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the magazine for the frozen food industry



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times a year

## STATE OF THE FROZEN FOOD INDUSTRY

is a project which contains reports on the most important frozen food categories, as well as technical equipment innovation related to product manufacturing, published both in print and on-line.



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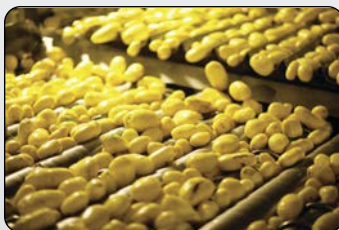
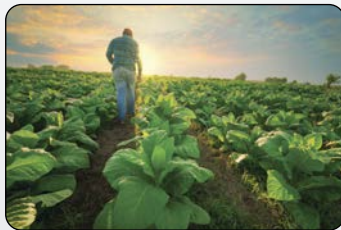
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To Change Is to Improve





By **Bogdan Angheluta**,  
Editor in Chief



# 35 YEARS OF FROZEN FOOD EUROPE

**Y**es, you read that right: Frozen Food Europe turns 35 this year, and we're glad to have been able to reflect on all the success that the industry has experienced during these last decades. In the past 35 years, frozen food consumption has undergone significant changes in Europe and worldwide. Initially, frozen food was limited to vegetables and fruits, but now there is a wider range of frozen products available, including entire meals - from appetizers to desserts. This diversification is evident in the expanding selection of frozen ready-to-eat meals, pizzas, and gourmet options, providing consumers with a convenient alternative to traditional cooking. In recent years, frozen food has become a viable and sometimes preferred option due to improved freezing technologies and rigorous quality standards, eliminating the perception that it is a compromise on quality. For instance, in Germany, one of Europe's largest and most dynamic markets, the per capita consumption of frozen food increased from 39.3 kilograms per year to 44.8 kilograms between 2009 and 2020. Advancements in freezing technology have played a crucial role in this evolution, ensuring that frozen foods retain their nutritional value and quality. The introduction of quick-freezing techniques, such as cryogenic freezing, has helped preserve the texture and flavor of food, addressing concerns about potential degradation during the freezing process. The European Federation of Food Science and Technology (EFFoST) recognizes how these technological advancements have contributed to the growth of the frozen food sector by improving the overall consumer experience. The global trend towards sustainability and food waste reduction has also influenced the evolution of frozen food consumption. The ability to store food for longer periods in a frozen state has become a strategic tool in minimizing food spoilage. The European Commission's Circular Economy Action Plan acknowledges the role of frozen food in reducing food waste by extending the shelf life of perishable items. Looking forward, we expect frozen food to come even closer to consumers as trends such as plant-based or free-from become standards of the industry. **So, here's to many more years and many more issues dedicated to the success of the industry! ■**



*Looking forward, we expect frozen food to come even closer to consumers as trends such as plant-based or free-from become standards of the industry.*



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## ITALY

## NEW POLARIS EVENT TO TAKE PLACE IN ITALY

POLARIS MEETINGS is launching one of the major European events in IQF fruits on the April 10 and 11, 2024 in Stresa, Italy. It is the opportunity to meet the major actors

of the business in a wonderful location. It is a famous event that focuses on IQF fruits business only with a selective list of participants from all over the world. The suppliers organize their meetings over 2 days with European buyers from the industry, retail, or distribution sectors. For its 10th anniversary, POLARIS chose a wonderful location on Lake Maggiore to combine business with pleasure.



## GLOBAL

## WESTFALIA FRUIT CELEBRATES 75 YEARS

Westfalia Fruit, the leading global avocado supplier celebrates its 75th anniversary this year. From its roots in South Africa, Westfalia has an established global presence across 17 countries and 5 continents, uniquely working in partnership with local communities and investing in a sustainable future. Looking ahead, Westfalia Fruit has capped off an exciting year of growth in India and China, two of the fastest growing avocado markets in the world, as well as Japan.

## EUROPE

## KOELNMESSE, FIERE DI PARMA JOIN FORCES TO INCREASE TUTTOFOOD'S INTERNATIONAL PRESENCE



Koelnmesse and Fiere di Parma have announced the expansion of their partnership. Having successfully collaborated in the Food-Tec industry for the past 8 years, the two organizations are now extending their cooperation to the Food & Beverage sector. Starting in 2024, TuttoFood will be supported by Koelnmesse, the organizer behind globally renowned food fairs such as Anuga and ISM. With its extensive global sales network and international expertise, Koelnmesse, in collaboration with Fiere di Parma, aims to reinforce the already established position of TuttoFood. As of today, therefore, the Agri-Food companies market benefits from a single trade fair platform that has in its portfolio Anuga-Cologne, the world's leading event, Cibus-Parma, the biggest and iconic exhibition of Made in Italy food, and TuttoFood-Milan, which will host the trends of the global Food & Beverage industry. The successful culmination of this venture is attributed to the shared vision of all shareholders and directors of Fiere di

Parma and Koelnmesse. Their unwavering commitment to the growth of their respective fairs in their regions has made this systematic operation possible. The Parma-Cologne-Milan alliance not only solidifies the leadership of these cities in the Food & Beverage fair sector but also underscores Europe's pivotal role in shaping a conscious and sustainable global food model. "We're excited to announce the extension of our partnership with Fiere di Parma. The further expansion of our involvement in the food and beverage sector is an important milestone for us. Italy, which has been a crucial market for us for years, presents captivating possibilities," said Gerald Böse, CEO of Koelnmesse. "The dynamic synergy between Cibus, TuttoFood, and Koelnmesse's proficiency, as demonstrated in Anuga and ISM, fuels our anticipation of shaping global trends. This collaboration not only bolsters our market presence but also underscores Europe's central role in championing a sustainable food model on the global stage."

## ASIA

## MULTIVAC GROUP OPENS NEW FACILITY

Less than two years since the MULTIVAC Group's new production facility in India has begun its construction, the unit will become active. The state-of-the-art building complex for Sales and Production boasts a 10,000 square meter floor area and was made possible by an

expenditure of approximately nine million euros. Firstly, the site will employ about sixty people. The objective is to maximize supply through regional closeness and faster delivery times to consumers in Bangladesh, Sri Lanka, and India. The second quarter of 2024 will see the opening of the new factory. Initially, MULTIVAC will begin manufacturing compact thermoforming packaging machines and small fully automatic tray sealers in a 5,000 square meter production facility. Beginning in 2025, mold sets and dies for packing machinery will also be produced.



## EUROPE

## SOREN LAURIDSEN NAMED EXECUTIVE CHAIRMAN OF FOOD UNION EUROPE

Food Union Europe, a prominent supplier of ice cream and other frozen confections to customers in six European nations, has announced the appointment of Soren Lauridsen as executive chairman of the company. This newly established Executive Chairman position reflects Food Union Europe's commitment to strategic leadership and growth. Soren Lauridsen's background includes roles in branding, marketing, and sales within the FMCG industry.

# CONAGRA EXPLORES THE FUTURE OF FROZEN FOODS IN NEW STUDY



now own at least one secondary freezer, and over half always keep frozen food on hand, particularly veggies. According to the latest survey, the top three categories in

The first-ever comprehensive, data-driven report from Conagra Brands, Future of Frozen Food 2024, looked at how the USD78bn United States frozen food market may change in 2024. Trends included flavors inspired by around the world, a rise in breakfast foods, and more. Future of Frozen Food 2024 identified five trends in the U.S. frozen food market by utilizing the demand science expertise of Conagra Brands, extensive social media trend predictors from Black Swan Data, robust sales data from NielsenIQ, and in-home consumption behaviors from Circana's National Eating Trends. The world's largest frozen food market is by far located in the United States. Eight out of ten Americans prefer frozen food at least once a week, and the majority eat it four times a week on average. Nearly half of Americans

terms of dollar share are seafood, sweets, and prepared foods (which include meals, handhelds, and appetizers). The study also investigated the tastes and eating patterns of different generations of frozen food, including Gen Z, Millennials, Boomers, Gen X, "empty nesters," and older couples. "The frozen food industry, which began with our own Clarence Birdseye over a century ago, will continue to evolve with product innovation, flavor experimentation and changes to how and when people want to enjoy frozen food," said Bob Nolan, senior vice president of demand science at Conagra Brands. "Unlike conventional consumer surveys or online polls, we leveraged our Demand Science team to dive deep into data and other insights, unearthing tastes and experiences for the year ahead."



## EUROPE

### M. ARABATZIS RECEIVES AN IMPORTANT AWARD

M. Arabatzis SA received an international award for Chryssi Zymi brand. The favorite Triangles with Feta P.O.P. and Katiki Domokou of Chryssi Zymi were awarded with the 3-star Superior Taste Award by the Bruxelles International Taste Institute. "M. Arabatzis SA is committed to continue with the same zeal and passion to create unique, innovative products of high quality and nutritional value and spread the Greek nutritional tradition all over the world."

## NORTH AMERICA

### US FROZEN FRUITS MARKET TO GROW BY 3.7%

The US frozen fruits market is a dynamic sector experiencing robust growth driven by shifting consumer preferences towards convenience and health-conscious choices. Frozen fruits, once relegated to the periphery of grocery shopping, have become staples in American households. In 2023, the US frozen fruits market was valued at USD6.19bn. Projected to experience a Compound Annual Growth Rate (CAGR) of 3.7% during the forecast period (2023 to 2033), sales of frozen fruits in the United States are poised for consistent growth as per a report published by Persistence Market Research.

## ITALY

### IEG ASIA ACQUIRES MONTGOMERY ASIA F&B EVENTS

Specialty Food & Drinks Asia, Specialty Coffee & Tea Asia, and Food2Go are F&B titles that IEG Asia Pte Ltd recently bought from Montgomery Asia. This calculated action strengthens IEG Asia's resolve to improve the food and beverage environment in Singapore and the ASEAN region. This merger represents a turning point for the food and beverage industry since the combined events offer a highly specialized trade show that can meet the demands of both industry heavyweights and up-and-coming businesses, all under one roof.

## GERMANY

### IFFA 2025 REVEALS 2025 MOTTO: "RETHINKING MEAT AND PROTEINS"

The international meat and protein industry will once again meet at IFFA – Technology for Meat and Alternative Proteins – from May 3 to 8, 2025 in Frankfurt am Main. Under the motto "Rethinking Meat and Proteins", IFFA 2025 will be launched with many innovations and an optimized exhibition concept. For the first time, there will be a dedicated "New Proteins" product area. The IFFA concept has been overhauled and refined to be fit for the future. Johannes Schmid-Wiedersheim, director of IFFA, explains: "Over the past few months, we have developed

many new ideas together with our industry partners. The most important key points relate to an adapted

exhibition concept and a separate exhibition area for the topic of New Proteins. The motto of IFFA 2025 is «Rethinking Meat and Proteins» and that is exactly the vision – to work together to make food production smarter and more sustainable."





## ITALY

## SIGEP 2024 SEES GREAT RESULTS

As SIGEP 2024 came to an end in Rimini, the figures show that the fair had visitors from over 160 countries, 1,200 exhibiting brands from 35 nations, and over 500 buyers from 84 nations for 5,200 business meetings. Three international competitions with 25 participating countries were held: Gelato World Cup, Junior Pastry World Cup and European Gelato Challenge; meanwhile, 3,250 students from 70 hotel and catering schools and professional institutes attended the event.

## GLOBAL

## FROZEN SEAFOOD MARKET TO REACH USD137.2BN

The global frozen seafood market is expected to grow at a compound annual growth rate (CAGR) of 5.3% from 2023 to 2032, from its estimated USD82bn in 2022 to USD137bn by 2032, according to a recent analysis by Allied Market Research. The quick shift in consumer preferences and lifestyle has played a significant role in raising awareness of the health advantages of seafood. The frozen seafood market accounted for over one-third of the world's revenue in 2022 and is predicted to continue leading the way for the duration of the forecast period.

## AUSTRALIA

## ARYZTA ANNOUNCES NEW AUSTRALIAN BAKERY INVESTMENT

ARYZTA will begin the construction and commissioning of a new bakery in Perth in Western Australia. The total investment is estimated to be EUR40m. The project will take two years to complete once construction starts. This capital investment will be accommodated with the existing capex guidance given in the midterm plan, 3.5-4% of revenue, to ensure that all the targets outlined in the midterm plan are delivered. The new facility will serve Quick Service Restaurants, Food Service and Retail customers from its site located in Peel Business Park, which is 60km from Perth CBD. ARYZTA will generate 80 additional direct employees and over 500 indirect employment opportunities in the Perth area. "Australia is an attractive growth market for bakery products and this expansion in Perth will allow ARYZTA to produce fresh and frozen products as opposed to shipping frozen only over long distances from our plants in eastern Australia," said ARYZTA AG Chair and Interim CEO, Urs Jordi. This new state of the art bakery is the first major bakery investment in Western Australia in the past 20 years. Population growth and



continuing strong growth for bakeries means that existing bakery capacity is near full utilization. This development will significantly enhance ARYZTA's ESG credentials in Australia by removing an estimated 1.7 million food miles currently involved in transporting bakery items to customers in Western Australia from ARYZTA's existing two facilities in New South Wales and Victoria. The investment will lower ARYZTA local carbon footprint by over 700 tons of CO2 annually while the availability of high quality local raw materials for bakery such as flour, dairy and sugar in Australia will also minimize food miles and enhance sustainability further. In addition, the new facility will be largely powered by a local renewable microgrid which sources its energy from a solar and battery storage system.

## NORTH AMERICA

## KELLANOVA ON TRACK TO ACHIEVE RENEWABLE ELECTRICITY TARGET

of 2030 Kellanova aims to achieve 100% renewable electricity across owned manufacturing plants through a variety of programs, on-site, VPPAs and renewable energy certificates (RECs)—and has made significant progress to that end: in Europe, Kellanova's manufacturing facilities have recently achieved 100% renewable electricity to address its operations through the purchase of RECs. Kellanova's European manufacturing facilities have been purchasing RECs since 2016.

## GLOBAL

## MCCAIN FOODS - 2023 SUSTAINABILITY REPORT

McCain Foods, producer of one in four of the world's French fries has released its annual Global Sustainability Report, which highlights the brand's progress toward its sustainability goals until 2023. By the end of the decade, 100% of McCain's potato acreage will be using regenerative agriculture practices. The brand also revealed that 28% of farmers are progressing up the framework toward a more comprehensive adoption of regenerative practices, and that over 50% of the farmers overseeing McCain's global potato acreage have already integrated the practices.



Kellanova, formerly known as Kellogg Company, a global snacks-led manufacturer, has announced that it is on track to reach its goal of creating a climate-positive future, including achieving 100% renewable electricity in global Kellanova-owned manufacturing facilities by the end of 2030. Globally, by the end

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# THE NEVER-ENDING APPEAL OF FROZEN BAKERY PRODUCTS

*Frozen bakery products have become increasingly popular among consumers and foodservice establishments due to their ability to minimize waste, extend shelf life, and maintain product quality. This has contributed to the continued growth of the market.*

A recent study by Global Market Insights Inc has projected that the frozen bakery market will reach a value of USD81bn by 2032. The market is expected to be driven by increasing consumer interest in vegan and plant-based diets, which has led to significant research and development efforts and the introduction of vegan bakery items. Furthermore, the growing preference for frozen foods among retailers, restaurants, and caterers seeking to minimize waste and adapt to shifting consumer preferences while offering a variety of treats is also anticipated to fuel market growth. In Europe, the frozen bakery market is expected to reach USD29bn by 2032, with countries like Germany boasting approximately 10,000 bakeries and an estimated annual household consumption of 56 kilograms of bread and baked goods. Efforts by various companies to strengthen their position in the expanding bakery sector are expected to further boost market revenue. The savory snacks segment within the frozen bakery market is expected to surpass USD10.5bn by 2032, driven by

increased consumption of biscuits, pizzas, frozen bread, and savory pastries. Additionally, the growing consumer preference for plant-based, vegan, and vegetarian products is fostering product innovations, fueling segment growth. The ready-to-bake segment of the frozen bakery market is anticipated to exceed USD56.5bn by 2032, driven by rising demand from cafeterias and restaurants aiming to minimize daily resupply needs and reduce preparation time and costs without compromising food quality. Furthermore, consumers are increasingly turning to quick, convenient options provided by readily available ready-to-eat bakery products, contributing to industry expansion. The hotels, restaurants, and catering segment is expected to grow at a compound annual growth rate of over 6% between 2023 and 2032. Frozen doughs are gaining popularity among bakers and hoteliers for their ability to streamline preparation processes and time management, facilitating service provision and daily operations organization. Moreover, government initiatives to promote tourism are anticipated to drive segment

advancement by fostering the establishment of more restaurants and hotels.

