactions within and among the protein structures. These food application functionalities include its emulsification capability, foaming properties, water holding capacity, gel formation capability, as well as its ability to impart viscosity in the food matrix. Proteins are unique in food applications where its impact, for example on foaming or viscosity, are different between protein A and B due to intra- and intermolecular interactions.

Proteins from plant and animal sources are significantly different in terms of its chemical composition and structure. Plant protein powders are pure amino acid chains while animal proteins are typically complex and comprised of conjugated proteins. Conjugated proteins are more functional owing to its naturally complex configuration. For example, in baked goods – there is ovalbumin in egg whites that form foams easily and lipoproteins in egg yolks that gives good emulsifying properties; while in dairy beverages – milk proteins are phosphoproteins that help with emulsion stability. Formulating with plant proteins can be complicated as it requires the support of other functional ingredients to obtain certain desired functionalities.







### FIBRE IN FOOD FORMULATIONS

Fibre intake has very often been included in our food intake; however, many are unaware of how imperative it is in maintaining the health of the gut, as healthy gut flora will eventually determine the health of the digestive system. This is due to how it loses gastrointestinal muscle strength as we age. Hence, the inclusion of a high fibre diet will contribute to healthy ageing.

Fibre source is ideally from plant-based food through our daily diet; however, most of us have a gap to fill between existing and recommended fibre intake levels especially as we evolve into contemporary diets and lifestyles. The increasing awareness of the importance of fibre intake, in addition to the demand of healthy food, has led to introducing added fibre in food formulations. The added fibre is often termed 'functional fibres'. These include isolated non-digestible carbohydrates such as resistance starch,

polydextrose, inulin and indigestible dextrins. Fibre is either water soluble – forms solution when mixed with water, or not soluble – insoluble in water.

**Inulin** – natural soluble fibre in a variety of plants, commercially extracted from Jerusalem Artichoke or Chicory root. It is a white and odourless powder with natural and neutral sweetness.

**Polydextrose** – typically manufactured from glucose and sorbitol. It is a white and odourless powder with clean and neutral taste.

The roles of soluble fibres like inulin and polydextrose in processed food products are more than just nutrient sources. In addition to their nutritional benefits, they carry technological advantages in food applications as well. From a nutritional perspective, inulin and polydextrose carry prebiotic properties which stimulates the growth of beneficial bacterial in our gut. They have lower impact on blood sugar rise,



INDONESIA CONSUMERS STATED THAT THE TOP THREE REASONS WHY THEY LOOKED FOR PROTEIN CLAIMS ON LABELS WERE 'MAKES ME FEEL HEALTHIER' (65 PERCENT), 'BUILD/SUPPORT IMMUNE SYSTEM' (65 PERCENT) AND 'MEDICAL RECOMMENDATION FROM DOCTOR' (63 PERCENT).

and therefore, carry a low glycemic index. Therefore, making it an excellent contributor of fibre to our diet, particularly in fibre enriched or fortified food products. Being complex polysaccharides, inulin and polydextrose contributes to lower energy density as compared to many other ingredients such as sucrose

and maltodextrin. Inulin and polydextrose impart solids when added in food formulations.

They are often favoured options for food product development in reduced calorie formulations, particularly those involving sugar and/or fat reduction - considering the need to compensate the missing solids without adding back too many calories. They also impart a certain degree of water binding capacity, and on that account, they are able to impart viscosity to the food matrix. Additionally, inulin and polydextrose provides texture and mouthfeel needed from the sugar and/or fat removed.

Soluble fibres typically impart clarity and rheological properties similar to sucrose. Therefore, it is generally straightforward to incorporate them into food formulations. They are also versatile and can be added into a range of food applications while preserving, if not improving, the product's original flavour profile or release.

Futura Ingredients advocates healthy ageing through healthy eating with a combination of Ekölite VITA Plant Protein Series, which uses plant protein sources from pea, brown rice, pumpkin seeds and the Ekölite VITA Soluble Fibre Series as the solution to an improved nutritional profile in formulations for bakery, beverage and ice cream applications. **APFI**

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# COCA-COLA GERMANY SWITCHES CAPS FROM SINGLE-USE PET BOTTLES

**New closures that remain firmly attached to the bottle after opening will soon be a part of everyday life for consumers across Europe.**

**UNSCREW**, tilt the lid backwards, let it snap into place and enjoy: from now on, people in Germany will notice a small but subtle change in the closures of non-returnable PET bottles from Coca-Cola more and more often.

This is due to the fact that the cap remains firmly connected to the bottle neck when screwed on. There is a good reason for this: the tight cap makes it even easier to collect and recycle all of the bottle's components. Consumers simply leave the cap on the bottle while drinking, close it again and return the packaging to the deposit machine as usual. "It remains the same great taste and drinking experience that people have come to expect from our drinks. We are proud to be one of the first manufacturers in Germany to start implementing new lids to improve the recycling cycle two years before the end of the transition period of the new EU requirement," says Tim Kolbe, Senior Brand Manager at Coca-Cola Germany.

## REASON FOR CHANGE

The company is changing the design in line with the EU's Single-Use Plastics Directive, which requires beverage manufacturers to ensure caps remain securely attached to the bottle by 2024 to protect the environment. In order to make consumers aware of the new closures, the caps at Coca-Cola Germany are marked with the inscription, "Let me go!".

"In Germany, 97 percent of non-returnable PET bottles are already being returned via the deposit system, and around 95 percent of them even come with a lid. But in the future we also want to recycle the last few lids and are showing a pioneering spirit here in Germany with the conversion as one of the first countries in Coca-Cola in Europe," says Dr. Stefan Kunerth, Technical Operations Director Western Europe at The Coca-Cola Company. The aim is for all German plants to convert their production to bottles with the new closures by January 2024. Due to the gradual conversion resulting from the size of the production network, non-returnable PET bottles with the previous type of cap as well as with the new caps can be found on the market for a while.



## AVOIDING PLASTIC WASTE IN EUROPE AND THE WORLD

The Coca Cola Company is gradually starting to switch to the new lids in other EU countries as well. Because improving the collection and recycling of packaging waste is a top priority for Coca Cola. However, deposit systems based on the German model are not yet available everywhere in Europe. If the caps are attached to the bottle, this also ensures a better recycling cycle in EU countries without a deposit system. The new closures are a further step towards avoiding packaging waste and contribute to The Coca Cola Company's global corporate goal: a world without waste. By 2030, The Coca Cola Company aims to collect one bottle or can for every bottle or can placed on the market, and ensure all packaging is recycled and none of it ends up as landfill.

## SAVING UP TO 1.37 GRAMS OF PLASTIC PER BOTTLE

In Germany, Coca Cola is also taking the switch to the new caps as an opportunity to reduce the amount of material used in the bottles overall. With the new closures, up to 1.37 grams of plastic per bottle can be saved. This in turn contributes to the sustainability efforts of Coca Cola in Germany as a whole. **APPI**

*\*article originally published on PETnology*

ENQUIRY No 3501

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# EXPERTISE IN CANNING: KHS AND FERRUM ADOPT PIONEERING ROLE IN HYGIENIC MACHINE DESIGN

An increasing number of beverages are being filled into cans worldwide, with the diversity of products seeing a similar increase. It is for precisely this reason that canners make particularly high demands of flexibility and the hygienic design of their machinery.



KHS and Ferrum take on a pioneering role in the field of hygienic machinery design. Their technical systems, perfectly attuned to one another thanks to many years of partnership, enable beverage producers to market high-quality products that are hygienically flawless. The compact InnoFill Can C from KHS, for example, is convincing with its flexible, taste-neutral filling, among other features. This is supplemented by matching seamer systems FC06 and FC08 from Ferrum which with their open design are especially easy to clean. Combined, both machines make for a very efficient filling process.