## **HYPOALLERGENIC AND GLUTEN-FREE BAKERY PRODUCTS: MORE THAN JUST A TREND**

The bakery industry is witnessing a rise in demand for healthier alternatives. Consumers are increasingly conscious of their well-being and are seeking bakery products that cater to specific dietary needs while also being delicious. According to a study by Global Market Insights, there is a growing inclination towards hypoallergenic and gluten-free baking products. Hypoallergenic bakery products are becoming increasingly popular as they cater to consumers with food sensitivities and allergies. These products are carefully crafted to exclude common allergens, ensuring a safe and enjoyable experience for individuals with dietary restrictions. The market has responded to this demand by offering an array of hypoallergenic options, from cookies to breads, allowing consumers to indulge without compromising their

health. Gluten-free products have also become a cornerstone of the health-conscious consumer's diet. With conditions like celiac disease and gluten sensitivity on the rise, there is an increasing need for alternatives that don't sacrifice taste or texture. The gluten-free bakery market has risen to the occasion, presenting a diverse range of options that are not only palatable but also chemical-free. Urbanization and the fast pace of modern life play a pivotal role in shaping consumer choices. The demand for convenient, on-the-go snacks and meals has spurred innovations in the bakery sector. Hypoallergenic and gluten-free bakery products align with this trend, offering consumers the convenience they crave without compromising on health. As the market continues to grow, bakeries and food manufacturers are investing in research and development to create cutting-edge hypoallergenic and gluten-free products. From incorporating alternative flours like almonds and coconut to experimenting with ancient grains,

industry is embracing innovation to meet the evolving demands of health-conscious consumers. The surge in demand for hypoallergenic and gluten-free bakery products is a testament to consumers' commitment to wellness. As the industry continues to innovate and cater to diverse dietary needs, the future of baking looks promising, with a delicious array of options that prioritize both taste and health. Whether driven by health concerns or lifestyle choices, consumers can look forward to a bountiful selection of baked goods that align with their individual preferences and contribute to a healthier, tastier future.

### BETTER FIGURES FOR SWEET PRODUCTS

At the end of last year, the Sigepe Christmas 2023 Observatory recorded a recovery in dolce bakery consumption, which, with 3.3 billion products served (+1.4% compared to 2022), is almost at pre-pandemic levels. This is the trend that emerges in the CREST data by Circana – leader in consumer behavior analysis

# **81**  
*bn USD is the projected value of the frozen bakery market in 2032.*

and interpretation. Circana's figures show a positive 2023 for "out of home": up until September – the latest data available in the study conducted on a quarterly basis – spending is expected to be around EUR50.7bn with an average of EUR4.56 per purchase; a growth of 11.9% compared to the same period last year. Also positive are the 11.1 billion "visits", or rather, the number of people entering and leaving food-related businesses, including delivery, with an increase of 5.5%. "Out of home consumption in Italy is growing compared to last year, even if growth rates are slowing," said Matteo Figura, head of Foodservice for Circana Italia. "Attendances are stabilizing at pre-pandemic levels, while in regard to the amounts spent, it should be remembered that growth is also due

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# **65%**  
*of UK consumers want manufacturers to reformulate the recipes of bakery products so they can still have the convenience of buying them at aisle ends.*

to the general rise in prices." The consumption of dolce bakery products fits into this context. "The recovery in recent years is evident: we are currently at 3.3 billion products, and it won't be long before we return to the 3.5 billion of 2019. A dolce bakery product is acquired in 25.3% of out of home visits," concludes Figura. "This propensity to consume has been stable over the years: in order to close the gap with 2019 levels, we need to recover the visits that less mobility outside the home has caused, especially on occasions such as breakfast that drive the dolce bakery sector."

**YOUNGER CONSUMERS DRIVE THE MARKET**

Tate & Lyle's 2023 consumer insights report reveals significant growth opportunities in the bakery sector, with almost half of young people (45%) buying baked goods daily as they see them as an important part of their diet. Meanwhile, a third of consumers aged 34 and above are also doing the same. These are just some of the findings and recommendations in Tate & Lyle's Bakery Digest: What's driving growth

in the European bakery market, which analyses consumers' consumption and purchasing behaviors across a wide range of bakery products, including bread, cereals, cakes, biscuits, pastries, and bars. Experts at Tate & Lyle, a world leader in ingredient solutions for healthier food and beverages, are calling on manufacturers to recognize the importance of positive nutrition claims in winning over shoppers. The research findings show that while traditional health considerations like sugar and calorie content remain important to consumers, a staggering 67% of consumers ranked additional nutritional benefits as a priority, and two-thirds of consumers are likely to choose bakery products with added fiber claims, presenting an opportunity for manufacturers and their customers to attract and retain shoppers. "We're noticing that there

is a lot more focus on positive nutrition claims. In addition to claims like reduced fat and reduced calories, consumers are increasingly seeking products that are high in fiber or high in protein," says Lin Peterse, Tate & Lyle's category development manager for Bakery in Europe. "As a result, protein bars or high fiber snacks, which used to be considered 'performance' products, are becoming more mainstream, and consumers are also starting to look for fiber and protein claims on products like cakes and biscuits." In addition to the impact of High Fat, Salt, and Sugar (HFSS) display regulations in the UK, the report also explores the impact of other regulatory changes like Nutri-Score in certain European countries on buying habits. For example, two-thirds (65%) of consumers said they would like manufacturers to reformulate the recipes of their favorite bakery products so they can still have the convenience of buying them at aisle ends or by checkouts. "It means manufacturers may need to review some of their formulations to attract new consumers and keep existing ones," Lin Peterse added. ■

# **56**  
*kilograms of bread and baked goods are consumed annually in each German household.*





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# HEALTHIER CHOICES: NAVIGATING THE NEW TRENDS ON THE FOOD MARKET

*There has recently been a surge in demand for bio and organic food products, which are produced without the use of synthetic chemicals, genetically modified organisms (GMOs), or artificial additives. This trend has prompted extensive innovation within the food industry, leading to the development of a diverse range of organic and bio-certified products, including fruits, vegetables, grains, dairy products, meat, and packaged foods.*

Over the years, agriculture and food industries have been using industrial techniques and phytosanitary products. However, the trend is changing, and they are slowly but surely turning towards organic food production. Although most of the cultivated land is not yet organically certified, the organic market is growing at a fast pace, according to SIAL. In 2022, only 2% of the worldwide agricultural area, equivalent to 76 million hectares, was certified organic or in the

process of converting to organic. Consumers worldwide are increasingly adopting organic products due to their health and environmental benefits. The global organic market grew by 10% in value between 2021 and 2022, and forecasts suggest a 75% rise by 2026.

The organic market is relatively new and growing rapidly, with many innovations in new products and manufacturing processes. In France, one in five new food products was organic in 2022, making it the country with the largest quantity of new organic products in the world. Germany and Spain were second and third in the ranking, respectively, with 20% and 19% of new food products being organic. These innovations often led to new trends in the food market, such as gluten-free, pesticide-free, vegan, locally sourced, non-meat proteins and "blend it yourself"



## ~2%

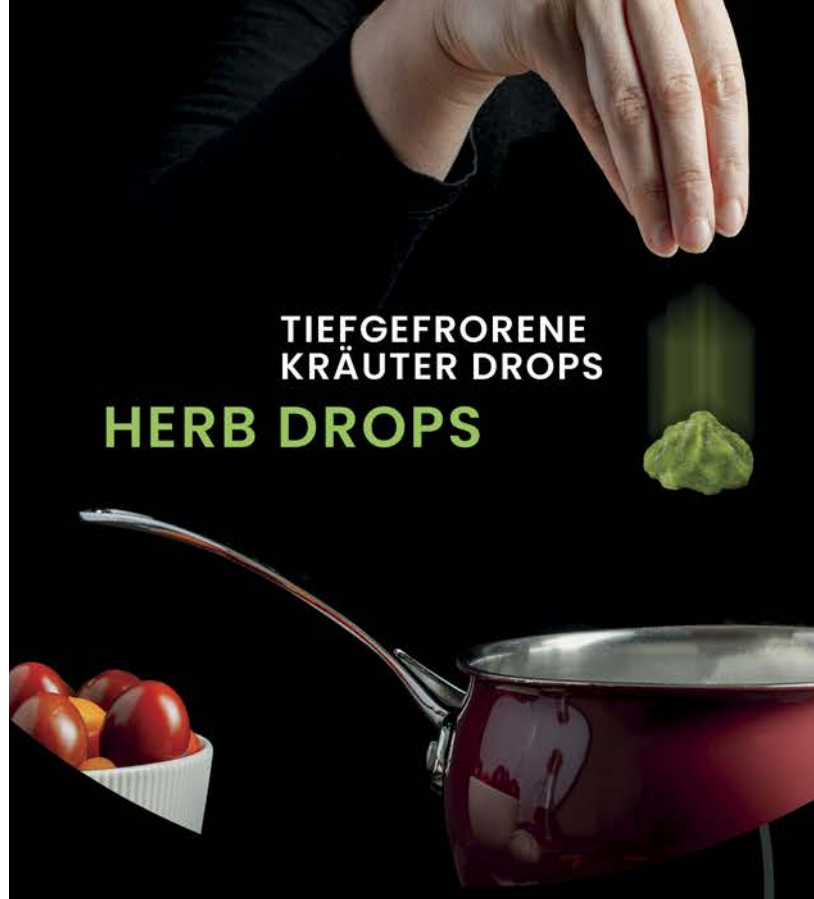
of the worldwide agricultural area was certified organic or in the process of converting to organic (2022).

products like healthy smoothies and detox juices. North America and Europe accounted for 90% of organic consumption, with the US topping the list of the biggest organic consumers. Germany, France, China, Canada, Italy, and Switzerland were also significant markets. Switzerland, Denmark, and Luxembourg were the top three countries in per capita consumption of organic products. The Asian market, mainly China, is growing at a fair pace, with 15% growth in 2022. In Latin America, organic remains marginal, but it is growing in Brazil, Bolivia, Argentina, and Uruguay. Most organic products in Africa are earmarked for export, but the number of organic food producers has increased significantly. Alongside organic products, well-being focused products are also developing strongly, such as health food, dietary supplements, superfoods, gluten-free, and lactose-free products. According to SIAL, France is one of the world's leading consumers of organic products, with an organic market worth EUR13bn in 2022 and 11% of agricultural land dedicated to organic farming. Although France remains Europe's second-biggest consumer, the organic market has been declining since the pandemic. In 2022, there was a 5.1% decline in French household consumption of organic products, excluding inflation. This downward trend is specific to France and can be explained by a general decline in home-based household food consumption. Inflation on food products, which stood at 6.8% in 2022, is putting a strain on French people's purchasing power, forcing them to spend more and consume less. However, it is worth noting that organic products are less affected by inflation, with only a 4% increase in 2022. In terms of the breakdown of organic product purchases in France in 2021, sweet grocery products accounted for 16.5% of purchases, followed by fruit and vegetables at 15.9%, and dairy products and eggs/savory grocery products at 14.8%.

### IS IT PLANT-BASED OR IS IT VEGAN?

Plant-based and vegan-labeled foods have become increasingly popular in various global markets. Consumers now have more convenient access to these products than ever before. However, as the range of products catering to diets free of animal-based foods expands, the question of how best to label them for maximum appeal remains. According to Euromonitor, while the term "vegan" has been around for a while, "plant-based" has gained popularity more recently. Although vegans are more inclined to consume plant-based meat or dairy alternatives, it's important to note that they represent a significantly smaller demographic compared to those seeking to reduce their meat or dairy intake. Only 4.6% of individuals globally identify as vegan. When we analyzed responses from Euromonitor International's Voice of the Consumer: Health and Nutrition survey, we found that 64.1% of vegans consume plant-based dairy alternatives weekly or more frequently, equating to 2.9% of consumers, while 35.8% consume plant-based meat alternatives, amounting to 1.7% of consumers. On the other hand, when we applied the same analysis to individuals attempting to limit meat or dairy consumption, 21.3% of meat limiters and 49.5% of dairy limiters consume plant-based alternatives regularly. It's worth noting that those limiting their meat intake represent

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# 13  
bn EUR was the value of  
the organic market in  
France in 2022.

the largest segment of consumers showing interest in plant-based alternatives, with this group steadily increasing in size over recent years. This trend highlights the dynamic nature of the food and nutrition landscape, where innovative new product developments continue to emerge, even as larger industry players adjust their growth expectations in response to changing consumer preferences, particularly in the wake of the pandemic.

### GLOBALDATA: SUSTAINABLE NUTRITION FUSES TRADITION WITH INNOVATION FOR ENVIRONMENTAL AND HEALTH BENEFITS

The field of sustainable nutrition is redefining the global food landscape by merging traditional dietary practices with innovative technologies. This evolution, driven by the urgent need for environmental sustainability and enhanced health benefits, is spotlighting alternative food sources and advanced production methods. This transformative trend is not just a fleeting movement but a crucial pivot towards a more sustainable future, according to GlobalData, a leading data and analytics company. "We are witnessing a shift in our approach to food and health by embracing alternative, sustainable food sources such as edible insects and groundbreaking technologies like 3D food printing," according to Kiran Raj, practice head of Disruptive Tech at GlobalData. "The growth in plant-based proteins and nutrient-rich,

microencapsulated foods is not just a response to consumer health consciousness but also a significant step towards addressing the global challenges of resource management and dietary sustainability. These developments reflect a deepening understanding of the interconnectedness of our dietary choices, health, and the environment to set a new standard for what it means to eat healthy and sustainably." GlobalData's FutureTech Series report, "Green bites: Key Disruptive Forces in Sustainable Nutrition," highlights more than 35 disruptive forces in consumer as emerging, accelerating, and maturing innovation areas based on their rate of growth in innovation. Edible insects, with their high protein content and minimal ecological footprint, are breaking cultural barriers and gaining acceptance as a viable food source. In September 2022, for instance, Denmark-based Essentia launched an edible cricket protein powder aiming at all varieties of protein-enriched foods, snacks, and supplements. "In the world of plant-based alternatives, the focus is on creating products that mimic traditional animal-based foods, meeting consumer demands for taste and texture while ensuring environmental stewardship," adds Kiran Raj.

### MAJOR INVESTMENTS IN ALTERNATIVE PROTEINS

Pulmuone, a South Korean plant-based food manufacturer, and cell-based

startup Simple Planet announced a partnership in March 2023 to develop and commercialize hybrid meat products using both plant-based ingredients and cultivated meat. Givaudan, a Swiss multinational manufacturer of flavors, fragrances, and active cosmetic ingredients, has expanded the Protein Hub at its flagship Zurich Innovation Centre in Kempththal, in July 2023 to support the growth of dairy alternatives. Moreover, 3D printing of food is revolutionizing how we think about food production, enabling



customization and efficiency. In October 2023, South Korea-based CJ Foods, and T&R Biofab joined forces to develop alternative meat using 3D bioprinting technology. Meanwhile, innovations in microencapsulated proteins are enhancing nutrition and dietary options. For instance, Ireland-based Anabio Technologies secured a patent that demonstrates encapsulating creatine in a whey protein matrix, using a process involving hydrolyzed whey protein and carboxylic esters. "By embracing such innovative food solutions, we are not only addressing immediate dietary needs but are also laying the foundation for a resilient, health-focused, and environmentally conscious future. However, the journey towards the widespread adoption of sustainable nutrition faces hurdles such as cultural resistance, economic constraints, and the challenge of scaling up related food

production methods," concludes Kiran Raj. But what about alternative products that actually imitate globally consumed proteins, such as red meat?

### ALEPH FARMS RECEIVES WORLD'S FIRST REGULATORY APPROVAL FOR CULTIVATED BEEF

Aleph Farms, an Israeli-based food startup, has achieved a significant breakthrough in the world of meat production. They have managed to create beef steaks without having to



raise and slaughter cattle. This is a huge milestone as it is the first time that non-chicken meat has been cultivated using this method. The company has received regulatory approval from Israel's Ministry of Health, which marks a major step forward in making this type of meat available in the market. Aleph Farms uses a ground-breaking approach to create beef steaks by cultivating cattle cells in a controlled environment. This method is more environmentally friendly

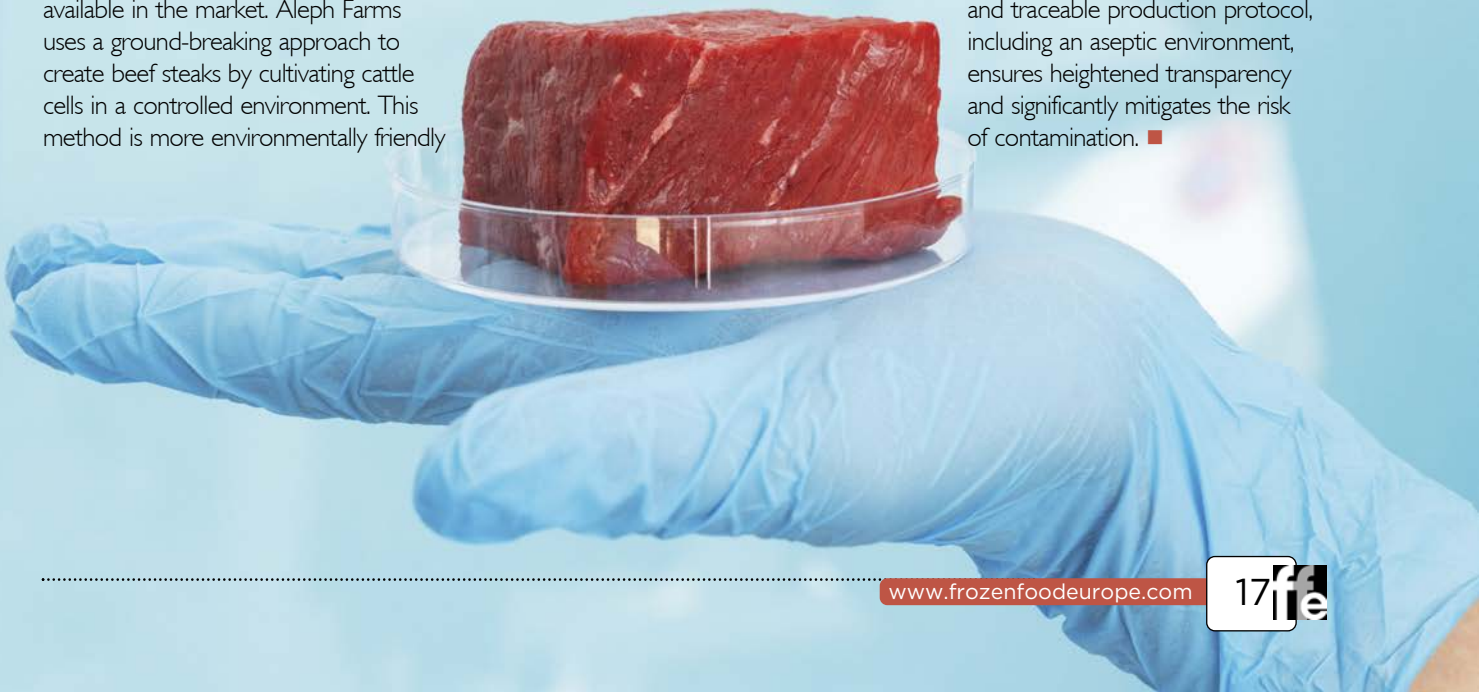
than traditional farming practices, which can have a negative impact on our planet. In addition, many countries depend on beef imports, which can be costly and unsustainable. By producing beef using this innovative technique, Aleph Farms hopes to offer a more sustainable and cost-effective solution. Their aim is to make this type of meat more widely available by making it more affordable, thus reducing the environmental impact of traditional farming practices. The company's vision is to become a leader in the field of cellular agriculture, which has the potential to revolutionize the way we produce and consume food. "The entire Aleph team has united in strength and determination to deliver no matter what during these difficult times in Israel. We are excited to carry this resilience forward in the form of innovation in agriculture and food security. Such innovation has been at the heart of Israel's vision from the country's very beginning, from early kibbutz practices to modern drip irrigation," said Didier Toubia, CEO and co-founder of Aleph Farms. "With its global leadership in

# **35.8%**  
*of vegans consume  
plant-based meat  
alternatives  
(Europe, 2023).*

cellular agriculture, Israel continues to push for greater regional integration and economic collaboration, which will be crucial for stabilizing the region. We believe that addressing joint challenges like food security is the best way to

ensure the prosperity of the Middle East and other parts of the world that rely heavily on massive food imports, especially in Asia. On behalf of our entire team, I would like to thank the Ministry of Health, the Israel Innovation Authority, and all the other involved government agencies for their commitment to advance the first cultivated beef product in the world. Now more than ever, Aleph Farms remains committed to making the world a better place." To create a sustainable and resilient food system, it's important to form partnerships between different groups, and Israel is leading the way in this effort. In April 2022, the Israeli government gave USD 18m in grants to a group of private companies and research institutions, including Aleph Farms, to help them create meat without raising animals. This is just one example of many partnerships happening around the world, with organizations like the United Nations and the World Economic Forum offering support to innovators who are working to make the food supply safer and more environmentally friendly. The inaugural Aleph Cut to be presented to diners in Israel, known as the cultivated Petit Steak, is crafted from unaltered, non-immortalized cells sourced from a premium Black Angus cow named Lucy, along with a plant protein matrix derived from soy and wheat. With the exclusion of starter cells originating from one of Lucy's fertilized eggs, the cultivation process and the resulting product are entirely devoid of animal-derived components, such as fetal bovine serum. Furthermore, antibiotics are neither utilized during production nor detected in the final product.

Employing a meticulously controlled and traceable production protocol, including an aseptic environment, ensures heightened transparency and significantly mitigates the risk of contamination. ■





Pulsed Electric Field vegetable processing

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# UP TO 50% FASTER BLANCHING TIME, BETTER CUTTING, LESS BREAKAGE AND IMPROVED PRODUCT FLEXIBILITY

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Improve quality, save energy, enhance processing and gain greater control of your vegetable processing

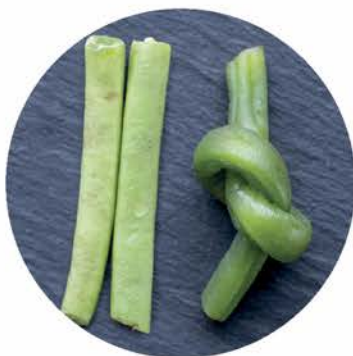


Elea PEF (Pulsed Electric Field) systems provide new tools to optimise food manufacturing processes, shorten processing times, reduce energy requirements, and improve product quality.

PEF works based on a physical phenomenon called electroporation and does not involve any chemical or thermal treatment. High voltage pulses open the cell membranes of various agricultural products, including vegetables, transforming the structure and providing new commercial opportunities.

Fast and efficient cell disintegration allows easier processing of the raw material. Blanching is one of the first steps in vegetable processing; it reduces enzyme activity, manages product texture and minimises breakage. The PEF-induced cell disintegration releases intracellular liquid, and the loss of turgor pressure allows a controlled tissue softening.

Mass and heat transfer are accelerated, so any blanching needed for enzyme inactivation can be reduced by up to 50 %. Faster blanching means less thermal damage to product structure and fewer product losses. By selecting a suitable temperature time profile, PEF use enables better control of enzyme activity and targeted management of product texture.



Elea PEF also positively impacts cutting and causes less breakage and fines in addition to extended knife durability. Overall, the product quality is improved, and the total yield of the processing line increased.

In addition, improved mass transfer provides PEF benefits in several subsequent processing steps, including drying, freezing, and frying. The PEF opened cell structure provides greater control over time and temperature during processing.

PEF has positive impacts on energy consumption, production costs and product quality. Processing with less heat retains more of the fresh produce's natural shape, flavour, colour and aroma.

In PEF-treated foods, freezing forms smaller ice crystals; this better preserves the product's structure. Reduced leakage after thawing and improved shape retention during freeze-drying are also possible.

PEF technology also provides advantages for fried products such as vegetable chips or French Fries. In addition to cutting improvement and higher yield, an improved texture and crunchiness are observed.

PEF reduces oil uptake by up to 10% for French Fries and up to 15% for vegetable chips. Over a year, a chips production line processing 5,1 t/h of raw potatoes could save up to 174 t of cooking oil.

During the Elea PEF process, the raw material is continuously transported on a conveyor belt and treated by short and low-energy high-voltage pulses. Different scales of PEF systems are available with capacities ranging from 1 – 100 t/h. Also, pilot-scale systems are available for testing or smaller production purposes. As all systems are manufactured on the highest global standards and enable monitoring of all important process parameters, the systems are easy to integrate into existing production lines.

In summary, Elea PEF technology can improve texture, increase product yield, and enhance processing in the vegetable industry. It allows energy savings as well as a capacity increase. In addition, to the optimised cutting, processing and texture management options, the technique enables new product development opportunities.



*Prof. Dr. Stefan Toepfl  
Managing Director  
of Elea Technology*



# TECHNOLOGY IS MOVING FASTER THAN EVER

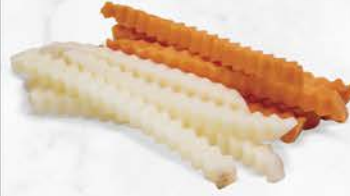
*The frozen potato industry is witnessing significant transformations, driven by advancements in technology that are reshaping various facets of production, processing, and distribution. All these factors have resulted in a paradigm shift, offering unprecedented opportunities and challenges. As technology continues to redefine the frozen potato sector, understanding these advancements is crucial for stakeholders seeking to navigate and capitalize on the rapidly evolving market dynamics.*

How does a company like **Urschel**, one of the largest global manufacturers of equipment for this market, integrate developing technologies such as AI into its product development? Well, it does so in several ways. “Technology is implemented in the production methods to determine the best practices to manufacture Urschel food cutting machinery. Urschel will purchase or build such technology in-house to ensure quality standards are

strictly maintained,” according to Alan Major, chief sales officer at Urschel. “As a 100% employee-owned company with engineers, foundries, pattern makers, and development under one roof, the Urschel team constantly embraces challenges to discover better ways of manufacturing. To foster technology, Urschel U.S.A. recently completed an addition of 115,000 s.f. (10,700 m<sup>2</sup>) dedicated to advancing manufacturing. The facility now stands at over 525,000 s.f. (49,000 m<sup>2</sup>) with a

large percentage of 80% of the space designated exclusively to manufacturing.” Inventive technology is part of the company’s DNA beginning with founder William Urschel, who along with inventing many food cutting machines, is also attributed as a pioneer in 3-D printing. Urschel, like many companies, employs 3-D printing, Major explains. The company was also an early adopter of laser cutting and 5-axis machining. Other technologies incorporated in Urschel machinery production





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*Implementing innovative technology is also crucial in food production to deliver benefits and fulfill the demands of the food processing industry. As food processors expand into processing-controlled environments, the potential for built-in smart technology in Urschel cutting machines has increased.*

*Alan Major, chief sales officer, Urschel*

incorporate robotics and cell manufacturing. Every process of every Urschel part is fine-tuned. As technology evolves and a need arises, Urschel implements changes to maintain the utmost quality in workmanship. Growing manufacturing and changing with the times, Urschel created the Innovation & Development Center (I&D) in 2022, an offsite development facility to enable the principle of rapid iteration. The facility enables Urschel to explore new ideas and designs at a much faster pace to lead to innovative cutting solutions and machinery. "Implementing innovative technology is also crucial in food production to deliver benefits and fulfill the demands of the food processing industry. As food processors expand into processing-controlled environments, the potential for built-in smart technology in Urschel cutting machines has increased. The investigation of PLC's (programmable logic controller) and HMI's (human machine interface) on Urschel machinery began a few years ago. Urschel engineers determined a strategy to enable this technology on Urschel cutting machinery to benefit customer lines." As such, he continues, Urschel engineers explored and finalized a platform that was most suitable to accommodate the needs of food production environments. The development started shortly after. Offering a smart machine with improved controls offers Urschel customers many benefits. This strategic initiative allows Urschel to excel with ever-growing technology, due to many types of sensors (safety, temperature, detection, etc.) being more efficient when utilized within a PLC system. This

flexibility is also paired with many other machine benefits: the ability to quickly identify safety statuses to reduce downtime; VFD or Soft start faults displayed to reduce troubleshooting time; alarms to alert users if a guard has been removed or if an E-Stop has been pressed while the machine is running; amperage of the motors are displayed on screen to help determine proper feeding; continuous trending of the machine's amperages; customizable maintenance timers; datalogging machine information; different language options; ability to use VNC viewer and watch or control the HMI screen remotely from a control center; and the ability to remotely start or stop the machine and pull all data from the PLC to a customer's control center.

### ONGOING INVESTMENTS INTO EXPANSION AND INFRASTRUCTURE

Regarding growth in the frozen potato segment of the food processing industry, customers around the world rely on Urschel for cutting solutions, says Alan Major. Not only has Urschel expanded the global headquarters in the U.S., but Urschel International has also constructed a new office in the Netherlands and moved into a larger facility in Denmark. "Urschel's significant ongoing investment in the global infrastructure of the company gives clients peace of mind knowing their local office is there for complete support in terms of maintenance and training for the long life of their cutting equipment. Urschel speaks the language of food processing and the local language, so important details in

customer expectations are met. Urschel is currently working with several customers around the world exploring new cut shapes. There is a blurring of lines between crisps/chips, fries, and fries continues as a trend. Exclusivity agreements involve pioneering an array of hybrid potato consumer products," he points out. "Customers are concerned about labor shortages, thin cutting precision, oil absorption rates, developing stand-out products that appeal to today's consumer, and how to increase capacity and yield. Urschel cutting machinery is designed to run continuously for uninterrupted production. Knives, components, and machinery are designed under one roof. This means Urschel quality parts are designed to fit and function to optimally work with each other." Urschel supplies millions of knives globally to leading food processors and develop new knives to meet customer needs whenever necessary. Urschel also houses an expansive inventory of commonly supplied components and parts to ship on-demand as necessary. The company thrives on embracing innovation in lean, cell manufacturing combined with maintaining a costly, multi-million-dollar inventory of parts to deliver support and service to Urschel customers, Major adds.