The world demand for trend beverages such as hard seltzer, energy drinks and craft beer continues unabated. Here, the can is often the container of choice, says Manfred Härtel, Filling Technology Product Manager at KHS. "It's light, easy to recycle and keeps products fresh for longer with its excellent barrier properties." This type of container is increasingly being favoured for established beverages such as soda pop, water and mixed beer beverages. According to Härtel, this is prompting a good number of beverage filling operations to increase their range in the can segment and fill more and more different



products on the same line. “This means higher demands are made of the machine’s flexibility and hygiene,” Härtel explains. “For the greater the product variety on a line, the greater the risk of contamination and flavour carryover.”

### **KHS AND FERRUM: HYGIENIC MACHINE DESIGN CRUCIAL**

“Our mutual customers have exacting standards when it comes to the quality of their products,” states Marc Zubler, Head of Sales and Product Management at Ferrum. An optimum hygienic machine design that reflects the current demands and requirements of the market is just as important as the consultancy service that goes with it. Härtel claims both companies share a deep understanding in this area; many years of partnership have created systems that are perfectly attuned to one another. “We offer a complete package of first-class technology and advice. Our jointly developed filler/seamer block gives our customers plenty of added value,” Zubler declares.

### **FLEXIBLE, HYGIENIC AND ROBUST: THE INNOFILL CAN C**

KHS provides two fillers for the can segment that have long proven themselves on the market: the Innofill Can DVD for the high-performance range and the Innofill Can C designed for small to medium filling quantities. Thanks to a new addition to the series that

boosts capacity to up to 60,000 cans per hour, the Innofill Can DVD’s little brother can now be integrated into lines with higher outputs even more effectively. It is also extremely flexible, enabling several different products and formats to be processed on a single line.

“The Innofill Can C is distinguished by its fast format changeovers and setup times. This in turn increases the availability and economy of the system,” Härtel says.

### **PROTECTION AGAINST FLAVOUR CARRYOVER**

In view of the increasing number of beverage variants being processed, during development special attention was paid to the hygienic machine design and providing protection against flavour carryover. In the product area the filling valves on the KHS can fillers are thus equipped with PTFE expansion joints (Teflon) in place of conventional seals. The sliding seals in the bell guides have also been replaced by Teflon expansion joints to create gapless, hygienic seals. These effectively protect the product from contamination and are easier to clean. Moreover, the electropneumatic lifting and positioning of the bells when sealing cans further contributes to a safe filling process. “Also doing away with water lubrication in the filler carousel area shortens exterior cleaning intervals by up to 20 percent,” Härtel says.

As an option, the Innofill Can C can also be fitted with a HEPA filter that removes potential bacteria from the air in the machine interior. Another option





available on request is warm filling. This prevents condensation and thus microbiological contamination such as mold from being formed.

### SOPHISTICATED HYGIENIC DESIGN ALSO FOR SEAMERS

Like KHS, Ferrum makes the highest demands of the hygiene of its machinery. The greatest importance is attached to the hygienic design of all components in both the ferruBasic and FC series with seamers FC06 (15,000 to 45,000 cans per hour) and FC08 (19,000 to 60,000 cans an hour).

“When developing our seamers, we consciously went for an open design without cladding. This makes the components easy to clean and the machine readily accessible to operators,” explains Jörn Winkelmann, Process Engineer and Hygiene Expert at Ferrum.

In the FC series – that is incidentally perfectly compatible with the KHS Innofill Can C – the use of several different angled levels allows condensation and other unwanted liquids to easily run off and not enter the open beverages cans. For the same reason the conveyor segment features regularly spaced openings and the components have an extremely high surface quality to prevent microbiological deposits. Another item of note is the design of the seals that are easy to sanitise as they are installed on the exterior of the machine. The seamer section is made entirely of stainless steel and provides maximum durability even when aggressive cleaning media are used. In this

market segment most cleaning is performed by hand; only the gas injection system and bubble breaker are foam-cleaned in a fully automatic process. Cleaning for the product area is also available as an option.

For can seamers F12 (35,000 to 105,000 cans per hour) and F18 (51,000 to 150,000 cans an hour) in the ferruBasic series, the Swiss company provides optional hygiene packages whose components are largely installed in the FC series as standard. These include, among other things, installation of an inclined base plate (on the F12 only) and various adaptations to tools that have a positive impact on the machine hygiene. Furthermore, since very recently the welded cladding around the upper parts in the standard version has consisted entirely of stainless steel. Ferrum systems F12 and F18, designed for the high-performance range, are therefore a useful addition to the KHS Innofill Can DVD can filler.

### PARTNERSHIP WITH VISION

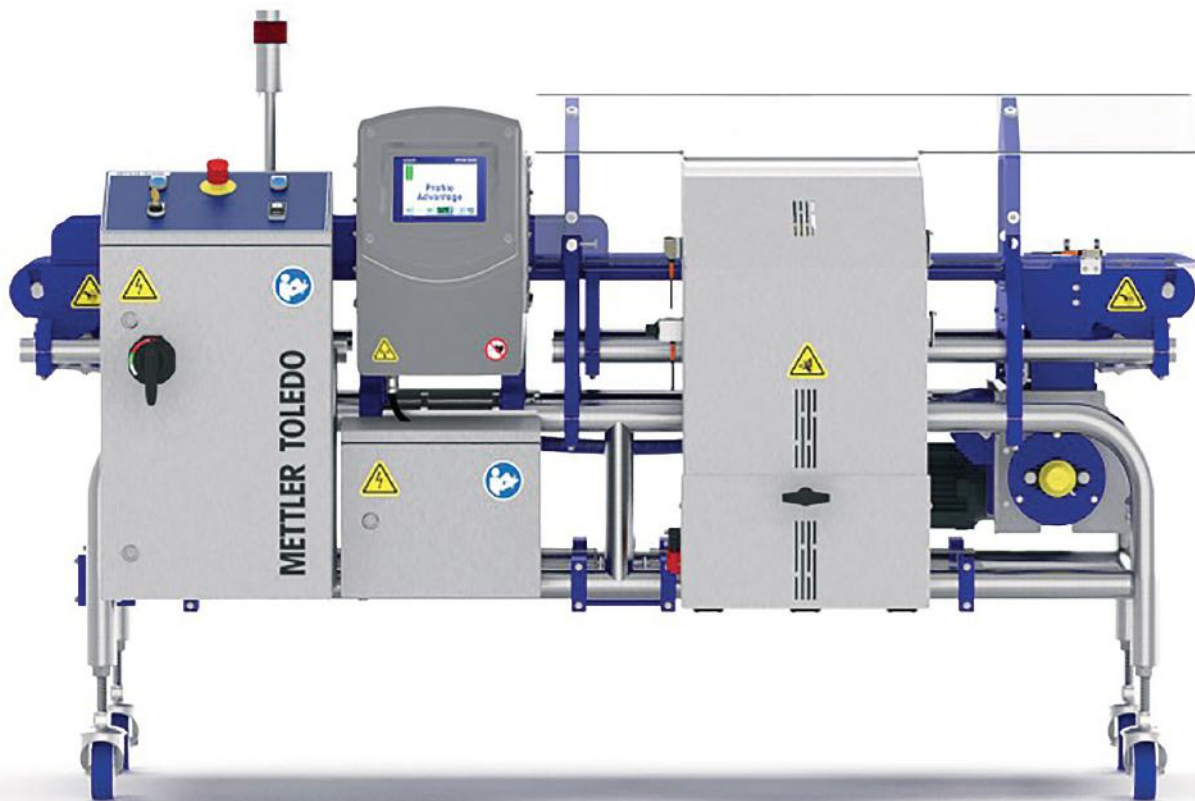
In the future KHS and Ferrum will further intensify their cooperation. “Our machines are already very well coordinated with one another. “However, we want to offer our customers even more integrated systems,” states Zubler. Härtel adds that this also applies to the extensive range of consultancy and other services, where the two partners aim to function even more strongly as a unit in the years to come. **APFI**

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## MOISTURE DETECTION ADDS TO COLD CHAIN CAPABILITIES

A simple drop in temperature in frozen products can cause problems such as contaminants and unwanted moisture to enter the food, resulting in potential illnesses or forced discarding of products. The introduction of metal detectors could potentially solve these problems before they arise.