### A RECORD YEAR

Related to the past year's general market volatility, supply chain issues, and workforce shortages, Urschel's global business in 2023 far exceeded expectations, considering the economic climate globally and the effects of supply chain disruptions, military conflicts, and impact from inflation and currency devaluation, Urschel still had a record year, and the workforce remained strong, according to Alan Major. "Urschel is a capital-intensive company, so we typically lag in the effects of economic downturns as we primarily sell to the food industry. Previous economic declines have had little impact which leads the company to be cautiously optimistic in 2024. While inflation has impacted food processing sectors, including potato producers, on margins the frozen potato market continues to evolve. Some of those same conditions will drive consumers to increase consumption and processors to increase capacity to keep up with

demand. Consumers will evaluate cost comparison of grocery store products and still realize the value in purchasing such products as frozen French fries. In comparison, the cost per pound/per serving will remain economical, which will lead to positive market growth in the potato sector." Urschel's recent growth opportunities have derived from listening to customers and addressing those needs in the marketplace. Lessons learned stem from recognizing weaknesses and addressing them with proper business adjustments within our organization. Growth does not come without change, and Urschel business culture continues to grow to effectively meet the everchanging needs of the marketplace, Major goes on to explain. "Urschel recognizes that R&D is critical for continual growth, assisting Urschel customers everywhere, and maintaining dominance as the market leader. The U.S. expansion and new facilities in the Netherlands and Denmark speak to this continual growth along with the Innovation & Development Department," he concludes.

### THE NEW YEAR LOOKS EXCITING FOR FAM STUMABO

"AI" has many different perceptions and definitions, according to **FAM STUMABO** representatives. In the company's context, "machine learning" is a more appropriate term. Potato processing plants, whether it's potato snacks, French fries or other processed potatoes are among the most sophisticated in the food industry with many of the large processors striving for 'lights-out' processing with minimum operator intervention. "All our latest launches have put a strong focus on cutting solutions that offer exactly that highly sought after efficiency and yield by emphasizing on cut quality, reliability, flexibility, user-friendliness, operator safety, hygienic design and the lowest TCO. Our solutions are designed for easy integration into both new and existing lines from all major equipment suppliers and are increasingly capable of upstream and downstream interaction, enabling lights-out production. It's exactly by our continuous focus on innovation and by co-creation, that we meet the industry's needs," representatives point out. "Our machines are already self-managing in

the sense that based on certain inputs, they can show specific output behaviors. The production of blades is also widely automated. Robots and cameras monitor the full production cycle. Should an error be detected, the system will automatically stop the production flow." According to the company, FAM STUMABO has one goal in mind: to help potato processors cut potatoes to perfection. The manufacturer's combined knowledge of both mechanical and hydrocutting allows it to offer its customers the exact innovations and revolutions they have been looking for.

### FAM MACHINES FOR HIGH-QUALITY FRENCH FRY CUTTING AND DICING

FAM Tridis 240P is a good example of how innovation allows the standards to be raised. This versatile dicer/French fry cutter, running at the highest capacities, is a reliable production machine built to deliver top-quality products. The drum of 240 mm depth, available for flat and crinkle allows to cut large diameter and long potatoes to maximum length. The curved infeed chute allows potatoes to align parallel to the slicing knife to maximize length of French fries. The Set & Forget features allow cutting tools to be replaced and adjusted effortlessly. There is no need for specially trained operators. FAM Tridis 180P incorporates the benefits of the Tridis

240P but is tailored for medium-high volumes. The 180 mm wide drum, available for flat, crinkle and deep crinkle applications, is essential if long potatoes are to be cut full length. It also benefits from the Set & Forget features. FAM Dorphy is an entry-level dicer and French fry cutter, combining the cut quality of the high-capacity machines with ultimate flexibility keeping labour cost down while maximizing productivity. Quick feeding and increased production speed reduces preparation time from hours to minutes. The machine operates with very low maintenance costs, no lubrication required. This machine is available in 3 executions: in-line model, stand-alone model (lower infeed for batch feeding), and Eurobin model.

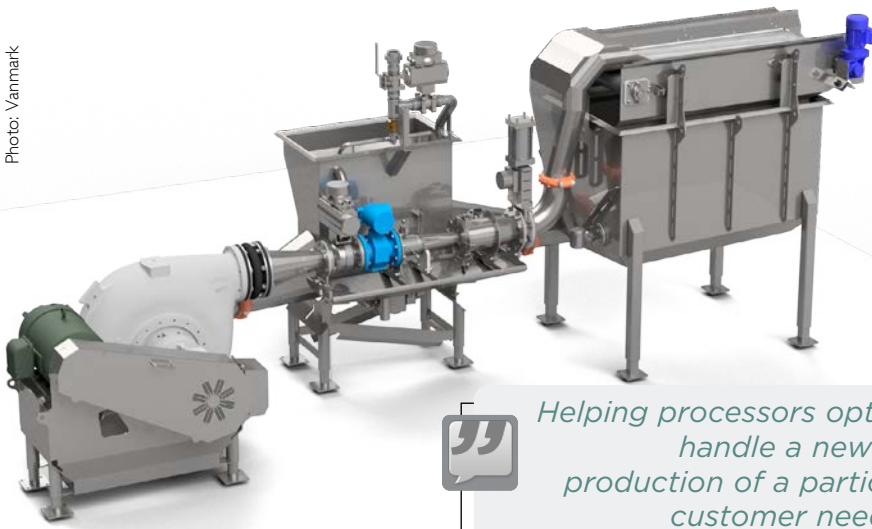
### MACHINES FOR HIGH-QUALITY SLICING, SHREDDING AND GRATING OF POTATOES

FAM Centris 400P is a versatile centrifugal slicer/shredder with a patented DualStage impeller wheel maximizing quality and capacity. The machine is powered by the innovative SureSet 16P cutting head, which will always stay adjusted. The high cut accuracy results in a higher yield and less scrap. The incorporated "Stone Defender" offers the best protection against the impact of foreign material, lowering the total cost of ownership.

*Our solutions are designed for easy integration into both new and existing lines from all major equipment suppliers and are increasingly capable of upstream and downstream interaction, enabling lights-out production.*  
FAM STUMABO



Photo: FAM STUMABO



pizza production equipment. Grote's robotic solutions feature 3D vision systems, which allow them to view the entire form and shape of targets, significantly improving robot accuracy. A single HMI touchscreen controls the entire system. All components are food grade with sanitary design and rated for quick and thorough washdowns. Regarding products for the frozen



*Helping processors optimize existing equipment to handle a new product or pivot to step up production of a particular item are examples of a customer need we can help fulfill in 2024.*

*Mike Barber, sales manager, Vanmark*

According to FAM STUMABO representatives, versatility is key. "The FAM Centris grating heads increase your options with a variety of cut sizes and styles that offer extra cutting possibilities. You therefore reduce the number of machines you need in your production line. The grating heads will produce all types of size-reduction solutions, starting from whole fresh or cooked potatoes, or from pre-cut products (fries, dices, etc.). FAM Volantis is our latest V-belt slicer designed for the precision transverse slicing of a wide variety of elongated and oblong products such as potatoes. The machine produces a high-quality cut on flat and crinkle slices, at medium to high volumes. The special infeed chute will bring the potato up to speed before entering the V-channel, preventing the potato from tumbling. The wide infeed channel will perfectly align the potatoes towards the slicing wheel. Programmed speed settings of the slicing wheel and the V belts allow the maximum cut quality at the highest capacity." Regarding the company's expectations for 2024, both in terms of sales and relationship to frozen food manufacturers, representatives say the new year looks exciting for FAM STUMABO, with the launch of several new machines. "At Fruit Logistica, we will be launching the Yuran Capcitic. This heavy-duty, belt-fed dicer and strip-cutter is designed for cutting a wide variety of products at high capacities. The large product opening for cutting vegetable products and can be equipped with a feed roll or driven top belt for peppers and leafy-type green vegetables. At Anuga FoodTec, we'll be launching two additional machines – but more to follow later. Our machines offer great flexibility on a large variety of

fruit and vegetable cutting solutions for frozen food manufacturers. We understand the flexibility needed in the very diverse vegetable processing industry and design machines to empower customers with the ability to make more products with one machine. The ability to quickly change the setup of cutting tools allows the customer to do many recipes in a very short period, without compromising on the cut quality," representatives add.

### OPTIMIZATION CAN REDUCE WASTE AND ENERGY USAGE

**Grote and Vanmark** foresee major French fry processing activity globally, with many brands focusing on robust growth in China, according to Mike Barber, sales manager at Vanmark. "Helping processors optimize existing equipment to handle a new product or pivot to step up production of a particular item are examples of a customer need we can help fulfill in 2024. Optimizing each piece of equipment through the use of technology will result in less waste and energy usage while allowing for better predictive maintenance. As data acquisition speeds up the process of analyzing the data collected and incorporating the findings, greater strides can be made to optimize the production line," he says. "Better technology also improves food quality. One example would be the quick-freezing technology now used for some individual items and meals." As an example of an emerging technology integration, Mike Barber explains that the Grote Company uses 3D vision technology in its sandwich and frozen

potato market, Vanmark has introduced its compact hydrocutter, which makes it easy to get high-quality cuts and robust throughput in a compact three-piece system that's simple to install, operate, and move. The compact hydrocutter mounts on three interlocking sections for ease of installation and modularity. User-friendly changeouts and minimal moving parts simplify maintenance, according to Mike Barber. Vanmark India recently manufactured and shipped this hydrocutting system to a major food manufacturing customer. The customer produces frozen products like French fries, potato wedges and hashbrowns. Additionally, Vanmark machine parts are now available via Grote's facility based in the Netherlands. This allows for faster service and no tariffs for customers in Europe. Also, Grote Company and Vanmark have forged strong partnerships with OEMs to supply turnkey French fry lines in China, India, and Southeast Asia.

### USING AI ALGORITHMS TO IMPROVE THE ACCURACY OF OPTICAL SORTERS

"At **Key Technology**, both the evolution of existing technology and new innovations provide continual opportunities to enhance the value of our product solutions," says Marco Azzaretti, director of marketing at Key Technology. "By partnering with our customers to solve their production challenges, we establish objectives for future product development. We also invest our time and attention to monitor trends in technology development and identify those that hold the most promise for advancing our product performance. During



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*We anticipate demand for our product solutions will continue to grow in 2024 and that we'll have the opportunity to partner with even more frozen food manufactures in Europe and beyond because our product solutions effectively address the biggest challenges the market is currently facing.*

*Marco Azzaretti, director of marketing, Key Technology*

development, we thoroughly validate and test to ensure all our concepts for brand-new and enhanced products are optimized. Regarding the application of AI technology, we're currently using advanced AI algorithms to improve the accuracy of our food optical sorters, recognizing and removing targeted product defects and all foreign materials from the product stream. AI helps reduce the chance that some good products might also be removed inadvertently. The result is increased line yield while protecting product quality, which enables food processors to pack more products and improve the profitability of their operations." Key Technology is continually innovating with major new product introductions including COMPASS optical sorters and Zephyr horizontal-motion conveyors in addition to recent enhancements to the company's Rotary Sizing and Grading Systems and its RemoteMD software. "COMPASS is the easiest to use optical sorter on the market – it achieves consistently accurate foreign material and product defect removal while offering a compelling ROI. Ideal for the critical end-of-line product inspection process prior to packaging, COMPASS helps processors automate and improve quality management of their food products, while maximizing yield and increasing profitability," Azzaretti explains. Zephyr is Key's next-generation horizontal-motion conveyor. Featuring a patented direct drive with a counterbalance system, Zephyr's unique motion profile gently transports product with no segregation or stratification and

at higher capacities than can be achieved with other horizontal-motion conveyors. Zephyr minimizes bounce, which reduces product damage, noise, and loss of seasoning and other coatings to preserve product quality. Recent enhancements to Key's family of Rotary Sizing and Grading Systems, which includes the Precision Size Grader (PSG), Rotary Size Grader (RSG) and Sliver Sizer Remover (SSR), enables vegetable, potato and fruit processors and packers to mechanically size and grade product while removing small pieces, debris, and other targeted material. Available with newly optimized rollers, Lubed for Life bearings and drive covers, Key's Rotary Sizing and Grading Systems improve product quality control, increase yield, maximize sanitation, and reduce maintenance, Marco Azzaretti points out. RemoteMD 2.0 is an enhanced remote support service for Key's optical sorting systems. With RemoteMD, Key service technicians can securely connect to a customer's sorter for real-time remote monitoring as well as technical support. Now with 24/7 call center support and delivery of quarterly status reports, RemoteMD 2.0 helps optimize equipment performance to protect food safety and ensure product quality while increasing machine uptime and reducing service costs.

### DEMAND WILL CONTINUE TO GROW IN 2024

"At Key Technology, we anticipate demand for our product solutions will continue to grow in 2024 and that we'll

have the opportunity to partner with even more frozen food manufactures in Europe and beyond because our product solutions effectively address the biggest challenges the market is currently facing," says Marco Azzaretti. "For one thing, extreme weather has been causing large fluctuations in the quality of harvested crops so our optical sorters, mechanical graders, and vibratory conveyors - which help ensure consistent final product quality despite changes in incoming product quality - are more important now than ever. At the same time, labor is getting harder to find and retain automated technologies that are easy to learn and operate allow customers to do more with less labor. In this environment, where food manufacturers must work harder and smarter to prepare their products for quality-conscious consumers, Key is the ideal partner."

### THE IMPORTANCE OF PEF PROCESSING

Pulsed Electric Field (PEF) is an emerging technology which offers significant processing benefits to potato processors. In addition to optimizing production and creating a higher standard of products, PEF equipment can also help processors manage production's most expensive resources, such as raw potatoes, oil, and water; explain **Heat and Control** representatives. Limited worldwide resources and unprecedented global turmoil call for a balanced approach to raw material, water, energy, and nutritional content. PEF technology helps achieve industry critical goals such as enhanced food quality, decreased water usage, reduced emissions, increased energy efficiency, and the ability to utilize by-products from waste food. French fries, potato chips, formed potato products, and root vegetables all benefit from treatment with PEF equipment which facilitates improved cutting of potatoes, higher product quality, increased process yields and reduced operating costs. A complementary reduction in acrylamide can also not be overlooked and demand for the technology has expanded from French fry processing into potato chip and snack foods, Heat and Control representatives point out. Food processing innovation and trends in food science are driving factors

behind the development of sustainable food processing techniques like PEF and the global food industry 'pulsed electric field systems' market is poised to grow by USD227.52m during 2020-2024. At a time when potato processors are still suffering the flow on effects of the pandemic - recent military events now present yet another crisis for the industry and a shortage of sunflower oil is impacting the entire food industry. It's yet another challenge for potato processors who are already dealing with the rising costs of energy and raw ingredients. There is simply no way to predict how long the shortage of sunflower oil will go on for. During this time, innovative processing techniques and equipment will be key to maintaining profitability. According to Heat and Control representatives, processing equipment which incorporates PEF technology can provide significant savings on oil and help you manage the expensive resource during this time. Application of PEF makes the cut surface of the potato smoother, which reduces oil pick up and means there's less oil content in the final product. Depending on the raw potato type and quality, up to a 7% reduction in oil can be achieved. Less free starch present on the surface of the chip also contributes to less starch in the fryer which can typically cause oil to degrade faster. The PEF process makes the potato tissue softer and easier to

cut. The result is a smoother surface on the cut chip and ensures a higher starch content is retained in the outer layers of the chip rather than free on the surface. This means the product absorbs less oil during cooking - which translates to a significant reduction in oil expenditure over time.

### E-FLO ELECTROPORATION SYSTEM

Extensive research and development have gone into Heat and Control's own PEF solution: the patent protected E-FLO Electroporation system, representatives explain. This innovative equipment sets the standard for French fry and potato chip production and is the only solution on the market capable of also delivering Acrylamide reduction. The E-FLO was originally created as a solution to reduce acrylamide formation during frying - without making fundamental changes to the manufacturing process - and without compromising on taste or quality. But the technology went on to surprise and delight designers with a host of other, just as valuable processing benefits. The advantages of this processing method have seen many food processors across various industries incorporate the technology into their processing lines and those who are not already using it, are looking into it. Through its utilization of PEF, the E-FLO system achieves higher yields and a shorter, cheaper

production process. As the Sunflower oil crisis continues - every process must be scrutinized, analyzed, and optimized, and oil management could make or break the operation. Adopting a PEF system is an excellent way for a potato processor to manage the impact of the Sunflower oil shortage now, and in the future. The E-FLO system achieves a 5% reduction in oil content which on 2000kg/hr. of potato chips translates to just under 3000L of oil, per day. This represents a huge saving for the operation. Using equipment such as the E-FLO System can provide very real cost savings for processors, at a time when oil management is critical, and oil prices are skyrocketing. A turnkey supplier can help you adopt, or upgrade your existing equipment, and it's a great solution for customers who might be struggling to find oil during this time, because of the shortages, representatives point out. Working with an experienced food industry expert also helps you bring your best products to market if alternative recipes and ingredients are being considered. The shortage of Sunflower oil will mean many processors are forced to substitute with other, less desirable oils. The oil savings achieved by upgrading to a system such as the E-FLO are so significant that it could reduce the need to resort to switching or blending with other (potentially more expensive) oils. As interest in sustainable processing grows, a PEF system can also help the operation address key sustainability goals. A greater volume of production is happening globally, despite the world's challenges, and many processors are seeking to better manage and understand their impact. They're investing significantly in equipment which helps them reduce fuel costs, energy waste, air pollution and water consumption - and meet the rigorous pollution control regulations of the various world-wide agencies. In recent years, the potato processing industry has made good progress in key areas of environmental sustainability and corporate social responsibility. Key players are acknowledging their part in a shift towards greater sustainability; and the right equipment will allow them to process more efficiently and be more profitable, while achieving their sustainability goals, Heat and Control representatives conclude. ■

*PEF technology helps achieve industry critical goals such as enhanced food quality, decreased water usage, reduced emissions, increased energy efficiency, and the ability to utilize by-products from waste food.*

*Heat and Control*



Photo: Heat and Control



# THE SIGNIFICANCE OF FREEZING TECH IN MODERN FOOD MANUFACTURING

*Freezing technology is indispensable in the food industry due to its role in equipment development, assistance to manufacturers, and the crucial importance of after-sales services. It contributes significantly to food preservation, safety, and economic efficiency, making it an integral part of the modern food production landscape. As technology continues to advance, the food industry will likely see further innovations in freezing, enhancing its capabilities and further solidifying its importance in ensuring a sustainable and resilient food supply.*

Freezing technologies enable the production of a wide variety of convenient and innovative food products. From frozen meals and pre-cut vegetables to frozen desserts, consumers have access to a diverse range of convenient options. Innovations such as quick-freezing tunnels, blast freezers, and cryogenic freezing methods have

revolutionized the way food is preserved, extending its shelf life while maintaining optimal taste and nutritional value. The assistance provided by freezing technology to food manufacturers is immense. It enables large-scale production and storage, allowing manufacturers to meet the demands of a growing population. By preserving food through

freezing, manufacturers can ensure a stable supply of products regardless of seasonal variations.

## STARFROST INTRODUCES COST COMPARISON SERVICE

**Starfrost**, specialists in cooling equipment and solutions, now offer an energy comparison service to









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**TECNOPOOL**  
PART OF TP FOOD GROUP



*Our energy comparison service equips businesses with the essential insights needed to optimize their freezing and chilling processes and sheds light on real costs and payback returns.*

*Samuel Welch, UK sales manager, Starfrost*



assist frozen and chilled food manufacturers in managing the ongoing rise in gas costs. This tool helps food processors assess the shift from expensive cryogenic to more affordable mechanical freezing, typically yielding a one-to-two-year return on investment. As energy costs continue to soar, it is crucial for food manufacturers to make informed decisions about their freezing methods. Starfrost is offering a comprehensive analysis of operating costs associated with mechanical and cryogenic freezing technologies, allowing processors to evaluate the financial implications of each option, available to newcomers entering the industry as well as established food processors contemplating an upgrade from their current cryogenic freezers. "Our energy comparison service equips businesses with the essential insights needed to optimize their freezing and chilling processes and sheds light on real costs and payback returns. As a comparative example, the operating costs per kilo of finished product for mechanical freezing are notably 85-90% lower than those incurred with nitrogen cryogenics, an astonishing reduction," said Samuel Welch, UK sales manager

at Starfrost. "Our mechanical freezing equipment doesn't just deliver high-performance and high efficiency but also guarantees the highest quality results in the end product. We aim to share our expertise and emphasize a profitable freezing solution without compromising the food product's quality or sacrificing system flexibility." Starfrost's experts are able accurately compare the costs of mechanical and cryogenic freezing processes, considering factors such as gas prices, long-term agreements, and market volatility. By leveraging this data, processors can gain valuable insights into the potential savings and return on

investment associated with the different freezing technologies. To showcase the effectiveness of this service, Starfrost recently collaborated with a prominent UK seafood processor. By investing in a mechanical spiral freezer and utilizing the energy comparison service, the food manufacturer achieved substantial annual cost savings of GBP624,071 (based on 50 weeks of production, processing 1000kg per hour of seafood products). The return on investment for this customer will be achieved in just over one year when compared to the operating costs of their previously used cryogenic freezer.



*The capacity is the big advantage of the GC70: in a relatively small space, we have managed to squeeze more capacity out of the freezer by increasing the headroom, which is of considerable benefit to customers.*

*Torbjörn Persson, director of Global Sales Support & Product Line Management for Frigoscandia Freezers, JBT*

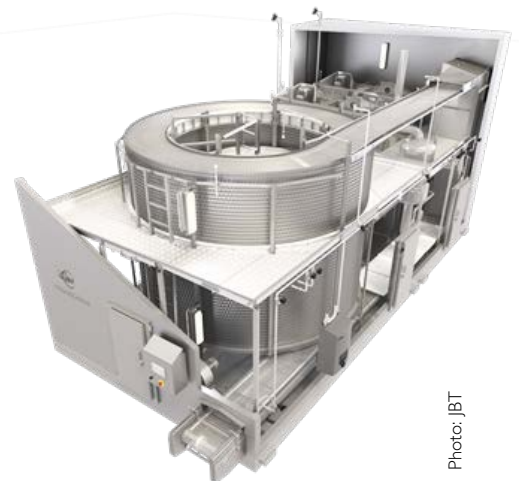


Photo: JBT

## NEW FEATURES FOR A BESTSELLER

The newest member of **JBT's** freezer range, the Frigoscandia GYRoCOMPACT 70 Spiral Freezer (GC70), is now available with Sequential Defrost; an addition which means producers can benefit from the GC70's capacity increase for up to two weeks of continuous running, according to company representatives. By incorporating this option into the GC70, producers can enjoy not only prolonged running time but also a 20% capacity upgrade without compromising the footprint when compared to its predecessor. The new function means the GC70 can run longer continuous times without stopping and without any need to halt production for defrosting at regular intervals. A new iteration of the JBT Frigoscandia GYRoCOMPACT range of spiral freezers – the industry standard for spiral freezer technology across the globe – the GC70 not only includes a 700mm wide belt, but also a range of key features which have been

optimized to work better, smarter, and more powerfully than ever before. The addition of the Sequential Defrost option enables the GC70 to operate continuously for up to two weeks without the need for frequent defrosting, ensuring uninterrupted production. "This is a specially tailored option designed to meet the running requirements of the GC70," says Torbjörn Persson, JBT's director of Global Sales Support & Product Line Management for Frigoscandia Freezers.

## BOOSTING CAPACITY & TURNAROUND TIME

Capacity is another key feature of the GC70. To overcome space restrictions in many facilities, JBT has increased the overall capacity of the GC70 by building up, maximizing the amount of freezer that can cover the same area of floorspace. The overall achievement is a capacity increase of up to 20%. "The capacity is the big advantage of the GC70: in a relatively small space, we have managed to squeeze more capacity out of the

freezer by increasing the headroom, which is of considerable benefit to customers," Persson adds. Improved drying functions also play a key role in the updated GC70. The improvements, which are focused on quicker and more efficient drying of the belt, save up to an hour compared with previous functions. This, says Persson, translates to a big saving on customers' turnaround times. "In older models, you had to dry for a longer period: this new version is a lot quicker, which means you cut delays in restarting production," he explains. More than this, JBT technicians also took a deep dive into all the food safety and hygienic aspects of the freezer design. The result has been an opening of all the profiles on the machine to make it simpler and more straightforward to clean. A final detail is the addition of JBT's OmniBlu platform. A performance optimization system, which gathers and analyses data, insights and airflow control provided by OmniBlu enhances freezer performance and efficiency. ■



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# “YOUNG CONSUMERS ARE TRENDSETTERS, DRIVING DEVELOPMENTS TOWARDS SUSTAINABLE NUTRITION”

*Germany is one of the dominant markets in the European frozen food industry, but as many other regions around the world, it has also faced several challenges recently. To find out how these were tackled and more, I spoke to Dr. Sabine Eichner, managing director of the German Frozen Food Institute (dti).*



## How did the frozen food industry in Germany perform in terms of market growth and revenue in the past year?

The frozen food market in Germany continued to develop positively in 2023 despite weak consumer sentiment and high inflation rates. According to our half-year report, which we published in mid-September 2023, we can expect a volume growth of 3.5% to 4.044 million tons for 2023. For total sales in 2023, the dti is forecasting growth of 15.3% to EUR21.383bn. This is particularly pleasing as we were already able to announce record results for 2022: Germans consumed more frozen food in 2022 than ever before, as our 2022 dti sales statistics show! Despite the positive forecast, however, the market development in the frozen food sector must be viewed in a differentiated way. Frozen food is also suffering from poor consumer sentiment, increased price

sensitivity among customers and the simple need to save money in many households; all of this is putting pressure on sales. According to GfK, frozen food sales in the food retail sector are growing strongly, with an increase of 12.8%, which is well above the overall average for food of 8.3%. By contrast, the sales volumes of frozen food manufacturers and distributors specializing in the out-of-home market developed more dynamically due to the continued increase in demand from the foodservice industry. Catch-up effects from the pandemic period can still be observed here. Following the drastic declines in sales and turnover in the coronavirus years, the out-of-home market for frozen products could therefore continue to recover in 2023. The dti forecast for the development of frozen food in the catering sales channels of the AHM for 2023 assumes growth of 7%. However, it is also evident in the foodservice industry that while sales are rising significantly due to inflation, in real terms sales are falling by double digits. This is not good news for the foodservice industry in Germany, which has also had to contend with the expiry of the reduced VAT rate on food in restaurants from the start of 2024. A clear picture of the development of the overall frozen food market in 2023 will not be available until April 2024. The dti will then publish the data from the dti sales statistics 2023, which are based on its own industry survey of companies.

## Can you provide insights into the key trends that influenced the market in 2023?

The food market is developing dynamically; changing social values are reflected in our eating culture and determine how we deal with food. Greater awareness of sustainability is influencing purchasing and eating behavior and offers the food industry many opportunities for innovation. Young consumers are trendsetters and are driving developments towards more sustainable nutrition. In our fast-moving times, nothing works without convenience: frozen food can fulfill this need very well in a wide variety of forms - and in combination with freshness and naturalness. Many consumers are looking for healthy food options that are quick and easy to prepare to cope with the hectic pace of everyday life and meet the demands of work and family life. In 2023, convenience was the most important trend for food. In the long term, sustainability will become a decisive future factor and defining trend, but this trend weakened in 2023, not least due to the sharp rise in food prices. Vegetarian and vegan diets are particularly popular among younger, female consumers. The frozen food ranges offer a wide variety of options: Traditional vegan recipes or alternative products for meat and fish to reduce the consumption of animal products form new product areas. When it comes to meat, animal welfare is becoming a more important selection criterion, although high inflation is currently preventing many people from reaching for the higher-priced products. Following the end of the coronavirus pandemic, the foodservice industry is also experiencing a resurgence: the diverse

demands of guests, the difficult economic conditions and the simultaneous shortage of staff and skilled workers require new gastronomic concepts and smart nutritional solutions. Here too, the mega trends of sustainability and convenience are unmistakable. Healthy, sustainable convenience, economically viable and emotionally convincing concepts are a must for the foodservice industry today. Frozen food offers many excellent product ranges for this and supports the sector on its way to a successful, more sustainable future!

### **What were some notable challenges faced by the frozen food industry in Germany in the previous year, and how were they addressed?**

The increasing and worsening global political crises and challenging national and European political framework conditions pose challenges for the frozen food industry in Germany. As the representative body for the frozen food industry in Germany, we therefore take a very critical view of the German government's current economic and food policy and call for a change of course. The raw materials situation remains tense, electricity prices in Germany are among the most expensive in Europe, bureaucracy and regulatory frenzy at national and European level are tying up valuable capacities, while at the same time there is an increasing shortage of skilled workers. Inflation and consumer restraint are weakening business. The foodservice industry is also under enormous pressure. The dti has therefore publicly called on the German government on several occasions to create better political framework conditions that promote competitiveness and growth of the business location, rather than slowing it down. Above all, this means a secure energy supply, permanently affordable and competitive energy prices, further tax relief and a rapid reduction in unnecessary bureaucracy. The great innovative strength, motivation and creativity of our member companies gives us hope. The frozen food industry is not waiting for cumbersome politics, but is boldly moving forward with a pioneering spirit, especially in many sustainability projects. After all, the frozen food industry has a lot to offer as a future-oriented category: We are helping to prevent food loss and are working towards the major goal of climate neutrality with innovative ideas and a great deal of commitment. Increasing energy

efficiency, conserving resources, and optimizing processes along the entire frozen food value chain are ultimately in the interests of all market participants. Our member companies benefit from the high level of expertise in our association network, the outstanding cohesion in the "frozen food family" and the very lively internal exchange in our committees and working groups. We are very proud to be able to offer our members such an exclusive, valuable, and value-added network as a knowledge and communication platform and are constantly working on expanding our services and tailoring them to the needs of the companies.

### **In terms of consumer preferences, how did the demand for specific types of frozen foods change in 2023?**

Dr. Sabine Eichner: In view of the mid-term review of frozen food presented by the dti in mid-September 2023, we assume that the trend towards more convenience in private households will continue to grow. In view of the high demands of work, family and everyday life, consumers benefit from food products that allow them to conjure up healthy meals that are quick and easy to prepare. Frozen products can fulfill this need very well in a wide variety of forms - and also in combination with freshness and naturalness. The same applies to professional users in the catering industry: the diverse demands of guests, the difficult economic conditions and the simultaneous shortage of staff and skilled workers require new gastronomic concepts and smart nutritional solutions. Here too, the mega trends of sustainability and convenience are unmistakable. Again, frozen food is the perfect problem solver: reliable costing, low food waste, high individual refinement potential, guaranteed success and taste, long shelf life, perfect portioning - and all this with uncomplicated use.

### **Were there any significant regulatory changes or industry developments that impacted the frozen food sector in Germany last year?**

The industry is currently busy implementing the requirements of the German Supply Chain Due Diligence Act. To this end, risk analyses and risk management systems must be set up to ensure compliance with human rights in supply chains. The dti actively supports its members with its expertise. The

switch to renewable energies to achieve climate protection targets remains a major challenge for the industry. The use of non-fossil energy sources in mobility is also a focal point in the further development of the frozen food industry. Even if there is still a long way to go, there are many innovative approaches, which makes us optimistic that we will achieve our goals.