Nigel Wong, Head of PI Market Support Centre and Product Inspection, Mettler Toledo

**FEW** people think of metal detection systems when considering cold chain production lines. Nigel Wong, Head of PI Market Support Centre and Product Inspection at Mettler Toledo, reveals that this technology can, in fact, play an even more important food safety role than people think.

Cold chain logistics and technology has had a major impact on the quality and safety of food throughout Asia, and indeed across the world. A recent

study by Future Market Insights suggests that the market for cold chain packaging solutions will grow at more than 14.5 percent CAGR between 2020 and 2030, partly due to changes brought about by the COVID-19 pandemic, with more emphasis on e-commerce and demand for efficient storage.

It might be thought that the only way to monitor the effectiveness of a temperature-controlled supply chain is by directly controlling and measuring the temperature of the products at each



stage. However, there is another way – one which utilises equipment that is often already being used in food production environments to perform a critical role.

Metal detection systems can contribute to the cold chain by monitoring product moisture content, rather than product temperature, in addition of course to their primary task of detecting metal contaminants such as ferrous, non-ferrous and stainless steel.

### READING THE SIGNALS

Every product gives a specific product signal, based on its composition and its packaging, and this signal shows up in a metal detector's histogram data in a consistent way. Metal detection technology operates by monitoring product signal changes – when a product gives back a different signal, then it is clear that something is amiss. Usually this is a metal contaminant, but in a cold chain environment, where the product is supposed to be kept at a specific temperature and a specific condition, a product signal change can indicate that the temperature has fallen out of tolerance.

As a frozen product thaws, it will have more moisture, and this presents a different product signal in the histogram data, alerting an operator to a potential problem. There may be many reasons why the temperature control is failing, but the alert from the metal detector allows an early investigation to take place, and any issues with upstream temperature control to be rectified. The metal detector could therefore help save a huge amount of cost in wasted product and wasted production time.

### ADVANCED SENSITIVITY

Although clearly not as accurate a monitoring tool as temperature measurement, this capability of metal detection systems to monitor moisture can be a great advantage to food manufacturers in the cold



chain sector. The sensitivity of the detection device is made even more acute when using advanced metal detectors such as Mettler-Toledo Product Inspection's Profile Advantage and M34R GC, which includes multi-simultaneous frequency (MSF) and dual-simultaneous frequency (DSF) technology respectively.

This allows the machine to operate at more than one frequency, with the possibility to suppress the product signal, so that variations become even more apparent, resulting in both contaminants and moisture changes becoming more obvious. Not every metal detection system has MSF or DSF built in, but a system such as the company's ASN 9000, for example, though without MSF or DSF, does provide the histogram data display, so could be used to monitor moisture in a cold chain environment.

With the right equipment and the right operator training, cold chain food manufacturers can add another layer of protection to their temperature-controlled operation and enjoy the spin-off benefits of enhanced product quality and safety, brand protection and cost efficiency too. **APFI**

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# DIGITISING FOR SUSTAINABILITY IN INDUSTRIAL SUPPLY CHAINS

Supply chains are a major contributor to environmental impacts. Hence, it is now crucial that they make the effort to digitise to reduce their carbon footprint. Contributed by Craig Roseman, Consumer Packaged Goods Segment leader for Asia- Pacific & East Asia and Japan at Schneider Electric.

**SUPPLY** chains are still at the centre of focus. With the pandemic bringing the supply chain's shortcomings into the spotlight, adapting is essential. Today's manufacturers are seeing a 74 percent increase in customer dissatisfaction with order status visibility, with 73 percent of supplier deliveries being late. In addition to these supply chain issues, one of the greatest challenges is sustainability.

Despite increasing calls for action, evidence suggests that current climate change policies won't be enough to prevent the crisis. Incorporating digital

tracing into the supply chain and monitoring the cold chain are vital steps to reducing industrial carbon emissions.

While becoming more resource efficient can help reduce direct greenhouse gas emissions, decarbonising indirect emissions from industry remains a significant challenge. In the food industry where electrically powered devices or equipment are used, indirect emissions may result from the transportation of raw materials and from the distribution of final products. Traceability can assist in monitoring this to ensure





that any inefficiencies in processes are identified and corrected throughout the supply chain, allowing carbon emissions to be reduced more quickly.

Outlined below are the most important considerations for improving supply chain sustainability across the industry.

### **DIGITAL TRACING AND END-TO-END**

Industrial companies across all sectors, including the food industry, are faced with climate targets, yet a standardised process to monitor any progress is still missing. Measuring the emissions of products throughout their life cycles will be the most meaningful way to illustrate how production, manufacturing processes, and distribution methods affect overall carbon emissions. Carbon emissions information therefore needs to be detailed and easy to access in order to support traceability.

As guidelines are introduced to ensure companies are ethically and sustainably accountable for their climate targets, this kind of life cycle traceability will be vital to monitoring their environmental impact.

By digitally enforcing trust across manufacturing and production processes, end-to-end traceability solutions have the potential to improve industrial resilience. They can assist in identifying the preliminary causes of manufacturing mistakes and can develop methods for safely sourcing, producing, and shipping high-quality items.

End-to-end traceability also provides new competitive benefits. Benchmarking carbon footprint data across industries will result in speedier emissions reductions and better control of long-term manufacturing and material costs.

Accessing data on an 'as-needed' basis allows decision-makers to share knowledge, collaborate transparently, and build consumer trust. Product recalls, quality, counterfeit, or conformity issues, for example, will trigger access to relevant information and ensure that operations are safe, sustainable, and environmentally transparent. It's critical for ESG compliance to make this information more accessible, and it'll also help brands with sustainable appeal establish consumer loyalty.

In this era of hyper-connectivity and abundant data, companies that harvest and analyse data selectively and securely, and fully embrace digital traceability across industrial processes and value chains, have much to gain. It's undoubtedly about improved productivity, performance, and flexibility – but it will also advance industrial decarbonisation at a faster pace.

This level of data granularity throughout a supply chain and integrated into machines can eliminate downtime by allowing teams to continually monitor to improve performance, detect issues and create diagnosis before outages occur. This enables predictive and preventative maintenance which ultimately increases efficiencies and drives sustainability.



## COLD CHAIN MONITORING

Without a doubt, supply chains are major contributors to environmental impact - the cold chain even more so. With additional pressures on the delivery of perishable goods and increased hoops to jump through in terms of stringent safety standards and increased quality control measures required for food and biopharmaceuticals, cold chain companies need to take care of their supply chains more closely.

Monitoring is therefore essential to ensure that journeys along the cold chain are as efficient as possible in order to reduce not only the carbon emissions from the journey itself but also reduce the risk of lost, damaged, or stolen goods. Improved transparency will bring a host of benefits including automatic data generation and faster collection, processing and management. Monitoring will also help to reduce wait time at ports where further energy is required to maintain necessary storage temperatures and control systems.