### **Looking ahead to 2024, what are the expectations for market growth, and what factors are anticipated to drive or hinder this growth?**

The trends mentioned can be seen in the long term and will continue. This will result in many opportunities for the frozen food industry, as frozen food offers numerous unbeatable advantages such as freshness, naturalness, convenience, and sustainability all in one. The incredibly wide range of products in the frozen food department shows that frozen food companies have their ear very close to the consumer and know how to respond to changing eating habits and requirements. This applies to the megatrend of plant-based nutrition, which is being driven primarily by the younger generation and is already very clearly reflected in the menus of many universities. These are the consumers of tomorrow, who will also shape the offerings in company canteens and restaurants in the future. It is important to help shape this development with creativity and innovation. There is great potential here for our future frozen food category if we can work together to communicate the benefits of frozen food even more effectively and present them at the POS - particularly in terms of sustainability, naturalness, and freshness. As an interest group and communication network, the German Frozen Food Institute offers the ideal platform for all players in the frozen food industry who want to leverage these great opportunities for the future. If you are not yet a member, you are cordially invited to join our strong community! ■

**# 15.3%**  
*is the estimated growth in total sales registered by the frozen food industry in 2023.*



# THE ROLE OF PACKAGING IN FOOD SAFETY

*In today's competitive market, packaging is not just a necessity but also serves as a means of differentiation, helping brands to stand out by offering sustainable packaging options. Effective packaging not only ensures the health and safety of consumers but also plays a vital role in building trust and brand loyalty within the food industry.*

Packaging, particularly when crafted from plastic, frequently draws criticism for its contribution to excessive waste volumes, carbon emissions, and resource depletion, according to an expert article published recently by **interpack**. Here, experts explain how amidst these concerns, the packaging's primary function - safeguarding products to ensure they reach consumers intact - is often overlooked. Yet, the process is indispensable for facilitating the transportation, storage, and preservation of goods, guaranteeing their hygiene, quality, authenticity, and integrity. This role is particularly vital for food and pharmaceutical items, though numerous other products would similarly face wastage without adequate packaging. Consequently, ensuring product safety remains a paramount objective in the packaging industry, a focal point underscored by exhibitors at last year's interpack event. The fundamental objective of effective packaging solutions is to offer optimal protection for their contents. This is particularly evident and significant within the food sector. Innovative and intelligent packaging solutions are instrumental in curbing food wastage. At the previous year's interpack exhibition, attendees gained insights into methods to minimize food loss during filling processes, achieve reliable product inspection and high-quality sealing, and prevent unwanted contamination. An often-overlooked aspect in packaging discussions is that only a small fraction of a product's environmental impact can be attributed to packaging, particularly concerning food items. For instance, butter packaging accounts for merely 0.4% of the overall carbon footprint of the product, while a milk carton contributes approximately 4%. These statistics, derived from a study by the German packaging and environmental association AGVU, encompass the entire lifecycle of the packaging, including disposal. The lion's share of the environmental impact is therefore associated with the packaged product itself. Approximately one-third of food produced globally is lost or wasted within the value chain annually. However, initiatives like the Save Food Initiative, initiated in 2011 by interpack and Messe Düsseldorf, are actively addressing this issue. Packaging plays a pivotal role in the events organized by these companies to combat food wastage.

## ADDRESSING ISSUES RELATED TO MATERIALS

Food packaging continues to rely on multilayer plastic composites due to their versatility in adapting to the specific protection requirements of various products, the interpack experts point out. However, the challenge lies in the fact that currently, multilayer packaging is not recyclable, resulting in its disposal in landfills or incineration. Addressing this issue, the Circular FoodPack research project, slated until 2024, involves scientists at the Fraunhofer Institute for Process Engineering and Packaging (IVV) striving to establish a closed-loop recycling system for food packaging, enabling its safe reuse in direct contact with food. Their focus is on developing innovative monomaterial packaging that matches multilayer composites in protective capabilities while facilitating closed-loop recycling and reuse. Meeting stringent regulatory standards is paramount for incorporating recycled materials into food packaging. EU Regulation 2022/1616 mandates functional barriers with well-documented properties. In response, Fraunhofer IVV has devised a screening method to assess functional barrier layers aimed at preventing undesirable substance migration into food. This approach involves evaluating thin organic and inorganic coatings used as barrier layers, followed by practical testing later in the project. According to interpack, while paper is not always the primary choice for food packaging, especially for items with fatty or liquid contents due to the inherent limitations of fiber-based materials, there's a growing shift away from plastic towards paper packaging. In instances where packaging encounters fatty or liquid products, effective barrier protection becomes imperative. BASF addresses this need with Ecovio, a certified compostable plastic derived from renewable resources. Introducing a new line of extrusion-coated paper and cardboard packaging to its Ecovio range, BASF offers a solution approved for food contact, boasting robust barrier properties against liquids, fats, oils (including mineral oils), and excellent thermostability to withstand boiling water up to 100°C. Furthermore, Ecovio adheres well to various paper and cardboard surfaces, making it suitable for a wide array of paper-based applications, including dairy product cups, frozen food

containers, sandwich wrapping paper, cereal bar packaging, confectionery, and snack bowls, as well as hot and cold drink or soup to-go cups. Emphasizing its commercial viability, the manufacturer asserts that the new extrusion-coating process achieves speeds comparable to those of polyethylene (PE), with the ability to deliver similar coating weights, enabling the production of very thin coatings depending on the application and equipment used.

## THE IMPORTANCE OF INSPECTION

Lastly, experts at interpack underscore the significance of inspection solutions in ensuring the protective efficacy of product packaging. Various systems available in the market are adept at detecting different types of foreign matter. For metallic contaminants, industrial metal detectors prove effective in reliably identifying metallic foreign bodies and removing them from production lines, thereby assisting manufacturers in upholding compliance, minimizing recall risks, and reducing production downtime. In cases where detection of other foreign matter is necessary, X-ray inspection systems are recommended. This year, Mettler-Toledo unveiled a new X-ray solution designed to inspect individually packaged foods or pharmaceuticals at high speeds along production lines. Furthermore, the process of scrutinizing labels, printed materials, and expiration dates contributes to product protection. Visual product inspection systems deliver precise results in this regard. For instance, Minebea Intec's VisioPointer features three cameras and multiple lighting modes as standard, with optional side and satellite cameras available for analyzing products from various angles. Additionally, it performs reliable seal seam inspections, a crucial visual quality check in the food industry, as the product can only attain its shelf life if its packaging is completely airtight. All these issues – and more – will be further explored at the next interpack, which will be held on May 7-13, 2026, in Düsseldorf.

## A FOCUS ON THE ITALIAN PACKAGING INDUSTRY

According to preliminary data from the **MECS - Ucima Research Centre**, the Italian packaging technology industry achieved a remarkable milestone in 2023

by surpassing the EUR9bn mark for the first time. The total sales reached EUR9.05bn, reflecting a 6% increase compared to 2022. These figures, if confirmed in the final report, would mark the third consecutive year of record-breaking sales following the achievements in 2021 and 2022. Exports are the primary driver of growth in sales for Italian packaging machinery manufacturers, contributing 81.3% of total revenues. They are projected to reach EUR7.36bn by the end of the year, reflecting a 12% surge compared to 2022. This upward trend in exports encompasses nearly all regions, with notable increases observed in North America (25%), the European Union (17%), Asia (22%), and South America (31%) based on data from January to August. On the other hand, domestic sales experienced a decline of 14% compared to 2022, totaling EUR1.68bn. Despite this, the industry remains optimistic about the future, boasting a record of secured orders for 2024 worth 8.2 months. However, caution is advised amidst evolving geopolitical landscapes, and uncertainties persist regarding forthcoming EU directives on packaging usage. Nonetheless, recent developments suggest that these directives may accommodate the diverse characteristics and technologies of member states, potentially safeguarding Italy's exemplary waste management model, as stated by Ucima. "In 2023, the issue of component delays has finally been resolved, allowing companies in our sector to focus exclusively on securing and fulfilling orders and in turn enabling them to achieve this new record," stated Ucima Chairman Riccardo Cavanna. "However, especially in recent months, orders have been falling compared to 2022 and this trend is expected to continue in 2024. The 14% decline in domestic sales is also a cause for concern, demonstrating that the Italian market has been impacted by both the inflationary crisis and uncertainties surrounding Industry 4.0. Our industry and its client sectors require clarity, as well as a new plan that



supports both supply and demand. In this regard, the RePowerEU initiative's allocation of EUR6.3bn for the Industry 5.0 plan is a positive development, although we would like to know more about how the funds will be distributed and under which criteria. To date, we have heard nothing about incentives for capital goods to facilitate the ecological transition, and we are awaiting a response from the government." According to the export figures, the Italian packaging industry has maintained its world leadership position. "Italian-made technologies and solutions continue to attract sustained demand from food, beverage, pharmaceutical, tissue and cosmetics companies all over the world, who appreciate the quality, reliability and innovation that we are able to deliver," noted Cavanna. "As for innovation, some of our companies have already integrated artificial intelligence solutions into their machines. This is one of the biggest challenges we will face in the coming years, and Ucima is ready to support companies in identifying the best opportunities for their development and international expansion." The European Parliament's latest vote on the packaging directive is a step in the right direction. "Common sense has prevailed," Cavanna added in the statement. "However, we are waiting to see what the next steps will be, as the process is not yet complete. Ucima has always been at the forefront in defending the Italian way, a model that has established us as a leader in terms of waste recycling. We will

continue to work in collaboration with the other associations in the supply chain to defend a system that delivers both environmental and economic advantages."

## INNOVATIVE VERTICAL PACKAGING SOLUTIONS FROM SYNTEGON

Companies active in packaging keep bringing forward solutions that aim to increase output and reduce costs. Such an example comes from **Syntegon**. The SVX Duplex is part of the vertical SVX series launched by the company during Interpack 2023. It is the go-to machine for high-speed vertical packaging with an output of up to 600 bags per minute. The core innovation of all SVX variants is a cross-seal drive consisting of four independently controlled servo motors. The optimized solution, which currently has pending patents, gives manufacturers full control over the vertical and horizontal movement, ensuring reliable seals. Thanks to a combination of four motors and low inertia, the drive contributes to achieving the highest outputs. "Customers are always looking for solutions that can produce reliably tight cross seals for added product safety. The SVX makes sure this is the case without compromising on speed. Depending on the bag parameters as well as the dosing of the product, the SVX Duplex has an output of up to 600 bags per minute with two film lanes," company representative explained in a statement. In terms of design and overall aesthetics, the SVX series also stands out: a front cylinder with curved sliding doors redefines machine manipulation and ease of access. Upon opening, the doors relocate to the back part of the cylinder, making sure they do not obstruct operators during the daily work. And with a machine width of only 1,220 mm the SVX Duplex can easily be integrated into new and existing packaging lines. When it comes to optimal performance Syntegon's vast array of Service Agreements helps food producers always ensure efficient start-up and smooth production. ■



Photo: Syntegon

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industry!



# COLD CHAIN: MARKET TRENDS AND OPPORTUNITIES

*The cold chain market is expected to grow at a significant rate between 2023 and 2030, as technological advancements, including IoT integration, GPS tracking, and temperature monitoring systems, enhance the efficiency and effectiveness of cold chain logistics.*

The cold chain packaging market is expected to witness significant growth, with an anticipated Compound Annual Growth Rate (CAGR) of 15.3% between 2023 and 2030. This projection, outlined in a recent study by Coherent Market Insights, is attributed to escalating demand for temperature-sensitive products and the imperative for efficient cold chain management. At the core of this market expansion are various segments. Storage components, crucial for maintaining the quality of food and drugs, are expected to hold a dominant position. Similarly, transportation and monitoring components are forecasted to witness substantial growth to meet the increasing demand for efficient logistics and real-time monitoring. In terms of packaging products, while

crates are expected to maintain their dominance due to versatility and durability, there is a rising demand for insulated containers, boxes, cold packs, labels, and temperature-controlled pallet shippers. These shifts reflect the industry's pursuit of better insulation and temperature control during storage and transportation. Material-wise, insulating material is projected to lead the market for its role in maintaining temperature stability, with refrigerants also in demand for providing necessary cooling effects to perishable goods. Within the equipment category, storage equipment is expected to hold a dominant position, driven by the growing need for temperature-controlled storage solutions. Meanwhile, transportation equipment is also anticipated to witness significant growth to cater to the rising demand for efficient cold-chain

logistics. In terms of applications, fruits and vegetables are poised to be primary drivers in the cold chain industry, alongside processed food, bakery, confectionery, and other segments, indicating an increasing need for temperature-controlled storage and transportation. Geographically, North America is expected to maintain dominance throughout the forecast period, buoyed by its well-established cold chain infrastructure and the presence of key market players. This growth in the cold chain market is fueled by the rising demand for perishable food products.

## TECHNOLOGY MAKES THE DIFFERENCE

Technological advancements, including IoT integration, GPS tracking, and temperature monitoring systems, enhance the efficiency and



effectiveness of cold chain logistics. Additionally, the development of eco-friendly refrigeration systems further boosts the demand for cold chain solutions. Two key trends shaping the cold chain market include the increasing adoption of blockchain technology and the growing preference for cloud-based cold storage solutions. Blockchain enhances transparency and traceability in the cold chain network, while cloud technology offers benefits such as remote access, scalability, cost-effectiveness, and data security. All in all, adapting to these trends and investing in innovative solutions will be crucial for stakeholders to capitalize on the burgeoning opportunities in this dynamic market.

### MORE STORAGE REQUIRED

The storage components segment in the cold chain packaging market offers a significant market opportunity. This segment includes storage equipment such as refrigerated warehouses and cold rooms that are essential for maintaining the temperature and quality of perishable goods. With the increasing demand for temperature-sensitive products, the need for efficient storage solutions in the cold chain is growing. Temperature-controlled pallet shippers present another market opportunity in the cold chain packaging industry. These shipping solutions are designed to maintain a consistent temperature during transportation to ensure the quality and safety of perishable goods. Temperature-controlled pallet



# **15.3%**  
is the expected CAGR for the cold chain packaging market between 2023 and 2030.

shippers are used for transporting a wide range of products, including pharmaceuticals, fresh produce, and processed food. The demand for temperature-controlled pallet shippers is expected to increase rapidly due to the expanding cold chain network and the growing global trade of perishable goods. These shippers provide efficient insulation and precise temperature control, minimizing the risk of temperature fluctuations that can lead to product degradation. Additionally, they offer customizable configurations and advanced monitoring systems to ensure the integrity of the cold chain during transportation.

### STEADY GROWTH FOR THE COMMERCIAL REFRIGERATION SEGMENT

According to a report by Technavio, the commercial refrigeration equipment market is expected to experience significant growth, with an anticipated increase of USD14.50bn between 2022 and 2027, representing a CAGR of 6.86%. This growth is attributed to the need to

enhance the storage life of food products, which plays a vital role in determining the shelf life and quality of food products. Proper refrigeration is crucial for preserving the nutritional and microbial quality of food, minimizing moisture transfer, and ensuring the preservation of flavor, color, and texture. Additionally, the refrigerated transportation market is forecasted to grow at a CAGR of 7.46% between 2022 and 2027, with the market size expected to increase by USD34.6bn. Similarly, the cold storage market size is estimated to grow by USD118.3bn between 2022 and 2027, accelerating at a CAGR of 13.47%. ■



# **14.5**  
bn USD is the estimated growth of the commercial refrigeration equipment market until 2027.





# TO CHANGE IS TO IMPROVE

*Product reformulation is an ongoing process in response to consumer health demands.*

**T**rends in health and nutrition differ between the markets for frozen bakery goods and potato products. With the former, the greater consumer desire for healthier varieties of bread and cakes has led to more manufacturers fortifying their products with ingredients such as fibre and protein. In contrast, producers of frozen potato products have less scope to innovate in this way, preferring instead to focus upon the removal of ingredients associated with poor diets, such as salt and saturated fats.

## BAKERY GOODS

Although most bakery goods are sold and consumed fresh, a sizeable global market for frozen varieties also exists. Worldwide sales of frozen bakery products were valued at almost USD43bn in 2022 by SkyQuest Technology, a figure forecast to increase by an annual average of more than 4% to around USD60bn by 2030. Much of this growth is likely to be driven by the ease of preparation of many products, as well as their long shelf life and affordable price. Frozen bakery products are also more attractive from a cost perspective for customers such as in-store bakeries (ISBs), quick-service restaurants (QSRs) and coffee shops as they require less labour, although market development has been hindered by the comparative lack

of cold chain distribution facilities in parts of the world. The market is largely made up of products such as bread, pastries, and cakes, as well as other foods like pizza. One of the more dynamic sectors is the market for part-baked and ready-to-bake foods, which are frequently referred to as bake-off solutions. For customers such as ISBs, the choice usually lies between making bakery goods such as bread from scratch using raw ingredients, or opting for dough which is part-baked and then frozen. This latter option is often favoured, since this enables retailers to offer a wider choice of freshly prepared bakery goods, turning out higher volumes at a lower cost and resulting in more efficient production systems. Consumption of certain types of bakery goods such as bread and cakes remain heavily influenced by consumer concerns regarding health and nutrition. Some of the more common ingredients whose presence bakery manufacturers have sought to reduce the presence of have



#

43

USD bn was the value registered by worldwide sales of frozen bakery products in 2022.

22%

of European consumers want to see more bread with lower fat levels and fewer calories.

included salt and saturated fats, as well as artificial additives. At the same time, efforts at reformulation have also featured the addition of ingredients usually carrying health claims. Fibre is a popular example, since it carries links with improved digestive health and lower cholesterol, bakery goods such as bread are now being enriched with additional protein. Not only has protein been shown to assist in the building and repair of muscles and tissue, but it can also suppress hunger levels and therefore aid in weight management.

## CONSUMERS WANT HEALTHIER, RICHER-IN-FIBER OPTIONS

Recent consumer research highlights the importance of healthy ingredients for bakery goods. According to a pan-European survey carried out by Delifrance in 2020, the availability of more healthy options would encourage over a fifth (21%) of consumers to eat more bread. The same survey found that 17% of respondents were actively seeking out bread fortified with additional vitamins and/or nutrients, while 22% wanted to see more bread with lower fat levels and thus fewer calories. These findings have been backed up by more recent research, one example of which was from Tate & Lyle in 2022. This survey (which canvassed the opinions of 1,250 over-18s in the UK, France, Germany, Spain, and Poland) found that two-thirds of respondents were likely to opt for a bakery product containing additional fibre. For 32% of consumers, the health claim 'no added sugar' would encourage them to eat

more bakery products, compared with 22% for lower fat levels and 19% for reduced calories. In the US, research released by Cargill at the start of 2023 found that 42% of adults viewed ingredients as a key purchasing decision when buying bakery goods such as cakes, cookies, and pastries. This figure decreased to 39% for nutrition scores and 28% for specific product health claims.

The Delifrance survey also found that 40% of consumers are positively inclined towards breads rich in fibre, compared with 21% for products with additional protein. Significant opportunities for bakery manufacturers therefore exist in this sphere, given that many consumers in western markets such as the UK and the US are eating less than the recommended daily amount of fibre – in the UK, the average daily intake is less than 20g, compared with the 30g recommended by government guidelines. Recent research carried out by food ingredients supplier Puratos suggests that a dislike of the taste and texture prevents many people from eating bakery products fortified with seeds and grains and thus eating more fibre. The company therefore developed what it called a '50/50 loaf' in the autumn of 2023, which features invisible grains and is targeted at people who would normally eschew breads rich in fibre. The research found that 46% of people would be more inclined to purchase bread with grains and seeds if tastier high-fibre options were available, while almost two in five consumers felt the cost of these types of bread is prohibitively expensive. Many people appear to make the link between fibre and its health benefits, given that 58% of respondents bought bread enriched with grains and seeds to improve their digestive health, while 57%

did so to increase their fibre intake. Products with additional protein remain a feature of the bakery industry in many parts of the world. Many bakery products fortified with seeds (e.g. pumpkin, chia and sunflower) are now being actively promoted as naturally high in protein, one example of which is Protein Power from UK market leader Warburtons – this contains a blend of 12 pulses, grains, and seeds. Meanwhile, varieties such as sourdough and whole wheat bread boast higher protein levels than many other products on the market.

According to Delifrance, 38% of consumers are keen to see more breads featuring ancient grains. As these are less processed than many conventional grains, they tend to have a higher vitamin, mineral and fibre content. Largely for this reason, products featuring ancient grains have been one of the better performers within the bread market in countries such as the UK. Some of the more popular types of ancient grains in the western world include rye, barley, sorghum, spelt, amaranth, buckwheat, chia, millet, and quinoa. It has also been suggested that ancient grains have environmental benefits, since varieties such as buckwheat and millet have been shown to deliver many important nutrients back into the earth and therefore offer protection against soil erosion.

## POTATO PRODUCTS

According to recent data from Spherical Insights, the global market for frozen potato products was worth almost USD60bn in 2022. This figure is poised to increase to more than USD104bn by 2032, growing by an annual average of almost 6%. One of the largest areas of application is ready meals, whereby various frozen potato products are incorporated as a side dish or ingredient. Although consumption levels have

traditionally been highest in western markets such as the US and Western European countries, growth has been evident in regions such as Asia, Africa, and the Middle East, as more consumers adopt westernised diets.

The market's largest sector by some distance is the French fries and chips category, which is worth around USD22bn. French fries and chips are eaten widely throughout the world, usually as a meal accompaniment (with foods such as burgers, steak and coated foods), but also as a snack or dish in their own right – for example, many western markets have witnessed increased demand for 'loaded fries', which feature toppings such as pulled pork or cheese and bacon. The foodservice industry holds the larger share of the global market, due to the presence of worldwide operators such as McDonalds and Burger King. Other key product categories within the sector include mashed potatoes, hash browns and potato croquettes.

Although convenience and affordability represent the key selling points for frozen potato products, many manufacturers have addressed health and nutritional concerns via efforts at NPD and reformulation. Unlike other areas of the food industry, much of the activity taking place within this sector has focused upon the removal of ingredients associated with poor diets, rather than the addition of ones sought by health-conscious consumers. Furthermore, it should be noted that most frozen potato products tend to be prepared in the oven, which is regarded as a healthier method of cooking than deep-fat frying. This also helps to retain key nutrients (examples of which include fibre, potassium, and vitamin C) within the potatoes themselves.

On a related note, sales of frozen potato products should also benefit from the rising consumer interest in air fryers, the global market for which is now worth in the region of USD1.19bn. Health concerns have been cited as one of the main reasons behind the rapid growth of the market in countries such as the US and the UK, since air fryers use less fat than more conventional cooking methods and have also been shown to reduce acrylamide, a compound found in



most deep-fried foods. According to data from Leatherhead Food Research, around 30% of UK households had an air fryer in 2022, a figure which increased to 37% for those with children. Chips are the most common food cooked in air fryers, mentioned by 73% of households owning them, while 43% claimed they used an air fryer to help reduce their fat consumption. In the US, household penetration of air fryers is now believed to be approaching 40%.

### LESS FATS, LESS SALT

Saturated fats have been one of the most popular targets for removal and/or reduction from frozen potato products in recent years, given their strong association with cardiovascular disease and other health-related problems. Market leader McCain Foods, for example, supplies Home Chips Lighter in the UK, which are promoted as containing 30% less fat than the standard variety. Within the foodservice industry, its Chef's Choice range includes Oven

Chips described as having just 5% fat. Elsewhere, oven chips containing 3% fat levels also appear in the UK own-label market (courtesy of retailers such as Morrisons and Iceland Foods), as well as from manufacturers such as the Irish firm Green Isle Foods. One of the most common ways in which saturated fat levels have been reduced across the sector is by preparing the potato products using sunflower oil. Salt levels have also come down within the market – McCain's UK operation, for example, claims to have reduced salt levels across its range by 22% since 2001, with further efforts ongoing.

Manufacturers have also removed artificial additives and ingredients from their products, largely in response to the growth in consumer demand for clean-label foods. Some of the more common artificial additives which no longer feature within the category include flavourings and synthetic food colourants, sometimes in response to regulatory actions.

Manufacturers have also been turning towards sweet potatoes to satisfy health-conscious consumers, as these possess a higher fibre, vitamin, and mineral content than conventional white potatoes. Sectors such as French fries and potato wedges now feature products made from sweet potatoes – McCain UK, for example, supplies Sweet Potato Fries coated in a tempura-style batter. Staying in the UK, Aviko's foodservice range includes frozen Diced Sweet Potatoes, which are promoted as having a light sweet flavour and a natural orange colour.

Other health trends evident within the sector include the appearance of varieties marketed as gluten-free, to cater for those actively avoiding gluten within their diets. Elsewhere, skin-on French fries and chips also feature within the ranges of many of the market's leading suppliers. Since most of the fibre in potatoes is contained within the skin, this type of product carries an obvious health appeal, although it should be noted that attributes such as enhanced appearance, texture and flavour are also used in the promotion of skin-on potato products. Research has shown that leaving the skin on potatoes can increase the nutritional value of the dish concerned by up to 35%. ■

# [frozen<sup>europa</sup>food35]

the magazine for the frozen food industry

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# „ANUGA FOODTEC IS A SHOWCASE OF PIONEERING TECHNOLOGY”



*Anuga FoodTec, the trade fair where the food and beverage industry meets with its supplier sector, is the central and international meeting place for the industry. This year, the show opens its doors in Koelnmesse on March 19, and to find out more about this year's program I spoke to Matthias Schlüter, director of the event.*

How has the participation of exhibitors evolved in comparison to previous years, and what are the organizers' expectations for the upcoming trade fair?

In comparison to previous years, the Anuga FoodTec 2024 has seen a significant increase in exhibition space,

nearly 50% more than in 2022, although not yet fully back to pre-pandemic levels. We're anticipating the participation of around 1,350 exhibitors from about 50 countries. This includes many key accounts that had paused in 2022, as well as major companies returning after a long absence, such as Kuka and SIG Combibloc, highlighting a robust industry comeback. The main theme for Anuga FoodTec 2024, "Responsibility," reflects our collective ambition to address how the food industry can innovate for a sustainable future and ensure global supply security. It's about setting the right course for tomorrow, together. As such, Anuga FoodTec will serve as a critical platform for industry leaders to engage in discussions about sustainability and innovation, emphasizing the importance of a collaborative approach to shaping the future of food production and supply.

Can you provide insights into the anticipated level of participation and engagement from key stakeholders, such as buyers, retailers, and distributors, in the frozen food sector, and what strategies are in

### place to maximize networking opportunities for exhibitors?

The anticipation of participation and engagement from key stakeholders in the frozen food sector at Anuga FoodTec is quite high, with 15-20% of visitors representing this segment. Prestigious companies such as Dr. Oetker, Aryzta, Greenyard, and McCain, among others, have attended in the past, underscoring the event's significance for industry leaders from across the globe. To maximize networking opportunities for exhibitors, several strategies are in place. The central location of the exhibition grounds in the city is naturally conducive to networking, offering an excellent opportunity for participants to engage in further discussions at local bars and restaurants post-event. However, the event itself provides numerous opportunities for networking on-site. These include dedicated networking areas, industry-specific seminars and workshops that facilitate interaction among attendees, and digital platforms that allow participants to connect before, during, and after the event. These initiatives are designed to enhance the engagement between buyers, retailers, distributors, and exhibitors, ensuring that Anuga FoodTec remains a pivotal event for fostering connections and exploring business opportunities within the frozen food sector.

### What initiatives or special events are planned within the fair to foster knowledge exchange, collaboration, and business development among exhibitors and attendees, and how do these align with the overall goals of the trade show?

The extensive event program of Anuga FoodTec 2024 is crafted to impart crucial insights and impulses for a cross-industry dialogue. The Main Stage, for instance, centers around the overarching theme of Responsibility in the food supply chain. Esteemed experts will present and deliberate on innovative technologies, ecological methodologies, and socially acceptable practices shaping the future of food production. Novel event formats such as Science Slam, Open Expert Stage, and Deep Dive provide diverse opportunities for active participation. On the Innovation Stage, collaboration partners, start-ups, companies, and representatives from the scientific community converge to



*The expansion in the average area occupied by exhibitors means that attendees will witness an even larger display of machinery and innovations, including many operational exhibits.*

*Matthias Schlüter, director, Anuga FoodTec*

showcase inventive approaches and foster "out-of-the-box thinking." Additional formats, including the Female Leadership Event, Matchmaking: Sustainable FoodTec Solutions, and the Careers Day on Friday, are specially tailored to facilitate networking and foster new connections.

### What are some of the novelties this edition presents?

This edition of Anuga FoodTec introduces several innovative features, emphasizing sustainability and consumer trends. A new Environment & Energy section will showcase sustainable solutions for process water treatment and waste heat recovery. Regarding shifting dietary preferences, especially among younger consumers, plant-based products are a major focus, highlighting the industry's adaptation to changing food consumption patterns. Additionally, the fair will debut a Cultivated Food section, featuring industrial-scale bioreactors, indicating a significant advancement in sustainable food production. Across all these novelties, the overarching theme of responsibility permeates, with numerous solutions aimed at fostering sustainable and ethical practices within the industry.

### What are the three aspects that would encourage visitors to attend this edition of Anuga FoodTec?

Visitors to this edition of Anuga FoodTec have several compelling reasons to attend, centered around three key aspects that underscore the event's significance in the food and beverage industry. Firstly, the fair is a showcase of pioneering technology and exhibits, drawing approximately 1,350 companies, about 60% of which are international. The expansion in the average area occupied by exhibitors means that attendees will witness an even larger display of machinery and innovations, including many operational exhibits. Highlighting the scale of what's on offer, one exhibit stretches an impressive 37 meters, showcasing the diversity and technological advancements present. Secondly, Anuga FoodTec's guiding theme of "Responsibility" positions the fair at the forefront of sustainability within the industry. This year, the event is dedicated to exploring the facets of sustainable production and how businesses can achieve lasting success through responsible practices. Topics such as energy efficiency, resilient supply chains, Industry 4.0, sustainable packaging, and alternative protein sources, including the novel area of cultivated foods, will be thoroughly explored. This commitment to sustainability is not only timely, but also appeals to a growing segment of the industry focused on reducing environmental impact and ensuring ethical production. Lastly, the fair is a networking and professional development hub, offering an array of events designed to facilitate cross-industry dialogue and provide extensive networking opportunities. With the addition of innovative automation solutions and a Careers Day, Anuga FoodTec is actively engaging in inspiring the next generation of industry professionals, offering them a glimpse into potential career paths within the sector. This blend of showcasing the latest industry trends, providing a platform for professional growth, and highlighting sustainable practices makes Anuga FoodTec 2024 an indispensable event for anyone involved in the food and beverage industry, promising a comprehensive experience and deep insights into the industry's future. ■



# THE CULINARY WORLD CONVENES AGAIN AT HAMBURG

*INTERNORGA stands as the premier global expo catering to hotels, restaurants, bakeries, and confectionery. Serving as the yearly rendezvous for these sectors, it is scheduled to run from March 8 to 12, 2024, at the Hamburg Messe und Congress GmbH venue.*

Participating both nationally and internationally, exhibitors will showcase their latest products, trends, and innovations tailored for the entire foodservice and hospitality market. Complementing the trade show are international conferences, a diverse supporting agenda, and forward-thinking industry competitions. Under the banner of 'All together.', this premier international trade fair is set to draw in key figures from the catering and hotel sectors, alongside the bakery and confectionery industries, to the vibrant city of Hamburg. Featuring innovations, roundtable discussions, conferences, as well as captivating competitions and special events, this trade fair stands as an essential gathering for the entire industry. Artificial intelligence (AI) takes center stage with its dedicated platform: the AI CENTER. Here, insights into the potentials and pitfalls of new technologies in the catering and hotel sectors will be shared. Innovative startups will showcase how AI fosters economic and operational efficiency. The Newcomers' Area at