Remanufactured products applied to cold chain monitoring can result in a dramatic reduction of energy and materials used. Sustainability programs such as Green Premium, which make manufacturing sustainable by design, may result in a 98 percent reduction in carbon footprint. It also helps provide transparent information on environmental impact and circularity attributes through third-party labels and product certifications.

## REGIONALISATION

The past 20 years have seen the supply chain footprint shift. In early 2000's, the footprint was highly concentrated in mature markets. By mid-2000's, to align with customer footprint and optimise costs, it shifted to an industrialised footprint with international production lines. Today, the risks associated with long chains, along with growing trade tensions and geo-politics, are causing many organisations to again re-evaluate. Globalisation will



probably not disappear, but going forward, greater regionalisation can be expected.

Implementing a multi-local and balanced footprint approach, complemented by tight global coordination is a great way for the industry to further build local resilience through shorter supply chains, rooted in local communities. Local operations can understand better, adapt quicker, reverse logistics, and repair locally. This is not a shift from globalisation, merely a new form – global players connected in shorter chains.

Digitisation drives sustainability – it is critical for efficiency, circularity, and decarbonisation of energy. Sustainability is a driver for regionalisation – reducing mass transportation significantly reduces climate impacts. Regionalisation allows tailored supply chain solutions through flex centers bringing even more value to customers. And as an increase in digitisation across supply chains develops, regionalisation will be facilitated.

A purely local footprint is not feasible – one disruption can bring down the whole chain. To overcome this, organisations need to regionalise, with a form of redundancy, and empower the regional level, with a tight coordination of local sites. Of course, such reorganisation will impact costs. But it will be beneficial with increased CapEx for redundancy and relocation, and reduced costs due to decreased inventory and working capital from shortening the supply chains, as well as higher sustainability.

Achieving sustainable operations is one of the most important challenges the industrial world has ever faced. Taking these steps is vital in mitigating climate change and other sustainability problems. Whilst current industrial automation has done a good job of advancing us to where we are today, we still need to fully realise the promise of the Fourth Industrial Revolution and make bold moves. With the digital tools all around us, we already have what it takes to build the industries of the future – starting with digitising the supply chain. **APFI**



# FROM FARM TO FORK: STRENGTHENING SUPPLY CHAIN TRANSPARENCY ACROSS THE FOOD INDUSTRY



**“The rampant uncertainty around pandemic-influenced supply and demand challenges will persist in 2022 — and the food industry can no longer afford to be caught off-guard by ‘unprecedented’ delays, disruptions, and shortages”. Contributed by Cas Brentjens, Vice President of Infor Nexus Supply Chain Business Networks, APJ, Infor.**

Cas Brentjens, Vice President  
of Infor Nexus Supply Chain  
Business Networks, APJ, Infor

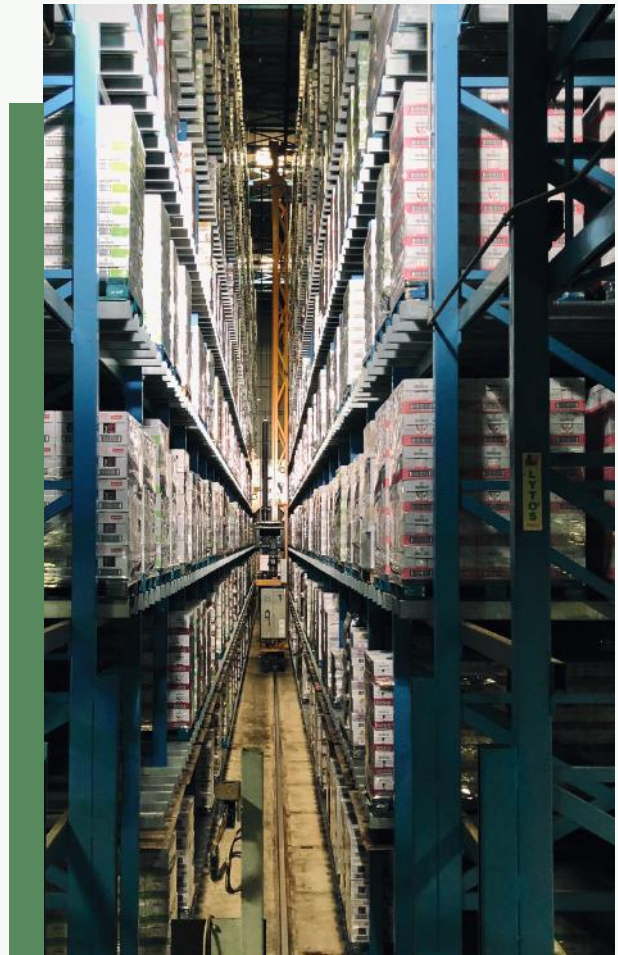
**TODAY’S** consumers are hungrier than ever for information around the food they consume. Beyond basic nutritional facts and value, consumers now want to know where and how their food is grown — if the produce is organic and sustainably sourced, whether animals were involved and treated humanely in the farming process, and the impact of their food choices on the environment. These questions are continually evolving, in addition to rising consumer calls for the disclosure of certifications and labels, such as ‘vegan’, ‘gluten-free’ and ‘non-GMO’ foods.

The pressure is mounting on food producers and manufacturers to address these new consumer demands, while complying with prevailing industry and food safety regulations. It is a tall order; one that can only be fulfilled by leveraging data-driven intelligence in real time, to strengthen end-to-end visibility, transparency and traceability across the food supply chain.

Unfortunately, many producers have found themselves hindered by siloed operations and legacy software, which are unable to support the increasing need for agile processes and operations. Add to this an ongoing spate of supply chain snarls and delays across the globe, exacerbated by the pandemic, and we are faced with an industry in crisis.

## THE STATE OF SUPPLY CHAIN SNARLS

The past two years of the global pandemic have left supply chains in massive disarray. For starters, the interconnectedness of global trade has meant that any







complexities and fragilities are closely interlinked; and a breakdown or bottleneck at any one part can halt and disrupt the entire value chain.

Current congestions and delays, for instance, are not merely an issue of shipping or traffic, but of global supply chain networks. 2021 saw a massive shortage of container ships across the globe, which were further exacerbated by historically high e-commerce demand in the pandemic, and thus, increased volumes of inbound shipping out of Asia.

These issues, compounded with a spate of ongoing labor woes, production constraints and delays, and unprecedented disruptions such as the Suez Canal port congestion, snowballed and majorly upended supply lines in the past year. The scale of these disruptions impacted even major food conglomerates, which reported a shortage of essential items across many of their outlets worldwide. Multiply this effect across the many smaller farmers and producers whose supply lines are equally, if not more vulnerable, and it's little wonder that food producers are struggling to keep up with order fulfillment — much less delivering greater traceability and transparency across the supply chain.