INTERNORGA also boasts several global debuts. Visitors can explore a diverse array of new products and services, ranging from vegan substitutes to pork, plant-based sauces, fermented pulses, and sustainable spirits crafted from coffee grounds and squeezed orange peel, to intelligent and heat-preserving lunch boxes. The Newcomers' Area has already set the stage for the beginnings of success stories in recent years. INTERNORGA 2024 guarantees an array of engaging highlights for attendees. Renowned food trend researcher Karin Tischer from food & more will shed light on developments poised to shape the foodservice and hospitality sectors. In 2024, these include topics such as plant-based, health-oriented diets, and sustainability. Amidst escalating concerns about climate change and animal welfare, the 'Future of Proteins' trend, in particular, holds promise for environmentally conscious and ethical culinary offerings that caterers can integrate into their menus. Finally, a multitude of exhibiting companies extend invitations to complimentary

events and gatherings, transforming the entirety of the Hanseatic city into what's colloquially dubbed 'INTERNORGA Town,' acting as a central hub for the industry. Since last year, the trade fair has introduced its own party stage. From 5:30 p.m. on Saturday, Sunday, and Monday, exhibitors and visitors will convene at the OFF THE RECORD Afterwork Lounge - a fresh locale for networking, idea exchange, and revelry at INTERNORGA. "As a Hanseatic city with a cosmopolitan feel, Hamburg has a long tradition of hospitality," Heiko M. Stutzinger, CEO of Hamburg Messe und Congress said in a press release. "That is exactly why INTERNORGA, the world's leading trade fair for the catering and hotel sector, belongs in Hamburg. It has an ambassadorial role to play in these challenging times, demonstrating that bringing the entire industry together is essential and strengthens cohesion. From 8 to 12 March 2024, all visitors will have the opportunity to experience the wonderful atmosphere at our exhibition center in the heart of the city in person. We are looking forward to a vibrant and inspiring event!" ■

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## SVILA INTRODUCES NEW RECIPES

Svila Srl has recently introduced the Mamamia Sottile line into its wide range of proposals. According to the company, the proportion between the topping and the dough was designed to enhance the tasty ingredients of the topping and at the same time the crispness and flavor of the dough. The new recipes are Salami, Ham and Mushrooms for meat lovers, and 4 Cheeses and Vegetarian, for those with a vegetarian diet. All Svila's products are made with 100% Italian wheats and tomato.

<https://www.svila.it>

## STOUFFER'S SHOWCASES SINGLE-SERVE SIZE FOR WHITE CHEDDAR MAC & CHEESE

Stouffer's, a top brand in the frozen food industry, has introduced a new addition to its food service lineup - Stouffer's Single-Serve White Cheddar Mac & Cheese. The popular White Cheddar Mac & Cheese is now available in a new size that offers five different preparation methods to suit kitchens of any size, including boil-in-bag, microwave, pizza oven/impinger, rapid-cook oven, and steamer. This premium signature item will help operators easily capture higher profits.

<https://www.nestleprofessional.us/>



## HÄAGEN-DAZS EXPANDS SNACK PORTFOLIO



To further solidify their position as the industry leader in luxury snacking and provide new products for ice cream fans worldwide, Häagen-Dazs introduced their latest enhancements to their wildly famous ice cream bars. Dulce De Leche, an original spin on a decadent fan favorite, is now offered as an ice cream bar for the first time, while Chocolate Cookie Crumble is a brand-new flavor to the Häagen-Dazs lineup. The following two snack bar flavors are now available in 3ct boxes.

<https://www.haagendazs.us/>

## AJINOMOTO FOODS PRESENTS AUTHENTIC JAPANESE-STYLE GYOZA

Hane Gyoza, a traditional Japanese dish, has been introduced to the United States by Ajinomoto Foods North America. These Japanese-style dumplings can take any meal to the next level, whether it's a "semi-homemade dinner party" or a heavy appetizer feast on game day. This new, unique style of gyoza is easy to cook without oil and is unlike other gyoza or potstickers seen in stores or restaurants in the US. The perfect gyoza flip - "cook, flip, enjoy" - results in a perfect golden-brown exterior, delivering a crispiness that encases the meat.

<http://www.ajinomotofoods.com/>



## FROSTKRONE LAUNCHES BURGERS ON FINGER FOOD SEGMENT



Frostkrone has showcased new burger products as finger food. The company is placing five popular varieties as burger balls in the freezer section of stores: Cheese Burger Balls; Bacon Burger Balls; BBQ Burger Balls; Fish Burger Balls; and Chicken Burger Balls. Preparation time is less than 15 minutes. The burger balls always turn out a perfect success in your own oven (180 °C, 12 minutes) or in an air fryer (180 °C, 9 minutes). They are a truly flexible finger food that can be enjoyed in a variety of ways.

<https://frostkrone-foodgroup.com/>

## THE LONDON DOUGH CO. MAKES US DEBUT WITH FROZEN SNACKING

The cookie dough snack platform from The London Dough Co. formally launches in the US market. Cookie Dough and Gelato Bites provide the ultimate snacking pleasure. Each layered bite consists of the smoothest, healthiest gelato encased in the softest, chewiest oat-based cookie dough and topped with a delicate cookie crumb. Classic cookie tastes including Chocolate Chip, Chocolate Truffle, and Mint Chocolate Chip allow people to savor their favorite flavors in a whole new way.

<https://www.doughlicious.co.uk/>



## IONIKI SHOWCASES MINI CYPRIOT HALLOUMI SPIRALS



Ioniki has recently presented its new creation: Mini Cypriot Halloumi Spirals – a blend of crispy filo, authentic Cypriot Halloumi, and Extra Virgin Olive Oil. The company takes pride in preserving the unparalleled crispiness of filo while introducing a captivating new filling of the renowned Cyprus Halloumi. Noteworthy is the super-convenient packaging, meticulously designed to contain 450 grams. “Mini Cypriot Halloumi Spirals encapsulate the essence of Mediterranean culinary excellence, offering a delightful and convenient gastronomic experience.”

<https://www.ioniki.com/en>

## LORYMA INTRODUCES PLANT-BASED EGG ALTERNATIVE FOR BAKED PRODUCTS

Loryma is adding a functional mix devoid of chemical coloring, flavoring, and preservatives, as well as animal products, to its wheat-based portfolio. Wheat-based, vegan Lory Stab accurately mimics the technological characteristics of egg or milk in baked goods, producing a visually appealing and genuine texture. All kinds of vegan dough can be made with the concentrate by mixing it with flour, sugar, oil, water, and flavorings. The end product is a fluid mass that is easily filled with components like fruit or chocolate bits.

<https://crespeldeitersgroup.com/loryma/>





## BEN & JERRY'S LAUNCHES FIRST FLAVOR OF 2024



Strawberry Cheesecake was Ben & Jerry's fastest growing, top-selling ice cream flavor in the past 12 months, rising to the no. 4 spot in 2023. This was just one of the reasons the Strawberry Cheesecake was selected as the company's newest Non-Dairy offering – another factor was that it was a fan-favorite during tastings of the company's brand-new Non-Dairy oat base. Since entering the Non-Dairy frozen dessert category in 2016, Ben & Jerry's have earned the no. 1 spot for Non-Dairy packaged frozen desserts in the US.

<https://www.benjerry.com/>

## SWEETKIWI, BROADUS FOODS LAUNCH FROZEN GREEK YOGURT BARS

Sweetkiwi, a leader in creative frozen sweets, and Broadus Foods are pleased to announce the introduction of a special assortment of Frozen Greek Yogurt Bars. The collaboration introduces three unique flavors: Graham Honeyz (Greek yogurt base infused with honey and graham cereal's sweet and comforting flavors, offering a balance of creamy texture and crunchy mix-ins); Cinnamon Toasteez Crunch (Brown butter-flavored Greek yogurt enriched with the warm, spicy notes of cinnamon crunch, capturing the essence of cinnamon toast cereal), and Fruity Hoops.

<https://www.sweetkiwi.com/>



## SUPREE'S SHOWCASES FIRST PRODUCT LINE



NRGene Technologies has presented Supree (Supree-Zanim), its newly established FoodTech subsidiary, that specializes in innovative fruit and vegetable varieties that naturally self-dry on the vine while maintaining nutritional value and flavor. Supree's first product line is a unique semi-dried tomato variety that stand out for their delicious taste, high nutritional value, and one-year frozen shelf-life. The uniqueness of these varieties is in their skin's structure that is filled with microcracks which enables natural moisture evaporation.

<https://supree.co/>

## HÄAGEN-DAZS ANNOUNCES RETURN OF REAL FRUIT SMOOTHIE MENU

The five Real Fruit Smoothie flavors from Häagen-Dazs Shops are returning and will be available until March 31. The most comprehensive selection of the brand's dessert options are available in the five smoothie flavors and the returning Real Fruit Smoothies. Each smoothie combines vanilla ice cream, fruit, and Häagen-Dazs's sorbet flavors for a revitalizing dessert. Real Fruit Smoothie flavors include Aloha Mango, Strawberry Banana, Wildberry, Pomegranate Berry, and Strawberry Mango.

<https://www.icecream.com/us/en/brands/haagen-dazs>



1

## JANUARY/FEBRUARY

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<b>Process and Packaging Technology</b>	state-of-the-art equipment and solutions	
<b>Freezing Technology</b>	conveyor belts, freezers and chillers, tunnel and spiral freezing systems	
<b>Transport &amp; Logistics</b>	developments, distribution, and cold storage	
<b>Artificial Intelligence</b>	update on applications for automation & robotics	
<b>Nutrition &amp; Ingredients</b>	for frozen bakery and potato products	
<b>Frozen Food in Germany</b>	recent developments, review, estimates	
<b>Trade fairs:</b>	ANUGA FOODTEC Cologne, INTERGASTRA Stuttgart, BIOFACH Nürnberg, GULFOOD Dubai, FOOD EX JAPAN, INTERNORGA Hamburg, CFIA Rennes, IFE London, FOOD EXPO Greece	

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## MARCH/APRIL

PLMA, CIBUS SPECIAL EDITION

Ad closing 29.03  
Publishing 12.04

<b>Appetizers, Snacks and Pies</b>	high convenience, filo pastry & pies, pizza & ready meals	
<b>Frozen Vegetables, Fruit, Mushrooms, Green Herbs</b>	trends and market overview	
<b>Plant-based &amp; Vegetarian Products</b>	meat-free and protein substitutes	
<b>Technology Innovation for Frozen Vegetables &amp; Fruit</b>	sorting, peeling, cutting, slicing, dicing, PEF systems	
<b>BeNeLux Market Review</b>	major players and new products	
<b>Cooked &amp; Pre-Cooked IQF products for the Food Industry</b>	rice, pasta, sauces, cereals, noodles, vegetables	
<b>Technology and Equipment</b>	industrial freezing, freezers, coolers, proofers, ovens	
<b>Digitalization &amp; Networking</b>	smart solutions for the food industry	
<b>Frozen Desserts &amp; Ice Cream Market in Europe</b>	market dynamics & new product development	
<b>Frozen Fish &amp; Seafood</b>	sustainable practices, market overview, major processors	
<b>Nutrition &amp; Ingredients</b>	vegetables, fruit and herbs	
<b>Frozen Food in the UK</b>	market overview	
<b>Trade fairs:</b>	PLMA Amsterdam, CIBUS Parma, SEAFOOD Processing GLOBAL Barcelona, FOOD & DRINK EXPO Birmingham	

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## MAY/JUNE

Ad closing 24.05  
Publishing 07.06

<b>Frozen Food from Italy</b>	market overview for retail and foodservice
<b>Frozen Pasta &amp; Noodles</b>	trends, new product development, producers, suppliers
<b>Frozen Pizza Market</b>	major producers, suppliers, country breakdown
<b>Technology and Innovation for Frozen Pizza</b>	processing machines, toppings, portioning and forming
<b>Ingredients for the Foodservice Industry</b>	herbs & mixed herbs, rice, noodles, vegetables, processed meat, and sauces
<b>Frozen Finger Food, Fried &amp; Baked Products</b>	trends and successful products
<b>Frozen Burgers</b>	new products, producers and suppliers
<b>Frozen Snacks and Pastry</b>	innovative products for retail and foodservice
<b>Optical Sorting Technology</b>	innovation and latest equipment
<b>Deep Freezing Technologies, Proofing, Baking, Cooling</b>	for bakery applications
<b>Frozen Food in the US</b>	evolution, challenges, opportunities & major players
<b>Trade fairs:</b>	SNACKEX Stockholm, SUMMER FANCY FOOD SHOW

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## JULY/AUGUST

SIAL SPECIAL EDITION 1

Ad closing 26.07  
Publishing 09.08

<b>Coated/Breaded/Batter Foods</b>	new products, market evolution	
<b>Ethnic Foods - Greek, Mexican, Italian, German, French &amp; Asian Food</b>	product trends, producers, markets overview	
<b>Potato Technology Innovation</b>	new equipment for potato processing	
<b>Technology for the Frozen Food Industry</b>	PEF systems	
<b>Potato Market Update</b>	frozen fries market overview in retail & foodservice	
<b>Vegetarian and Vegan Food</b>	product trends, innovations	
<b>Industrial Freezing Systems</b>	latest equipment and technologies	
<b>Frozen Food in Spain and Portugal</b>	latest market developments	
<b>Nutrition &amp; Ingredients</b>	trends for coated and breaded products	
<b>Trade fairs:</b>	SIAL Paris,	

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## SEPTEMBER/OCTOBER

SIAL SPECIAL EDITION 2, INTERPOM

Ad closing 20.09  
Publishing 04.10

<b>Key Exhibitors Road Map and Event Agenda</b>		
<b>SIAL Trends</b>	special report	
<b>Bread, Bakery, and Pastry</b>	sweet & salty products	
<b>Frozen Vegetables, Fruit, Mushrooms, Green Herbs</b>	solutions for retail and foodservice	
<b>Technology Innovation for Frozen Vegetables and Fruit</b>	sorting, peeling, cutting, slicing, dicing, PEF systems	
<b>Technology &amp; Logistics</b>	trends and solutions in packaging equipment	
<b>Blast Chilling and Shock Freezing</b>	versatile applications between shock freezing and pasteurizing	
<b>Meat and Poultry Products</b>	new technologies for product development	
<b>Frozen Food in France</b>	key players, product innovation, suppliers	
<b>Global Retail Market</b>	consumer behavior, new products, processors, suppliers	
<b>Nutrition &amp; Ingredients</b>	for pre-baked and ready to bake foods	
<b>Trade fairs:</b>	SIAL Paris, SÜDBACK Stuttgart, INTERPOM Kortrijk, PLMA Chicago, GULFOOD MANUFACTURING Dubai	

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## NOVEMBER/DECEMBER

Ad closing 22.11  
Publishing 06.12

<b>Ready to bake &amp; Pre-Baked Foods</b>	market innovation, producers, new products
<b>Convenience Food for Retail &amp; Foodservice</b>	European market evolution, category breakdown
<b>Frozen Products for Catering &amp; Foodservice</b>	suppliers, producers, processors
<b>Meat and Veggie Burgers</b>	product development & trends
<b>Freezing Technology</b>	refrigerating and freezing equipment
<b>Quick Service Restaurants &amp; Bar and Snack Channel</b>	leading operators in Europe and market evolution
<b>Going Green</b>	substantial contributions of equipment manufacturers
<b>Nutrition &amp; Ingredients</b>	ethnic food innovation
<b>Frozen Food in Scandinavia</b>	producers, suppliers, consumer trends
<b>European Retail Market</b>	suppliers, major retail categories, food trends
<b>Trade fairs:</b>	SIRHA Lyon 2025, MARCA Bologna 2025, FRUIT LOGISTICA Berlin 2025, GULFOOD Dubai 2025

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