### **DRIVING FARM-TO-FORK TRANSPARENCY AND RESILIENCY WITH INDUSTRY 4.0**

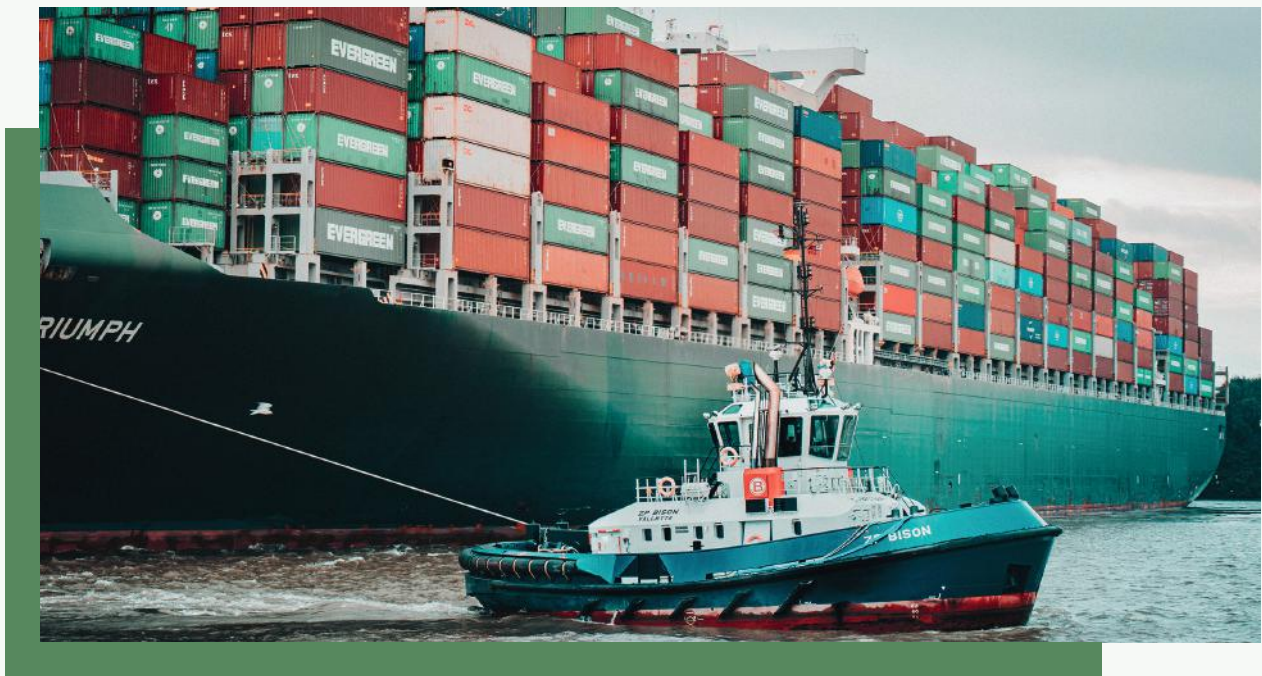
Thankfully, many food producers are fast realising the need to leverage Industry 4.0 technologies in transforming their supply chain operations. This requires integrating the intelligence and speed of modern software into one's supply chain ecosystem — from farmers to manufacturers, logistics and delivery

partners, to retailers. This enables food producers to track and trace their ingredients or products at any time, and across their network of suppliers, logistics providers and partners. More importantly, this precise visibility empowers producers to deliver detailed documentation of all ingredients and processes with ease, trickling down to engender stronger foundations of trust with consumers.

For starters, producers can look to leverage digital tools such as Artificial Intelligence (AI), Internet of Things (IoT), cloud and automation — many of which are already being applied to revolutionise farm-to-fork processes across the food industry. Real-time intelligence can also be applied to monitor the movement of goods at each stage of the value chain, granting producers an overview of their operations at once.

This, coupled with predictive analytics, can provide critical end-to-end visibility across the value chain, allowing producers to forecast any potential delays or disruptions to their operations. It also equips producers with the operational agility to map out contingencies, and pivot quickly to any changes in the market, as well as fluctuations in consumer demands.

Ultimately, leveraging smart tools and technologies allow food producers to gain a single, unified view of their various operations and functions at once, increasing operational intelligence and agility, while automating time and labor-intensive processes. This frees producers to focus on what truly matters: delivering quality produce for the end consumer.



## SUPPLY CHAIN VISIBILITY AND RESILIENCY BECOME MISSION-CRITICAL IN 2022

More than ever, organisations across the food industry and beyond are recognising that supply chain visibility and resiliency will be mission-critical to strengthening operational agility, especially as disruptions show no sign of abating.

IDC research indicates that increasing supply chain visibility is now an immediate priority for 58 percent of APAC organisations, and their supply chain strategies are evolving as well. Instead of single-minded pursuits of lower costs, business leaders are now looking towards holistic and multi-dimensional forms of real-time visibility across all their supply chain functions, both upstream and downstream — and food producers are no exception.

The rampant uncertainty around pandemic-influenced supply and demand challenges will persist in 2022 — and the food industry can no longer afford to be caught off-guard by ‘unprecedented’ delays, disruptions, and shortages.

Ultimately, success in the final mile delivery of products to consumers will become increasingly dependent on investments made in the first mile — and food producers must look to scale their use of Cloud, Artificial Intelligence, Internet of Things, Big Data and predictive analytics to increase agility and control. This will be crucial to enabling greater traceability and transparency across the food supply chain, allowing producers to deliver quality for consumers at speed and scale, even in a disruptive ‘new normal’. **APFI**



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# OPTICAL SORTERS BOOST PROFITABILITY FOR AGRICULTURAL COMPANIES

In order to maximise profits on their products, agricultural companies need to start looking towards automated sorting lines for an increase in energy savings, product quality and a decrease in production costs.

**GLOBAL** consumers are no longer contented in simply knowing where their food is grown. In fact, there is a growing number of people who want to know not only where their food is sourced, but how it is grown, prepared and finally delivered to their tables for consumption. Keeping these consumers in mind, it is crucial for food manufacturers to understand that the cleaning and prepping process of their products is more important than ever. This can be achieved through the utilising of optical sorters in the production line.

An example of a company that has done so is FRESHBERRY, a producer of wild-growing berries

from Russia. The enterprise is engaged in collecting, procurement, processing, and selling wild-growing berries such as blueberries, cranberries and cloudberries. In March 2020, the company utilised an automated line to clean its berries.

During the rest of the current year, the enterprise plans to produce about 6,000 tons of berries, with up to 95 percent of it being exported to EU countries, China and the USA. The company obtained the FSSC 22000 certificate confirming compliance of its production processes with international quality standards, safety of the produced food products, and traceability all the way to feedstock suppliers.





Thus, two TOMRA Food optical sorters were integrated into the production line for cleaning berries: Helius and Blizzard. But how did the company decide which optical sorters to purchase?

### QUALITY SORTING IS THE KEY TO PROFITABILITY

“We initially planned to purchase the most advanced and efficient line as the key to the future success,” said Vladimir Romanchuk, General Director of FRESHBERRY.

“Besides, the quality of the local feedstock should be taken into account, as for many reasons the volume of foreign matters actually amounts to three percent on average of the entire volume of incoming feedstock. Meanwhile, we aim to produce first-grade berries, which require less than one percent of

foreign matters in the final product volume. Thus, the role of efficient sorting can hardly be overestimated,” Romanchuk adds.

The FRESHBERRY production line includes the following stages. The feedstock, frozen berries, pass the feed hopper and enters the vibrating screen through the crusher, where the bulk of leaves is removed. This is followed by the feedstock being sent by the screw conveyor to the air separator, which removes sticks and branches, and enters the freezer to freeze the berries. At the next stage, the product comes for stemming, followed by going to another air separator and the polisher, which removes the leaves adhered by freezing. The optical sorters are placed downstream with the polisher. Finally, the last stage includes filling and packing.

“The main task of the TOMRA sorters is to ensure the stable high quality of the berries. Optimal performance for our enterprise is no less than two to 2.5 tons of berries per hour: the slower run of the feedstock along the line causes steep escalation of the production costs. Considering the relatively large

volume of foreign matters in the feedstock, our TOMRA sorting machines face a really challenging task. Profitability of the entire enterprise strongly depends on their proper work,” said Romanchuk.

Due to individual laser signal transmitters, Helius free-fall optical sorters are able to identify any deviations in color and structure in the stream of the quality product. Their powerful pneumatic guns separate the defective product – immature berries and the residual foreign matters after the previous feedstock processing stages – from the quality product with high accuracy.

The Blizzard free-fall sorting unit scans the feedstock stream with pulse LED cameras operating together with multispectral sensors and successfully identifies deviations in color, shape and structure. Pneumatic ejectors expel the foreign matters in milliseconds and pass the quality product for further processing. Within the FRESHBERRY production line, the Blizzard sorter performs final sorting removing residual immature berries, berries of other breed and berries with the stem.





## MAXIMUM PRODUCTION FLEXIBILITY IS A PRIORITY

FRESHBERRY expects the delivery of another optical sorting unit soon. These three optical sorters will be subsequently integrated in the enterprise production line, making it the first of its kind on the Russian market.

“Investments in the most advanced automated sorting are in fact a single option for us,” said Romanchuk. “All too often, we have to work with berries having the volume of foreign matters up to five to seven percent of the entire feedstock volume. Two sorters can ensure output of first-grade products only upon the secondary sorting. However, in order to achieve this, berries have to be finally frozen in the freezer, which results in dramatic growth of the energy costs and, therefore, significant escalation of the production costs. Our calculations show that the necessary quality level for us and our customers will require the integration of another TOMRA Blizzard machine into the line.”

Readiness to invest in technologies proves that the agricultural companies like FRESHBERRY have much to gain by incorporating optical sorting systems into their production lines. Investing in optical sorting technologies also shows that such companies and management have the long-term development strategy, as well as the desire to build the most flexible production rapidly responding to all market challenges.

“Perhaps the main advantage of TOMRA Food sorting solutions is that they allow not only for increase of the final product quality, but also for stable maintenance of the target quality level. This is important as this enables us to build the long-term relations with our customers, as well as to develop our business systematically and thoughtfully,” Romanchuk says. **APFI**

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# GLOBAL FOOD ECOSYSTEM IMPACTS ON CLIMATE CHANGE

Each year, the global food ecosystem creates approximately 34 percent of total anthropogenic greenhouse gas (GHG) emissions – about 18 gigatons of CO<sub>2</sub> equivalent. Since food is a fundamental physiological necessity, measures must be taken to lessen the environmental cost of producing enough food for the world's growing population by creating more sustainable systems for the future. Contributed by Joanne Tan, Kemin Food Technologies Asia

## FIRST GLOBAL APPROACH: UNITED NATIONS 1972

In 1972, the United Nations (UN) Conference on the Human Environment, held in Stockholm, brought together political leaders, scientists and non-governmental organisations (NGOs) for the first global conference and large-scale effort to highlight environmental issues and large-focus on the impact of human socio-economic activities on the environment.

Five decades later, the same fundamental issues remain and even continue to grow, as the impact of climate change is more apparent than ever before. Political leaders and NGOs are urging various industries across public and private sectors to align on sustainability efforts – and the food industry is a focus.

## FOOD ECOSYSTEM, FEEDING CLIMATE CHANGE

In 2021, the UN reported that a third of the world's food is never eaten and the wasted food accounts for approximately eight percent of global greenhouse gas emissions.

According to the UN Environmental Programme (UNEP), food waste alone accounts for 931 million tonnes each year, with 61 percent occurring at the household level, 26 percent from food service and 13 percent from retail.

Throughout the food supply chain, consumption phase contributes to only 22 percent of total food wastage but it has the highest carbon footprint (37 percent of total). This is because carbon footprint intensifies when wastage occurs further along the food chain due to harvesting, transporting, and manufacturing process accumulates additional greenhouse gases along the supply chain. This issue can be mitigated through extension of product shelf life, giving consumer ample time to consume the food.

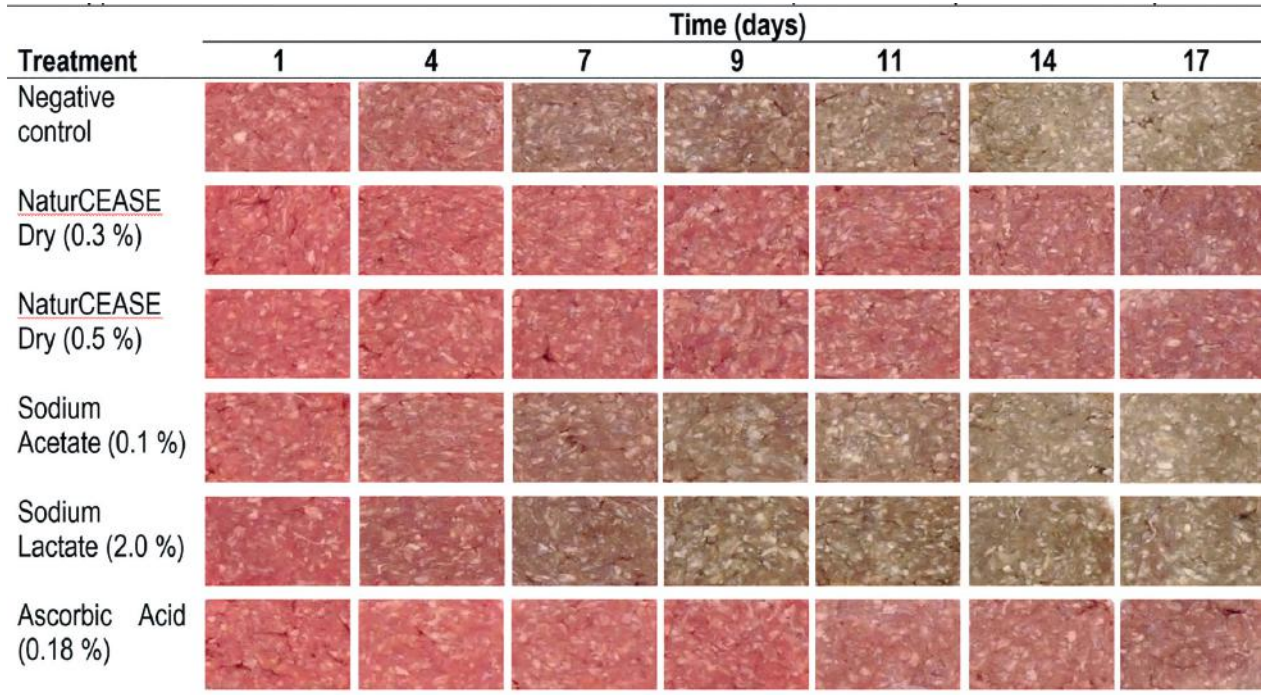
## REDUCING CARBON FOOTPRINT & ENHANCING SHELF-LIFE SUSTAINABILITY

In the food industry, food is considered lost or wasted when it reaches the landfill. To address food waste, extending shelf life often arises as one way to combat the issue. Food manufacturers and ingredient suppliers, like Kemin, must question how to reduce the amount of food in landfills, better manage production rejection, increase shelf life and improve the overall quality of products.

With a model-based approach to empirical market evidence, statistical analysis highlights an inverse correlation between quantity of products returned from the market and their shelf life. Results suggest that strategic efforts in terms of shelf-life prolongation could benefit food waste. For specific products with shelf life in this range (30-50 days), proper prolongation could significantly reduce the number of products returned from the market if unsold in their commercial life.

One way to manage and extend food products' shelf life is to mitigate shelf-life challenges, such as food safety and quality deterioration of food, to ensure that products have ample time to move through the supply chain without spoiling, even with unforeseen circumstances such as transportation, weather or handling mishaps. Adopting shelf-life solutions makes the food industry more capable of meeting the better-for-you mega trend, while helping minimise the impact of climate change. Antioxidants and antimicrobials are commonly known as effective shelf-life preservers for food products.

In food science, adding shelf-life solutions to various food formulations require evaluation of various aspects to address the underlying issues and extend shelf life to ensure safety, organoleptic and nutritional characteristic of food are not affected. Meat product for example, it has a high carbon footprint and its perishable nature contributed by its high nutrient



Above: Appearance of raw mincemeat beef stored at four degree Celsius treated with various food ingredient vs untreated.

and hemoglobin content resulting in its short shelf life due to oxidation and microbial growth. By adopting suitable shelf-life solution to extend its shelf life and visual appeal, such perishable product could stay longer on the shelf and thus reduce food waste.

**CORPORATE & GLOBAL COMMUNITY ALIGNMENT**

Last year, more than nine percent of the world’s population suffered from hunger, an increase since the start of the global pandemic in 2020. Globally, one-in-four people are moderately or severely food insecure. One way to combat food insecurity is to reduce food loss and waste. According to UNEP, if just one-fourth of the food currently lost or wasted globally could be saved, it could feed more than 870 million hungry people in the world.

This is especially helpful to Asia, where over half of the world’s hungry reside. The majority are in South Asia, which accounts for 305.7 million people, followed by Southeast Asia with 48.8 million people, and West Asia with 42.3 million, according to the State of Food Security and Nutrition in the World 2021 report by the United Nations’ Food and Agriculture Organisation (FAO).

Since the first UN conference in 1972, many global organisations have established sustainability

policies to help secure the future for the next generation by addressing issues like the role of the food industry within sustainability. By managing food waste, we can better contribute to mitigating greenhouse gas emissions, changing the course of climate change and supporting measures to alleviate food insecurity.

Companies like Kemin understand the seriousness of reducing the global carbon footprint, while also meeting the demands of feeding the growing population with a responsible food supply chain. Leveraging the insights and expertise they have, Kemin is able to help food manufacturers wield the potential of food ingredients to resolve specific shelf-life challenges, meeting commercial and market needs.

From shelf-life to corporate sustainability goals, Kemin works each day as an essential and responsible supplier to provide customers and consumers with beneficial products and services while striving toward its vision to sustainably transform the quality of life every day for 80 percent of the world.

Building resilience in local food systems will be critical to averting future large-scale shortages and ensuring food security and nutrition for all. **APFI**



# PRODUCT HIGHLIGHTS

## FLEXICON: Packaging Aids PVT Plus, Industrial Vacuum Sealer

A tabletop vacuum sealer for applications where removal of air from a bag before sealing is required. The PVT Plus provides speed and flexibility for applications requiring an industrial quality piece of equipment and is packed with the largest range of standard features of any vacuum sealer on the market.

The PVT Plus features independent seal, cool, vacuum, and gas flush timers. In addition, a foot switch is provided for hands-free operation. The PVT Plus has bi-active (top and bottom) heat seal bars in order to seal through a range of packaging materials.



ENQUIRY No. 3705

## HERMA: HERMA 500 Label Applicator



Enhanced performance at the push of a button – what the car pioneer Tesla has successfully demonstrated is now available for the HERMA 500 applicator as well. With the aid of a code, which is purchased online and delivered automatically by e-mail, upgrades for additional functions or higher speeds can now be installed without booking a service appointment with the manufacturer. What's more, critical components of the applicator can now be exchanged easily on the operator's premises, thus avoiding a time-consuming visit to a service center.

ENQUIRY No. 3706

## TETRA PAK: HeliCap™ 23 Cap



This one-step resealable screwcap made of recycled polymers is manufactured at Tetra Pak's Châteaubriant plant in France – a site that has been awarded the Roundtable on Sustainable Biomaterials (RSB) Advanced Products certification and boosted by a €100 million investment to accelerate the transition to the production of tethered caps. The HeliCap™ 23 cap offers consumers ease of opening and features a clearly visible tamper evidence ring, providing reassurance that the product hasn't been opened before.

ENQUIRY No. 3707

## Pac Machinery: Rollbag® R3200 Automatic Bagger

The Rollbag® R3200 automatic bagger can cycle at speeds of up to 80 bags per minute using Rollbag® pre-opened bags on a roll. With the optional bag maker assembly, this bagger works with poly tubing, making the bag to the desired length while reducing material usage and costs.



ENQUIRY No. 3708



## **OHMG:** Magnesium Water That Reduces Fatigue



UK start-up OHMG Brands has launched a range of magnesium-enriched still and sparkling packaged waters.

The pair contain water infused with 56mg of magnesium, fruit flavours and functional extracts such as L-theanine and ashwagandha. According to OHMG Brands, the ingredients “reduce anxiety, tiredness and fatigue and contribute to normal psychological function”.

The range comprises:

- Raspberry & Lemon Balm + L-Theanine
- Peach & Rosemary + Ashwagandha, and
- Blackcurrant & Echinacea + Vitamin C

ENQUIRY No. **3709**

## **Ottera: Hansen Sweet Potato FruitMax® Red 116 WS**



FruitMax® Red 116 WS, is designed specifically for beverage manufacturers. It addresses the high complexity this industry faces when using anthocyanins, including fortification, high water-activity, carbonisation, off-flavour, and colour stability. FruitMax® Red 116 WS provides manufacturers with a unique clean label, minimally processed, and GMO-free fire-engine red shade for beverage, making it the industry's best natural alternative to RED40 or Allura Red. FruitMax® Red 116 WS is recommended for alcoholic beverages, carbonated soft drinks, cordials, energy drinks, juice-based drinks and near waters.

ENQUIRY No. **3710**

## **METTLER TOLEDO:** X34C Series System

A unique solution which inspects individually wrapped food or pharmaceutical products at high line speeds. The X34C combines a short total footprint with an optimised focal distance to enhance detection of non-conforming products and reducing waste.



ENQUIRY No. **3711**

## **Pac Machinery:** 6800CS Automatic Side Seal Shrink Wrapper



The Clamco 6800CS automatic side sealer is a highly efficient all-electric side sealer that combines a hot knife end seal with an adjustable seal and trim knife. The trim knife is actuated when the product moves past the cross seal. Compared to conventional automatic L-bar sealers, the 6800CS can pack products of any length at high speed.

The 6800CS can deliver conveyor speeds up to 100 ft/min (140 ft/min for the 6800CS-XL) and wrap up to 4,200 packs per hour. The system is perfect for polyolefin or polyethylene center folded shrink film.

ENQUIRY No. **3712**



# PRODUCT HIGHLIGHTS

## SIG: SIGNATURE EVO



It is the world's first aluminium-free full barrier packaging materials for aseptic carton packs. SIGNATURE EVO extends SIG's lower-carbon aluminium-free packaging materials – already available for plain white milk – for wider use with oxygen-sensitive products such as fruit juices, nectars, flavoured milk or plant-based beverages.

ENQUIRY No. 3713

## IGUS: Plastic Bevel Gears



Bevel gears are suitable as drive elements in order to be able to transmit forces at a 90 degree angle. Especially for simple tasks, igus has now developed bevel gears made of two abrasion-resistant, durable high-performance plastics. They are not only lightweight and cost-effective, but also completely free of external lubrication. This reduces the time and cost of maintenance.

ENQUIRY No. 3714

## ALGAESSENCE: Immunity-Boosting Algae Powder



ALGAESSENCE is an innovative vegan algae blend developed by nutritionists. The product is not only rich in protein and dietary fibre, but also high in vitamin B12 and ALA (omega-3), iodine, iron and magnesium, and low in saturated fats. This unique powder blend promotes health and wellness and is a natural booster for the immune system. It is ideal for clean label formulations and easily blends in milkshakes, juices, soups, sauces, yoghurts, or fruit preparations.

ENQUIRY No. 3715

## BAKER PERKINS: ServoForm Flexi



Baker Perkins has introduced a new starch-free depositor for gummies and jellies. With outputs up to 1,000kg/hr the ServoForm Flexi provides a hygienic and flexible alternative to many starch moguls applications, particularly in the rapidly growing functional, nutraceutical and healthcare markets.

Two versions of the ServoForm Flexi are available: a single depositing head gives outputs up to 500 kg/hour; a longer machine with two heads can produce up to 1000kg/hour.

ENQUIRY No. 3716



## HYDROSOL: Stabimuls Vega Vegetable-Based Cream



The vegetable-based whipping cream is great to use in cakes, desserts or ice creams, and even for savoury foods like soups and stews. It also keeps longer and is up to 40 percent cheaper than dairy cream.

There is no water release, which makes the product look freshly whipped. The whip volume can be improved and the whipped cream remains stable and keeps its shape for a long time, even at temperatures up to 40°C, making it ideal for hot regions.

ENQUIRY No. **3717**

## Chobani: Ultra-Filtered Milk



The milk is lactose-free and has more protein than other market leaders. It also has half the sugar and 2.5 times more protein than traditional milk, offering more functional benefits to dairy milk consumers. Ideal for cooking, baking and blending.

ENQUIRY No. **3718**

## Serac: LINEA XS



LINEA XS is a cup filler that meets the investment constraints of medium-speed production: from 5000 to 12000 cups per hour. It can be combined with H<sub>2</sub>O<sub>2</sub>, UV or pulsed light decontamination modules, depending on the level of bacteriological reduction required and the environmental goals aimed at. It also benefits from a new electric dosing nozzle developed by Serac, which is cleaner and more versatile.

ENQUIRY No. **3719**

## GREINER PACKAGING: Thermoformed IML Cup

In the past, the in-mold labeling (IML) decoration method was only ever used in combination with injection molding production technology. But now, Greiner Packaging has built on its longstanding core competency in thermoforming to offer thermoformed IML cups. The benefit of the technique is reduced material usage – less plastic is required for thermoformed cups, which saves resources while also making the cups lighter. As a result, they are responsible for fewer CO<sub>2</sub> emissions during transportation. Both the cup and the IML label are made of PP, making for a monomaterial solution that is very easy to recycle.



ENQUIRY No. **3720**



# UPCOMING EVENTS

## 2022 CALENDAR

### APRIL



**4-7: FOOD PACK ASIA (PHYSICAL)**

BITEC  
BANGKOK, THAILAND  
Web: <https://www.foodpackthailand.com/en/homepage/>

### MAY

**31-2 JUNE: FOOD INGREDIENTS CHINA (PHYSICAL)**

NECC  
Shanghai, China  
Web: <http://www.cfaa.cn/lxweb/toIndex.action?type=fc.en>



**INSPIRE FOOD BUSINESS**

**18-20: SIAL (PHYSICAL)**

SNIEC  
Shanghai, China  
Web: <https://www.sialchina.com/>

### JUNE



**6-7: FOOMA JAPAN (PHYSICAL)**

Tokyo Big Sight  
Tokyo, Japan  
Web: <https://www.foomajapan.jp/english/>



**15-18: PROPAK ASIA (PHYSICAL)**

BITEC  
Bangkok, Thailand  
Web: <https://www.propakasia.com/ppka/2022/en/index.asp>



**Health ingredients**  
China  
健康天然源



**Food ingredients**  
Asia-China

**22-24: HI & FI-ASIA CHINA (PHYSICAL)**

NECC  
Shanghai, China  
Web: <https://www.figlobal.com/china/en/home.html>

*\*All details are subject to change without notice. Please check with organisers for updates.*

#### NOTE

To be considered for a listing in the Calendar of Events, send details of event including: name of event, date, venue and organiser's contact details to the address given below.

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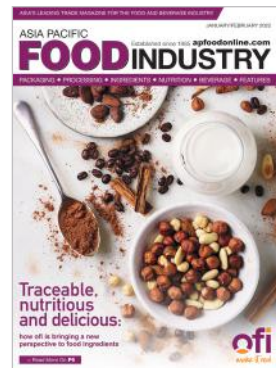
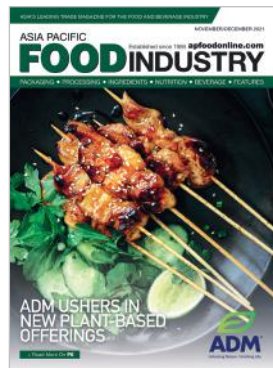
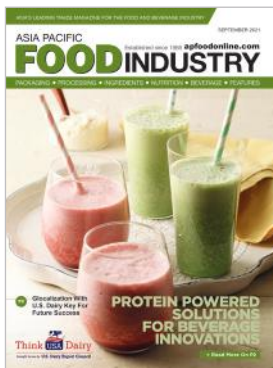
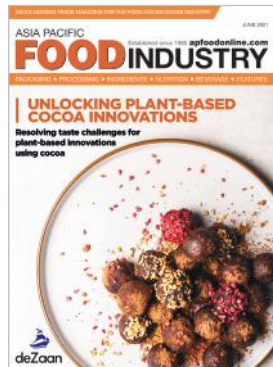
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<b>THE NUMBER OF EMPLOYEES AT OUR COMPANY/FACTORY IS</b>																									
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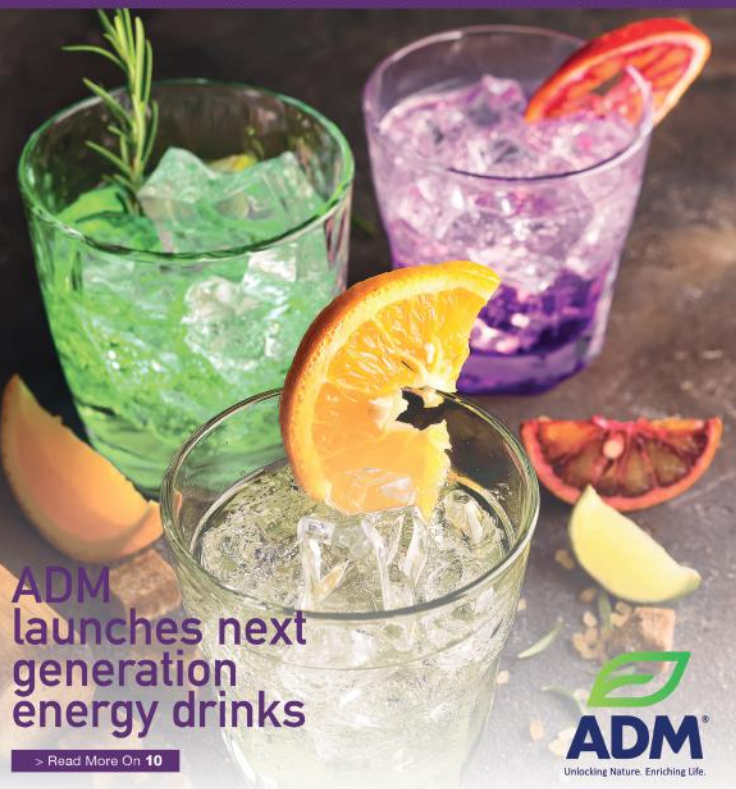


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